



Université de Reims Champagne-Ardenne

Ecole doctorale en sciences humaines et sociales (ED 555)

LA GOUVERNANCE DES SYSTÈMES SOCIO-ÉCOLOGIQUES

VOLUME III. CONTRIBUTION SCIENTIFIQUE ORIGINALE

Mémoire d'Habilitation à diriger des recherches
présenté et soutenu publiquement
par

JON MARCO CHURCH

Garant :

- Monsieur François BOST, Professeur des universités en géographie dans l'unité HABITER de l'Université de Reims Champagne-Ardenne

Membres du jury de soutenance :

- Monsieur Olivier BARRETEAU, Directeur de recherches en hydrologie au laboratoire G-Eau de l'INRAE à Montpellier
- Monsieur Daniel COMPAGNON, Professeur des universités en science politique au Centre Émile-Durkheim de l'Institut d'Etudes Politiques de Bordeaux (rapporteur)
- Monsieur Philippe HAMMAN, Professeur des universités en sociologie au laboratoire SAGE de l'Université de Strasbourg (rapporteur)
- Madame Carola KLOECK, Professeur assistant en science politique au laboratoire CERI de l'Institut d'Etudes Politiques de Paris (rapporteur)
- Monsieur Olivier RAGUENEAU, Directeur de recherches en biogéochimie au laboratoire LEMAR du CNRS à Brest
- Madame Catherine ROCHE, Professeur des universités en aménagement et urbanisme dans l'unité TVES de l'Université du Littoral Côte d'Opale ;
- Monsieur Franck-Dominique VIVIEN, Professeur des universités en science économique du laboratoire REGARDS de Université de Reims Champagne-Ardenne

Reims, le 3 juillet 2020

Les opinions émises dans ce volume sont propres à leur auteur et non nécessairement partagées par l'Université.

Ecoregionalism

Analyzing Regional Environmental Agreements and Processes

Jon Marco Church

Abstract

This monography provides a comprehensive understanding of environmental regionalism at the international level, analyzing the concept and identifying recurring patterns from six in-depth case studies. While ecoregions or environmental regions are defined on ecological boundaries rather than administrative criteria, ecoregionalism is the idea that regional dynamics should cluster around ecoregions, while ecoregionalization is the tendency of regional dynamics to cluster around ecoregions. Focusing on the international level, this monography presents six cases of ecoregional processes from around the world and their regional environmental agreements: two are terrestrial, the Alps and the Andes; two are marine, the Mediterranean Sea and the Baltic Sea; two are related to freshwater ecosystems: the Amu Darya in Central Asia and the Great Lakes in North America. The monography analyzes both ecoregional processes focused on the environment, as well as intersectoral ecoregional processes. The case studies are analyzed based on the ecoregional governance framework, developed by the author for this monography. Despite the diversity of context, the similarity of the governance system of the six cases is striking. Several recurring patterns have been identified, which may also extend to the subnational level. They are not design principles but may be taken into consideration for the design or redesign of current and future regional environmental agreements and processes. This monography will be of great interest to students, scholars and practitioners of environmental politics, natural resource management, spatial planning and international relations.

Table of Contents

List of figures	4
List of tables	4
Résumé en français.....	5
Preface.....	17
Introduction	19
What regions? What environment? What agreements and processes?.....	21
The evolution of ecoregional agreements and processes.....	22
Part 1: Identifying ecoregions	29
Chapter 1: The environmental component	29
Chapter 2: The regional dimension	33
Example 1: Defining the Alps	39
Example 2: Defining the Carpathians.....	40
Part 2: Analyzing ecoregional governance.....	45
Chapter 3: Epistemic perspectives: science and knowledge	46
Chapter 4: Sociological approaches: ecoregionalism and ecoregionalization.....	51
Chapter 5: Diagnostic frameworks: questioning sustainability.....	57
Part 3: Comparing ecoregional agreements and processes	65
Chapter 6: The ecoregional governance framework	66
Chapter 7: Case studies of ecoregional governance	81
Terrestrial ecoregions: the Alps and the Andes.....	82
Marine ecoregions: the Mediterranean Sea and the Baltic Sea	125
Freshwater ecoregions: the Amu Darya and the Great Lakes	153
Conclusion: from recurrent patterns to design principles.....	187
Bibliography	195

List of figures

Figure 1: The number of regional environmental agreements by type of ecoregion. 26

Figure 2: Map of potential policy-relevant tipping elements in the climate system. 31

Figure 3: The three perimeters of the Alps..... 40

Figure 4: The four perimeters of the Carpathians. 41

Figure 5: First-tier variables of the adapted version of Ostrom’s framework..... 62

Figure 6: Second-tier variables of the adapted version of Ostrom’s framework..... 63

Figure 7: Framework for the analysis of ecoregional governance. 80

Figure 8: Geographical distribution of the case studies. 81

Figure 9: The Andean ecoregion with its geological, ecological and cultural perimeters. 102

Figure 10: The Mediterranean ecoregion with its hydrographic limits and drainage basin. 126

Figure 11: The Baltic ecoregion with its hydrographic limits and drainage basin..... 138

Figure 12: The Amu Darya ecoregion with its hydrographic limits and drainage basin..... 154

Figure 13: Water runoff, allocation, use in the Amu Darya basin per country (percentage) 167

Figure 14: Water runoff, allocation, use in the Amu Darya basin per person (m³/year)..... 168

Figure 15: Water runoff, allocation, use in the Amu Darya basin per ha of irrigated land (m³/year) 168

Figure 16: The Great Lakes ecoregion with its hydrographic limits and drainage basin. 172

List of tables

Table 1: List of environmental regions with international regional environmental agreements by type (1816-2012). Source: author compilation based on multiple sources. 27

Table 2: Total water runoff, allocation, use in the Amu Darya basin 167

Table 3: Total population, irrigated land and agriculture use in the Amu Darya basin..... 167

Table 4: Recurring patterns in regional environmental agreements and processes (first part)..... 189

Table 5: Recurring patterns in regional environmental agreements and processes (second part)..... 193

Résumé en français

Cet ouvrage propose une vue d'ensemble sur le régionalisme environnemental au niveau international. Elle analyse ce concept et identifie des récurrences à partir de six études de cas approfondies. Alors que les régions environnementales ou écorégions sont définies sur des limites écologiques plutôt que sur des critères administratifs, l'écorégionalisme est l'idée que la dynamique régionale devrait pivoter autour des écorégions, tandis que l'écorégionalisation est la tendance des dynamiques régionales à pivoter effectivement autour des écorégions. Centré sur le niveau international, cet ouvrage présente six cas de processus écorégionaux du monde entier et leurs accords environnementaux régionaux : deux sont terrestres, les Alpes et les Andes ; deux sont marins, la mer Méditerranée et la mer Baltique ; deux sont liés aux écosystèmes d'eau douce : l'Amou-Daria en Asie centrale et les Grands Lacs en Amérique du Nord. Cet ouvrage analyse à la fois les processus écorégionaux centrés sur l'environnement ainsi que les processus écorégionaux intersectoriels. Les études de cas sont analysées sur la base d'un cadre d'analyse de la gouvernance écorégionale, développé par l'auteur pour cet ouvrage. Malgré la diversité des contextes, la similitude du système de gouvernance des six cas est frappante. Plusieurs récurrences ont été identifiées, qui peuvent également s'étendre au niveau infranational. Ces récurrences ne sont pas des principes de conception, mais elles peuvent être prises en considération pour la conception ou la réforme des accords et processus environnementaux régionaux existants et futurs. Cet ouvrage est destiné aux étudiants, aux chercheurs et aux praticiens en relations internationales, politique environnementale, gestion des ressources naturelles et aménagement du territoire.

INTRODUCTION

Le chapitre d'introduction explique l'importance des accords et processus environnementaux régionaux. Il définit le type de régions, le type d'environnement et le type d'accords et de processus sur lesquels cet ouvrage se concentre. L'introduction présente également un aperçu historique de l'émergence et de l'évolution des accords et processus environnementaux régionaux depuis le XIX^e siècle, en mettant l'accent sur les fleuves, les mers, les océans, les massifs et les forêts, ainsi que sur les types d'écorégions qui n'ont pas réussi jusqu'à présent à produire des accords et processus environnementaux régionaux.

PARTIE 1 : IDENTIFIER LES ÉCORÉGIONS

Chapitre 1 : La composante environnementale

Ce chapitre fournit les critères pour identifier les écorégions en fonction de leur dimension environnementale. Il présente comment les écologues et les géographes physiques définissent les soi-disant biomes, provinces biogéographiques, biorégions, géorégions, écorégions ou écosystèmes de grandes dimensions. Le chapitre montre comment les disciplines se concentrent souvent sur des aspects particuliers de l'environnement, définissant ainsi les écorégions de différentes manières. Il souligne également l'importance de la définition des régions environnementales pour la continuité écologique et le débat sur les zones de basculement du système planétaire.

Chapitre 2 : La composante régionale

Ce chapitre fournit des motifs pour identifier les écorégions en fonction de leur dimension régionale. Il présente comment les géographes humains, les économistes, les juristes et les politistes définissent les régions. Le chapitre souligne également comment les disciplines se concentrent souvent sur différents types de régions. Il oppose les approches « scientifiques » de délimitation des régions aux approches « politiques ». Les cas de la définition des Alpes et des Carpates sont présentés. La définition proposée des écorégions combine ces perspectives et met en avant la pertinence du concept de système socio-écologique.

PARTIE 2 : ANALYSER LA GOUVERNANCE ÉCORÉGIONALE

Chapitre 3 : Perspectives épistémiques : science et connaissance

Ce chapitre présente les accords et processus environnementaux régionaux dans le cadre du phénomène plus large de la gouvernance environnementale régionale. Le chapitre se concentre sur les approches épistémiques ou centrés autour des connaissances. Ces approches concernent les différentes manières de connaître le monde et donc le processus d'appréhension des territoires, notamment par les détenteurs de connaissances. Ils supposent une certaine compréhension des dynamiques propres à une écorégion, souvent en termes de connaissances scientifiques. Ce chapitre traite des concepts-clés de l'écorégionalisme, tels que la pertinence, l'échelle et les communautés épistémiques.

Chapitre 4 : Approches sociologiques : normes et institutions

Le chapitre se concentre sur les approches sociologiques, qui proposent des outils théoriques, souvent sous forme d'analogie, pour mieux comprendre l'émergence et la persistance de la gouvernance écorégionale comme norme. Ce chapitre évalue de manière critique comment le concept d'écorégion peut acquérir une dimension normative et devenir le fondement, d'une part, de l'idéologie de l'écorégionalisme et, d'autre part, du processus d'écorégionalisation. Les origines du concept d'écorégionalisme et de biorégionalisme remontent au XIX^e siècle. Ce chapitre présente davantage de concepts-clés, tels que celui de champ et de système.

Chapitre 5 : Cadres diagnostiques : analyse de la durabilité

Le chapitre traite des approches orientées vers la gestion et de l'attention qu'elles portent sur l'efficacité. Il contient une exploration critique du concept de système. Ce chapitre présente ensuite le cadre d'Elinor Ostrom pour analyser les systèmes socio-écologiques, son évolution et ses limites. A partir de ce cadre, une nouvelle caractérisation des systèmes de gouvernance est proposée. Cette caractérisation prend en considération les variables identifiées dans la littérature sur les régimes environnementaux internationaux et en particulier dans le International Environmental Agreements Database (base de données des accords internationaux sur l'environnement), dans le projet Oslo-Seattle et dans le International Regimes Database (base de données des régimes internationaux).

PARTIE 3 : COMPARAISON DES ACCORDS ET PROCESSUS ÉCORÉGIONAUX

Chapitre 6 : Le cadre d'analyse de la gouvernance écorégionale

Ce chapitre présente le cadre d'analyse de la gouvernance écorégionale, développé pour être compatible avec le cadre général d'Ostrom et pour analyser les cas présentés dans l'ouvrage. Ce cadre spécifique ne prend en considération que le système de gouvernance et le contexte social, économique et politique. Les variables utilisées sont définies de manière claire et illustrées par des exemples. L'approche proposée ne se limite pas à l'analyse des accords environnementaux régionaux d'un point de vue juridique. Elle permet d'aller au-delà des accords pour comprendre leur rôle dans les processus écorégionaux dans leur ensemble.

Chapitre 7 : Études de cas de gouvernance écorégionale

Pour explorer le pouvoir explicatif de ce cadre d'analyse, six cas d'accords et de processus environnementaux régionaux ont été examinés à l'aide de ce schéma conceptuel. Ils sont représentatifs de la diversité des écorégions dans le monde et comprennent deux exemples de types d'écosystèmes terrestres, aquatiques et marins. L'étude de chacun des cas comprend une analyse des contextes sociaux, économiques et politiques, des organisations gouvernementales et non-gouvernementales, de la structure du réseau, des systèmes de droits de propriété, des règles opérationnelles, collectives et constitutionnelles, ainsi que du suivi et règles de sanction.

Les deux écorégions terrestres sont des zones de montagne. L'analyse de l'écorégion alpine examine à la fois la Convention alpine et la Stratégie de l'Union européenne pour la Région alpine. La deuxième écorégion terrestre est constituée par les Andes. L'analyse porte à la fois sur la Communauté andine et sur l'Initiative andine du Partenariat de la montagne. Le système de gouvernance de l'écorégion andine est remarquablement différent de celui des Alpes.

Les deux écorégions marines sont des mers régionales. La première écorégion marine est la mer Méditerranée. L'analyse examine à la fois la Convention de Barcelone et l'Union pour la Méditerranée. Le système de gouvernance de l'écorégion méditerranéenne est remarquablement similaire à celui des Alpes. La deuxième écorégion marine est la mer Baltique. Le texte porte à la fois sur la Convention d'Helsinki et le Conseil des États de la mer Baltique, ainsi que sur la stratégie de l'Union européenne pour la mer Baltique. Le système de gouvernance de l'écorégion de la mer Baltique est particulièrement compliqué.

Les deux écorégions d'eau douce sont des systèmes lacustres. La première écorégion d'eau douce est le bassin du fleuve Amou-Daria. L'analyse porte à la fois sur la Commission inter-États pour la coopération dans le domaine de l'eau en Asie centrale et sur le Fonds international pour sauver la mer d'Aral. Les Grands Lacs constituent la deuxième écorégion d'eau douce dans cet ouvrage. L'analyse porte à la fois sur la Commission mixte internationale entre les États-Unis et le Canada et sur le Conseil régional des ressources en eau des Grands Lacs et du fleuve Saint-Laurent. Le système de gouvernance de l'écorégion des Grands Lacs est remarquablement similaire à celui de la mer Baltique.

CONCLUSION : DES RÉCURRENCES AUX PRINCIPES DE CONCEPTION

L'examen des accords et processus dans six régions environnementales a permis de comprendre qu'ils partagent de nombreuses caractéristiques. Si l'on peut s'attendre à ce que les cas en Europe et dans ses environs tels que les Alpes, la mer Baltique et la mer Méditerranée partagent des caractéristiques institutionnelles et politiques similaires en raison de l'Union européenne et du processus d'europanisation, la ressemblance dans des contextes totalement différents tels que les Andes, l'Amou-Daria et les Grands Lacs d'Amérique du Nord peuvent surprendre. De même, si un certain niveau de convergence entre les processus et les accords écorégionaux au sein d'un même type d'écosystème est à prévoir, comme entre la Baltique et la Méditerranée, cela est plus surprenant entre les cas de différents types d'écosystèmes, tels que les bassins versants et les massifs. Les causes de cette ressemblance, qui peuvent également être le mimétisme ou la dépendance au sentier, sont multiples et incluent certainement la circulation normative, qui peut être aléatoire, comme un négociateur qui cherche un langage à emprunter à un autre document, ou délibérée, comme entre les Stratégies macrorégionales de l'Union européenne pour la Région balte et pour la Région alpine. Les raisons peuvent cependant se situer plus en profondeur dans le mode de développement des interactions politiques autour des écorégions, qui peuvent présenter certaines ressemblances, comme le rôle-clé de la science et des experts.

Les paragraphes suivants présentent les caractéristiques récurrentes qui émergent de l'analyse des six études de cas. Pour ce faire, les éléments qui surviennent dans tous ou presque tous les cas (au moins cinq cas sur six) ont été identifiés d'abord, suivis par ceux qui surviennent dans la plupart des cas (entre trois et quatre). Enfin, ont également été identifiées des solutions moins fréquentes qui pourraient être soit innovantes soit négligées jusqu'à présent dans d'autres contextes, mais qui peuvent avoir un potentiel de transférabilité, ainsi que des caractéristiques non-récurrentes, c'est-à-dire des variables pour lesquelles il a été impossible d'identifier des points communs.

Ces caractéristiques sont organisées selon les groupes de caractéristiques identifiées dans le cadre d'analyse de la gouvernance écorégionale. Bien entendu, ces caractéristiques récurrentes dépendent du cadre d'analyse de la gouvernance écorégionale utilisé pour structurer les études de cas. D'une part, cela est essentiel pour garantir la comparabilité des études de cas et augmenter la probabilité que les

connaissances produites soient valides extérieurement et donc généralisables ; d'autre part, certaines de ces récurrences peuvent être fausses dans le sens où elles peuvent être induites inintentionnellement par les questions posées. Les variables ont été définies de manière à éviter autant que possible les chevauchements et les corrélations fallacieuses.

Contexte social, économique et politique

En ce qui concerne le contexte, il ressort clairement des six cas que les variables sociales, économiques et politiques peuvent être extrêmement différentes. Le contexte des accords et processus écorégionaux n'est pas toujours le même. Les accords et des processus écorégionaux subsistent dans les pays développés et en développement, avec une croissance démographique positive, stable ou négative, avec des systèmes politiques stables ou instables, des marchés ouverts ou fermés, des pays favorables aux médias ou hostiles, des niveaux technologiques élevés et bas, ainsi que différents contextes linguistiques. Il ne semble pas y avoir un seul type de contexte externe qui détermine l'émergence d'accords et de processus écorégionaux. La présence d'autres processus d'intégration régionale potentiellement en conflit avec les processus écorégionaux mérite une attention particulière. Dans tous les cas étudiés jusqu'à présent, ils semblent rivaliser avec les processus écorégionaux. Ces processus se réfèrent généralement à des régions définies selon des critères socio-économiques ou politiques. Or, il est possible que cela contribue à créer une culture d'intégration régionale non-exclusive qui ouvre la porte ou garde la porte ouverte au régionalisme environnemental.

Tableau A : Récurrences dans les processus et accords environnementaux régionaux (première partie)

	A. Organisations gouvernementales	B. Organisations non-gouvernementales	C. Structure du réseau	D. Systèmes de droits de propriété
Très récurrent	<ol style="list-style-type: none"> 1. Le niveau prédominant de prise de décision est national 2. Les ministères des affaires étrangères et de l'environnement sont en charge 3. Il existe des mouvements séparatistes, avec des effets minimes sur la gouvernance écorégionale 4. Le processus de décentralisation est en cours 	<ol style="list-style-type: none"> 1. Le secteur privé est représenté par les gouvernements et participe rarement directement 2. Les représentants du secteur privé reflètent les entreprises dominantes 3. Les ONG sont de plus en plus professionnelles et peuvent mobiliser des financements importants 4. Organisations hybrides 	<ol style="list-style-type: none"> 1. La structure de gouvernance est horizontale, concentrée, polycentrique et multipolaire 2. On observe différents groupes de pays 3. L'interdépendance entre les pays est modérée ou élevée 4. Il n'y a ni hégémons ni passagers clandestins 	<ol style="list-style-type: none"> 1. La concurrence sur le marché est en place dans quelques secteurs, comme le tourisme
Modérément récurrent	<ol style="list-style-type: none"> a. Le type de prise de décision est technique b. Les points focaux des ministères en charge sont des fonctionnaires de niveau intermédiaire c. Orientation politique alternée ou opposée d. Le gouvernement a un bon contrôle du territoire 	<ol style="list-style-type: none"> a. Les ONG sont des observateurs officiels, agissant comme une conscience critique du processus b. Il existe des ONG au niveau écorégional c. Les ONG bénéficient des fonds structurels de l'Union européenne et du financement des pays donateurs 		<ol style="list-style-type: none"> a. Les biens communs constituent le type de propriété prédominant pour les écorégions marines et d'eau douce

	A. Organisations gouvernementales	B. Organisations non-gouvernementales	C. Structure du réseau	D. Systèmes de droits de propriété
Innovant ou négligé	i. Grands Lacs : les autorités des États et des villes sont en concurrence avec les autorités nationales	i. Grands Lacs : les autorités écorégionales organisent des réunions régulières avec le public ii. Grands Lacs : les ONG font souvent recours à la justice fréquemment aux litiges iii. Mer Baltique : on observe une organisation hybride, réunissant science et gouvernement iv. Alpes : une organisation hybride est devenue une ONG		α. La propriété des éléments-clés des écorégions dépend du type d'écosystème
Non-récurrents	α. Forme d'État fédéraliste ou centralisée, collectivités locales participantes ou absentes β. Forme de gouvernement présidentielle ou parlementaire, régime politique démocratique ou autoritaire			

Organisations gouvernementales

Dans tous ou presque tous les cas, le niveau de prise de décision dominant est national. Dans tous les cas, les gouvernements nationaux jouent un rôle central dans la prise de décision au niveau écorégional. En particulier dans les systèmes fédéraux et autres systèmes décentralisés, les autorités infranationales peuvent également jouer un rôle. Les ministères de l'environnement et des affaires étrangères sont en charge. Pour les ressources en eau, il peut s'agir de ministères spécifiques. Les ministères des affaires étrangères sont toujours impliqués d'une manière ou d'une autre. Dans certains cas, le rôle des ministères des affaires étrangères prévaut sur les ministères sectoriels ; dans d'autres cas, c'est le contraire. Les deux ministères sont généralement marginaux au sein des gouvernements. Il existe des mouvements séparatistes, avec des effets minimes sur la gouvernance écorégionale. Il est possible que la présence de frontières internationales augmente la probabilité de minorités ethniques. Dans certains cas, les processus écorégionaux peuvent donner aux mouvements séparatistes une autre possibilité de se concentrer sur autre chose que le séparatisme. Le processus de décentralisation est en cours et les accords et processus écorégionaux se conforment à cette tendance. Dans certains cas, la rationalisation de l'action politique conduit à une recentralisation partielle.

Dans la plupart des cas, le type de prise de décision est technique. Des fonctionnaires dirigent les processus, sauf dans les deux cas d'eau douce, où le niveau politique est également impliqué. Les points focaux des ministères en charge sont généralement des fonctionnaires de niveau intermédiaire. Dans deux cas, le niveau politique ou des fonctionnaires de haut niveau sont impliqués, selon l'importance des enjeux. Une orientation politique alternée ou opposée pourrait favoriser les dynamiques écorégionales. Cependant, l'alignement politique a été important à au moins quatre reprises dans les six cas, en particulier au début ou dans les phases de renégociation. Le gouvernement doit avoir un bon contrôle du territoire. Cependant, la haute mer et les eaux profondes de la mer Méditerranée et les hautes montagnes et les forêts profondes des Andes ne sont pas faciles à contrôler. De plus, il est intéressant de souligner que, dans les Grands Lacs, les autorités des États fédérés et des villes sont en concurrence

avec les autorités nationales. Cela dure depuis plus de six décennies mais, jusqu'à présent, l'impact a été limité par rapport à l'action au niveau national.

Certaines caractéristiques non-récurrentes ressortent également de l'analyse : peu importe que la forme d'État soit fédéraliste ou centralisée, avec des autorités locales participantes ou absentes ; peu importe également que la forme de gouvernement soit présidentielle ou parlementaire, démocratique ou autoritaire. Cependant, la forme de l'État et du gouvernement influence la dynamique politique à l'intérieur des pays et entre eux.

Organisations non-gouvernementales

Dans tous ou presque tous les cas, le secteur privé est représenté par les gouvernements et participe rarement de manière directe. Il interagit principalement avec les collectivités territoriales et les gouvernements et parlements nationaux. Ils sont parfois représentés au niveau écorégional par des groupes d'intérêt et des organisations. Les représentants du secteur privé reflètent les positions des grandes entreprises. Pour cette raison, elles sont parfois contestées par d'autres types d'entreprises, qui peinent cependant à participer et à être représentées au niveau régional. Les ONG sont de plus en plus professionnelles et peuvent mobiliser des financements importants. La professionnalisation est courante en politique environnementale internationale. Les branches nationales et locales les aident à garder le lien avec la base. Dans certains cas, les ONG ont plus de financement que les organisations gouvernementales pour les activités écorégionales. Les organisations hybrides sont omniprésentes. Dans certains cas, elles prennent la forme de partenariats multipartites. Ceci est cohérent avec l'hybridation de l'action gouvernementale, observée à de nombreux niveaux. Le financement mixte est un type particulier d'hybridation.

Dans la plupart des cas, les ONG sont des observateurs officiels, agissant comme une conscience critique des processus. Cependant, il y a deux cas où les ONG ne sont pas officiellement désignées et un où elles ne jouent aucun rôle. Dans un cas, le milieu universitaire est très présent, mais c'est plus l'exception que la règle. Il existe quelques ONG au niveau écorégional. Dans deux cas, les ONG écorégionales jouent un rôle de premier plan. Dans de nombreux cas, il s'agit de réseaux d'autres ONG ou d'autres types de parties prenantes comme les villes, les parcs, etc. Les ONG bénéficient souvent des fonds structurels de l'Union européenne et du financement des pays donateurs. Les ONG peuvent recevoir plus de soutien qu'elles n'en fournissent, en particulier dans les pays en développement. Par ailleurs, il est intéressant de souligner le cas des Grands Lacs, où les autorités écorégionales organisent régulièrement des rencontres publiques, qui s'appellent Forum public et ont lieu tous les deux ans. Les autorités écorégionales organisent également des sondages sur l'opinion publique. Toujours dans les Grands Lacs, les ONG ont fréquemment recours au système judiciaire. Cela est propre à la culture juridique américaine, mais la diffusion croissante des recours collectifs peut rendre cela possible aussi ailleurs. En mer Baltique, au contraire, il existe une organisation hybride, réunissant des scientifiques et des représentants gouvernementaux. Elle est active dans le secteur de la pêche dans le cadre de la Politique commune de la pêche de l'UE. Dans les Alpes, une organisation hybride est devenue une ONG. Cependant, cela crée de la confusion même plusieurs décennies après le passage du statut hybride à celui de société civile.

Structure du réseau

Dans tous ou presque tous les cas, la structure de gouvernance est horizontale, concentrée, polycentrique et multipolaire. Les pays sont au même niveau. Le pouvoir est concentré dans les capitales, qui représentent des centres, avec d'autres villes. Dans un cas, le système est bipolaire au niveau fédéral et multipolaire au niveau de l'État. Il existe différents groupes de pays. Ces pays et ces groupes peuvent avoir des trajectoires différentes. Les groupes peuvent se former selon des critères géographiques ou politiques. Le pouvoir est réparti inégalement entre ces groupes. L'interdépendance entre les pays est modérée ou élevée. Cela ne signifie pas qu'il ne peut en être autrement, car il existe un cas où

l'interdépendance est faible. Il n'y a ni hégémons ni passagers clandestins. Il y a cependant un cas avec un hégémon clair et un cas avec un passager clandestin évident.

Systèmes de droits de propriété

Dans tous ou presque tous les cas, la concurrence sur le marché est en place dans quelques secteurs, comme le tourisme. Les pouvoirs publics monopolisent les secteurs relevant de leur compétence, comme la protection de l'environnement, alors que la situation est assez anarchique dans d'autres secteurs. Les biens communs sont le type de propriété prédominant pour les écorégions marines et d'eau douce. Parmi les écorégions terrestres, les régimes de propriété publique prévalent, l'accès étant plus simple à contrôler et la ressource presque illimitée.

Certaines caractéristiques non-récurrentes ressortent à nouveau de l'analyse. La propriété des éléments-clés des écorégions dépend du type d'écosystème. Parmi les écorégions terrestres, il y a un mélange de biens publics et privés, avec un cas comprenant certains biens communs dans les pâturages de haute montagne ; pour les écorégions marines, il y a une prévalence de propriété publique, avec quelques propriétés privées ou concessions le long de la côte et de propriété commune pour la haute mer ; pour les eaux douces, il existe un mélange de biens publics et privés, avec une prévalence de biens publics pour les infrastructures hydrauliques-clés. Les espaces relevant du droit commun sont un cas à part.

Tableau B : Récurrences dans les processus et accords environnementaux régionaux (deuxième partie)

	E. Règles opérationnelles	F. Normes décisionnelles	G. Principes constitutionnels	H. Mécanismes de suivi et de sanction
Très récurrent	<ol style="list-style-type: none"> 1. L'évolution normative résulte de réactions à des crises ou à des problèmes 2. Les normes contraignantes et non-contraignantes, dures et molles sont présentes en même temps 3. Le mélange des politiques publiques est dominé par l'approche réglementaire et financier 4. Il existe de nombreuses politiques contradictoires et des signaux mélangés 	<ol style="list-style-type: none"> 1. Les processus écorégionaux constituent des régimes internationaux 2. Les processus écorégionaux possèdent un accord formel 3. Les accords formels réduisent le coût de transaction des solutions ad hoc 4. Les décisions sont prises par les représentants des gouvernements par consensus à différents niveaux 5. La présidence tournante et joue un rôle moteur 6. Deux bureaux ou plus font office de secrétariat 7. Les secrétariats fournissent des services aux pays 8. Les secrétariats n'ont de budget que pour les fonctions administratives 9. Le financement dépasse 30 millions d'euros par an, principalement pour les fonctions programmatiques 10. Les jeux à deux niveaux interfèrent avec la prise de décision 	<ol style="list-style-type: none"> 1. Tous les accords et processus écorégionaux formalisent leurs principes directeurs 2. Les principes sont invoqués fréquemment et sincèrement 3. Les principes émergent spontanément 4. Les principes sont souvent tenus pour acquis 	<ol style="list-style-type: none"> 1. Des rapports et des études sont produits sur l'écorégion 2. Il n'y a pas de déclenchement de procédures de vérification, pas de sanctions prédéfinies 3. Il n'y a pas d'affaires portées devant les tribunaux internationaux

	E. Règles opérationnelles	F. Normes décisionnelles	G. Principes constitutionnels	H. Mécanismes de suivi et de sanction
Modérément récurrent	<p>a. On observe un processus environnemental, en adéquation avec l'écorégion, et un processus plus large qui ne l'est pas</p> <p>b. Les accords et processus écorégionaux sont des développements originaux</p> <p>c. La dimension normative est peu adaptative, tandis que les autres outils, y compris financiers, sont plus flexibles</p> <p>d. Dans les écorégions marines et d'eau douce, les règles opérationnelles sont spécifiques et techniques</p>	<p>a. Les processus écorégionaux sont formellement autonomes</p> <p>b. Les secrétariats sont des organes autonomes</p> <p>c. La participation du public est assurée par des observateurs officiels</p> <p>d. Les processus sont transparents</p> <p>e. La coordination à plusieurs niveaux et intersectorielle passe par des observateurs</p>		<p>a. Des structures scientifiques sont créées au niveau écorégional pour le suivi</p> <p>b. Les processus écorégionaux créent des bases de connaissances sur l'écorégion</p> <p>c. L'évaluation est entre pairs</p> <p>d. Les rapports et les réunions permettent de développer de l'apprentissage sur l'écorégion</p>
Innovant ou négligé	<p>i. Amou-Daria : un organisme écorégional se réunit à intervalles réguliers pour adapter les règles opérationnelles</p>	<p>i. Andes : un nouveau régime international émerge d'un processus en cours et une ONG écorégionale</p> <p>ii. Andes : une institution financière régionale-clé a commencé comme un plan d'investissement écorégional</p> <p>iii. Grands Lacs : certains organes subsidiaires sont multipartites</p> <p>iv. L'Union européenne dispose de financements écorégionaux</p>		<p>i. En Méditerranée, une affaire liée aux accords écorégionaux a été jugée par la Cour de justice de l'Union européenne</p> <p>ii. Dans les Grands Lacs, de nombreux différends ont été évités grâce au processus écorégional</p>
Non-récurrents		<p>α. Les modalités de financement sont différentes, également dans la quantité de financement disponible</p>		<p>α. Les groupes de vérification ne sont pas la norme</p> <p>β. Un système d'indicateurs par rapport à des objectifs prédéfinis n'arrive pas souvent</p> <p>γ. Le pointage du doigt pour non-conformité n'est pas habituel</p> <p>δ. Différents types d'arbitrage sont prévus</p>

Règles opérationnelles

Dans tous ou presque tous les cas, les évolutions normatives résultent de réactions à des crises ou à des problèmes. Dans deux cas, les évolutions peuvent également être proactives. La réglementation proactive est généralement liée aux exercices de planification ou de programmation. On observe un mélange de règles contraignantes et non-contraignantes, dures et molles. À une exception près, on retrouve toujours une convention internationale juridiquement contraignante, ainsi que des

recommandations et autres documents non-contraignants. Dans les écorégions de montagne et marines, on observe une tendance vers des engagements plus volontaires. Le mélange de politiques publiques est dominé par les approches juridiques et financières. L'approche financière est plus récente. La communication est présente dans tous les cas sauf un mais est moins importante que les autres types de politiques. On observe de nombreuses politiques contradictoires et des signaux mélangés. Les règles opérationnelles au niveau écorégional font partie d'un mélange complexe de politiques souvent contradictoires. Plusieurs processus envoient des signaux mélangés. Des changements fréquents complexifient encore le contexte. Dans au moins un cas, cependant, l'orientation globale est cohérente.

Dans la plupart des cas, il existe un processus environnemental qui correspond à l'écorégion et un processus plus large qui ne correspond pas à l'écorégion. L'interaction entre ce qui est à l'intérieur de l'écorégion et ce qui l'entoure a besoin de cadres plus larges. Cependant, dans deux cas aucun processus ne correspond parfaitement à l'écorégion. Les accords et processus écorégionaux sont généralement des développements originaux. Il y a cependant deux cas qui ont beaucoup emprunté à d'autres écorégions. La dimension réglementaire est généralement peu adaptative, tandis que les autres outils, dont les outils financiers, sont plus flexibles. Dans le cas de l'eau douce, la production de règles opérationnelles est plus adaptative que dans les autres cas. Dans les écorégions marines et d'eau douce, les règles opérationnelles sont spécifiques et techniques. Dans les deux cas de montagne, elles sont plutôt génériques. Tous les cas comportent des documents de planification stratégique génériques. Un cas intéressant est l'Amou-Daria, où un organisme écorégional se réunit à intervalles réguliers pour ajuster les règles opérationnelles en fonction des prévisions. Dans ce cas, les enjeux sont élevés ; des structures permanentes sont disponibles ; les gouvernements se sont engagés à assurer le suivi.

Normes décisionnelles

Dans tous ou presque tous les cas, les processus écorégionaux constituent des régimes internationaux. À une exception près, tous les cas observés peuvent être considérés comme des régimes internationaux avec une convergence significative des attentes entre les acteurs participants. Les processus écorégionaux peuvent normalement compter sur un accord formel. À deux exceptions près, un traité international, souvent appelé « convention cadre » dans le cas des écosystèmes marins et montagneux, formalise les interactions entre les États au sein du processus écorégional. Les accords formels réduisent le coût de transaction pour identifier des solutions ad hoc. Ils créent un cadrage de réunions, documents et décisions une fois pour toutes, donnant de la continuité à un processus au lieu de solutions à court terme. Les décisions sont prises par les représentants des gouvernements par consensus et à différents niveaux. Même si le vote à la majorité est possible dans au moins deux cas, les pays s'efforcent de parvenir à un consensus. Les niveaux comprennent les ministres (niveau politique, conférences des parties), les hauts fonctionnaires (niveau technique, comité permanent) ou les fonctionnaires de niveau intermédiaire avec des experts (niveau technique, groupes de travail). La présidence est tournante et joue un rôle de premier plan. La plupart des présidences assurent le leadership et définissent les priorités. Cela augmente l'appropriation, même si les présidences atteignent rarement tous leurs objectifs. Un processus n'inclut que deux pays, ce qui rend possible une coprésidence systématique.

Deux bureaux ou plus font office de secrétariat. Ce sont soit des secrétariats de processus différents, soit des branches de la même structure. Les secrétariats mineurs sont souvent hébergés dans un même siège. Les secrétariats fournissent des services aux membres. Les secrétariats ne dirigent pas les processus. Il y a cependant un cas où le secrétariat du processus, qui est hébergé par les Nations Unies, assure une certaine direction. Le budget des secrétariats se limite aux fonctions administratives. Les financements dont disposent les secrétariats pour les fonctions programmatiques sont généralement symboliques. Des fonds et programmes sont créés et gérés séparément. En général, le financement dépasse 30 millions d'euros par an, principalement pour les fonctions programmatiques. Ces ressources sont acheminées via différents systèmes de financement. Le niveau de financement le plus élevé concerne les écorégions d'eau douce avec plus de 100 millions de dollars par an ; les écorégions marines suivent avec plus de 50 millions ; les écorégions les moins dotées sont les massifs. Les jeux à deux niveaux interfèrent avec

la prise de décision. Cela est vrai non seulement dans les relations entre les gouvernements nationaux et infranationaux et avec d'autres processus internationaux, mais également entre les pouvoirs exécutif et législatif.

La plupart des processus écorégionaux sont officiellement autonomes. Dans trois cas, cependant, ils sont liés à l'Union européenne et, dans deux cas, aux Nations Unies. La coopération au développement et les financements structurels de l'Union européenne jouent un rôle de facilitateur. La plupart des secrétariats sont des organismes autonomes. Sur une douzaine de secrétariats, il y a deux secrétariats qui sont assurés par les Nations Unies et deux autres par l'Union européenne. La participation publique est généralement assurée par des observateurs officiels. Il peut y avoir des procédures d'accréditation. Parfois, pour être accréditées, les organisations doivent maintenir une présence dans toute l'écorégion pour ne pas représenter des intérêts trop étroits. Dans les cas d'eau douce, il n'y a pas d'observateurs officiels. Les processus sont relativement transparents. Il y a peu d'éléments confidentiels. La documentation est à la disposition du participant averti, généralement via des portails en ligne. Il y a un cas de faible transparence et un où la transparence est limitée. Dans ces cas, les pays donateurs et les bailleurs de fonds peuvent contribuer à accroître la transparence. La coordination à plusieurs niveaux et intersectorielle se fait principalement par le biais d'observateurs. Les délégations nationales et les structures gouvernementales en place, en particulier la coordination intersectorielle au niveau du Premier ministre ou du Parlement, jouent également un rôle-clé. La programmation et les stratégies des partenaires au développement contribuent également à la coordination.

Parmi les solutions innovantes ou méconnues, dans les Andes, un nouveau régime international émerge d'un processus en cours et d'une ONG écorégionale. Cependant, on ne sait pas dans quelle mesure elle peut être durable à long terme sans accord formel. Toujours dans les Andes, une institution financière régionale-clé a commencé comme un programme d'investissement écorégional. Elle a maintenant dépassé l'écorégion et est présente dans la région au sens large. Dans les Grands Lacs, au contraire, certains organes subsidiaires sont multipartites. Les délégations nationales doivent intégrer des représentants de différents types d'acteurs, tels que les entreprises, les universités et la société civile. Il est important de souligner que l'Union européenne dispose de mécanismes de financement au niveau écorégional. Les plus connus sont les programmes de coopération interrégionale au niveau maritime ou de massif, ainsi que le soutien à l'Union pour la Méditerranée.

Enfin et surtout, il convient de noter que les modalités de financement sont variables, également dans la taille du financement disponible. On observe, entre autres, les initiatives nationales, les programmes de financement de l'Union européenne, les collectivités territoriales, les fondations privées et les banques de développement.

Principes constitutionnels

Tous les accords et processus écorégionaux formalisent leurs principes directeurs. Les plus courants sont la coopération et le développement durable. D'autres exemples incluent les principes de précaution et de pollueur-payeur. Les relations écorégionales reposent souvent sur des principes. Les principes sont invoqués fréquemment et sincèrement. Il existe cependant au moins un cas où ils sont parfois invoqués ironiquement. Les principes émergent spontanément. Ils sont parfois le produit d'une circulation normative. Le financement de projets peut également aider à l'émergence de principes spécifiques. Les principes sont tenus pour acquis. Peu de principes sont contestés. Il n'y a qu'un seul cas où certains principes et normes sont peut-être devenus obsolètes.

Mécanismes de suivi et de sanction

Dans tous ou presque tous les cas, des rapports et des études sont produits sur l'écorégion. Ils sont normalement produits par des groupes de travail ou des structures scientifiques des processus écorégionaux, des réseaux scientifiques ou des ONG. Ils peuvent représenter des interfaces entre les scientifiques, les gouvernements et d'autres types d'acteurs. Il n'y a pas de déclenchement de procédures

de vérification ni de sanctions prédéfinies. La conformité est plutôt assurée par la pression entre pairs. Dans au moins un cas, la disponibilité de financement par projet peut encourager la conformité. Il y a peu ou pas d'affaires portées devant les tribunaux internationaux. Il y a une exception où un accord écorégional a conduit à un arrêté en combinaison avec les traités de l'Union européenne.

Dans la plupart des cas, des structures scientifiques peuvent être créées au niveau écorégional pour le suivi. Il y a deux cas où ils n'existent pas et un où la structure en place est contestée. Dans deux cas, ces structures agissent comme des interfaces entre science et politique. Les processus écorégionaux créent des bases de connaissances sur l'écorégion. Ils prennent généralement la forme d'une plateforme en ligne. Des atlas et des cartes y figurent souvent. Il existe deux cas sans une telle base de connaissances. L'évaluation se fait normalement entre pairs. Dans deux cas, des experts externes sont fréquemment impliqués dans les procédures d'évaluation. Les rapports et les réunions peuvent produire des informations sur l'écorégion. Ils sont souvent liés à la mise en œuvre et à l'évaluation de projets. Le cas de la mer Méditerranée est intéressant à cet égard. Une affaire liée aux accords écorégionaux a été jugée par la Cour de justice des Communautés européennes. Il s'agit du premier et seul cas de ce type jusqu'à présent. Dans les Grands Lacs, de nombreux différends ont été évités grâce au processus écorégional. La Commission mixte internationale joue un rôle-clé dans la prévention des différends.

Les caractéristiques non-récurrentes incluent le fait que les groupes de vérification ne sont pas la norme. Les commissions de bassin peuvent examiner leur propre conformité. Dans un cas, il y a des évaluations périodiques, mais pas de groupe de vérification officiel. Un système d'indicateurs par rapport à des objectifs prédéfinis n'est pas la norme. Un tableau de bord d'indicateurs est disponible en cas de problèmes de pollution. Ils utilisent un code couleur de type feu de signalisation pour identifier les paramètres critiques. Dans ces cas, des points chauds ont également été identifiés pour compenser le manque de spécificité géographique des indicateurs génériques. De plus, pointer du doigt les autres membres pour non-conformité n'est pas la norme. Cela peut se produire dans certaines occasions, mais ces processus ne sont généralement pas conçus pour pointer du doigt. Il y a un cas de représailles, qui a conduit d'autres pays et organisations à fournir de bons offices. Une autre caractéristique non-récurrente est la possibilité que différents types d'arbitrage soient prévus : dans certains cas, il s'agit d'un arbitrage exécutoire de la Cour internationale de justice ou d'autres tribunaux régionaux ; dans un cas, la soumission est obligatoire mais l'acceptation ne l'est pas ; dans un autre cas, les différends ne sont résolus que par voie de négociation. Ce cas est celui où la plus grande tension peut être observée.

Vers des principes de conception pour la gouvernance écorégionale

Les listes des Tableaux A et B ne sont pas des principes de conception. Je n'implique ni ne suggère nullement que c'est ce qui devrait être fait. Ce sont simplement des caractéristiques récurrentes que l'on retrouve dans les accords et processus de six écorégions. Ces caractéristiques représentent ce qui se produit habituellement. Cela ne signifie pas qu'elles sont des panacées, qu'elles sont valables dans chaque situation. Il n'y a pas de solution miracle. Ces caractéristiques signifient simplement que c'est ce que l'on peut trouver dans la plupart des cas. De plus, ces caractéristiques récurrentes demandent à être interprétées. Elles peuvent cependant être prises en considération dans les phases de négociation et de renégociation des accords écorégionaux et dans la conception et la réforme des processus écorégionaux.

Les études de cas visent également à fournir des illustrations concrètes de la manière dans laquelle les accords et processus écorégionaux fonctionnent dans la pratique. J'espère qu'elles seront utiles. Lorsque j'ai commencé à travailler sur la conception d'accords écorégionaux il y a plus de douze ans, j'ai cherché mais je n'ai pas pu trouver ce type d'orientation au niveau écorégional. Cela est désormais disponible. Ces éléments peuvent certainement être améliorés et enrichis par d'autres cas et analyses, qui pourraient confirmer ou infirmer certaines de ces caractéristiques et peut-être en trouver de nouvelles. Mon espoir est que ces éléments puissent également être applicables et adaptables au niveau pratique. J'espère qu'ils

pourront aider à résoudre certains problèmes concrets et contribuer à la pratique du développement durable.

Preface

As a young graduate in international relations, my first work experience concerned two regional environmental agreements, the Alpine and the Carpathian Conventions. However, despite my studies, not only did I find it challenging to understand what they were about (international treaties? international organizations? large environmental NGOs?), but I also realized that, with all due respect, even my colleagues, who had often worked in this domain for several years, found it difficult to understand this strange phenomenon.¹ I then looked at publications on the subject matter and quickly realized the huge gap there was in the scientific literature. When I enrolled in a doctoral program at the Sorbonne, I initially was reluctant to focus on my professional experience, but Yves Viltard, who supervised my dissertation and to whom I am very grateful, insisted that it was an endeavor worth pursuing. In the meantime, some recent publications contributed to shed some light on the contours and specific aspects of this phenomenon, but an in-depth comprehensive outlook on regional environmental agreements and processes is still missing.² So, here I am, several years, a doctoral thesis, and much fieldwork and scholarship later, publishing this overview that, without claiming to be exhaustive, at least presents in a systematic manner what are regional environmental agreements and processes, how they have been studied so far, and what can be considered as significant examples of this phenomenon.

During a doctoral fellowship at Harvard, Bill Clark, to whom I am also very grateful, encouraged me to look at the sustainability of environmental regions. This resulted in the working paper on which this monography is largely based, where I more or less intuitively developed a tentative framework to analyze the sustainability of two case studies.³ At the end of the fellowship, Calestous Juma, who had published with Earthscan, recommended adding further case studies and turning the working paper into a monography to be submitted to a scientific publisher. While researching for this monography and further refining my original framework, I realized that it largely overlapped with the general framework to study social-environmental systems published by Elinor Ostrom right before her passing.⁴ As this was developed based on experience at the local level, I therefore adapted and expanded it to analyze larger international environmental regions. The six representative case studies that I had chosen to exemplify this phenomenon are therefore analyzed using this adapted framework. At the end of this monography, the reader should therefore also possess elements to reflect upon the sustainability of environmental regions. This of course took me more time than initially planned and I would like to express my gratitude towards the editors and my colleagues for bearing with me and towards my friends and especially my family for their support during this long writing period. My hope is that other scholars and practitioners may also be interested in applying this adapted framework to other examples, expanding the case base and providing grounds for further analysis. Of course, this will take several more years. I am very much looking forward to what forthcoming research will tell us about regional environmental agreements and processes.

¹ See, for instance, Churchill and Ulfstein (2000).

² Read, in particular, Balsiger and Debarbieux (2011); Balsiger and Prys (2016); Balsiger and VanDeveer (2010); Debarbieux (2012); Elliott and Breslin (2011).

³ See Church (2010).

⁴ See Ostrom (2009); Ostrom, Janssen, and Anderies (2007).

Introduction

The introductory chapter explains why the study of regional environmental agreements and processes is important. It defines the kind of regions, the kind of environment and the kind of agreements and processes, which this monography focuses on. It also features a historical sketch of the emergence and evolution of regional environmental agreements and processes since the 19th century, with a focus on rivers, seas, oceans, mountains and forests, as well as on types of ecoregions that have failed so far to produce regional environmental agreements and processes.

Why study regional environmental agreements and processes? They are usually small in human resources and budgetary terms. They rarely not make headlines and they may seem insignificant compared to looming global problems such as controlling terrorist networks, regulating financial markets, or fighting climate change. However, they reached a critical mass where they cannot be ignored. Depending on the definition employed, estimates range from 97 to 2,227.⁵ According to the United Nations Environment Programme (UNEP), “regional agreements make up two-thirds of all international treaties”.⁶ A first reason why they should be scrutinized is therefore that they attract a significant amount of financial resources, especially if one includes the jobs created and funding available not only for international secretariats but also for national institutions involved in the various processes related to regional environmental agreements and processes and other partners, including non-governmental organizations (NGOs). From this perspective, they have become a significant career track in the respective countries. A second reason to study them is that, unlike other sectors such as defense or finance, environmental politics remain accessible to interested scholars. The political level is sufficiently low that it is relatively easy to obtain documentation and data, conduct interviews and discuss with key individuals, even attend meetings and directly observe the various processes. This monography and other research projects greatly benefited from this accessibility. As far as political science and particularly international relations theory is concerned, one may argue that some of the most interesting research published in the last ten years builds on research on environmental politics. The international media and information firm Thomson Reuters ranked a journal such as *Global Environmental Politics* as the third of all journals in political science in its 2012 impact factor report. At the same time, over the years, awareness and interest in environmental issues has increased significantly. Topics such as climate change, endangered species, air pollution, and water quality are much better known than even a decade ago. Newspapers and online portals now have whole sections dedicated to the environment. Over the past four decades, virtually all governments in the world have established specific ministries and agencies.

However and most importantly, regional environmental agreements and processes must be studied because it is a moral imperative for both scholars and citizens. For scholars, because it is a little known and poorly understood phenomenon. While there are case studies of single agreements and processes, comparative analyses are few, and an in-depth comprehensive study of regional environmental agreements and processes is still missing.⁷ While there are some attempts, there is still no authoritative definition and no clear typology of regional environmental agreements and processes.⁸ If research lags behind, there is an even larger gap in education and training. A quick survey of syllabuses from across the world shows that most courses of international environmental politics focus almost exclusively on the global level, while courses on specific cases such as transboundary river basin management fail to make the link with other kinds of regional environmental agreements and processes. There are very few

⁵ See Church (2014b) and Balsiger and Prys (2016), respectively.

⁶ See UNEP (2001). Quoted from Balsiger and Prys (2016).

⁷ See the conclusions of Balsiger and VanDeveer (2010).

⁸ An important step in this direction was accomplished by Balsiger, Prys, and Steinhoff (2012), Balsiger and Prys (2016) and P. M. Haas (2016).

courses of regional environmental governance.⁹ The result is that even practitioners who have sometimes spent their whole career working in this domain find it difficult to understand exactly what they are doing or have a strategic vision in this regard. Surveys of public opinion such as Eurobarometer show that issues such as climate change and environmental protection are consistently among the top ten most important issues facing the European Union.¹⁰ For citizens, this situation is particularly troublesome because environmental issues are not only global problems that need global solutions, such as greenhouse gas emissions on the other side of the world that affect weather patterns everywhere: they are also regional and local problems that need regional and local solutions, such as water pollution on one side of a bay that affect water quality on another side of the same bay. In order to find and implement solutions, institutions such as specific agreements and processes can be established or are in place, but knowledge about them is so limited that it is difficult to apprehend them, let alone to assess their effectiveness. From a taxpayer perspective, it is almost impossible to evaluate their value-for-money.

In a recent article, Ken Conca also suggests other reasons to study regional environmental agreements and processes.¹¹ There is some evidence that the regional level may in fact be appropriate for the management of common pool resources and that the diffusion of certain norms should be easier at that level.¹² The idea is that a resource such as water is managed better by those sharing the same watershed and that it is less difficult for the 3 member states of the North American Free Trade Association (NAFTA) to reach an agreement than the 193 member states of the United Nations. From this viewpoint, the regional level may succeed where global efforts have failed. For example, it has proven to be relatively easier for the European Union to reach a binding agreement on the reduction of greenhouse gas emissions. On this basis, he argues that successes at the regional level may then represent steps towards global agreements. The idea here is that regional agreements may cluster interests and positions, making it easier to negotiate a global treaty. European countries could for instance develop a specific climate regime for Europe. The same could be done by Asian countries for Asia, African countries for Africa, and so on. A global regime could then emerge from an agreement among representatives of these regional regimes. Of course, one may argue that positions on, for instance, greenhouse gas emissions are already clustered between leading developed countries and fragile developing countries, on the one hand, versus laggard developed countries and skeptical developing countries, on the other, and that it may not always be possible to mediate between opposite interests.

However, Conca's arguments remain hypothetical. Peter Haas has recently pointed out that, in many cases, regional environmental governance tends to be stronger where it is under the purview of strong global institutions such as UNEP for regional seas or FAO for fisheries.¹³ This is because independent institutional arrangements tend to be too weak to have sufficient leadership, staff, budget and political autonomy from their member states to pursue their mandate. As examples, Haas mentions the Northeast Asian Sub-regional Programme for Environmental Cooperation (NEASPEC) and its role to fight acid rain in the region. Without support from global environmental institutions, secretariats remain small and unfunded. Conversely, the European Convention on Long-range Transboundary Air Pollution (CLRTAP), which is supported by the UNECE and "has grown to include nine distinct treaties governing a wide variety of contaminants".¹⁴ This means that there is some evidence about the appropriateness of the regional level on certain issues, but this cannot be affirmed in a conclusive

⁹ For instance, Marco Pütz's course at the University of Zurich, Switzerland. Moreover, Bettina Blümling was recently hired at Utrecht University, The Netherlands, as assistant professor in regional environmental governance.

¹⁰ Eurobarometer results can be searched from here: <http://ec.europa.eu/commfrontoffice/publicopinion/> (last accessed: 15 July 2017).

¹¹ Read Conca (2012).

¹² See, for instance, Ostrom (1990), Finnemore and Sikkink (1998), Conca (2006), and the conspicuous literature that followed.

¹³ See P. M. Haas (2016).

¹⁴ Quoted from P. M. Haas (2016, p. 435).

manner. This, despite a long history of regional environmental governance, which the next few paragraphs will try to summarize.

What regions? What environment? What agreements and processes?

There are two kinds of regions: institutional or constitutional regions, on the one hand, and sectoral or functional regions, on the other.¹⁵ “Institutional” regions correspond at the same time to administrative subdivisions of states, i.e. subnational regions such as British regions, and to states belonging to the same geographic area, i.e. international regions such as Europe. This first kind of regions corresponds to a hierarchical and nested vision of space, where each administrative level fits perfectly within the level above, is perfectly adjacent to other administrations of the same level and contains all levels below. On the other hand, “sectorial” regions follow the dynamics of each sector. For instance, a city-region or economic influence zone of a large city often expands well beyond its administrative boundaries¹⁶, but we can also speak of environmental regions, also known as ecoregions or bioregions, when we refer to natural areas such as a river basin, a sea or a mountain range. This second kind of regions therefore corresponds to a heterarchical and polycentric vision of space, where each element can overlap with other spaces, does not exactly correspond with any other element, and whose perimeter is often unclear and changing.¹⁷ The two visions of regions imply dynamics that are completely different, but in reality both aspects always coexist.

It is also important to specify what kind of environment we refer to. Geology, biology, and the other natural sciences all subdivide the environment in different manners. Each one of these subdivisions – which normally do not correspond to administrative subdivisions, but that often figure among the factors considered at the time when they were defined – can be object of specific agreements or processes, which we can call “subsectorial” or monothematic: an area characterized by a particular kind of rock, another possessing a rare species, and so on. Attempts to identify consistent environmental units to recompose these subdivisions usually consider a mix of biophysical factors, such as soils and species, and of geographic ones, including human factors.¹⁸ Ecoregions are therefore defined as a large ecosystem or social-ecological system that corresponds to a geographic element such as a river, a lake, a coast, a sea, an ocean, a desert, a plain, a mountain range, a forest, a coral reef or an island. These units are the object of what will consider in this monography as “proper” regional environmental agreements and processes. Some argue that building on a consistent environmental unit should favor more integrated approaches.¹⁹ However, these units remain imperfect subdivisions. They overlap and are often entangled with each other, such as in the case of the Alps mountain range and the Rhone river basin, with sometimes opposite issues. Their governance results fragmented and redundant. The concept of sustainable development pushes us to identify new and multiple approaches capable of finding equitable solutions to these challenges.²⁰ From this perspective, the emergence of sustainability science may allow to go beyond a partial vision of ecoregions and lay down the bases for a more integrated approach to human-environment relations.²¹

Finally, it is fundamental to clarify what kind of agreements and processes we are looking at. Regional environmental agreements are also known as treaties or conventions between two or more countries that share the same ecoregion. The terms “agreement”, “treaty” and “convention” are synonyms and can be used indifferently. However, the use of the term “convention” is particularly common with regard to regional environmental agreements. Protocols are also agreements, but they are usually adopted in the

¹⁵ See Debarbieux, Price, and Balsiger (2013, p. 4).

¹⁶ See, for instance. Allen and Cochrane (2007).

¹⁷ See McGinnis (2011), Balsiger (2012) and Koontz, Gupta, Mudliar, and Ranjan (2015).

¹⁸ See Udvardy (1975) and Turner et al. (1993).

¹⁹ See Balsiger and VanDeveer (2010).

²⁰ See Mancebo (2013).

²¹ See William C. Clark (2007).

framework of a convention, which is therefore called “framework convention”, following a scheme, which is extremely common for multilateral environmental agreements: for example, the 1976 Barcelona Convention and its 1980 Athens Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources; the 1992 United Nations Framework Convention on Climate Change and its 1997 Kyoto Protocol; the 1992 Convention on Biological Diversity and its 2000 Cartagena Protocol on Biosafety. The relationship between a convention and a protocol is similar to that between a constitution and a law with the latter being adopted under the former. Regional environmental agreements are pieces of international law and, as such, are adopted by states. Consequently, states are always key actors for these agreements. Moreover, these agreements help identify ecoregions, whose extent and existence can be contested or ignored.

We also include processes for two reasons. On the one hand, because regional environmental agreements are not only papers in a drawer. Environmental issues change by nature and with regard to the evolution of our knowledge of the environment itself. The great majority of these agreements created regional institutions, such as ministerial conferences, permanent committees of high-level civil servants, working groups of experts and secretariats that meet at regular intervals when they are not permanent. This ensures constant monitoring and the adoption or adaptation of effective measures. The second reason why we include also regional environmental processes is because regional environmental agreements are often open to the participation and sometimes to the influence of actors other than states, particularly international organizations and environmental non-governmental organizations (NGOs). Some processes have even been initiated by these kinds of organization. In order to understand regional environmental agreements it is therefore important not to limit the analysis to formal institutions as reflected in legal documents and to intergovernmental relations and to include practice and all kinds of relevant actors. Of course, ecoregions are also found within countries and are object of multi-administration governance structures such as parks, mountain communities, river basin authorities, and so forth. While certain considerations contained in this analysis may apply to this level of analysis, the main focus of the monography is ecoregions that include two or more countries. In this regard, this monography distinguishes between the governance of ecoregions, such as the Alps or the Amazon, and the environmental governance of regions, such as NAFTA’s Commission for Environmental Cooperation. Therefore, this monography does not apply to the environmental policy of regional institutions, such as the European Union, unless the focus of this policy is a single ecoregion, such as the EU Strategy for the Danube Region. The main focus of this analysis is how several countries and other stakeholders administer an ecoregion and not how regional integration processes deal with environmental issues.

The evolution of ecoregional agreements and processes

Regional environmental agreements and processes not being new phenomenon, a historical perspective can help understand it, outlining its milestones. This reconstruction is based on primary sources, in particular on an extensive survey of existing regional environmental agreements, as the secondary literature is sparse and fragmented along the different types of ecoregions and, in any case, goes rarely beyond single case studies.²² The survey was based on the information available on the online database of the *United Nations Treaty Series*, on the website of UNEP (seas), on the International River Basin Organization Database (rivers and lakes), as well as on the author’s knowledge (some rivers, lakes and mountains). Figure 1 shows the growth in the number of regional environmental agreements over the years. In fact, there are contributions on the history of international river commissions or regional sea agreements, particularly of individual processes, but a thorough history of regional environmental

²² The survey was based on the information available on the online database of the *United Nations Treaty Series*, on the website of UNEP (seas), on the International River Basin Organization Database (rivers and lakes), as well as on the author’s knowledge (some rivers, lakes and mountains). **Figure 1** shows the growth in the number of regional environmental agreements over the years.

agreements is still missing. For the sake of clarity, the proposed overview focuses on binding international agreements only, ignoring phenomena such as voluntary processes (such as fora, networks, etc.) or regional environmental initiatives at the subnational level (such as the Appalachian Regional Commission, the Sierra Nevada Conservancy, etc.). Moreover, general agreements on transboundary cooperation, for instance, on water management between two or more countries are considered only if they correspond to a specific ecoregion (e.g. a river, a sea, etc.). For ordering reasons, the agreements are clustered according to the type of ecoregion (i.e. rivers, lakes, seas, and mountains). This allows rendering the outline manageable, but this will not substantially affect the outcomes in terms of milestones, as it will become evident by the end of the perusal.

River basin and lake agreements are arguably at the roots of modern international organization, with the creation, in 1816, in the aftermath of the Napoleonic Wars, of the Central Commission for Navigation on the Rhine (CCNR).²³ The Danube followed several decades later when, in 1856, at the end of the Crimean War, the now International Commission for the Protection of the Danube River (ICPDR) was institutionalized, with a special commission for the Danube Delta, which was created in 1918, again, after the close of World War I. When they do not cross several countries, which happens oftentimes, major rivers are frequently used as natural borders; they represent invaluable sources of freshwater coming from upstream and upland countries to downstream and lowland countries, with pollution flowing in the same direction; they constitute as well key axes for transportation, as routes or as impediments thereof (hence bridges, levees, etc.). River basins are, therefore, strategic matter for any nation, and their management is a key security issue. For this reason, it is not surprising to find that the earliest examples of international organization followed the end of a major war and revolved around river basins. If institutionalized cooperation is a manner to substitute occasional conflict with ongoing dialogue, the joint management of river basins represents an opportunity to engage the parties in such a practice. In previous centuries, an upland power blocking or polluting water flowing into the territory of a lowland neighbor could be cause of war; nowadays, instead, states would rather create river commissions to reach a technical solution at the ecoregional level or could recur to an international dispute settlement mechanism, including fact finding, mediation, and arbitration.²⁴ Despite the occasional scare for water “wars”²⁵ and since diplomacy has prevailed, so far, as the shared method to solve disputes over water resources, no full scale water conflict has materialized yet, nor seems at the horizon. Since the beginning of the 20th century, international river, lake, and freshwater commissions were created also outside of Europe, representing now a common form of institutionalized cooperation. By 2006, fifty-seven river and lake agreements of this kind were identified in each continent. This represents only one-fifth of all international river basins. Since the end of World War II, the number of agreements has grown constantly, with peaks in the 1970s and in the 1990s, following a general trend, which is shared with other types of ecoregions.

Regional sea and ocean agreements are less numerous than joint river commissions and came about much later. Despite the fact that for several centuries various powers, such as the Republic of Venice, claimed their dominion over different parts of the sea, such as the Adriatic Sea, as if was their own territory²⁶, and despite a UN Convention on the Law of the Seas (dealing mainly with rights of use and passage), had been negotiated at least since the 1950s, it is not until 1974 and 1976, respectively, that the first two sea agreements, the Helsinki Convention on the Protection of the Baltic Sea and the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution, were signed. The Helsinki and Barcelona Conventions represent two milestones in the history of regional environmental agreements, because environmental issues are addressed for the first time directly, particularly marine

²³ See Meneguzzi Rostagni (2000).

²⁴ Such as in the case of Gabčíkovo-Nagymaros dam between Hungary and Slovakia, settled in 1997 by the International Court of Justice, or in the recent pulp mill dispute between Argentina and Uruguay.

²⁵ See, for example, Ohlsson (1995), Klare (2001) and Solomon (2010).

²⁶ See, in particular, the writings of Paolo Sarpi, as well as the classical debate, which revolved around trade issues, between the proponents of the *mare claustrum* (Selden) and those of the *mare liberum* (Grotius).

pollution and international monitoring.²⁷ Previous agreements, in fact, did not possess the distinctly environmental character of these two. An essential role, in this sense, was played by the UN Conference on the Human Environment, held in 1972 in Stockholm, which was the first of its kind and which led to the creation of UNEP, headquartered in Nairobi. In line with the counterculture environmentalism of the 1970s, UNEP acted as a catalyzer for ecoregionalism, creating as early as in 1974 a “Regional Seas Programme”. The success of this program was immediate, leading to the conclusion, by 2003, of seventeen regional seas conventions throughout the world. However, this success did not come without consequences: the first nine agreements were concluded within a span of twelve years only; critics argue that UNEP overplayed its role, imposing premade treaties that were not fully negotiated by the parties involved and using these conventions as an opportunity to organize conferences, acquire visibility, attract donors, and raise funds (that were scarce); some critics blame Mostafa Tolba, the charismatic Executive Director of UNEP since 1976, for his role in the development of the program, observing that, after the end of his mandate in 1992, only four conventions were finalized. As if many seas were left without!²⁸

A recent development with regard to regional environmental agreements concerns mountain ranges, a mayor type of ecoregion where specific conventions are still generally missing. Like rivers, lakes, and seas, mountains also play a strategic role in the defense of the territory of many nations, often coinciding with historical boundaries, as well as corresponding to reservoirs of freshwater, biodiversity, and wilderness; unlike other types of ecoregions, though, mountains are usually inhabited, always representing an integral part of the territory of a country. While people live only along a river or the coast, people do inhabit mountain regions. Nowadays, even the highest peaks were conquered by humanity.²⁹ However, by the early 1990s, ecoregionalism had also reached the mountains, corresponding to a “new age” of concern for the environment. The first regional mountain agreement, the Convention for the Protection of the Alps (Alpine Convention), was finalized in 1991.³⁰ However, unlike the seas ecoregionalization process, UNEP was only marginal to the Alpine Convention, which was mainly developed endogenously at the European level. The signature of the Alpine Convention generated a certain enthusiasm at the UN Conference on Environment and Development (Earth Summit), held in 1992 in Rio, which contributed to the inclusion of a specific chapter on mountains in the Agenda 21.³¹ However, the momentum was partially lost, also as the ratification process of the framework convention and its implementing protocols proceeded slowly. A second milestone for the mountain ecoregionalization process is represented by the decision of the UN General Assembly to declare 2002 International Year of Mountains.³² This initiative was immediately followed by the finalization, in 2003, of a second regional mountain agreement, the Convention for the Protection and Sustainable Development of the Carpathian Mountain Region (Carpathian Convention), the most recent institutional development in this ongoing ecoregionalization process.³³ In this case, UNEP was actively involved since the very beginning and is now hosting the Secretariat of the convention. UNEP is currently supporting the development of conventions in other mountain regions, such as the Balkans and

²⁷ On the Helsinki Convention, see VanDeever (2004), while on the Barcelona Convention, see Haas, also on the role of international monitoring and “epistemic communities” (1990, 1992).

²⁸ These observations are based on private conversations, held in 2008 and 2009, with high level United Nations senior officials, who participated in UNEP’s endeavors and spoke under condition of anonymity. Similar comments can be found in P. M. Haas (1990).

²⁹ See, in this regard, the fascinating pages by Motti (1993) and Zanzi (2004). The same cannot be said yet, for example, by the depths of the oceans.

³⁰ For an in-depth monograph about the convention, its development and dynamics, read Church (2011b).

³¹ “Managing Fragile Ecosystems: Sustainable Mountain Development” (Chapter 13).

³² Document A/RES/53/24 of 19 November 1998 (Treves, Pineschi, & Fodella, 2002, 2004; Villeneuve, Castelein, & Mekouar, 2002).

³³ For the relevant documentation, see *A Collection on the Carpathian Convention*, edited by the author (2008b), as well as REC’s handbook (2007). For a comparison of the Alpine and the Carpathian conventions, see the edited volume by Majtényi and Tamburelli (2009).

the Caucasus, which present areas recently exposed to military conflict, clearly representing an obstacle to negotiations (*i.e.* Bosnia-Herzegovina, Kosovo, Nagorno-Karabakh, South Ossetia, etc.). While this signals a change in the role of UNEP towards regional environmental agreements in general, at least since Tolba left, the example of river basins and of the Alpine Convention, which developed independently, demonstrates the potential for ecoregional initiatives also outside UNEP or FAO.

Forests are another kind of ecoregion. They include large forest such as the Amazon Forest in South America, the Congo Rainforest in Africa and the Taiga across Europe, Asia and North America. However, no agreement exists with regard to a specific forest. The Amazon Cooperation Treaty Organization focuses on the Amazon River Basin. The only exception is the Protocol on Sustainable Forest Management to the Carpathian Convention, which is a mountain agreement. There are many explanations to the lack of specific agreement. The first one is geographical and concerns with the overlapping of forests with river basins, such as in the case of the Amazon, and with mountain ranges, such as the Carpathians. As geographical units, river basins and mountain ranges seem to be stronger mobilizing factors than forests. A second explanation is related to the weakness of global forest governance, which possesses a legally binding framework only for timber (International Tropical Timber Agreement) and is scattered across several fora (United Nations Forum on Forests, FAO Committee on Forestry, Collaborative Partnership on Forests) and parallel processes (CBD, UNCCD, UNFCCC, etc.).³⁴ Another explanation lies in the diversity of approaches to forest management across and within countries. In France, for instance, forests tend to be managed as economic resources and from a landscape perspective, while forest in Germany is often managed from a conservation perspective.³⁵ This makes collective action at the international level difficult. Forest property rights can also be particularly complex with a mix of public, private and common property. In Belgium, for instance, approximately half of the forest cover is public and half is private with many different management approaches on both sides.³⁶ While the international community set ambitious goals, such as Sustainable Development Goal 15 and more specifically Target 15.2 “By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally”, it has not yet agreed on the institutional structures or the policy instruments meant to achieve them at either the global or regional level.

For similar reasons, other kinds of ecoregions, such as deserts, coasts, islands, archipelagoes, but also monsoons and other regular winds or currents, have failed so far to produce regional environmental agreements and processes. This is usually due to the presence of stronger mobilizing factors and institutions or lack of awareness or actionable knowledge about shared environmental problems. For instance, desertification and the expansion of the Sahara Desert in the semidesert area known as Sahel is one of the greatest environmental problems of the last century. Still, countries in the region have clustered around other issues, such as security and trade, and have been combating desertification at the national or global level. Some scholars also consider issues such as marine fisheries and air pollution.³⁷ Given that fish stock and clean air are rather mobile, we consider them to be more natural resources than ecoregions, which are relatively fixed. A key feature of ecoregions is their spatial and temporal dimension, which is much greater than the human dimension. The order of magnitude of rivers, seas, mountains and, to a certain extent, forests is such that, even if they are subject to anthropogenic pressure and we can change them significantly, we are not able to make them disappear even if we wanted. The difference is analogous to that between a renewable resource, whose stock can be renewed within a human timeframe, and a non-renewable resource, which can also be renewed but only within a geological timeframe. Even if we can alter significantly the course of a river, we cannot make the water

³⁴ See Maguire (2013), Gulbrandsen (2010) and Smouts (2001).

³⁵ See Houpert and Botrel (2015).

³⁶ See Gameren (2014).

³⁷ See, for instance, Balsiger and Prys (2016) and P. M. Haas (2016).

disappear completely; conversely, through hunting and other kinds of anthropogenic pressure, we can make whole species disappear forever. The focus of this monography is more on the sea that contains the fish than on the fish, more on the forest that contains the beech than on the beech.

So, by the time of our survey, a total number of ninety-seven regional environmental agreements could be identified.³⁸ Of course, some conventions are missing and some are probably no longer operational; some agreements are very active and some are likely dormant. It is very difficult to tell without firsthand experience of each agreement and process. It is also clear that some conventions, especially those predating the 1970s, are more difficult to characterize as regional environmental agreements, being more linked to security or economic concerns. Still, these conventions clearly represent a dense crowd of international agreements on environmental issues. Another aspect that emerges from this perusal is the numerical growth in the number of agreements, which allows us to identify two turning points, which are in line with the vast literature on international environmental relations³⁹: the 1970s with the Stockholm Conference and the 1990s with the Earth Summit and the end of the Cold War. Another turning point could be represented by the second half of the 2000s, which saw a sharp decline in the number of new agreements, also at the global level. Some call it “treaty fatigue” or “blues”, while others argue that the required institutions are already there.⁴⁰ This corresponds also to the waves of so-called post-war “old regionalism” (1950s-1970s), post-cold war “new regionalism” (1980s-1990s) and “post-neoliberal regionalism” (2000s-2010s).⁴¹ More generally, a shift from a more legalistic and scientific approach, where science informs decision-makers about environmental problems and decision-makers adopt legal documents to address them, to a more financial and partnership approach, where decision-makers provide financial incentives and partner with a wide range of actors, including the business sector, to promote societal transformation can be observed at the turn of the century, particularly after the 2002 World Summit on Sustainable Development in Johannesburg. This shift can also be observed at the regional level.

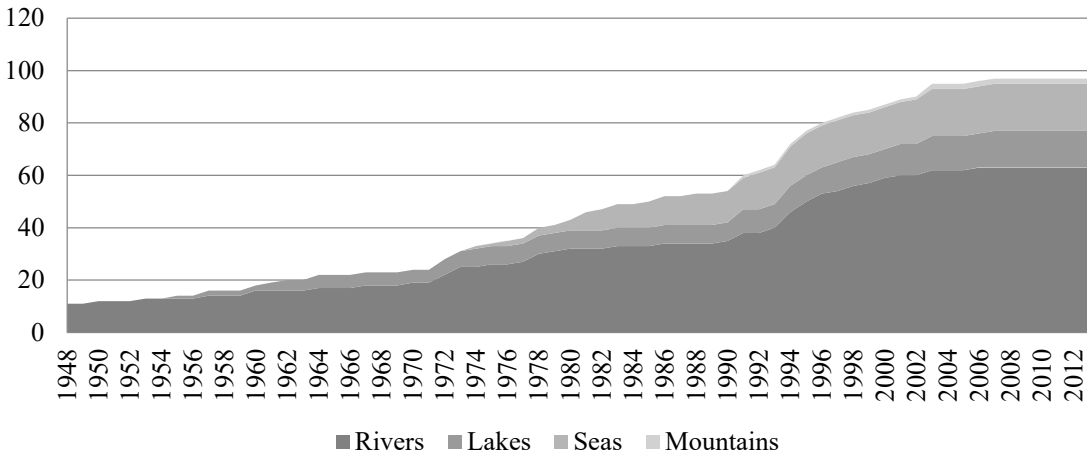


Figure 1: The number of regional environmental agreements by type of ecoregion. Source: author elaboration based on Table 1.

³⁸ For the most complete list of international environmental agreements, see Mitchell (2002-2019).
³⁹ See, for instance, P. M. Haas, Keohane, and Levy (1993), Young (2002), or O'Neill (2017).
⁴⁰ Read, among others, VanDeveer (2003) and Conca and Dabelko (2010).
⁴¹ See Söderbaum (2016, p. 29).

Part 1: Identifying ecoregions

So far, we adopted an intuitive definition of ecoregions, provided a basic definition and some commonsensical examples. The following chapters will strive to provide firm grounds to identify ecoregions, breaking down its two main components: the environmental and the regional dimension. Examples of how ecoregions have been identified within actual agreements and processes will also be presented and discussed. Understanding ecoregions is an endeavor lying at the crossroads of several disciplines and requires taking different perspectives. Ecologists and geologists teach us to consider the characteristics of the different realms and the complexity of ecosystems, as well as geological formations; geographers tell us to look at the shapes of the landscape and at the societies that inhabit it; turning to politics, the main focus is on local identities and global flows. Syncretistic approaches have been attempted in each discipline with varying results, while a grand synthesis is still missing. Sustainability science, which can be defined as the “use-inspired and place-based research, education and invention necessary to foster sustainable development”, can play an important role in this regard.¹ It brings together and builds on different disciplines, with some elements of transdisciplinarity.² This monography draws heavily on sustainability science and its core concepts and methods.

Chapter 1: The environmental component

This chapter provides grounds to identify ecoregions based on their environmental dimension. It presents how ecologists and physical geographers define so-called biomes, biogeographical provinces, bioregions, georegions, ecoregions or large ecosystems. The chapter points out how disciplines often focus on different components of the environment, thus defining ecoregions in different ways. It also highlights the importance of the definition of environmental regions for ecological continuity and the debate on tipping elements of the planetary system.

The identification of the main elements in which the earth is divided is a longstanding process. Ecology and physical geography have greatly contributed to this effort. Within ecology, there are various ways to identify so-called biomes, bioregions, georegions, ecoregions or large ecosystems. Ecologists often use these terms as synonymous. In this monography, we use a more restrictive definition of ecoregion than the one used by most ecologists, focusing on fixed elements such as rivers, seas and mountains. The different ways to identify biomes depends on which realm (flora, fauna, etc.) or species one refers to and on who one speaks with (a geologist, a botanist, a biologist, etc.). Peter Haas points out that, in the framework of the 1974 Barcelona Convention on the Mediterranean, “oceanographers defined the Mediterranean, and thus the eastern extreme includes the Bosphorus. Alternative boundaries were considered by fisheries experts of the Food and Agriculture Organization (FAO), which would not have extended as far eastwards. (...) Hydrologists generally delimit river basins,” which are different from oceanographic and fisheries boundaries and include land-based sources of freshwater and not only seawater.³

In the 1970s, Miklos Udvardy depicted well this debate in an influential study, proposing a classification of so-called “biogeographical provinces”, with the aim of overcoming such divisions.⁴ This study was published by IUCN and was prepared as a contribution to the UNESCO “Man and the Biosphere Programme”, which had just been launched and that contributed to the emergence of the concept of ecoregion. A fairly consensual definition of an ecoregion emerged from these works, which the

¹ See Clark (2007; 2003).

² See Lang et al. (2012) and Wiek and Lang (2016).

³ Quoted from P. M. Haas (2016, p. 431).

⁴ See Udvardy (1975, pp. 5-12).

Convention on Biological Diversity (CBD) and the World Wildlife Fund (WWF) contributed to vulgarize in the early 2000s:

*Large areas of relatively uniform climate that harbor a characteristic set of species and ecological communities.*⁵

However, this definition raises perhaps more questions than answers. How large should areas be to qualify as ecoregions? How uniform should climate be? What makes a set of species characteristic? Which ecological communities? Are humans part of ecological communities? Identifying ecoregions is important from an ecological standpoint because they are considered life support systems to species. Their presence supports the existence of species but also the contrary is true. In fact, with their presence, species define and maintain the ecosystem and the related ecosystem services in place. All species are part of a food or trophic chain with predators at the top and preys at the bottom. The disappearance of even one species such as the lynx from a forest can unbalance the trophic chain and result in the proliferation of other species such as the boar; similarly, the replacement of beech with conifers can also have effects on the trophic chain and even on the forest cover. This is a common phenomenon in forests in Europe. In some cases, changes in the trophic chain can unbalance a whole ecosystem. As such, from a biodiversity standpoint, an ecosystem can be identified as “the unit of area that contains a minimum core group of species that characterize that diversity and may be sustained.”⁶ As such, the disappearance or shifting of a large ecosystem, such as the Amazon Forest due to deforestation or the Arctic Ice Sheet due to global climate change, can have a dramatic impact on the life support system of many species, including humans.

Ecologists use different techniques to identify ecoregions. In the 1970s, Udvardy identified 193 units; by the early 2000s, David Olson and colleagues went as far as identifying 867 units at the global level. The study and conservation of so many units being difficult to operationalize, Olson worked with the WWF, one of the largest environmental NGOs in the world, to identify 200 ecoregions that represent conservation priorities at the global level. This would help the WWF and, at the same time, the CBD, prioritize their actions following a so-called “ecosystem approach”. Recently, Timothy Lenton and colleagues identified a number of tipping elements in the earth system at the regional level. Because of climate change, these are areas approaching thresholds that put their stability at risk.⁷ They include the Arctic summer sea-ice, the Greenland ice sheet, the Atlantic termohaline circulation, the El Niño – Southern oscillation, the Indian summer monsoon, the Sahara/Sahel and West African monsoon, the Amazon rainforest and the Boreal forest. Johan Rockström and colleagues applied a similar approach at the global level. They proposed an even shorter list of priorities, based on the idea of a “safe operating space” for humanity.⁸ These priorities include climate change, ocean acidification and the stratospheric ozone.

⁵ Quoted from WWF (2000); see also (D. M. Olson et al., 2001) and D. M. Olson and Dinerstein (2002).

⁶ Definition borrowed from Matthew Gilbert, Assistant Professor, UC Davis, United States.

⁷ See Lenton et al. (2008).

⁸ See Rockström et al. (2009).

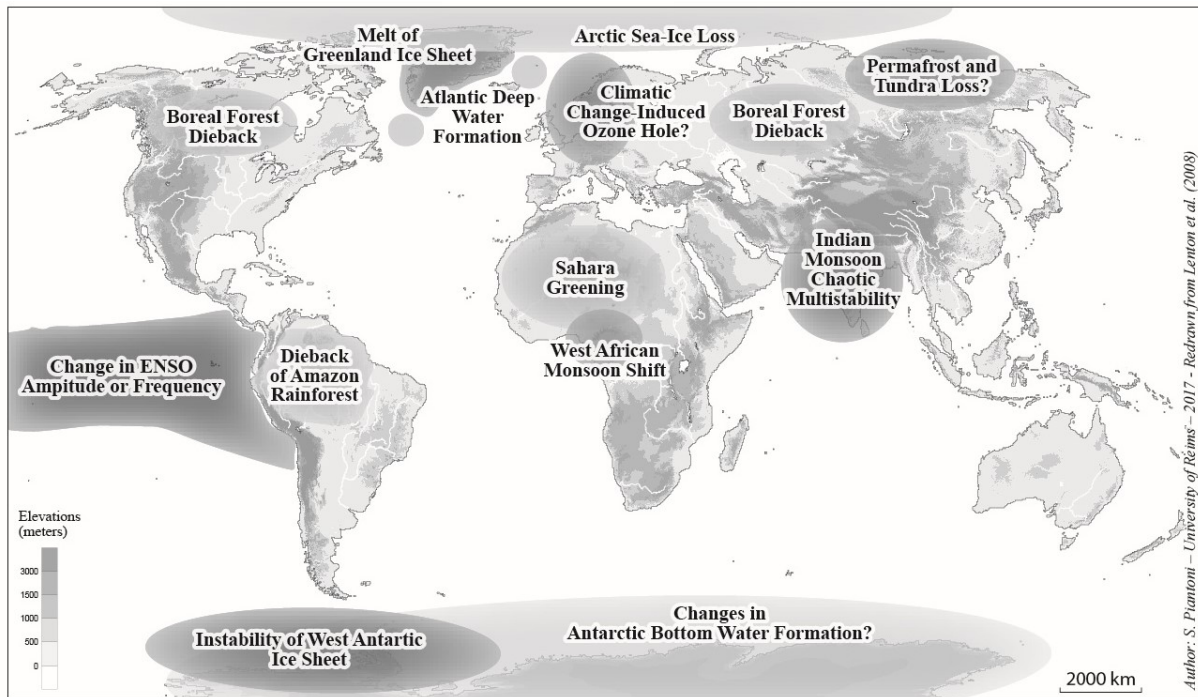


Figure 2: Map of potential policy-relevant tipping elements in the climate system. Source: redrawn by Sébastien Piantoni for this monography based on Lenton et al. (2008).

A key feature of ecoregions is ecological continuity. Udvardy, Olson and colleagues identified contiguous areas, combining global and regional maps of biomes, biogeographical provinces, floristic and zoogeographic provinces, as well as maps of units based on the distribution of selected groups of plants and animals. The boundaries of these ecoregions are quite clear and do not overlap. However, ecosystems tend to be more complex, with many components of one ecoregion shared among several ecoregions, making them partially overlapping and often nested. Wetlands are a typical example of overlapping ecoregions, with migratory birds going from one wetland to the other across many different ecoregions and climate zones. An example of nested ecoregions is given by a forest area and a river basin, like the Amazon. However, the concept of ecoregion is that of a system with specific properties that emerge only when the system is apprehended as a whole. It is the combination of forest, freshwater, birds and other features that make the Amazon. It is thanks to this combination that so many species find their habitat within the Amazon. It is not any of these individual features that makes the ecoregion, but the combination thereof.

Ecoregions are themselves fragments of the planetary system. As such, they are an important component of biodiversity, which is defined not only at the level of species and genetic resources, but also at the level of habitats, biomes and ecosystems. However, it is important for ecoregions to maintain a certain degree of continuity to be sustained.⁹ A major threat to ecoregions is territorial fragmentation. This usually comes from anthropogenic pressure in the form of, for instance, a major dam on a river or of a major road cutting across a valley. Dams alter the natural flow of the water. They change not only some hydrological features of a river basin but also significantly change the habitat for underwater flora and fauna, such as fish. For this reason, a large number of initiatives promoting ecological continuity focus on ecoregions and particularly those who are considered as priorities for conservation. The Alpine ecological network and the Abiseo-Cóndor-Kutukú ecological corridor in the Andes are examples of such initiatives.¹⁰ However, it is important to highlight that the focus of this monography is on ecoregions whose physical dimension make it difficult for humans to ignore them. If a dam can

⁹ See Balsiger et al. (2012).

¹⁰ Read, for instance, Walzer et al. (2013).

significantly alter the flow of a river, it cannot make the river completely disappear. There are some extreme cases such as the Colorado River in the United States or the Amu Darya in Central Asia, which for many months cannot not make it to the estuary because of excessive withdrawal. However, if the flow was to be restored because of heavy rain or radical change in water use, the water would still be there to make it to the sea. This reasoning applies even more to mountain ranges.

Chapter 2: The regional dimension

This chapter provides grounds to identify ecoregions based on their regional dimension. It presents how human geographers, economists, lawyers and political scientists define regions. The chapter also points out how disciplines often focus on different kinds of regions. It contrasts “scientific” attempts to delineate regions and “political” attempts. The examples of the definition of the Alps and Carpathians are provided. The proposed definition of ecoregions combines these perspectives and discusses the relevance of the concept of socio-ecological system.

The frequent use of the term “natural borders” is a sign that the environment has always been a key element in the definition of the sovereignty and territoriality of nation states. Much of modern history was affected by the quest for borders “secured” by natural barriers, particularly for military concerns.¹ Already in the 18th century, Nicolas Buache proposes in his *Essai d’une nouvelle division politique* a theory of natural borders to restore a “natural division” of the world and remove the “origin of most wars”. According to the imperatives of geopolitics, it is in fact considered easier to defend a territory whose frontiers coincide with landmarks, such as mountains, seas, lakes, and rivers.² The Rhine River, for instance, played a great role in Franco-German relations and the fate of Poland in the 19th and early 20th century was also related to the absence of natural defenses, being surrounded by Germany to the West and Russia to the East. On the other hand, the presence of the Baltic Sea and of the Carpathian Mountains contributed to the relative protection of Poland from the neighbors to the North, Sweden, and to the South, Austria. Another significant example is the border between Argentina and Chile, defined by the “highest summits” and “dividing waters” of the Andes.³ This phenomenon led to the consideration of natural borders as a strategic element for nation states. However, geographical landmarks, such as inland waters, plains, and reliefs, are also found, of course, within the national borders, and play a central role in planning. Water management, for example, has been a tool for development at least since the VI millennium B.C. (e.g. canalizations, aqueducts, etc.), and people have regularly been moving from the plains to the hills according to need (e.g. food, health, etc.) since time immemorial.

Geographers have also put considerable efforts in defining ecoregions. Looking at a regular physical world map is a telling example of which environmental landmarks geographers consider to be most relevant: waters (seas, lakes, rivers, glaciers, etc.) and reliefs (plains, valleys, mountains, etc.). However, the challenges faced in the delineation of the perimeter of application of some regional environmental agreements is a testimony of the difficulty of this exercise. Geography itself started as an effort to name and to define the various parts of the known world. One can identify three main trends in the practice of geographical designation: Friedrich Ratzel’s environmental determinism, Lucien Febvre’s geographical possibilism, and a hybrid approach.⁴ In the first case, the emphasis is on the effects of the natural environment on human societies (as a reaction to racial determinism) and on the belief that similar environments lead to similar societies. Landscape geography (in German: *Landschaft*), for example, looks at a natural area with the objective of providing a systematical and exhaustive description of nature and society. In the second and opposite case, geographers highlight the human dimension (criticizing environmental determinists, which underestimated the human capacity to affect nature), looking at differences within societies and environments. Early regional geography (*Länderkunde*), in fact, looked

¹ For a historical perspective and a critical appraisal of this notion, see, for instance, Raffestin (1986b, pp. 8-10).

² See, in particular, the geopolitical work on fronts and frontiers of Foucher (1991, pp. 126-130), as well as the interpretation of the Alps as a bridge by Egli and Messerli (2003). See also the reflections on ecoregionalism and German right wing ecology by Olsen (2000). MOVE DOWN

³ See article 1 of the 1881 Boundary Treaty between Argentina and Chile. It should be reminded that this agreement was negotiated during the 1879-1884 Pacific War.

⁴ See Paolo Viazzo’s lucid panoramic on the subject matter, where all references to Ratzel and Febvre can be found (1989, pp. 1-3). See also Richard Hartshorne’s classical narrative on the historical development of geographical research, quoted by Viazzo.

at a social unit, such as a nation state, always with the objective of describing society and its environment in a systematical and exhaustive manner.⁵ The typical product of these approaches were monographs on a nation state (France, Argentina, etc.). Of course, a region defined on purely environmental grounds can have features which are different from a region defined on social, cultural or linguistic bases.⁶

In the 20th century, regional geography evolved significantly, hybridizing the two approaches in the works, for instance, of Raoul Blanchard, who combined the use of toponymy, geology, climatology and hydrography in the designation of Alpine subregions, or of Norbert Krebs, who worked comparatively, reminiscent of the tradition initiated by Alexander Von Humboldt and Thaddäus Haenke's early 19th century scientific expeditions in the Andes, which is still alive today.⁷ Since the 1970s, these approaches have been especially influenced by economics.⁸ Looking at production strategies and land use (*Landnutzung*), for example, displaced the debate from the geographical definition of a region to its usage by economic agents, leaning towards human geography. In these hybrid approaches, regional systems are studied analyzing socioeconomic and ecologic subsystems and combining them.⁹ Other scholars criticize such approaches pointing out that it is not sufficient to look at economic imperatives or ecologic limits, proposing to look, instead, at how the geographical space is perceived and represented by social groups.¹⁰ Another group of scholars, building on these critiques, pushes this perspective further, arguing that environment and nature are essentially social constructs, that we appropriate unknown and uninhabited space transforming it into relatively known and partially inhabited territory.¹¹ Definitions of ecoregions can therefore be found not only in the environmental deterministic literature, but also in hybrid and constructivist approaches, especially those that emphasize the environmental dimension, but they will depend on to the variables considered and their respective weight (e.g. water v. altitude, agricultural v. linguistic practices, etc.). So, while the ecologists help us understand the tension in the quest for a system of reference in the definition of an ecoregion (flora, geology, etc.), the geographical literature is instrumental in questioning the relationship between societies and their environments and their perception and construction thereof. Should we privilege the social or the environmental dimension in our definitions? This question was topical at the beginning of contemporary international ecoregionalism in the 1970s and remains open today.

The perspective that we find among economists is close to that of ecologists and geographers. If the discipline recognizes the existence and the importance of regional dynamics, economists also find it challenging to define regions, because they depend on the particular flux that we are looking at and how we weight it vis-à-vis other fluxes. For instance, when we study winter tourism, we tend to identify a certain regional dynamic; on the other hand, if we analyze software market, it is very likely that other dynamics emerge with their actors, as well as their spatial and temporal dimension. At the international level, the 1947 General Agreement on Tariffs and Trade (GATT) allows the existence of regional trade agreements (economic integration, customs union or simple free trade agreement), provided that they contribute to the global reduction of tariffs.¹² In this particular case, the sectoral differentiation of

⁵ For an insightful presentation, see Bätzing's interview on of the development of regional geography (2001, pp. 212-213) and the monograph *Les Alpes* (2005). See also the Pinchemels, who revisited the concepts of landscape and region (1988), as well as Neumann (2009).

⁶ For a strong social and cultural view of regions, see Paasi (1996).

⁷ See in particular Debarbieux's contribution on Blanchard (2001b, pp. 53-62) and Borsdorf and Braun's passage on comparative regional geography (2008, p. 109).

⁸ See, for instance, the regional geographers Allen, Massey, and Cochrane (1998).

⁹ See again Bätzing (2001, pp. 215-216).

¹⁰ For such reflectivist perspectives, see the works of Dardel (1952) that were reintroduced to the geographical debate also thanks to Raffestin (1987).

¹¹ On the concept of territory in the geographical literature, see again Raffestin (1986a), also for reflections on the meaning of territoriality, a close relative of Foucault's concept of governmentality, and its relationship with Lotman's semiosphere (1985).

¹² Article XXIV (Territorial Application — Frontier Traffic — Customs Unions and Free-trade Areas) and the 1994 Memorandum of Understanding on its interpretation.

regional dynamics reflects itself in the structure of tariff tables, which distinguish between different types of goods and services depending on existing fluxes and their impacts. We can find similar situations at all levels, including the regional level. For example, in their study of regional economy in England, John Allen and colleagues show how the growth area of London does not correspond to the administrative boundaries of the city-region and can go as far north as Cambridge and Peterborough and as far east as the Thames Gateway.¹³ Even if aggregated parameters exist, such as production, trade and revenue, and can be modeled, these models suffer from definitional limits similar to those of models of ecosystems. They are as worth as the definitions they employ and the data they use. Sometimes, these models take administrative regions for granted. Given the proximity of economic and ecological approaches, some political scientists have recently proposed joint analyses of international economic and environmental regimes.¹⁴ At the same time, we observe the development of environmental economics, which tries to improve models of environmental factors in economic approaches, especially externalities and ecosystem services.¹⁵

Politically speaking, as a first approximation, we normally distinguish between national regions, which are the territorial units between the local and the national level (which usually corresponds to an administrative unit¹⁶), and international regions, which are groups of states between the global and the national level (normally corresponding to a continent or to another geographical unit). In the 1960s, Seymour Lipset and Stein Rokkan defined regions as a product of a center-periphery cleavage¹⁷ “between the central nation building culture and the increasing resistance of the ethnically, linguistically and religious subject population in the provinces”.¹⁸ While this tension is historically grounded in the resistance to the centralization process that came along with nation building in modern times, from the Tuscany of the Renaissance to the France of Luis XIV, in recent years we assisted in several European countries to state induced decentralization, for example, in France, with the creation of regions in the 1980s and, in the United Kingdom, with the so-called devolution process of the 1990s. These phenomena were generally appraised from two opposite perspectives: on the one extreme, Amitai Etzioni would see the reemergence of communitarian dynamics¹⁹; on the other, globalists would interpret the apparent weakening of the nation state as the “end of geography” or even the “end of territories”.²⁰ From the literature, the political significance of the scholarly debate around regions emerges clearly, especially in the wake of salient events such as the Basque independentist movement in Spain or the Northern League in Italy. Micheal Keating contributed to nuancing this cleavage, reading this “new regionalism” as a convergence of functional pressures on national institutions, which are overburdened by the welfare state, and local mobilizations, which seek political autonomy, ultimately leading to a renewed “territoriality”.²¹ This concept is very close to that of “governmentality”. Michel Foucault defines

¹³ See again Allen et al. (1998).

¹⁴ For instance, on environmental protection in a regional economic integration context, see Scovazzi (2001); on the 1997 Kyoto Protocol, trade, and investment, see Chambers (2001) and Bretherton and Vogler (2000).

¹⁵ Partha Dasgupta is certainly among the main figures of this sub-discipline: see, in particular, his contributions on human well-being (2001) and on natural capital (2010).

¹⁶ The European Union adopted a system of territorial statistical units, the so-called “NUTS system”: in the UK, the NUTS1 level corresponds to Government Office Regions, NUTS2 to counties, Inner and Outer London and groups of unitary authorities, NUTS3 to upper tier authorities or groups of lower tier authorities, LAU1 to districts, and LAU2 to wards.

¹⁷ In the 1970s, a center-periphery model applied to international relations contributed to the development of so-called dependency theory: if the structure of the world system follows those lines, economic development can then be understood as the tension between countries at the center and those at the periphery for their position in the system (Cardoso & Faletto, 1984; Wallerstein, 1974, 1980). The same model could be applied at both macro and micro level.

¹⁸ Quoted from their influential *Party Systems and Voter Alignments* (1967, p. 10).

¹⁹ This argument is strongly put forward in *The Spirit of Community* (1993). See, also, Tilly (1998).

²⁰ As argued in O'Brien (1992) and more strongly in Badie (1995).

²¹ See his *The New Regionalism in Western Europe* (1998), particularly chapter 4 (pp. 72-111). See also Balme (1994, 1996).

governmentality as the degree to which a population can be governed.²² The study of governmentality is therefore also the study of the devices through which government is exercised, such as prisons, police, statistics and models. Similarly, territoriality can be defined as the degree to which a territory can be governed. As such, territoriality contributes to the production of a territory. The devices through which a territory is governed include regions and their dynamics, as well as their formal institutions and governance systems.

Students of international relations have also dedicated much attention to the definition of international regions. In this case as well as, the literature often responded to the emergence of new phenomena, which called for interpretation. In fact, early studies reacted to the wave of post-war regional institutionalism, from the beginning of European integration in the 1950s to the creation ASEAN. In the 1960s, Joseph Nye gave a classical definition of an international region:

*a limited number of states linked by a geographical relationship and by a degree of mutual interdependence.*²³

In his view, the process of regionalization then corresponds to “the formation of interstate groupings on the basis of regions”. This definition was clearly built on the work of geographers, but also transpired a strong bias towards state centrism and was strongly criticized mainly for this reason, at that time when other actors, such as multinational corporations and NGOs, were emerging at the international level. The problem is similar to the one we observed among ecologists and geographers, where the main challenge is, in the words of Ernst Haas, to select among a plethora of variables and linking them. In the 1970s, Haas himself, despite being a strong proponent of regionalism, argued that the discipline was still far from clearly knowing where regional integration was going.²⁴

However, all the mainstream currents of international relations scholarship provide several interpretations of the phenomenon of regionalization. Neorealists insist on the anarchical nature of international relations and see regional agreements as strategic alliances or alignments, based on geographical proximity and other contingent factors, such as the general balance of power and the current hegemon, facing the usual issue of free riding. Significant examples are regional organizations for collective defense such as NATO (an illustration of hegemonic America and free rider Europe) or trading blocs in global negotiations such as the EC (a strategic alliance around the commercial power of Germany).²⁵ The 1945 UN Charter dedicates a full chapter to regional arrangements or agencies for “dealing with such matters relating to the maintenance of international peace and security,” in an international division of labor aiming at encouraging the strengthening and deepening of security mechanisms and regimes by the member states that wish to do so. The aim is therefore the solution of local problems at the regional scale in order to avoid that conflicts escalate at the global level. Moreover, regional arrangements would act as *longa manus* of universal institutions, particularly of the Security Council in the case of localized threats.²⁶

Neo-functionalists look at the spillover effects of international regionalism, which are supposed to induce deeper integration or “peace in pieces”, while neo-liberal institutionalists, assuming the growing interdependence of the global economy, focus on the reduction of transaction costs produced by international regimes (quite literally, knocking at the next door, instead of flying to Tokyo). Meaningful examples here is the development of the EU, which goes far beyond a regional alliance towards a federal

²² See Foucault (2004a, 2004b) and Debrix and Barder (2009).

²³ Quoted from Nye (1968, p. vii).

²⁴ See E. B. Haas (1970, p. 631).

²⁵ See the classics of neo-realism, Waltz (1979) and Walt (1985). For a recent contribution on the ambivalent role of great powers at the regional scale, see Hurrell (2007) and Prys (2010).

²⁶ See Chapter 8, as well as Articles 33 (solution of disputes through peaceful means) and 47 (regional sub-committees of the Military Staff Committee); see also the abundant legal, political, and military literature on this issue.

system, as well as the proliferation of all kinds of environmental regimes, from the desert to wetlands, from the ozone to climate. According to Louise Fawcett, “after the 1960s ... liberals moved away from ... regionalism and focused instead on ... transnationalism and interdependence.”²⁷ Looking at the formation and impact of ideas and intersubjective meanings, the contribution of social constructivists to the understanding of international regionalism is that of unembedding actorness. If a region is socially constructed, then any regional process is based on a preexisting sense of community or on communicative efforts by a societal group, which can be independent and even opposed to government.²⁸ Particular attention is paid to norms as means of political action, but also to the way these instruments inform and constrain action.²⁹ The European construction could be read, for example, either as a product of a shared understanding among the general population concerning the need for a greater union in Europe or as the result of persuasive efforts by select groups sharing the same vision for the continent and enshrined in customary norms and legal agreements. Finally, comparative skeptics about the possibility of political action in the international realm produced approaches at the domestic level, looking at variables such as regime type (democracy could facilitate regionalism, or it could represent an obstacle) or state coherence (weak states would not be able to engage in region building). This is supported by scholarship on the reconfiguration of state action, which some argue has never been stronger. For example, the world has never paid so much taxes in terms of part of GDP. According to this literature, this phenomenon should support the development of regional arrangements.³⁰

According to this approach, as Andrew Hurrell puts it, “integration ... emerged from the pursuit of quite narrowly focused national policies and parochial rather than internationalist visions and could result in a strengthening, not a weakening of the role of the state”.³¹ If this perspective is correct, the proliferation of regional initiatives, even the European integration process, is a sign of the strength of states, not of their weakness. Contrary to this view, Louise Fawcett argues in the same book that “the widely held view that a key aim of regional cooperation should be not the weakening but the strengthening of national autonomy remains a serious obstacle to effective regionalism.”³² These opposite views lead to the distinction of two kinds of regionalization: on the one hand, an instrument of a state’s neighborhood policy; on the other, a process that is independent from the state and that should ultimately lead to its demise. If Hurrell’s interpretation seems to constitute a logical necessity (you must postulate the state to conceive international regionalism) and to correspond to dominant reality, Fawcett identifies an element that is recurrent in regional practice; which is the presence of elements other than state institutions, for instance ethnicity, but also ecosystems, which can bind interests at a level that can be referred to as regional.

Especially since the new wave of international regionalism of the 1990s, which came along with the end of the Cold War³³ and which manifested itself in the form of the creation of new regional agreements such as NAFTA or Mercosur and the deepening of existing integration processes such as the European Union with the Maastricht Treaty (also known as “new regionalism”), we assisted to a proliferation of

²⁷ The seminal work for neofunctionalism is E. B. Haas (1964) and for neoliberalism is Keohane and Nye (1977). According to Louise Fawcett, “after the 1960s ... liberals moved away from ... regionalism and focused instead on ... transnationalism and interdependence” (1995, p. 14). On international regimes, see also Stephen Krasner’s collective book (1983). On “peace in pieces” or “parts”, see Nye (1971).

²⁸ See Alexander Wendt’s several contributions (1987, 1992, 1999); for a critical appraisal, read Risse-Kappen (1994).

²⁹ See, in particular, Finnemore and Sikkink (1998) and, on a similar note, *The Theory of Communicative Action* by Habermas (1987). The normative constructivist literature can be considered as the intellectual heir of the liberal idealism of the early 20th century.

³⁰ See Le Galès and Vezinat (2014) and King and Le Galès (2017).

³¹ Quoted from Hurrell (1995, pp. 70-71).

³² Quoted from Fawcett (1995, p. 34). For a perspective on developing countries, see also the contribution by James Mayall in the same book (1995).

³³ See Francis Fukuyama’s *The End of History and the Last Man* for a provocative view on the end of ideological confrontation (1992). For a historical perspective of international regionalism, see again Fawcett (1995).

takes on the topic.³⁴ However, instead of growing clearer, definitions became increasingly blurred. Looking at the origin of the regional idea, as Louise Fawcett puts it, “there is no single explanation ... there is a sense of ‘regional awareness’ ... there is a desire by states ‘to make the best of their regional environment’”.³⁵ Andrew Hurrell, putting regionalism in a theoretical perspective, concludes that

*there are no “natural” regions and the definitions of “regions” and the indicators of “regionness” vary according to the particular problem or question under investigation.*³⁶

While the need for a geographical reference is clear, frustration with “scientific” attempts to delineate regions in environmental, geographic, or political science is also great.³⁷ The variables at stake are simply too many. Recent attempts, for instance, to move away from physical regionalism and revive “functional” or sectorial (economic, environmental, etc.) approaches, if they did not succeed to represent more than an *ex post* rationalizations of regional “flows”, they stigmatized the tension between what is perceived as a realist and a constructivist perspective on regions.³⁸ The concept of “functional” regions (economic, environmental, etc.) can also be understood from a “sectorial” or “field” perspective, leading to insightful analyses of the social configurations that constitute such regions. If the constructivist “turn” did contribute to the understanding that “regions disappear and reappear as they are transformed by various economic, political and cultural factors”³⁹, it did not come at terms with the *ex ante* physicality of some regions. This is further problematized by the phenomenon of ecoregions, where the distinctive element is the physical territory, which exists independently from society, but is perceived and conditioned by it.

In an attempt to bridge all these disciplinary definitions, an “ecoregion” can be identified with a large fixed physical element, such as river basin (watershed or catchment area), a sea, a plain or a mountain range. These elements correspond to one or more related ecosystems. Ecoregions may or may not correspond to economic, social and cultural dynamics. The way an ecoregion is socially constructed also contributes to its definition. They are often seen as geographic landmarks and used as natural borders. As such, ecoregions usually possess an international or interstate dimension. Moreover, the term “ecoregion” relates more to “ecology,” which corresponds to a holistic worldview, than to “environment,” which would insist on elements exterior to the social system, or to “nature,” which would insist on the distinction with humanity. Examples of ecoregions include the Alpine Arc, the Mediterranean Sea, the Danube Delta, the Amazon Forest, the Tahitian Marine, and the Patagonian Steppe. A further evolution of this debate is represented by associating or coupling human and environmental systems.⁴⁰ At a second degree of approximation, an ecoregion can be identified with a territory where there is a strong link between society and an environmental unit, also known as a socio-ecological system (SES). However, not all socio-ecological systems are ecoregions, as they can be

³⁴ For an authoritative and comprehensive perspective, see Hurrell (1995, p. 37) or Gamble (2007).

³⁵ Quoted from Fawcett (1995, pp. 10-11).

³⁶ Quoted from Hurrell (1995, p. 38).

³⁷ Mainstream statistical approaches, for example, tend to make territorial statistical units correspond to the various administrative levels: for eloquent examples, see the definition of “macroregions” employed by the UN Statistical Division, which roughly correspond to cardinal sections of the five continents (e.g. North America, Western Europe, etc.), as well as EUROSTAT’s definition of EU territorial statistical units (i.e. NUTS1-2-3, LAU1-2), which exactly correspond to national administrative units. In 2010, the Regional Environmental Governance: International Approaches, Theoretical Issues and Comparative Designs (REGov) international workshop took place at the University of Geneva (Balsiger & Debarbieux, 2011). It gathered several scholars from several disciplines that work on this issue.

³⁸ See Väyrynen (2003, pp. 26-27, 42-43); see also Hettne, Inotai, and Sunkel (1999). The concept of “functional” regions (economic, environmental, etc.) can also be understood from a “sectorial” or “field” perspective, leading to insightful analyses of the social configurations that constitute such regions.

³⁹ Quoted from Väyrynen (2003, p. 25).

⁴⁰ On coupled human-environmental systems, see, in particular, the edited volume by Turner et al. (1993). See also the contribution by Easterling and Polsky (2004).

smaller and are not necessarily based on fixed physical elements. Fisheries and community forests are examples of socio-ecological systems that do not qualify as ecoregions.

Example 1: Defining the Alps

Delimiting mountains should be relatively easy. They are massive; they cannot be missed. However, it is not that easy. How to consider the land adjacent to mountains? What about steep terrains? How to consider subarctic zones, even outside of mountain ranges? Plateaus, do not they resemble lowlands? In the case of the two existing regional mountain agreements, defining their limits proved to be a contentious issue, particularly on the Carpathian side. Delimiting the perimeter within which the agreement is to be in force is fundamental to ensure the certainty of law; otherwise, it would not be possible to verify if the terms of the agreements are upheld.⁴¹ Historically, the approaches to the delimitation of mountains are numerous and often depend on the definitions found in national mountain laws.⁴² Special laws in support of mountain regions have been present, for example, in Austrian, French, Italian, and Swiss law since the 1950s. Since the 1970s, the “Europeanization” of mountain agriculture and the irruption of computerized geographic information systems (GIS) in the 1990s contributed to the emergence of standardized approaches, which soon acquired general currency. These new approaches defined mountains on the basis of three variables: altitude, slope, and ecological factors.⁴³ This represented a shift from both the traditional approach based on major ranges and mountain ecosystems and the socio-economic perspective, which considered mountains as less-favored regions, assimilating them to rural and agricultural areas, consequently presenting mountains as “developing” regions. Mountain regions are not once, but “twice”, or even “tridimensionally rural”, as to the length and width of rurality, mountains add a third dimension: height. This perspective entitled mountain regions in Europe to receive EU structural funding, which could have been threatened by approaches that would have modified the existing definitions of mountains. However, these new approaches have only contributed to increase the perceived extension of mountain areas. For instance, the traditional estimate of the percentage of world population living in mountain regions shifted from the traditional value of 10% to a range between 12% and 26%, depending on the definition adopted.⁴⁴ However, a shared definition at the European level is still missing, also because of the reluctance of the EU to launch a specific policy for mountain regions.⁴⁵

In the case of the 1991 Alpine Convention, article 1(1) refers to a map annexed to the framework convention as the Alpine region. The map was defined before the finalization of the convention and corresponds to an arbitrary, but agreed upon, definition, which takes in consideration the preferences of the Alpine states, while corresponding approximately to what is generally understood to be the Alpine Arc. Noteworthy exceptions are represented by the exclusion of part of the Southern extremity of the French Alps, because of the presence of an important transport axis, by a scope of application that, in Italy, was defined at the provincial level, while in all other states it is provided at the municipal level,

⁴¹ At another level, “clearly defined boundaries” is also the first design principle for governance institutions of common-pool resources identified by Ostrom (1990, p. 114)

⁴² Special laws in support of mountain regions have been present, for example, in Austrian, French, Italian, and Swiss law since the 1950s.

⁴³ For a general overview on the delimitation process of European mountains, see in particular M. F. Price, Lysenko, and Gloersen (2004). Four milestones are the study by Messerli and Ives (1997), the proposal by Kapos, Rhind, Edwards, Ravilious, and Price (2000), the synthesis by UNEP/WCMC (2002), and a report to the European Commission prepared by NORDREGIO (2004). An ecological factor that was considered in these studies and that had significant consequences was the assimilation of the subarctic environments of Scandinavia to alpine ones: if subarctic regions were considered less favored areas, they would qualify for EU structural funding, just like mountains (Sweden and Finland had joined the EU in 1995).

⁴⁴ See M. F. Price et al. (2004, p. 63).

⁴⁵ In this regard, see the words of the then European commissioners Margot Wallström (environment) and Loyola de Palacio (transport) reported by Caveri (2002, pp. 66-70).

and by a not fully harmonized definition used in Austria and Germany.⁴⁶ It must be noted that the exact definition of the scope of application of the convention is important also because the contributions to the functioning of the Permanent Secretariat of the Alpine Convention are calculated on the basis of a formula, which considers the share of surface, population, and GDP of the Alpine region in each state.⁴⁷

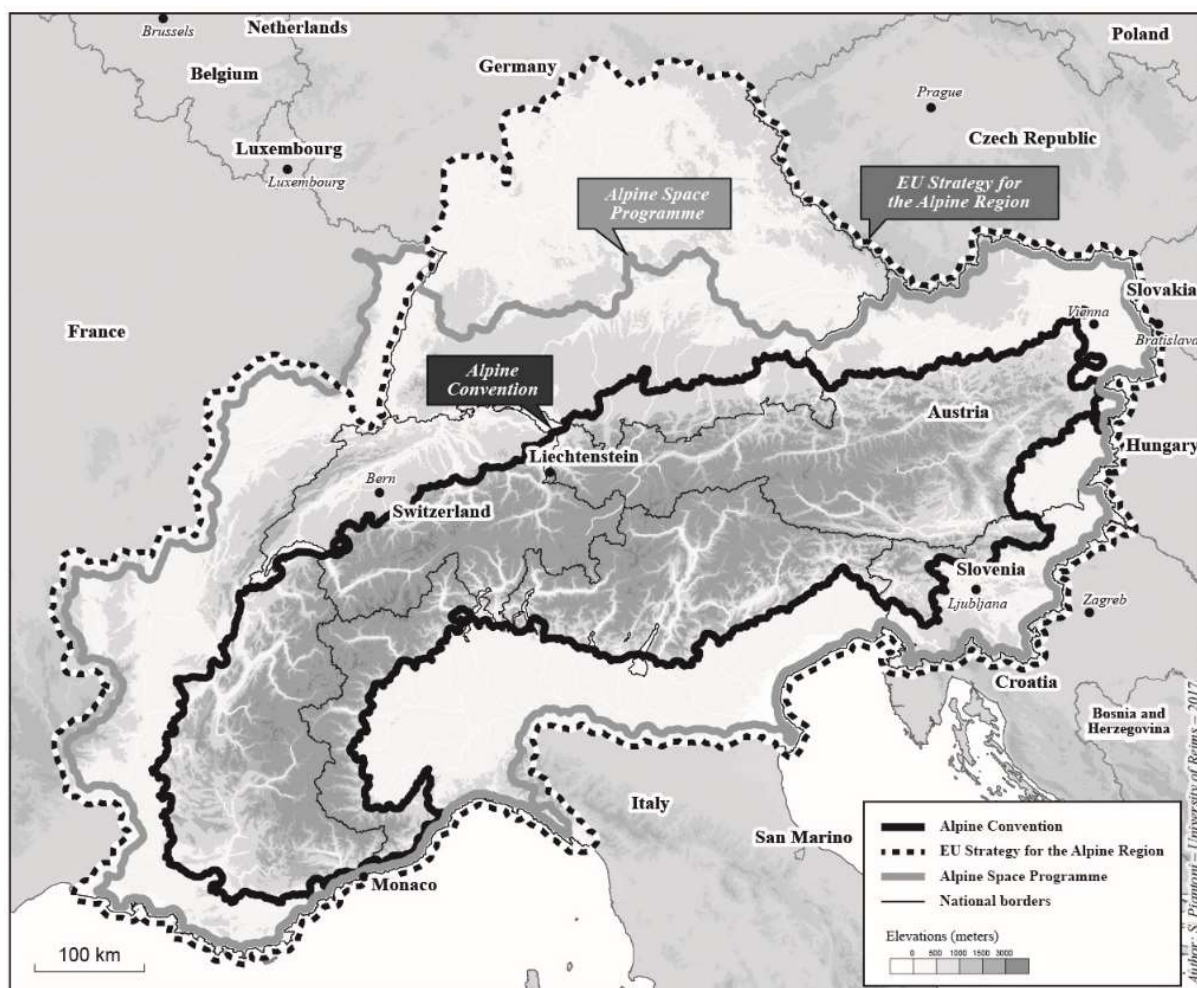


Figure 3: The three perimeters of the Alps. Source: drawn by Sébastien Piantoni for this monography.

Example 2: Defining the Carpathians

The case of the Carpathian Convention is more complicated. As reconstructed by Juliet Fall and Harald Egerer, now Interim Secretary of the Carpathian Convention, a first map had been produced, in January 2003, by an expert geographer at UNEP in Geneva. Despite some inaccuracies, the map was based on “scientific” grounds. However, it was unacceptable for some states. In particular, Romania protested because the definition included the Transylvanian Plateau, which was excluded from the national definition and which would have resulted in too large a share of the Romanian territory within the scope of the convention; Serbia also protested because of a clearly inaccurate delimitation, which also included a much larger area. Both countries were also concerned for the restrictions to economic development that future protocols to the conventions could impose on strategic regions (e.g. the Carpathians cut

⁴⁶ On transport issues, see M. F. Price (1999). For a greater effectiveness of environmental indicators, it is generally recommended for scope of applications to be defined at the municipal level (Hain, 2004, p. 23; NORDREGIO, 2004). Italy has redefined the perimeter of the convention within its territory from the provincial to the municipal level, as other Alpine states (Ruffini, Streifeneder, & Eiselt, 2005).

⁴⁷ See the annex 3 to the decision VII/2 (2002), as well as Juliet Fall and Harald Egerer for the reflexes this decision had on the development of the Carpathian Convention (2004, p. 92).

Romania in two parts, which are also ethnically diverse). By March, a second map had been produced, drastically reducing the surface within the scope in Romania and Serbia. This led, in turn, to a dispute between Hungary and Romania, which revolved around the use of the expression “Carpathian mountains” instead of simply “Carpathians” (which could have also included the Transylvanian Plateau).⁴⁸ Besides the historical tensions between Budapest and Bucharest, this also depended on the rules for the financial contributions to the convention that were under negotiation at the same time, which followed the Alpine model.⁴⁹

However, the dispute was not solved before the parties decided to adopt the framework convention. In fact, according to article 1(1) of the 2003 Carpathian Convention, the scope of application is not decided upon; it is not annexed to the convention text as in the case of the Alpine Convention; and it is to be determined by the parties, *de facto* freezing and postponing the issue. In May 2003, at the time of the opening of the convention for signature, Romania deposited a formal reservation to article 1(1), which was reproduced in its law of ratification:

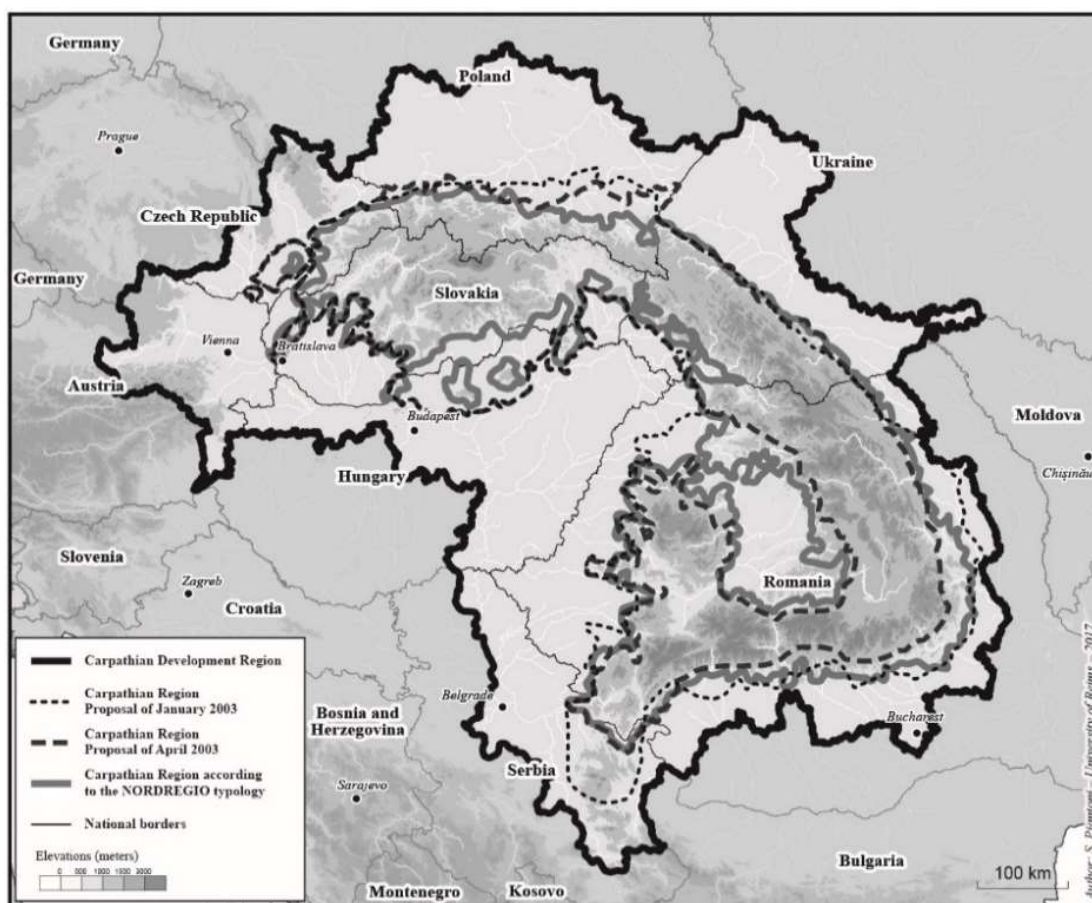


Figure 4: The four perimeters of the Carpathians. Source: drawn by Sébastien Piantoni for this monography.

⁴⁸ See the article “Constructing the Carpathians” (2004, pp. 92-93).

⁴⁹ However, pursuant to article 17 of the 2003 Carpathian Convention, the scale of contributions is not fixed and is to be determined by the parties. COP1, held in 2006 in Kiev, adopted the financial rules, making the scale conditional upon to the work program of the convention, and the final location of the Permanent Secretariat, but fixing only a temporary scale, which set an equal repartition for all countries, except Serbia, without considering the size of the parties (decisions COP1/2 and COP1/3). COP2, held in 2008 in Bucharest, did not take any further action in this regard, given that the questions of the location of the secretariat and the scope of application remained open, except for a minor increase of contributions after a fierce debate (Brogiato & Church, 2008). At the time of writing, the issue remains unsolved.

The Government of Romania considers the term “Carpathian region” in article 1, paragraph 1, of the Framework Convention for the Protection and Sustainable Development of the Carpathians as designating the Carpathian mountain area, which is defined, on the territory of Romania, in accordance with physico-geographical and biological criteria, as well as with socio-economic criteria related to a reduced land use potential and to the relationship of the local population with the specific physical environmental features, and also in conformity with the criteria of the European Community regarding the delimitation of alpine bio-geographical regions, based on the Council Directive 92/43/EEC [the so-called “Habitat Directive”] on the conservation of natural habitats and of wild fauna and flora.

It is interesting to note that the Romanian government used “scientific” criteria to justify its preventive rejection of any perimeter that included the Transylvanian Plateau (while the first meeting of the Implementation Committee of the convention ironically took place in Sibiu, in the heart of the plateau); the reference to the *acquis communautaire* is also worth noting, at a time when Bucharest was still struggling to become a member state (also considering that the EU definition coincided with the Romanian position). At the conference of the parties for the adoption of the text of the convention, the Italian government, which had supported the development of the convention since the beginning of the process in 2001, proposed to commission a comprehensive study of the geographical scope to EURAC, a research center which had contributed to study the new perimeter of the Alpine Convention from the provincial to the municipal level in Italy and which was also contributing to the development of the Carpathian Convention. This study should have served as a sort of mediation instrument. This led to a new study, which examined the issue in detail, looking at existing methodologies, national delimitations, and environmental factors, adapting the innovative approaches that were being developed at the European level to the Carpathian region.⁵⁰

However, the issue remained extremely contentious at the political level. Ukraine, for instance, which acts as the depositary of the convention, objected to the Romanian reservation with a formal letter, dated 3 August 2007:

As the decision on the scope of the Carpathian region has not been made yet Ukraine is of the opinion that the reservations made by Romania should be understood as a unilateral (restricting) definition of the term “Carpathian region”, which does not correspond to the definition of this term foreseen by the Convention.

In fact, the spirit of the convention seems to lean towards more integrative and inclusive approaches, also beyond the strict definition of the mountain region. For example, the areas proposed in recent years by the some actors for a “Carpathian Space” in the framework of EU structural funding goes well beyond that of the Carpathian ecoregion.⁵¹ However, a combination of historical rivalry, of concerns for the excessive weight of some countries (Romania could represent up to half of the Carpathian region, depending on the delimitation approach; the same could be said of Austria and Italy in the Alps) or for the amount of contributions expected, as well as for future protocols that could impose what can be perceived as excessive restrictions to the economic development of mountain regions, as sometimes advocated by environmentalist groups, a combination of all these factors does impact the political interests of certain countries and does induce the caution demonstrated in the process of definition of

⁵⁰ See Ruffini, Streifeneder, and Eiselt (2006). For a similar approach at the European level, see NORDREGIO (2004).

⁵¹ See, in particular, decisions COP1/13 (2006), COP2/2, and COP2/11 (2008), as well as the two final ministerial declarations adopted in Kiev and Bucharest.

the scope of application of the Carpathian Convention.⁵² Neither COP1 in 2006 nor COP2 in 2008 and not even the subsequent COPs, produced a solution to a problem, which remains frozen.⁵³

⁵² See, for example, the reading in Latourian terms (1999) proposed by Fall & Egerer, who argue that “the very thing that is taken to be the object of environmental studies and politics—namely ‘nature’—is an effect of power” (2004).

⁵³ As long as the Permanent Secretariat is not created (currently, an Interim Secretariat is hosted by UNEP in Vienna, and supported by Austria), the need to revise the temporary scale for contributions, which are less than €200,000 for the functioning of the whole convention (decisions COP1/3 and COP2/13), is low. For an in depth analysis of the outcomes of COP2, see the contribution by Arianna Broggiato and the author (2008).

Part 2: Analyzing ecoregional governance

Regional environmental agreements and processes do not take place in the void. They are part of a larger phenomenon that some scholars call regional environmental governance. Governance can be defined as “institutionalized modes of coordination through which collectively binding decisions are adopted and implemented”.¹ This concept goes beyond governmental organizations and includes both formal and informal institutions, hard (binding) and soft (non-binding) law, financial, communication and other kinds of policy instruments, as well as the panoply of state and non-state actors that influence intergovernmental agreements and processes. Regional environmental governance includes regional environmental agreements and processes. Regional environmental agreements and processes are important components of regional environmental governance, but do not represent the whole governance system.² States are usually the dominant actors, but non-state actors and actor configurations cannot be ignored to understand regional environmental agreements and processes. For example, ecoregional agreements and processes are often the result of the mobilization of NGOs and scientists in favor of a specific cause or against a certain project, sometimes in opposition to government organizations, such as in the case of the Alpine Convention. Also, regional environmental agreements and processes can be object of lobbying activities by interest groups, ranging from the business sector to environmental NGOs, in favor or against initiatives to fight for instance pollution in the Mediterranean Sea. Actors that are formally external to the agreements or processes, such as donors in developing countries, can also influence a given process, such as in the case of the International Fund to save the Aral Sea (IFAS).

Peter Haas defines regional environmental governance as “processes of collective deliberations about norms, institutions, participation, practices, and rules which occur at geographical scales associated with major conventional regions — or essentially continents or where those continents collide in an effort to address transboundary environmental degradation occurring at the regional scale: resource depletion, air pollution, water pollution, and the like.”³ This definition corresponds to what can be called the regional governance of the environment, i.e. how regional institutions and integration processes at the continental level such as the European Union or NAFTA contribute to the solution of environmental problems. The focus of this monography is not the regional governance of the environment, but a subset of regional environmental governance. It proposes the distinction between the regional governance of the environment and the governance of environmental regions or ecoregional governance. The focus is ecoregions such as regional seas, river basins and mountain ranges, and not necessarily environmental problems, such as water pollution or resource depletion. Actually, some ecoregional agreements and processes are little driven by environmental problems, such as the Alpine Convention and the Amazon Basin Treaty Organization.⁴

Different factors contribute to explain the emergence, persistence and demise of ecoregional governance. A variety of approaches can be mobilized to better understand these dynamics. Lorraine Elliott clustered them around three types, which can be reformulated as epistemic or knowledge-based (participatory) approaches, sociological approaches and diagnostic or management (political economy) approaches.⁵ These approaches are not mutually exclusive. The first two approaches focus on different elements that are important to understand regional environmental agreements and processes, while the last one tries to integrate different approached from a problem-based perspective. The first two approaches are rooted in sociology, political science and science and technology studies (STS), while

¹ Quoted from Börzel (2016, p. 53), who were quoting in turn Scharpf (1999) and Mayntz (2004).

² For a governance perspective on the climate regime, see Andonova, Betsill, and Bulkeley (2009).

³ Quoted from P. M. Haas (2016, p. 430).

⁴ See for instance Hochstetler (2011) and Church (2010).

⁵ See Elliott (2012, pp. 41-42).

the last one is taken from sustainability science. The following chapters provide a critical overview of each perspective.

Chapter 3: Epistemic perspectives: science and knowledge

This chapter frames regional environmental agreements and processes as part of the larger phenomenon of regional environmental governance. The chapter focuses on epistemic or knowledge-based approaches. These approaches concern the different ways we know the world and therefore the process through which territories are apprehended, especially by knowledge-holders. They presuppose a certain understanding of the dynamics specific to an ecoregion, often in terms of scientific knowledge. This chapter discusses key concepts for ecoregionalism, such as fit, scale and epistemic communities.

Epistemic approaches concern the different ways we know the world and therefore the process through which territories are apprehended especially by knowledge-holders.⁶ They presuppose a certain understanding – often in terms of scientific knowledge – of the dynamics specific to an ecoregion. According to this approach, this knowledge is then the basis for solutions in terms of policies. A fundamental element is the correspondence between the framing and limits of available knowledge, on the one hand, and the framing and limits of existing governance. What kind of interaction is there between ecoregional dynamics and the knowledge and governance that surround them? For example, how is knowledge about climate change produced at the global level used in a specific area such as the Mediterranean Sea? How does the Alpine Convention interact with the European Union? Moreover, the perimeter of ecoregions and of environmental issues is often unclear and changing. This makes it difficult to characterize interactions. The conditions to go from one level (local, regional, global, etc.) to another and from one scale (spatial, temporal, administrative, etc.) prove to be essential to understand regional environmental governance.⁷

In this regard, there are two recurrent images: fit and scale. Both concepts were put forward by Oran Young in the already classical book *The Institutional Dimensions of Environmental Change*.⁸ The image of fit refers to “the (mis)match between properties of biogeophysical systems, and attributes of institutions”.⁹ Young proposes a catalogue of main ecosystem properties: structures (complexity, homogeneity, interdependence), processes (productivity, growth, stabilization, change) and connections (boundary conditions, transboundary interactions). He then tries to couple them with generic institutional properties, identifying three main sources of misfit: imperfect knowledge, institutional constraints, and rent seeking. Concerning imperfect knowledge, he highlights the role of informal knowledge, of mere ignorance, of false analogies, and of the incapacity to take key elements and causal mechanisms into consideration. Regarding institutional constraints, he identifies, in particular, jurisdictional limits, bureaucratic politics¹⁰, and path dependency as sources of misfit. Finally, as far as rent seeking is concerned, he puts forward extraction of natural resource extraction and competition among political factions. Young is of course conscious of the fact that most of these phenomena manifest themselves at the same time (for instance, dominant paradigms and bureaucratic politics, cognitive knowledge and path dependence, etc.). In his book, he especially insists on the persistence of this misfit, highlighting the limits of collective action¹¹ and institutional constraints. Young presents different examples, showing well the misfit between several public policies and the properties of specific ecosystems because, for example, of the lack of flexibility, their geographical scope, etc.

⁶ See Raffestin (1986a).

⁷ See Young (2002), Cash et al. (2006), Debarbieux (2012) and Fourmy (2013).

⁸ See Young (2002; 2008).

⁹ Cited from Oran Young (2002, p. xiv). On fit, read pages 55-82, as well as the chapter by Victor Galaz et al. (2008).

¹⁰ See in particular Graham Allison (1969, 1971).

¹¹ See Mancur Olson (1971).

If considerations about fit are always necessary (fishing quotas for the year, number of soldiers for a mission, etc.), it is much easier to do it *a posteriori* – in order to evaluate, for instance, performance – than *ex ante* – for the sake of strategic or cost-benefit analysis. Moreover, Young himself reminds us that “important ecosystem properties are socially constructed”¹²: in the case of the definition of the scope of the Carpathian Convention, we saw how difficult it is not only to find a political agreement, but also to reach a “scientific” definition of the apparently simple case of defining a mountain range.¹³ Moreover, we must consider the persistence or – to use a natural science concept – the resilience of political institutions themselves, which have been developed in an “organic” manner with their societies and – I dare saying – the respective environments over centuries. Time has shown that certain institutions – for instance, the British monarchy, American democracy, and the French republic – generally fit the societies they represent in this spatial-temporal dimension. When they produced public policies that did not fit, they have so far been able to improve them. They cannot be too inappropriate, otherwise their peoples, with their respective histories of resistance to abuse, would have rebelled a long time ago! Finally, one should take very carefully this language derived from evolution theory, as if institutions were an animal fighting with other species for survival, as if they were subject to natural selection, to the law of the strongest, of the fittest.¹⁴ Without recurring to Hobbes and Locke and their theory of the exit from the state of nature, one must recall that institutions often aim at the weakest, explicitly going against the natural order of things. Equilibrium, fit, with conservationist obligations, collective interests, the force of majority, but also the principles of justice, and individual rights, the protection of the most feeble is at the center of ordinary practice of governments, parliaments, and courts. In this regard, Young correctly reminds that “there is no one-size-fits-all.”¹⁵

The concept of fit is closely related to that of scale. Young’s use of the concept of scale is quite peculiar. He refers to scale as the possibility to transfer experience and to apply knowledge from (relatively simple) local and short term microsystems to (increasingly complex) regional or global and long term macrosystems and vice versa. This is referred to as scaling up and scaling down. Dynamics at a local level are clearly different from those at the global level: the management of a waste dump or the activity of a city council are activities of a different order of magnitude compared to climate change or international relations. Moreover, public policy at one scale are not the mere sum of public policy at other scales. The same can be said about ecosystems, which often present chaotic and non-linear traits. According to Young, there is an interplay between the shift from micro to macro and the misfit between ecosystems and institutions, opening up the possibility for vertical – among different dimensions (local, regional, global) – and horizontal – among different sectors (environment, fishing, healthcare, etc.) – rescaling. This is therefore an epistemic issue that requires a translation activity from one scale and from one level to the other.

In a recent article, Liliana Andonova and Ron Mitchell highlight the target of this rescaling: as far as environmental issues are concerned, the nation-state is not appropriate with regard to the needs of the different ecosystems.¹⁶ This would be demonstrated by the vertical rescaling that we can observe with the shifting of several functions from the central government to local authorities and international agencies and by the horizontal rescaling represented by intersectoral and transregional policies. However, is it a consequence of the attempt to react to the misfit of existing institutions to ecosystem properties or, for instance, as argued by Michael Keating, of the convergence of functional pressures on national institutions, which are overburdened with the welfare state, and of mobilizations other than the

¹² Quoted from Young (2002, p. 55).

¹³ Read for instance Adam Moore (2008), Roderick Neumann (2009), Liliana Andonova et Ron Mitchell (2010), Oran Young (2002, pp. 139-162), as well as Thomas Gehring and Sebastian Oberthür (2008). See also the outcomes of the EU research project *Transformation of Global Environmental Governance* (COST Action IS0802, 2008-2012).

¹⁴ For an organicist perspective on institutions, see the recent work by Virginie Tournay (2009).

¹⁵ Quoted from Young (2002, p. 55).

¹⁶ See Andonova and Mitchell (2010).

search for political emancipation?¹⁷ Moreover, what political order would follow the overcoming and disappearance of the nation-state other than a patchwork of nested and overlapping arrangements at different scales? We would observe the return to a neomedieval condition or what some call the transition to postmodernity.¹⁸ Nevertheless, the resilience of these post-modern configurations still remains to be demonstrated. To recognize and interpret these transitions certainly represents one of the greatest challenges for political science these days.

However, from this point of view, the image of scale would be reduced to a spatial configuration of the theory of decision-making levels, which would represent nevertheless a significant contribution to dominant approaches (hierarchies, networks, etc.).¹⁹ At the same time, we find in the image of scale another important element for reflection, which concerns the perspective of the observer and regards the identification of significant elements in an analysis, including framing, and the limits of our perception and, consequently, from a Kantian point of view, of our understanding. From this perspective, the concept of scale is closer to that of the theories of the level of analysis.²⁰ The dominant level of analysis for international relations is certainly co-produced in a context of balance of power and is that of the state and particularly of government.²¹ The question would then be to determine whether the vertical and horizontal rescaling observed, for instance, by Andonova and Mitchell – but also by most recent literature on the growing role of international organizations, NGOs, multinational companies, epistemic communities, etc. – leads to a change in the dominant level of analysis or even system of reference to the point that we can observe a paradigm shift.²²

Michel Foucault suggested that the invention of monofocal perspective for the representation of tridimensional images in the 15th century played a fundamental role in the capitalization process of the modern state.²³ Will the invention of Google Earth and of UCINET and the concept of scale have similar consequences in the 21st century? The systematic demonstration of the effects of scale change, for instance, between land, water and climate policies²⁴, similarly to what happened in the 1960s with the level of analysis and the theoretical tools that went along²⁵, would have the effect of further relativizing perspectives centered on states. However, we must not forget that with perspective goes along the issue of (mis)perception, including its objective (eye, senses, etc.) and intersubjective (understanding, representation, etc.) component.²⁶ At the same time, an epistemic revolution of this kind would always be co-produced in a context of balance of power between the central state and other centers of power and we cannot exclude that the achievement of this transformations would come along without radical change in these relations, i.e. a material revolution or, eventually, natural disasters.²⁷ However, with the exception of few marginal phenomena, in today's revolutions and disasters, from Tunisia to Japan, we cannot observe any trace of vertical or horizontal rescaling. On the contrary, we observe the comeback

¹⁷ See Keating (2004).

¹⁸ On neomedievalism, see in particular the contributions of the English School of international relations (Bull, 1977; Gamble, 2007; Hurrell, 1995).

¹⁹ On decision-making levels and multilevel governance, see Putnam (1993), Evans et al. (1993), and Piattoni (2010).

²⁰ See the classical article by Singer (1961).

²¹ See the classical book by Waltz (1959).

²² On scientific paradigms, see Kuhn (1962); Lakatos and Musgrave (1965); on paradigms in international relations, see Elman and Elman (1997); Papisca and Mascia (2004); Vasquez (1997).

²³ Refer to Foucault (2004a, 2004b). On the process of capitalization, understood as the transformation of a place into a capital, see the article by Church and Maisetti (2011).

²⁴ See, for instance, William C Clark (1987).

²⁵ See again Allison Allison (1971) and Singer (1961).

²⁶ See the classical book by Robert Jervis (1976).

²⁷ See the Marxist perspective of Lefebvre (1974) in Brenner and Elden (2009).

of the state as central place for public life and as remedy against the brutality of nature, without mentioning that of financial markets.²⁸

The translation work from one spatial, temporal, administrative, management, etc., scale to the other and from one level to the other within the same scale usually takes place at the interface between science and politics. Knowledge-holders and especially scientists often play an important role.²⁹ This is particularly important for ecoregions, because knowledge is rarely at the right scale. Ecoregions usually do not fit administrative divisions. They cut across statistical units and often different countries. Moreover, timeseries are often different. The identification of ecoregional dynamics usually requires bringing together data and information taken from different knowledge systems, sometimes in different languages. However, the translation or boundary work we refer to does not limit itself to translation between languages, but includes translation between different units of measure, statistical systems, interpretation models, institutional settings, as well as disciplinary traditions.³⁰ Scholars often refer to boundary work, because understanding ecoregional dynamics requires working across the boundaries of several disciplines, such as hydrology, ecology, economics and political science, and social groups, such as environmentalists, entrepreneurs, decision-makers and scientists. An understanding of ecoregional dynamics is usually co-produced by several actors within but also outside science.

Here is where the concept of epistemic community, developed by Peter Haas, comes at hand. The word “epistemic” comes from the Greek ἐπιστήμη, which means knowledge. An epistemic community is defined as “networks — often transnational — of knowledge-based experts with an authoritative claim to policy relevant knowledge within their domain of expertise”.³¹ In other words, this means that they are transnational groups of scientific experts, capable of working together and capable of influencing policy. Valid science is necessary but not sufficient to influence ecoregional governance. For instance, individual scientists can find out about serious issues with pollution in a regional sea such as the Mediterranean, but this does not mean that the scientific knowledge produced is necessarily policy-relevant. Individual scientists need to work together with scientists from other countries and often from other disciplines for the knowledge that they produced to apply at the ecoregional level. However, this still does not necessarily imply policy-relevance. In order to achieve it, transnational groups of scientific experts need to be able to influence policy in order to contribute to ecoregional governance.

If the presence of an epistemic community is not indispensable for ecoregional agreements or processes, given that they are often not based on environmental problems, such as in the case of the Alps or the Amazon, Haas claims that, together with the involvement of strong global institutions, they are one of the two key factors that explain variation in ecoregional governance.³² In fact, the presence of organized knowledge is important because it makes visible dynamics at the ecoregional level that would otherwise not be visible. They can identify environmental problems and dynamics that would otherwise remain unknown. Epistemic communities push the limits of knowledge. As such, they contribute decision-making processes, increasing the learning capacity of institutions and therefore their adaptability and resilience to change.³³ As such, epistemic communities can be institutionalized in part. Examples at the ecoregional level include working groups, platforms and task forces of government-appointed experts. At the global level, the best-known examples of institutional platforms performing boundary work between science and policy are of course the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES).

²⁸ See Le Galès and Vezinat (2014) and, for instance, the critical reading of the comeback of the state in the US by Beaussier (2009).

²⁹ Refer to Jasanoff (1990) and Jasanoff and Wynne (1998), as well as Bäckstrand (2003).

³⁰ See, inter alia, William C. Clark et al. (2011).

³¹ Taken from P. M. Haas (1992). See also P. M. Haas (2008, p. 793).

³² See P. M. Haas (2016).

³³ See, among others, Koontz et al. (2015).

Chapter 4: Sociological approaches: ecoregionalism and ecoregionalization

The chapter focuses on sociological approaches, which propose theoretical tools, often in the form of analogy, to better understand the emergence and the persistence of ecoregional governance as a norm. This chapter critically assesses how the concept of ecoregion can acquire a normative dimension and become the basis, on the one hand, of the ideology of ecoregionalism and, on the other, of the process of ecoregionalization. The origins of the concept of ecoregionalism and bioregionalism are traced deep into the 19th century. This chapter presents more key concepts, such as field and system.

Sociological approaches propose theoretical tools, often in the form of analogy, to better understand the emergence and the persistence of ecoregional governance as a norm. One of the best-known images is that of the “field”, developed by Pierre Bourdieu.¹ Ecoregional governance as a field would be endowed with a certain number of attributes, such as a relative autonomy with regard to other fields, the presence of porous boundaries, the capacity of its agents to detach themselves from external interests, to be recognized by their peers, to distinguish themselves as professionals, to accept what is at stake and to play according to the rules of the game of the field. It is by studying these attributes and the positioning of agents in the field that historical trajectories can be identified and that, according to this line of thought, the dynamics of ecoregional governance can be understood. However, according to Bourdieu, what is at stake are always symbolical values that are independent from the actual existence of environmental problems. It is by integrating the concept of field and the actor-network theory, which includes non-humans — from trees to computers — as actors or actants in a network — a concept that is very close to that of a field — that we can perhaps consider also material elements within a sociological approach to ecoregional governance.²

However, the greatest interest of sociological approaches is providing tools to understand how the concept of ecoregion can acquire a normative dimension and become the basis, on the one hand, to the ideology of ecoregionalism and, on the other, to the process of ecoregionalization. Paraphrasing Andrew Hurrell, there is an important distinction to be made between an ecoregion as a description and an ecoregion as a prescription³: on the one hand, you *could* affirm that a dynamic of clustering around ecoregions is in motion, and you can find evidence thereof; on the other, it is different to argue that you *should* cloud together around ecoregions because this would lead to more advanced societies in more harmonious environments. As the idea of an ecoregion goes beyond description and is put into action, it becomes “ecoregionalism”, i.e. an ideology, at least for the actors involved.⁴ For example, in 2000, the CBD, adopted the so-called “ecosystem approach” as its framework for action.⁵ However, the ecosystem approach was applied mainly to fisheries and forests and left rivers, mountains and other ecoregions aside. In the same vein, also in the early 2000s, WWF engaged in a process to identify the 200 most biologically distinct ecoregions in the world with the idea that something should be done about them.⁶ By doing so, the CBD and the WWF contribute to the ideologization of the concept of ecoregion.

Ideology can be defined as a series of ideas that describe the world and that are used to change it.⁷ In its original meaning, dating back to the 18th century, this word indicated the “science of ideas” of Destutt de Tracy, which aimed at “improving the life of mankind on the planet.” Ideology not only explained

¹ See Bourdieu (1994) and Fligstein and McAdam (2012).

² See Latour (2005)

³ For reference, see Hurrell (1995, p. 39).

⁴ On ecoregional mobilization in mountain regions, see the special issue of the *Revue de Géographie Alpine* on “mountain regions as referents for collective action”, particularly the contribution by Rudaz (2009).

⁵ See Decision V/6 (2000).

⁶ See for example WWF (2001).

⁷ On mountains as an “ideological model” see Untermaier (2008, pp. 139-140).

the world as it was; it also had practical consequences as well. The concept has an ambiguous destiny. It was rejected by Karl Marx as a bunch of ideas to fool people around. On the other hand, it became central to Lenin's thinking. It is especially employed to refer to different "isms": from positivism to communism, passing by classicism, reaganism, constitutionalism, environmentalism, etc. It often has a negative connotation, but this is not always the case. In the 1990s, several authors saw the end of ideology *tout court* in the end of confrontation between the East and the West.⁸ However, ideology will continue to exist as long as there are ideas and that they are used as a platform for action by certain groups. Moreover, ideologies, as well as ideas, may be reified and constitute the distinctive elements of "ist" groups: the communist party, the environmentalist movement, etc. Ideologies can also lead to the identification of certain individuals with the ideology itself, until the incarnation of certain behaviors, which are often symbolical: being environmentalist, eating vegan, being third-worldist and dressing up like an Indian, and so on.⁹ Is it then possible to consider ecoregionalism as an ideology, given that an ecoregion is an idea and that it is used to influence political dynamics? Paradoxically, its latest "reincarnations" – from the creation of the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea in 1972 to the Carpathian Convention in 2003, as well as the use by the CBD and WWF of the ecosystemic and ecoregional approach – manifested themselves as we were moving towards a "more explicitly scientific and managerial discourse deriving mainly from the field of conservation biology," which can be interpreted as a kind of path dependency transformed into bureaucratic routines.¹⁰

Ecoregionalism is hardly a new phenomenon. In the US, it is rooted both in rightwing conservationism, which dates back at least to the 19th century, and in the leftist counterculture of the 1970s, especially in California.¹¹ Also known as bioregionalism, it criticizes the apparent ignorance of environmental factors in the definition of administrative units, such as counties, states, and nations: the typical example is the western part of the border with Canada, which simply follows the 49th parallel north¹², or the borders of many western states, such as Colorado. It also emphasizes the role of ecoregions with regard to collective identity, the so-called "ecoidentity", as if the inhabitants along the Mekong or the Andes felt more connected by a sense of belonging to the same river basin or mountain range than, for example, to their respective nations. One of the founders of bioregionalism was Peter Berg.¹³ According to ecoregionalists, in the words of Bernard Debarbieux,

⁸ Read, particularly, Aron (1955) and Waxman (1969). For the recent debate, see *The end of history and the last man* by Fukuyama (1992).

⁹ On sustainable development as an ideology, see Crépu (2007) and the recent book by Baudin (2009).

¹⁰ Quoted from Egerer and Fall (2004, p. 99), which follow very closely an ideological reading of an ecoregional initiative. For a more recent example of an ideological perspective oriented towards action, read Bührs (2009), who argues that environmental integration is the most effective manner to face environmental challenges. For an evaluation of ecosystem management, see the eight "natural experiments" conducted by Layzer (2008).

¹¹ On 19th century conservationism in the US, see the life and works of Waldo Emerson and Henry Thoreau in New England, and John Muir in California. For echoes of the 1970s counterculture, read the writings, for instance, of André Gorz, who pinpointed the unsustainability not only of class exploitation, but also of the exploitation of nature intrinsic in the capitalist system, with the only difference that, if humans possess a certain degree of resistance over time, nature reacts to overexploitation as soon as certain thresholds are exceeded (1975, 1977). Further echoes are also found in the Club of Rome's *The Limits to Growth* (Meadows, 1972), as well as in the Brundtland Report (World Commission on Environment and Development, 1987).

¹² See article 2 of the 1818 London Convention. Similar provisions define borders of many African counties, as well as of some states in the Arabian and Korean peninsulas and the island of New Guinea, and can be traced back to the 1494 Tordesillas Treaty. However, borders are never random (Carter & Goemans, 2011; Guichonnet & Raffestin, 1974; Mancebo, 2001).

¹³ For an introduction to his writings, see Berg, Glotfelty, and Quesnel (2015).

the affective attachment to a bioregion results in virtuous practices with respect to the environment (inhabitants with a true citizen mentality would be more concerned for the territorial base with which they identify).¹⁴

In 1998, a senior practitioner and a geographer engaged in a peculiar initiative at Harvard University.¹⁵ They resumed a study dating back to the 1930s, replicating it almost seventy years after. The study, which had been republished in the 1970s, was performed by the National Resources Committee, a US government agency established during the New Deal.¹⁶ Entitled *Regional Factors in National Planning and Development*, this study looked at the potential use of “regions” for social and economic development. In fact, the Great Depression did not seem to stop at the border of states, counties, or any existing administrative unit. In 1933, this phenomenon had already led to the creation of the Tennessee Valley Authority, a public enterprise at the scale of the Tennessee River Basin, which had particularly suffered from the economic downturn and which did not correspond to any preexisting institutional level.¹⁷ This experiment was based on the idea that the “regional” scale was the most appropriate for a government intervention, however this hypothesis still needed to be tested.

With the 1930s study, the National Resources Committee theoretically scrutinized “regionalism”, collecting and analyzing the opinions of twelve experts.¹⁸ Nine physical characteristics of a region were identified: the territory should be contiguous, compact; the central core should be homogeneous, the periphery should be progressively diluted, and boundaries should be transition zones; the regions should have unity in environmental characteristics, with a dominant type of cultural pattern; a full economic-natural unit should be included; a whole problem area should also be included; a total cultural pattern should not be cut across; it should conform to existing regional consciousness; it should possess regional identity; and the size should be fairly large. Moreover, five methods for the delineation of regions were recognized: metropolitan spheres of influence; administrative and locational convenience; group of states arrangements; single function areas; and composite planning problems.¹⁹ As Foster and Meyer put it, presenting the view of regionalism that emerged from the New Deal study:

Regionalism was seen as a way of enabling people to express and advance collectively their place based traditions, interests, and aspirations. The problem to the strategists then was how to modify a political and managerial system framed nationally to reflect the realities of how humans occupy the land.²⁰

Interestingly, this study was reproduced at the end of the 1990s, when the world underwent a new wave of regionalism.²¹ The *Harvard Regionalism Project* replicated the 1935 study, involving forty-eight contemporary experts and examining the literature that had proliferated after the Second World War.²²

¹⁴ Quoted from Debarbieux (2009, pp. 9-10).

¹⁵ See Charles Foster and William Meyer (2000).

¹⁶ See the 1974 reprint of the 1935 volume (United States. National Resources Committee, 1935). The agency was initially called “National Planning Board” and by 1935 it had been renamed “National Resources Committee”.

¹⁷ For a historical perspective, see Steven Neuse’s recollections (1983). A similar initiative in the US was the creation in 1965 of the Appalachian Regional Commission (ARC), a partnership of federal, state, and local government for the economic development of the Appalachian region, a mountain area hit by poverty, unemployment, and emigration. Michael Bradshaw published a reconstruction of a quarter of a century of ARC’s history (1992).

¹⁸ Similarly to the Delphi method, an approach to forecasting elaborated in the 1960s at RAND, the study was based on a synthesis of the answers by a panel of experts to a standardized questionnaire, which was further submitted to the experts for revision. See in particular Harold Linstone and Murray Turoff (1975). However, the object of the study was not the future of regionalism, but to acquire a better understanding of the regional scale.

¹⁹ These results are synthesized at page 157 of the National Resources Committee’s report of 1935. United States. National Resources Committee, *Regional Factors in National Planning and Development*.

²⁰ Quoted from Foster & Meyer (2000, p. 17).

²¹ For a brief historical appraisal, see Fawcett (1995, pp. 16-17), as well as *infra*.

²² A colloquium discussing the project was also convened at the Harvard Kennedy School in June 2000.

The expert opinions were compared with those of the 1930s, drawing insightful conclusions, even if the social and economic context had changed substantially. The opinions revolved around three questions: how an environmental region might be defined, whether other factors should be considered for the definition of an environmental region, what is the best type of region for environmental protection, and what administrative, policy, or legislative means might best advance environmental regionalism. As far as *how an environmental region might be defined*, the experts of the 1990s insisted more on congruity than homogeneity, maintaining that the range of possible organizing elements is wide. However, while in the 1930s river basins were considered a “poor organizing unit”, in the 1990s watersheds were seen as preferable to other elements.²³ Ironically, in the 1930s, the first environmental regional experience in the US was precisely at the river basin scale, with the Tennessee Valley Authority. Concerning *whether other factors should be considered for the definition of an environmental region*, there was a consensus in basing regions on the environment. Nevertheless, if in the 1930s there was a greater interest in the role of states and of “governmentally created agencies”, in the 1990s the emphasis was on pragmatically adapting the environmental region to the “dominant institutions”, with a preference for dynamic and informal structures.²⁴ Regarding *what is the best type of region for environmental protection*, both groups of experts agreed that it was a futile enterprise and that “different type of regions need not be mutually exclusive”. Finally, as far as *what administrative, policy, or legislative means might best advance environmental regionalism*, both groups recommended flexibility, not pointing out to “any one grand design”, rather setting forth a “more modest enterprise”.²⁵

The Harvard Project provided for useful tools to better understand environmental regionalism. First, it gave historical depth to a phenomenon, which is usually little known, and is often mistaken for a novel development. Second, it sets the complexity of the issue, displaying a plurality of views on environmental regionalism. A recent example of this trend is the the Territorialist School in Italy and its ramifications in France and elsewhere. This is a group of planners formed in Florence around the figure of Alberto Magnaghi. This group is interested in alternative ways of constructing and (re)inhabiting the earth, reaffirming our belonging to the terrestrial environment as a “bioregion”. However, if interpreted as an exclusive relationship, this would be at odds with the growing number of collective identities and overlapping affiliations characterizing, for example, contemporary Europe, where multiple identities (place, as well as gender, age, ethnos, ethos, art, sport, etc.) are often the norm.²⁶ However, if this relationship is inclusive instead of being exclusive, ecoregionalism could be interpreted as a single aspect of the general trend. More radical critiques of ecoregionalism are reported by William Wolmer:

*Bioregionalism has been criticised for its reductionist understanding of natural regions and undifferentiated human societies, its frequently ahistorical analysis, the environmental determinism of its simplistic nature-culture causal linkage, and its romanticised representation of “traditional” indigenous cultures living in harmony with the environment.*²⁷

While these *ex ante* critical perspectives certainly possess some elements of truth, they rarely do justice to the genuine sense of belonging to a specific territory, which may be felt within certain ecoregions, especially those which are divided by international borders, and might go beyond national or other sentiments. Moreover, these analyses could also be considered “ageographical”, and ultimately reductionist too. What we are left with in the literature, is a hiatus between the often harsh critiques of environmental determinism, on the one hand, and disenchanting perspectives on traditional cultures.

²³ See Foster & Meyer (2000, p. 18). Ironically, in the 1930s, the first environmental regional experience in the US was precisely at the river basin scale, with the Tennessee Valley Authority.

²⁴ *Ibid.*, pp. 18-19 *Ibid.*.

²⁵ *Ibid.*, pp. 19-20 *Ibid.*.

²⁶ See, in this regard, Hedley Bull (1977), Robert Cox (1986, 1996), John Ruggie (1993), Andrew Gamble (2007, pp. 28-32), and, for a perspective on mountains, Bernard Debarbieux (2009, pp. 9-10).

²⁷ See Wolmer (2003, p. 263), quoting, in particular, Frenkel (1994). See also Robert Thayer's *LifePlace* (2003).

Many generational elements transpire from these debates: post World War II scholars criticizing their often positivistic predecessors of the prewar period, today's students revising the oft economic literature of the second half of the 20th century from constructivist angles. There is one tension, in particular, which seems to resist to time, i.e. the relation between social-historical and environmental-geographical factors and perspectives, which remains problematic in debates over ecoregionalism. This is important to understand the other concept of ecoregionalization, which can be seen as the process of emergence and diffusion of an ecoregional organization of space.²⁸ Both concepts are normative. However, while ecoregionalism puts forward the latitude of actors to make use or not of the idea of ecoregion, ecoregionalization presents it as an almost teleological process that necessarily leads towards a greater ecoregional organization of space. Ecoregionalization has more structural connotations. It implies that agents are constrained by an ongoing process that they may or may not be able to influence. Both concepts are based on the belief by the actors concerned of the physical existence of an environmental phenomenon and of the real presence of a cause-effect relationship between the environmental and socio-economic dimension, which leads to some kind of "environmental neo-determinism".²⁹

Two powerful images are often used in the literature with regard to society, on the one hand, and the environment, on the other. In the case of society, the image is that of a "field" (in French: *champ*)³⁰; in the case of the environment, it is a "system". Of course, the latter analogy has oft been employed with regard to society too (e.g. economic system, international system, etc.). However, the two images correspond to two different epistemologies, the former reflecting a more critical perspective than the more positivistic one of the latter. As mentioned above, the sociology of Pierre Bourdieu developed the "field" analogy. The field analogy has a particular emphasis with relational elements in common with that of system. However, it is used in a less deterministic and more plural manner.³¹ According to this analogy, a field, such as the economic or the environmental field, or a subfield, such as a scholarly discipline or a foreign ministry, enjoys relative autonomy from other fields. Its agents, such as economists or diplomats, are able to detach themselves from external interests: they are recognized by their peers for their ability to do so; they distinguish themselves as professionals; they play their games according to the internal rules of the field. A field must therefore fulfill certain conditions to exist, and possesses certain properties. All fields are delimited by borders, but they are also endowed with certain degree of openness. Activists within an NGO, for example, are not isolated from ideas coming from elsewhere. Based on their position in the field, which can be a "position taken" or a "disposition," dominant agents oppose themselves to dominated ones, and can position themselves as guardians of the establishment, or subversive elements thereof. These dispositions or predispositions result from historical trajectories, which make it possible for a certain agent to occupy a specific position in space during a certain period of time³²; also, these dispositions are associated with the acceptance of what is at stake: academic prestige, economic development, military power, environmental protection, etc.

²⁸ See Balsiger and VanDeveer (2010).

²⁹ Taken from Debarbieux (2012).

³⁰ This is not to be confused with the "logic of images" in international relations, that is the use by Kenneth Waltz in the classical *Man, the State, and War* of the term of "first image", for the individual level of analysis, "second image", for the national level, and "third image" for the international level (1959), which was often replicated in the literature, for example by Peter Gourevitch (1978). Another analogy which is often used is that of a play, of a game, such as in game theory, or of a network (which has oft been employed with regard to the environment too), such as defined by Manuel Castells (2000a).

³¹ For a critique of excessively "structural" readings of Bourdieusian sociology, see Corcuff (2003), who emphasized its pluralistic and anti-systemic import *vis-à-vis* the excessive weight given to social classes by structural Marxists.

³² These specific dispositions are embodied experiences and coincide with another Bourdieusian concept, that of "*habitus*". For further reading, see Bourdieu (1972, p. 282).

These are symbolic values, in the common sense of the term, from which the rules of the game are derived and which are subsequently taken from granted.³³

Compared to concepts such as systems, the field analogy reflects the greater operational caution of the social sciences, which are confronted with reactive subjects and changing behaviors.³⁴ While it is difficult to model it, the field analogy can be used as a critical tool to shed some light, for example, the social dimension of a socio-ecological system. The following chapter will focus on more systemic approaches, bearing in mind that both systems and fields are analogies and the different epistemological positions behind these two intellectual tools.

³³ These are related to the Bourdieusian concept of “*doxa*” (1979, p. 549).

³⁴ See E. B. Haas and Haas (2003).

Chapter 5: Diagnostic frameworks: questioning sustainability

The chapter discusses management approaches and their focus on effectiveness. It critically assesses the system analogy. It then presents Elinor Ostrom's framework to analyze socio-ecological systems, its evolution and its limits. A revised characterization of governance systems within Ostrom's framework is proposed, which takes into consideration the variables identified in the international environmental regimes literature and particularly within the International Environmental Agreements Database, the Oslo-Seattle Project and the International Regimes Database.

With regard to management approaches, they distinguish themselves because of their object. On the one hand, there are those who focus on the effectiveness of regional environmental governance. By effectiveness, they mean the capacity of ecoregional processes to achieve their goals, regardless of their nature. This usually translates into a series of descriptive variables of these processes and their contexts. These variables tend to be similar across different studies. Given the great number of multilateral environmental agreements, large databases were created and are object of statistical exploration, looking for significant correlations.¹ On the other hand, there are those who focus on the sustainability of socio-ecological systems and therefore their capacity to ensure a management of resource systems as necessary life support elements and a governance of human societies that allows at the same time to maintain the former and develop the latter. The key question here is to identify the conditions for a sustainable development of coupled human-environment systems. This means a general framework capable of integrating the properties of resource systems, of resource units, of governance systems and of the citizens that are also users of these territorial resources.² Considering the diversity of these elements, an integrated analysis of ecoregions from the point of view of their sustainability is an effort whose normalization requires a transdisciplinary approach. This needs in turn to build on a basic theory of socio-ecological systems, capable of integrating the knowledge of practice.³

In management approaches, the use of the system analogy is particularly common, but the concept of system is rarely problematized.⁴ Robert Jervis certainly belongs to the category of those who, in the 1990s, contributed most significantly to the reflection on this concept in international relations, by drawing his inspiration from the systemic theory developed by Kenneth Waltz.⁵ Jervis defines a system in the following classical manner:

We are dealing with a system when (a) a set of units or elements is interconnected so that changes in some elements or their relations produce changes in other parts of the system, and (b) the entire system exhibits properties and behaviors that are different from those of the parts.⁶

A system is thus defined by an environment, a set, units, and interactions. In a system, all the units are linked to one another by the structure of the system. So, every action reverberates not only with the other units, but also with the unit that initiated the action, that is, the agent. For that reason, we speak of interaction and not of action, of interdependence and not of dependence.⁷ Furthermore, systemic

¹ See especially Breitmeier, Underdal, and Young (2011), Mitchell (2002-2019) and Balsiger and Prys (2016).

² See Ostrom (2009) and Lajarge, Pecqueur, Landel, and Lardon (2012).

³ See William C. Clark (2007).

⁴ See, for instance, Viazzo (1989, pp. 4, 31-48).

⁵ See *Theory of International Politics* (1979, pp. 39-40).

⁶ Quoted from *System Effects* (1997, p. 6).

⁷ Closely related to each other, systemic and cybernetic approaches led to a proliferation of works that have already become classics of political science, namely Kaplan (1957), Deutsch (1963), Easton (1965), Wallerstein (1974, 1980), Keohane & Nye (1977), and Waltz (1979).

thinking fits into the tradition of structuralism, which explains a certain overlapping of the concepts of system and structure.⁸

Jack Snyder identifies five dimensions, which have been developed by the general theory of systems and according to which systems can vary. A system can thus be stable or unstable, open or closed, simple or complex, organized or disorganized, tightly or loosely coupled.⁹ It goes without saying that, even in the positivist system of reference of systemism, some of these dimensions reveal, at least partially, a subjective character. One of the concepts derived from systemic analyses is that of “system effects.” Those refer, on the one hand, to the effects of the actions of the system as a whole, for instance those of its interactions with other systems or with the environment (effects of a system), like the process of osmosis between the system “root” and the environment “soil”; on the other, they correspond to the effects of the interaction of the units of the system with other units of the same system (effects within a system), which can be exemplified by the interactions between the units “trees” in the system “forest”. By definition, system effects are not only interdependent, but also nonlinear. System effects are constantly disproportionate to the actions that triggered them. At the same time, they do not depend only on the action that triggered them, but also on all the actions or reactions of every other unit of the system. The effects in a system are thus different from the effects outside of a system, in the environment, and they can be direct or indirect, primary or secondary.

We often distinguish between us, the subjects, humans, those who act, and the others, objects, “nature”, which are subjected to our actions. But according to Jervis, in a system, such a distinction does not hold, since a game between us and nature is never only a “game” between us and nature.¹⁰ For example, “plants and animals not only adapt to the environment, they change it”.¹¹ If, in the system “nature” (the ecosystem), plants and animals (the biosphere) adapt to the environment, while changing it, we will never be able to speak of evolution, but always of coevolution. We often define nature as a mysterious force, since it is unpredictable to us, but if nature is a system and if our actions in nature imply some system effects, it loses its mysterious and unpredictable nature to simply become a system with non-linear and interdependent system effects, which we can thus apprehend. The same can be said of an ecoregion, especially with regard to its ecosystemic dimension. So, even if it presents some subjective elements, such as its degree of openness, the system analogy remains strongly associated with a positivistic epistemology, which makes it easier to interpret natural phenomena than social ones.

In an age of increasing environmental awareness, the question of how society and the environment interact is ever more relevant. Among managerial perspectives, there are many frameworks that try to characterize these relations. Frameworks are pre-theoretical tools that provide a list of variables that can be used to describe different kinds of socio-ecological systems. As such, they can be used in an action situation as diagnostic tools to identify the strengths and weaknesses of a given system with regard to a desirable outcome, such as sustainability, equity or efficiency.¹² Elinor Ostrom’s framework to analyze socio-ecological systems is probably the best suited “because it (i) is the only framework that treats the social and ecological systems in almost equal depth; and (ii) provides a frame for developing different degrees of specificity in differentiating different tiers”.¹³ Ostrom’s framework has rapidly attracted great attention among researchers addressing socio-ecological systems. There is now a large number of

⁸ In international relations, Robert Keohane underscores that the Waltz’s version of realism, which he defines as “structural realism”, develops a new concept *vis-à-vis* classical realism, *i.e.* that of “structure of the international system” (1986, p. 166), characterized by anarchy, by the state nature of its units, and by the distribution of capabilities.

⁹ See *Coping with Complexity in the International System* (1993, pp. 6-14).

¹⁰ The concept of game against nature, criticized by Jervis, derives from Game Theory and, especially, the works of Christos Papadimitriou, who defines nature as an actor acting randomly (1985). Jervis has often used game theory, but in a discursive and non formalized manner.

¹¹ Quoted from Snyder and Jervis (1993, p. 38).

¹² See Ostrom and Cox (2010) and, as an example of application, Nagendra and Ostrom (2014).

¹³ Quoted from Binder, Hinkel, Bots, and Pahl-Wostl (2013, p. 26).

research projects applying this approach.¹⁴ However, its application often lacks consistency.¹⁵ One reason is because variables are often poorly defined, which further complicates developing a consistent set of indicators. The list of variables itself is also subject to improvement. Together with Ostrom, who passed away in 2012, Michael McGinnis proposed in a special feature of *Ecology and Society* some changes to the list, pointing out weaknesses regarding the characterization of governance systems, while Harini Nagendra identified some missing variables in a recent case study.¹⁶

Taking into consideration the various epistemic and sociological approaches discussed so far, I chose to use Ostrom's framework as a starting point to analyze regional environmental agreements and processes. Using a framework is important to ensure the comparability of the case studies and their cumulativeness. Not only the Ostrom's framework treats the social and ecological systems in depth, but also it allows to integrate most elements from the different epistemic and sociological perspectives. However, this requires a certain degree of adaptation. This is done by comparing Ostrom's general framework with other frameworks used to characterize ecoregional governance systems and particularly the literature on international environmental regimes, as well as the practical experience of the author. This is also done by applying the adapted framework to the case studies presented in this monography and going back to the framework in an iterative manner to further improve it.

Ostrom developed this framework mainly based on a great number of small-scale case studies of common pool resource management (pastures, fisheries, local forests, irrigation systems, etc.) in traditional communities. In a special issue of the *International Journal of the Commons*, Michael Cox and others have recently investigated the possibility of applying Ostrom's framework also to large-scale socio-ecological systems, including management of forests in Indonesia, the Great Barrier Reef, the Rhine River, the Ozone Layer and the Atlantic Bluefin Tuna.¹⁷ Large-scale is here defined as an area with an international or, in case of large federation, interstate scope. In the end, the authors did not really manage to apply Ostrom's framework, as this required a more ambitious research design. Instead, they ended up assessing the applicability of Ostrom's design principles for sustainable resource governance.¹⁸ In 1990, Ostrom had in fact extracted a list of eight design principles from small-scale case studies of mainly traditional societies that succeeded to sustainably manage common pool resources going against the grain of the tragedy of the commons theory. As the number and sources of case studies has grown exponentially over the years, the framework was then developed to better structure them, thus increasing comparability and cumulativeness. However, the eight principles have been found to have limited applicability to large-scale socio-ecological systems. On a large-scale, multiple resource systems and collective actors and users are also found, which requires further theoretical adaptation to scale up from the local level.¹⁹ To apply this framework to the ecoregional level, the Ostrom's framework needs to be adapted so that, once other elements of large-scale socio-ecological systems are also better characterized, this will contribute to better structuring small-N comparisons and, eventually, large-N analyses. This may in turn contribute to the identification of specific design principles for sustainable institutional crafting of middle-range or large-scale socio-ecological systems, as Paul Stern did for global commons.²⁰

¹⁴ Such as the ERC funded projects SES-LINK, which focuses on resilience and is led by Maja Schlüter at the Stockholm Resilience Center, and SESYP, which focuses on biodiversity and food security and is led by Jörn Fischer at the Leuphana University at Luneburg, as well as the large NSF funded SESYNC project in the United States to synthesize existing research, which is hosted by the University of Maryland, and the small but dynamic SESMAD project to develop a database for meta-analysis, which is supported by Dartmouth College. See also Thiel, Adamseged, and Baake (2015, p. 153).

¹⁵ See Thiel et al. (2015, pp. 160-162) about how the framework is used.

¹⁶ See McGinnis and Ostrom (2014) and Nagendra and Ostrom (2014), respectively.

¹⁷ See M. E. Cox (2014) and Fleischman, Ban, et al. (2014).

¹⁸ See Ostrom (1990) and M. E. Cox, Arnold, and Tomás (2010).

¹⁹ See inter alia Andonova and Mitchell (2010).

²⁰ See Stern (2011).

For the time being, we assume that countries or sub-national entities can be considered as collective actors or users of large international or interstate areas or regions in a multi-level governance context.²¹ Let's also assume also that these regions can be appropriated as a common pool resource.²² We can then consider these large-scale areas as regional commons.²³

Regional environmental agreements and processes can all be considered as international environmental regimes at the regional level. International regimes are usually defined as “implicit or explicit principles, norms, rules and decision-making procedures around which actors’ expectations converge in a given area of international relations” such as security, trade or the environment.²⁴ Several approaches have been developed to study international environmental regimes, especially at the global level. There is a large number of multilateral environmental agreements and processes, such as the 1971 Ramsar Convention, 1992 United Nations Framework Convention on Climate Change and the 1992 Convention on Biological Diversity. This led to the development of major databases, such as the International Environmental Agreements Database, the Oslo-Seattle Project and the International Regimes Database.²⁵ Particularly the latter two can be considered to adopt a managerial or performative approach, as they aim at assessing the effectiveness of these regimes. There have been attempts to combine the Oslo-Seattle Project and the International Regimes Database, but the global and regional level were not disaggregated.²⁶

If there have been some attempts to apply either Ostrom’s framework²⁷ or international regime theory²⁸ to individual case studies and in fairly large comparisons of the governance system of large-scale socio-ecological systems, a combination of both approaches – Ostrom’s general framework and international regime theory – is still lacking. We do this for several reasons: first, because international regime theory pays little or no attention to variables outside of governance systems, including the environment; then, because bringing in the international regime literature helps strengthening the characterization of governance systems, which definitely is a major shortcoming to the full operationalization of Ostrom’s framework.²⁹ Moreover, we combine some elements of the governance in socio-environmental systems framework developed by Krister Andersson, which identifies some important variables of the political process.³⁰ In this regard, the concept of wicked problems and functional regulatory spaces deserves particular attention.³¹ Ecoregions can in fact be considered typical examples of wicked problems, because they do not correspond to traditional policy sectors, administrative boundaries and government structures. As such, they are dealt with under conditions of uncertainty and contestation in the framework of so-called functional regulatory spaces. This concept, which corresponds more to an ideal-type than to an actual phenomenon, definitely singles out key elements that must be taken into consideration when analyzing the governance systems of ecoregions, but also pays little or no attention to variables outside of governance systems.³² Last but not least, developing a combined approach may allow building on the wealth of information contained in existing databases.

Therefore, I propose a revised characterization of governance systems within Ostrom’s framework to analyze socio-ecological systems taking into consideration the variables identified in the international

²¹ See in particular Hooghe and Marks (2003).

²² See Fleischman, Loken, Garcia-Lopez, and Villamayor-Tomas (2014).

²³ See Berge and Laerhoven (2011).

²⁴ Quoted from Krasner (1982, p. 186). See also Krasner (1983).

²⁵ See Mitchell (2002-2019), Miles et al. (2002) and Breitmeier, Levy, Young, and Zurn (1996); Breitmeier, Young, and Zurn (2007); Breitmeier, Young, and Zurn (2006), respectively.

²⁶ See Breitmeier et al. (2011).

²⁷ See for instance Fleischman, Ban, et al. (2014)

²⁸ See Balsiger and Prys (2016).

²⁹ See McGinnis and Ostrom (2014).

³⁰ See P. A. Matson, William C. Clark, and Krister Andersson (2016, p. 91).

³¹ See Varone, Nahrath, Aubin, and Gerber (2013).

³² See Balsiger and Nahrath (2015).

environmental regimes literature and particularly within the abovementioned databases. This merge is based on three principles. First, it was executed in the most conservative manner possible. This means that variables were kept unchanged, unless there were clear advantages in modifying them. This is fundamental to keep using existing data and lose as little information as possible on the way. Second, the merge was performed taking into consideration the explanatory power of variables within ecoregional governance systems. Ostrom herself pointed out the need to select most relevant variables and the likelihood for her general framework to miss additional variables that are significant for specific cases.³³ Those variables that appear important for ecoregions were kept. No variable was excluded from the adapted framework, because they all seem relevant. Finally, this revised characterization is firmly grounded on a number of in-depth case studies found in the literature, as well as the practical experience of the author. This is of great importance in order not to rely excessively on theoretical speculation, superficial fieldwork and information that can be difficult to gather. It is in fact common for practitioners of a specific environmental regime to be surprised by distortions often found in scholarship, gray literature and especially assessments, including the abovementioned databases.

The first major difference between Ostrom's original framework and the adapted framework for the analysis of ecoregional governance is the renaming of what Ostrom called "Resource System" and "Resource Units" as "Territorial System" and "Territorial Units". This is because ecoregions are not natural resources in the common sense of the word, such as fisheries or pastures. Ecoregions are identified on the basis of a major physical landmark, such as a river basin, a regional sea and a mountain range, which can be impacted by human activity through pollution or infrastructure development, but cannot be depleted in a human timeframe. Ecoregions are composed both of stocks and flows and they include a number of resource systems. For example, the Amazon river basin includes the Amazon forest, but also its fisheries. A river basin or a regional sea cannot be reduced to their water resources per se. There are a number of other resources that make an ecoregion. A mountain range is not only its geological features. It is also its air, its water, its flora, its fauna, as well as its communities. The same is true for a river basin or a regional sea, which is not only its water resources. If we take only the water-food-energy-environment nexus, which highlights the three main uses of water resources in most countries, a river basin is also the populations that use it for drinking and sanitation, as well as the soil, the vegetation, the animals, the infrastructure and the ecosystems that are related to it. It seems therefore preferable to speak of territorial system and units instead of resource system and units, given that whole resource systems can be considered as units of a larger territorial system. A second major difference concerns the characterization of the "Governance System". Starting from the most-commonly accepted version of Ostrom's framework³⁴, several third-tier and fourth-tier variables were added. They are described in the next chapter. The second-tier was not changed in order to ensure the comparability with the work of other scholars working on ecoregions or large-scale socio-ecological systems.³⁵ The third-tier and fourth-tier variables included in the adapted framework correspond to variables identified in the scholarly literature on international environmental regime, in other relevant frameworks, as well as in case studies. The rest of the framework was left essentially untouched, as this is not the focus of this monography.

³³ See Thiel et al. (2015).

³⁴ See Hinkel, Cox, Schlüter, Binder, and Falk (2015).

³⁵ See especially Fleischman, Ban, et al. (2014).

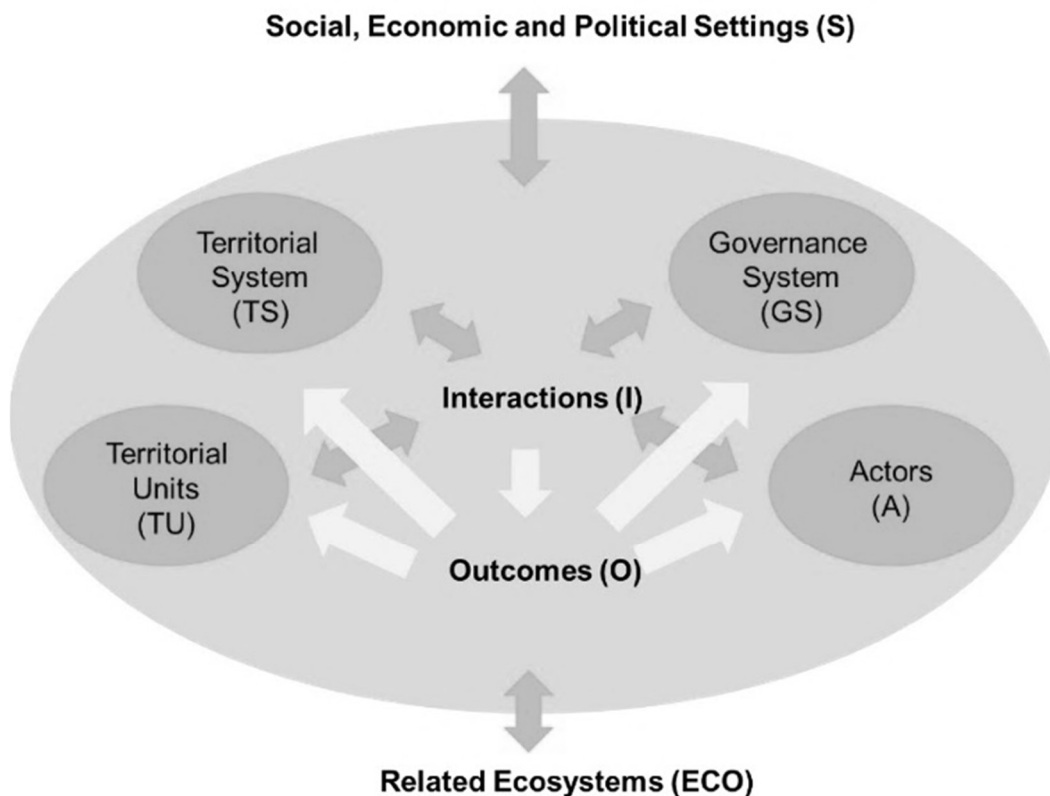


Figure 5: First-tier variables of the adapted version of Ostrom’s framework for the analysis of ecoregional governance. Source: redrawn by the author from Ostrom (2009).

Social, economic and political settings (S)	
S1 Economic development	S4 Other governance systems
S2 Demographic trends	S5 Markets
S3 Political stability	S6 Media organizations
	S7 Technology
	S8 Languages
	S9 Timeframe
Territorial system (TS) : asset stocks and flows TS1 Type (e.g., river basin, regional sea, mountain range) TS2 Clarity of system boundaries TS3 Size of territorial system TS4 Human-constructed facilities TS5 Productivity of system TS6 Equilibrium properties TS7 Predictability of system dynamics TS8 Storage characteristics TS9 Location	Governance systems (GS) : groups of individuals, groups of groups GS1 Government organizations GS2 Nongovernment organizations GS3 Network structure GS4 Property-rights systems GS5 Operational-choice rules GS6 Collective-choice rules GS7 Constitutional-choice rules GS8 Monitoring, evaluation and sanctioning rules
Territorial units (TU) TU1 Territorial unit mobility TU2 Growth or replacement rate TU3 Interaction among territorial units TU4 Economic value TU5 Number of units TU6 Distinctive characteristics TU7 Spatial and temporal distribution	Actors (A) : individuals, groups A1 Number of relevant actors A2 Socioeconomic attributes and capacity A3 History or past experiences A4 Location A5 Leadership/entrepreneurship A6 Norms (trust, reciprocity) / social capital A7 Knowledge of ecoregion / mental models A8 Importance of resource (dependence/malignancy) A9 Technology available

<p>Interactions (I): action situations</p> <p>I1 Harvesting I2 Information sharing I3 Deliberation/decision-making processes I4 Conflicts I5 Investment activities I6 Lobbying activities I7 Self-organizing activities I8 Networking activities I9 Monitoring activities I10 Evaluative activities I11 Implementation activities I12 Identification</p>	<p>Outcomes (O): problem-solving</p> <p>O1 Social performance measures (e.g., efficiency, equity, accountability, sustainability) O2 Ecological performance measures (e.g., overharvested, resilience, bio-diversity, sustainability) O3 Externalities to other ecoregions (e.g., mountains-valleys, highlands-lowlands, river-sea, etc.)</p>
<p style="text-align: center;">Related ecosystems (ECO): external forces</p> <p>ECO1 Climate patterns ECO2 Pollution patterns ECO3 Flows into and out of focal ecoregion</p>	

Figure 6: Second-tier variables of the adapted version of Ostrom’s framework for the analysis of ecoregional governance. Source: adapted by the author from Ostrom (2009) and McGinnis and Ostrom (2014).

Part 3: Comparing ecoregional agreements and processes

To analyze regional environmental agreements and processes, the specific framework used here was developed to be compatible with Ostrom's SES framework. This will allow to use it to analyze existing case studies that are built around this framework, such as those in the Social-Ecological Systems Meta-Analysis Database (SESMAD).¹ This specific framework takes into consideration only the governance system and the social, economic and political settings. Besides adding third-tier and fourth-tier variables taken from the literature on international environmental agreements, other relevant frameworks and the case studies, I added examples of key research questions to operationalize the variables. This is missing in Ostrom's framework and leads to its inconsistent use.² The questions are however open ended and not closed lists of options in order to reflect the specificities of different cases and to encourage adding other relevant options and questions. To be able to produce a full diagnostic of an ecoregion, one would need first to analyze also the territorial system, the territorial units, as well as the related ecosystems. This would give a picture of key variables. Then, it is necessary to agree on a desirable outcome, such as sustainability, equity or efficiency and then identify the interactions among the different subsystems that could contribute to achieve the desired outcome, such as improve information sharing, change deliberation processes or proceed with implementation activities.³ However, this is not the aim of this monography, which is to improve the understanding and the capacity to analyze regional environmental agreements and processes. This means identifying the key variables that are important to understand ecoregional governance and the place of ecoregional agreements and processes within the governance system. This is an essential step to proceed to a diagnostic phase. Without a good understanding of ecoregional governance and particularly of the role of ecoregional agreements and processes, an ecoregional diagnostic may mischaracterize a situation and suggest counterproductive interactions to achieve the desired outcomes in terms, for instance, of sustainability.

The approach proposed here does not limit itself to analyzing regional environmental agreements from a legal point of view, interpreting and comparing provisions and their various impacts. Most regional environmental agreements are characterized by a standard structure that is found across different types of ecoregions. Agreements generally start with a preamble stating the different element that were taken into consideration for the development and adoption of the agreement, including other processes. They often provide definitions of key concepts and identify the geographical scope of application of the agreement. Then agreements usually enumerate their aims and objectives and the main issues that the parties are expected to focus on. The means to pursue these objectives are then identified, including legal instruments such as protocols and decisions, as well as provisions on monitoring, reporting, compliance and dispute settlement. The institutional system is thereafter described starting from the highest level decision-making body. A mid-range decision-making body at the senior civil servant level is often contemplated together with the possibility to establish working groups and similar bodies to discuss specific issues. To service the meetings and provide continuity to the process, a secretariat can be established. Specific provisions on how decisions are taken and on amendments to the convention are also included. At the end of the agreement, common issues such as ratification and entry into force are normally found. A table comparing the six agreements analyzed here can be found in annex. The reason why it is proposed to go beyond a legal analysis of the agreements and look also at processes is that there are many elements that are not found in the legal documents. Ecoregional governance is not just a document in a drawer. Ecoregional agreements are usually the product of political processes that precede the agreements and that may exist also without agreements in place; by creating institutions, agreements then produce themselves ecoregional processes. These processes then interact with processes at other levels. The result is a governance system where, for instance, funding is found across

¹ See M. E. Cox (2014).

² See Thiel et al. (2015).

³ See Ostrom and Cox (2010).

several different processes. It is necessary to go beyond agreements to understand their role in overall ecoregional processes.

Chapter 6: The ecoregional governance framework

This chapter presents the ecoregional governance framework, developed to be compatible with Ostrom's framework and to analyze the cases presented in the monography. This specific framework takes into consideration only the governance system and the social, economic and political settings. The variables used are clearly defined, accompanied by examples. The proposed approach does not limit itself to analyzing regional environmental agreements from a legal point of view. It allows us to go beyond agreements to understand their role in overall ecoregional processes.

Constructing and testing framework (Figure 7) with regard to ecoregional agreements and processes is one of the key elements of this monography. The first two parts were meant to first define ecoregions and then to explore the different theoretical perspectives that can be mobilized to analyze ecoregional governance. This framework builds on these various approaches. However, many variables that emerged from the epistemic and sociological approaches are more related to actors and interactions than to ecoregional governance. Therefore, they are not included in the adapted framework. For instance, epistemic approaches showed how important is the knowledge of the ecoregion. However, this variable falls under the actors subsystem and is therefore not included in the analysis of ecoregional governance. On the other hand, we saw how important is support from global institutions. This falls under the collective-choice rules and particularly international regimes, so support from global institutions was included in the framework under secretariat. In order to fully take into consideration these variables that fall outside of the governance system collaboration needs to be sought with scholars fully trained for instance in sociology, ecology or more specific disciplines such as plant physiology.

This explains the exclusion of some elements that are also important to analyze regional environmental agreements and processes from the adapted framework, such as the drivers of collective action and the clarity of the boundaries of the ecoregion. Regarding drivers, they will be reminded at the beginning of the analysis of each case study. However, it is important to note that these are all ecoregional institutionalization processes. The drivers found at the beginning of a process are not necessarily the same as the ones at later points in time or at the end. While many processes are driven by an environmental problem, some are not environmentally driven or not anymore. This is due to the fact that, even if an ecoregional process emerged around a specific environmental problem or set of problems, then the process usually becomes about the ecoregion as whole, regardless of the persistence or disappearance of the initial problem. In that case, the continuation of a regional environmental agreement can become the driver of a process. This can contribute to the emergence or construction of new problems the ecoregional level that may have not been identified otherwise. The clarity of the system's boundaries is also not included in the ecoregional governance framework. Ostrom's SES framework includes this variable among the attributes of the resource system or, in this case, the territorial system. It is however integrated within other variables of the ecoregional governance framework and particularly the ones on regulatory fit and on contestedness. The concept of regulatory fit is in fact related to that of the scope of application of a framework convention and particularly its policy instruments, such as implementation protocols.⁴ Given that the boundaries of an ecoregion are socially constructed, they can be taken for granted and be considered as higher-level principles and norms, but they can also be contested. The contestedness of ecoregional boundaries can impact the

⁴ On the concept of fit in international environmental politics, refer to Young (2002), while on the same concept applied to socio-ecological systems, see Epstein et al. (2015). The regulatory fit (GS5-1) variable includes to the "scope and application of the agreement" (SCOP) variable in Mitchell (2003).

effectiveness of lower-level rules such as collective-choice and operational ones particularly in the contested areas or areas nearby.

The third-tier and fourth-tier variables included in the framework are necessary to analyze regional environmental agreements and processes because they are all known to matter. This does not mean that all variables are equally important in all cases and that other variables cannot also matter; this means that there is either scientific literature or case studies that substantiate the fact that they do matter. With regard to government organizations in Ostrom's SES framework (GS1), the first third-tier variable is level (GS1-1).⁵ Government structures are typically hierarchical, so level is known to matter a lot for government organizations. Decisions tend to be taken at the top and executed by lower levels of government organizations. At the international level, this is reflected in the importance of rank in diplomatic relations.⁶ So, whether the prevalent level of decision-making is political (e.g. ministers) or technical (e.g. senior officers), national or subnational, matters for the ecoregion because it reflects the importance of the ecoregion for the government. Of course, the involvement of high-level decision-makers (e.g. presidents or prime ministers) signals the importance of the ecoregion for the government, but also makes it more likely for potentially high-impact decisions to be taken. Low-level decision-makers usually have less leeway in negotiations as they may need the approval of their hierarchies to decide. A particular case is when low-level representatives are sent at high-level meetings. This usually complicates decision-making and signals the reluctance of the government sending low-level representatives for high-impact decisions to be taken.

The second and third third-tier variables are states (GS1-2) and governments (GS1-3).⁷ Both variables are rooted in the classical debate about the forms of state and the forms of government.⁸ Forms of state are for instance centralized states such as the United Kingdom or federalist ones such as the United States. This is related to the degree of control exercised by the central government over its territory, which is usually stronger in centralized states than in federalist ones, where subnational governments such as provinces in Canada possess greater autonomy than their counterparts in centralized states such as regions in France. In some cases, the form of states can be contested with the presence of autonomist or separatist movements, such as in Catalunya. This matters for ecoregional governance because governments may be more cautious in engaging in a process if the ecoregion coincides with a territory that is part of the identity of an autonomist movement, such as the Po Valley for the movement for the autonomy of Padania in Northern Italy, also known as the Northern League. Also, the presence of a federalist or otherwise decentralized form of state is important to ensure that policies are developed as close as possible to the territory where they are implemented and reduce the risk of misfit policies and of one-size-fits-all panaceas.⁹ However, federalist forms of state sometimes complicate collective action at the international level. They can in fact result in two-level games with federal governments using the lack of approval of federated states to gain leverage in international negotiations.¹⁰

Two-level games and double-edge diplomacy are also important to understand why the form of government is also important. By form of government, we usually refer to whether the government system is presidential or parliamentarian. The key distinction there is whether the government is nominated by the head of state, who can be elected or a hereditary monarch, or by the parliament. The more a government depends on approval from parliament the less leeway it has on negotiations. For

⁵ The level (GS1-1) variable includes the multiple levels variable under the SESMAD project in M. E. Cox (2014).

⁶ See for instance Pouliot (2016).

⁷ The state (GS1-2) variable includes the centralization variable in M. E. Cox (2014). The government (GS1-3) variable corresponds to regime type (GS4*) of the alternative list in McGinnis and Ostrom (2014, t. 2) and to the accountability and representation variables in the political processes box in the SES governance framework by Pamela A. Matson, William C. Clark, and Krister Andersson (2016, p. 91); it also includes the type of formal governance variable in M. E. Cox (2014).

⁸ See for instance Bobbio (1976).

⁹ See Ostrom et al. (2007) and Koontz et al. (2015).

¹⁰ See Evans et al. (1993) and, with regard to the case of the Alps, Brem and Bruno (1997).

instance, while it is the government of the United States that negotiates international agreements, only the senate can ratify them. This implies that the organization of political representation and its legitimacy is important for ecoregional governance. In most western countries, political representation is organized through representative democracy, where representatives are elected based on a system that can be majoritarian or proportional. This is important for ecoregional governance because majoritarian electoral systems tend to underrepresent minorities. Ecoregional processes are often initiated by representatives from minority movements, such as green parties. Because of the underrepresentation of minorities, majoritarian systems such as the British one set the bar much higher for ecoregional initiatives to be inscribed in the agenda of parliaments. Conversely, the greater representation of minorities with proportional systems, while it increases the likelihood of ecoregional initiatives to make it to the agenda, usually makes it more difficult to achieve majorities. This reduces the capacity of parliaments to pass legislation related to ecoregional processes. Especially in case of parliamentary systems, this weakens governments in negotiations. In many countries such as Switzerland, representative democracy can be supplemented by forms of direct democracy, such as referenda. This further weakens governments, whose positions can be overturned by popular vote, which can be unpredictable. However, while democratic forms of political representation are widespread in the developed world, authoritarian regimes are more common in the rest of the world. In this regard, if the control of political processes can seem more direct, governments still need to make sure that the measures that they propose are considered legitimate by the population. For instance, the government of an authoritarian regime can support an ecoregional process, but this will most likely not be effective if this is not perceived as legitimate by the population.¹¹

Considering its importance, the government third-tier variable has three four-tier variables: ministries (GS1-3-1), parties (GS1-3-2) and local authorities (GS1-3-3). Of all government structures, national level ministries or agencies are usually involved in ecoregional governance. Of course, their role changes if it is a major ministry such as the ministry of economy or foreign affairs that is involved, such as in France, rather than a line ministry such as the ministry of the environment or water resources, such as in Italy. Major ministries carry more political weight at the interministerial level. At the same time, they usually lack the technical knowledge of line ministries. Usually, ministries appoint a focal point to follow one or more ecoregional processes. Who this person is and where this person is located within the organization structure of the ministry is of great importance to understand the positioning of national governments.¹² Political parties are another key variable. While ecoregional processes usually cut across party lines, members of green parties often play a key role at the emergence of ecoregional initiatives and the alignment or at least compatibility of party affiliations at key moments of an ecoregional process contribute to explain certain developments. Last but not least, local authorities are part of the overall government structure and often play an important role in ecoregional governance.¹³ They are important because ecoregions usually do not cover a whole country, which may find it difficult to justify action in one part of its territory and not in other parts. The legal basis for local authorities is normally found in the constitution and many tendencies can be observed throughout the world. Some countries are going from the absence of local authorities to decentralization and the deconcentrating of government centers. Michael Keating explains this with the functional pressure on national authorities because of the expansion of government services.¹⁴ At the same time, in other countries the tendency is towards recentralization and the rationalizing of government action at the local level, especially in the aftermath of the 2008 financial crisis. Patrick Le Galès points out that the reconfiguration of government action

¹¹ See for instance Lebel, Contreras, Pasong, and Garden (2004) and Ostrom and Nagendra (2006) on forest and Cudney-Bueno and Basurto (2009) on fisheries.

¹² Chasek (2009, p. 20) speaks of a “focal point effect”, not to be confused with the homonymous concept developed by Schelling (1960, pp. 111-113).

¹³ See Hooghe and Marks (2003) for a perspective on multi-level governance.

¹⁴ See Keating (2004).

that has taken place in many countries over the last decades accompanied an expansion and not a contraction of government.¹⁵

With regard to non-government organizations (NGOs) in Ostrom's SES framework (GS2), the first third-tier variable in the adapted framework is private sector and for-profit organizations (GS2-1).¹⁶ They matter for ecoregional governance because the activities of private companies can be closely related on ecoregions, such as skiing relies on mountain ranges, and because these activities can have significant impacts on ecoregions, such as cruise ships and tourism development. The production and delivery of goods and services relies also on natural capital and ecosystem services and can significantly impact them in the form of externalities.¹⁷ As such, they can bear interests with regard to the ecoregion. It is important to know if they pursue their interests alone or if they group together. In either case, they can try to influence ecoregional processes either through direct participation or indirectly by lobbying their respective government or by influencing some knowledge producers to defend certain interests. If the private sector rarely participates in official meetings, this does not mean that the private sector may not try to influence an ecoregional process in an indirect manner. There can be significant overlapping between national interest and the private interest of some companies, because of the fact that they pay taxes and employ a significant number of people in a given country. If private companies constitute organized interest groups, these groups may carry more weight in policy development, especially if their organizations are representative of a business sector and perceived as legitimate.

Civil society, community-based and non-profit organizations form a second third-tier variable (GS2-2) with regard to NGOs.¹⁸ Civil society matters in ecoregional governance because it often acts as the critical conscience of the ecoregion. Typically, civil society includes the scientists and other knowledge holders and producers who, thanks to their research and engagement, make visible ecosystem dynamics that would otherwise remain invisible, because they are compartmentalized within administrative and other kinds of boundaries. A typical example is the role of experts and indigenous people to raise awareness about glacier melting in the Arctic. The role of civil society can vary from one ecoregion to the other. They can be local, national or international NGOs. The latter two may be able to raise awareness about a specific issue outside of the ecoregion. This may contribute to bring in actors from outside the ecoregion, who may weight more than local actors and have a greater impact on an ecoregional process.¹⁹ Like for all interest groups, the way civil society is organized matters a lot, especially if organizations are representative of a specific community, such scholars from a certain discipline or hunters, and perceived as legitimate. Civil society organizations start usually as volunteer and grassroots. Over time, they can professionalize and become increasingly elite. While this may reduce their legitimacy, greater professionalism usually allows them to better mobilize and manage human and financial resources, which can be considerable, especially considering the little public funding available for ecoregional initiatives.

Also, NGOs can be hybrid organizations (GS2-3) with members and support from for-profit organizations, non-profit organizations and government organizations.²⁰ This is the case for example of

¹⁵ See Le Galès and Vezinat (2014) and King and Le Galès (2017).

¹⁶ The private sector, for-profit organizations (GS2-1) variable corresponds to "private sector organizations (for profit)" under the rule-making organizations variable (GS5*) of the alternative list in McGinnis and Ostrom (2014, t. 2) and to the interest variable in the actors and agency box and the accountability and representation variables in the political processes box in the SES governance framework by Pamela A. Matson et al. (2016, p. 91).

¹⁷ On natural capital, read Dasgupta (2001) and, on ecosystem services, see Braat and de Groot (2012).

¹⁸ The civil society, community-based, non-profit organizations (GS2-2) variable corresponds to "nongovernmental, nonprofit organizations" and "community-based organizations" under the rule-making organizations variable (GS5*) of the alternative list in McGinnis and Ostrom (2014, t. 2).

¹⁹ See for instance Gemmill and Bamidelu-Izu (2002).

²⁰ The hybrid organizations (GS2-3) variable corresponds to "hybrid organizations" under the rule-making organizations variable (GS5*) of the alternative list in McGinnis and Ostrom (2014, t. 2). See also Andonova (2010) on public-private partnerships.

the International Union for the Conservation of Nature (IUCN), whose membership includes states, various types of organizations and even individuals, or of the World Wildlife Fund (WWF) for Nature, which is supported mostly by individuals, but also corporations and governments. Both organizations are present at the ecoregional level. IUCN initiated or supported several processes²¹, while WWF adopted an ecosystem approach to structure its activities and currently possesses a number of ecoregional offices in the Adriatic, Arctic, Borneo, Caucasus, Danube-Carpathians, Alps, Mediterranean, Mekong and West Indian Ocean. A particular kind of hybrid organizations are multi-stakeholder partnerships such as the Global Water Partnership or the International Mountain Partnership, which are networks bringing together different kinds of actors, including governments, international organizations, civil society, academia and the private sector.²² Moreover, there are organizations that started as NGOs and are now private companies providing services to their members. An example is the International Council for Local Environmental Initiatives (ICLEI), whose European Secretariat is now a private company. There are even former government agencies that are now private companies providing services to their clients. The best example there is the former German Agency for Technical Cooperation (GTZ), which is now a private company (GIZ) working for different German government organizations but also foreign governments and other clients. When analyzing an ecoregional process, it is important to single out hybrid organizations, as they may act differently from government organizations or NGOs.

With regard to the network structure (GS3), two third-tier variables were single out in the ecoregional framework. The first one is relations (GS3-1).²³ Like all networks, ecoregional governance can be more vertical or more horizontal, meaning that the key nodes can be in a hierarchical relation with each other, such as national governments and local governments; it can also be more concentrated or diffused, with either actors clustered around one or few major elements or diffused throughout the ecoregion; ecoregional governance can therefore be monocentric, with only one major element, or polycentric, with usually more centers of attraction; when major elements are two, networks can be considered as bipolar and, when they are more, they be multipolar. The second one is power (GS3-2), which is vested in major elements of ecoregional governance, such as large countries or major firms.²⁴ In any given period of time, there is a certain balance of power, which is not static but dynamic. This means that it can change in favor or against one or more major elements of the system. Also, like all nodes in a network, major elements depend on each other to a certain extent. For example, a downstream country depends on an upstream country for waterflow irrespective of how militarily, economically or culturally powerful are the two countries. The extent of this interdependence matters to analyze ecoregional agreements and processes. Interdependency is an incentive to cooperate, because conflictual relations can backfire both parties. In general, the network structure matters in ecoregional governance, because some configurations can support cooperation, while others may hinder it. For example, Erika Weinthal shows how the presence and the involvement of a strong state upstream, such as Germany for the Danube, is necessary to create strong and effective agreements and processes.²⁵

So far, we looked at organizations and structures. We are not looking at actor or agents, but at systemic and structural elements that bound and constrain action.²⁶ As such, these organizations and structures can be considered normative elements in the sense that they are based on a convergence of expectations.

²¹ See Lausche (2008).

²² On multi-stakeholder partnerships, see Bäckstrand (2006).

²³ See Castells (2000a, 2000b). The relations (GS5-1) variable includes the “level of collaboration” (Var62) variable in the Environmental Regime Effectiveness project database described in Miles et al. (2002); it also includes the horizontal coordination variable under the SESMAD project in M. E. Cox (2014).

²⁴ See Epstein, Bennett, Gruby, Acton, and Nenadovic (2014). The power (GS5-2) variable corresponds to “power skew, basic game” (Var72) in Miles et al. (2002) and to the power variable in the actors and agency box in the SES governance framework by Pamela A. Matson et al. (2016, p. 91).

²⁵ See Weinthal (2002).

²⁶ See Wendt (1987) and O'Neill, Balsiger, and VanDeveer (2004).

Government organizations and NGOs usually have legal personality. Even if network structures do not normally possess legal personality, they also have a legal dimension that can materialize for example in an international agreement at the ecoregional level. Network structures can also generate expectations about behavior with regard to power dynamics. These elements can be seen as part of a normative continuum that goes from organizations and structures to rules at different levels (operational-choice, collective-choice and constitutional rules) and of different kinds (property rights, decision-making procedures, general principles, sanctioning rules, etc.). Concerning property-rights systems (GS4), the key question is ownership (GS4-1). It is important to know who owns the largest chunks of the ecoregion to identify whose interests are at stake. At the country level, the answer is quite straightforward. It is the countries in whose territory the ecoregion is found that exert property-rights over it, bearing in mind that the high seas do not fall within the territory of any country and are considered as common heritage of mankind. At the subnational level, however, the answer usually gets more complicated. For instance, forest is usually owned by a mix of public and private owners. This is the case of the Ardennes, a forest covered mountain range shared by Belgium, France, Germany and Luxembourg. Among public owners there can be significant differences between ownership by a national agency, which may just want to preserve the forest, and by a local government, which may count on its exploitation for revenue; among private owners, some can be large firms investing in wood production, while for many forest is part of their family heritage. Moreover, in some cases the actual owner remains unknown because of out-of-date land registries.²⁷

This is why it is important to distinguish ownership types (GS4-2) as well.²⁸ In the literature on common pool resources such as seas, the distinction is usually made among common, public, private and club property. Public, private and club property being often portrayed as ways to address the so-called tragedy of the commons, which is the tendency to deplete resources that are strongly rivalrous but from whom users can be difficultly excludable, such as in the case of fisheries.²⁹ In fact, ownership type influences the way resources are managed and exploited. At the country level, ecoregions can be considered as regional commons shared by the countries in whose territory the ecoregion is found, which can be all countries for the high seas.³⁰ At the subnational level, instead, property-rights systems are usually mixed with some types that may be predominant over the others, such as public property with regard to watercourses. However, ownership type is not the only element influencing the management and exploitation of the resources found within an ecoregion. Ownership structure (GS4-3) is also important: depending on the number and size of owners, it can be characterized as anarchy, competition, oligopoly, monopoly or mixed.³¹ For instance, in many countries, the only owner of the coastline or of the banks of navigable watercourses is the state. While the state can provide concessions for the use of parts of coastlines and riverbanks, by maintaining ownership the state retains a significant capacity to influence and control their use. For international watercourses, the various countries sharing them can be considered as maintaining an oligopoly over the riverbanks if they fall under the monopoly of the respective states. Conversely, in countries where the water resource can be privatized, public authorities can structure a market where tradable permits are bought and sold, thus generating competition for the resource among a large number of users. This is the case, for instance, of the water banks in Texas and Washington covering some of the waters of the Rio Grande and Columbia river basins, but also in Spain.³² Last but not least, if markets are not in place and if there is no actor capable to influence and control

²⁷ See Roeland (2016).

²⁸ Outside of Ostrom's SES framework, the ownership type (GS4-1) variable corresponds also to the property rights variable in the institutional arrangements box in the SES governance framework by Pamela A. Matson et al. (2016, p. 91).

²⁹ See the classical references of Hardin (1968) and Ostrom (1990).

³⁰ On regional commons, see Berge and Laerhoven (2011) and Fleischman, Ban, et al. (2014).

³¹ See for instance Jones Luong and Weinthal (2010).

³² On the experience along the Rio Grande, see Makridis (2013); on the case of Spain, see Palomo-Hierro, Gómez-Limón, and Riesgo (2015); for a perspective on the international experience with water banking, see Montilla-López, Gutiérrez-Martín, and Gómez-Limón (2016).

uses, the ownership structure can be characterized as anarchical. This is for instance the case of forest in France.³³

The lowest level on the institutional scale in Ostrom's SES framework is operational-choice rules (GS5) such as executive and other laws, bylaws, protocols, regulations, decisions, policies and guidelines.³⁴ In this regard, the ecoregional governance framework proposes four third-tier variables that are all known to be relevant at the ecoregional level: regulatory fit, depth, style and noise. Regulatory fit (GS5-1) is the correspondence between societal problems, such as environmental protection, and the matching policies meant to solve them.³⁵ In the case of ecoregions, problems and policies rarely match because important properties such as administrative boundaries and political timeframes usually do not correspond, unless specific ecoregional agreements and processes are in place. For instance, policies adopted by Croatia will not be able to solve pollution problems in the Adriatic Sea without similar and coordinated policies being adopted by other riparian countries or without developing specific policies at the ecoregional level. Then there is the problem of panaceas or one-size-fit-all policies developed elsewhere and imported in a given ecoregion, such as the provision of water supply and sanitation by private companies in countries with poor market regulation. Panaceas often result in regulatory misfit. Another important feature is their adaptiveness. Regulation can be appropriate at a given point in time, but can become misfit if it cannot adapt to changing circumstances. This is particularly important in a context of climate change.³⁶ Example of adaptive regulation is the presence of clauses that preconize the evaluation or revision of the policy at regular intervals, such as yearly seasonal decisions on water allocation in a river basin. While this does not guarantee timeliness and responsiveness, this type of regulation is proactive in the sense that it tries to anticipate future issues such as obsolescence.

Regulatory depth (GS5-2) is also important at the ecoregional level.³⁷ Generic policy is easier to adopt because it places less constraints. It is also easier to adapt to different contexts and to implement. However, it can lead to divergent interpretations, which renders ensuring compliance difficult. A typical example is the 1992 Habitat Directive of the European Union, which created the Natura2000 ecological network, but whose implementation is quite inconsistent from one country to the other. Specific policy is more difficult to develop. It requires precise knowledge about the issue at stake to be able to target the intervention. The risk of divergent interpretation is lower and it is more likely to be effective.³⁸ Still, ensuring compliance can also be difficult because of high costs of monitoring. An example of deep regulation is the long list of factors to be considered by countries for the authorization of emissions from Land-based Sources and Activities into the Caspian Sea under the 2003 Teheran Convention.³⁹ Still, depth does not necessarily mean binding regulation. Regulatory style (GS5-3) must also be taken into consideration.⁴⁰ Style refers to whether regulation is binding or voluntary or, in other words, hard law

³³ See for instance Houpert and Botrel (2015).

³⁴ On the distinction between scale and levels, see Cash et al. (2006). Outside of Ostrom's SES framework, the operational-choice rules (GS5) variable corresponds also to the regulations variable in the institutional arrangements box in the SES governance framework by Pamela A. Matson et al. (2016, p. 91).

³⁵ See in particular Young (2002) and Epstein et al. (2015). The "regulatory fit" (GS5-1) variable includes the governance system spatial extent, scale match and socio-ecological fit variables under the SESMAD project in M. E. Cox (2014).

³⁶ See Koontz et al. (2015) and Karpouzoglou, Dewulf, and Clark (2016).

³⁷ The regulatory depth (GS5-2) variable corresponds to the "regime shallow" (RA15-205G) variable of the Analyzing

International Environmental Regimes project database described in Breitmeier et al. (2006). It combines also the policy variable in the institutional arrangements box in the SES governance framework by Pamela A. Matson et al. (2016, p. 91); moreover, it includes the governance strictness trend variable in M. E. Cox (2014).

³⁸ See for instance Breitmeier et al. (2011).

³⁹ See Annex IV of the 2012 Moscow Protocol for the Protection of the Caspian Sea against Pollution from Land-based Sources and Activities.

⁴⁰ The regulatory style (GS5-3) variable corresponds to the "rule binding" (RA11-205C) variable of the Analyzing International Environmental Regimes project database described in Breitmeier et al. (2006); it also includes the policy instrument variable in M. E. Cox (2014).

or soft law.⁴¹ This matters in Europe, because only hard law can stand in court and because judicial adjudication is a common practice; however, this matters less, for instance, in South-East Asia, where judicial adjudication is less common and soft law such as government guidelines can be sufficient for implementation.⁴² Regulatory style also considers the policy mix. To address societal problems, policies typically combine legal tools such as laws and regulations, financial instruments such as taxes and incentives, as well as communication, such awareness raising and capacity building and sometimes direct implementation by public authorities, such as building infrastructure or piloting projects. This also matters for ecoregional governance, as a shift from legal tools towards a greater reliance in financial instruments and communication is observable since the early 2000s.⁴³

Finally, regulatory noise (GS5-4) is an important factor to take into consideration, because policy increasingly takes place in a context where there are many other policies and laws in place.⁴⁴ Different policies can be conflicting with each other. The typical example is global efforts to curb emissions of carbon dioxide and existing tax breaks to kerosene for the air transport industry.⁴⁵ At the ecoregional level, there is significant regulatory noise between, for instance, the Alpine ecological network, established under the 1995 Nature Protection and Landscape Conservation Protocol of the Alpine Convention, the Natura2000 network created pursuant to the 1992 Habitat Directory of the European Union, the Emerald Network established under the 1979 Bern Convention in the framework of the Council of Europe, the Pan-European Ecological Network launched at the Third Ministerial Conference “Environment for Europe”, held in Sophia in 1995, under the United Nations Economic Commission for Europe (UNECE), plus all the national ecological networks, such as the Swiss and French green and blue frame. This is particularly problematic in countries with elaborate legal and policy frameworks, but this can be an issue also elsewhere countries. For instance, on the one hand, there are efforts to restore sufficient waterflow into the Aral Sea; on the other, riparian countries may pursue ambitious agricultural development policies that will most likely increase withdrawals. In this regard, it is useful to know if the number of conflicting policies is small and to describe how policies disturb each other. This factor is not easy to assess, but it is an important barrier to effectiveness, because regulatory noise typically results in mixed policy signals.

The intermediate level on the institutional scale is collective-choice rules (GS6) such as international regimes and framework conventions. What rules are in place to make collective choices? International regimes and framework conventions are mentioned here because, together with some general principles, they usually include provisions on how decisions about more specific rules at the operational level are expected to be taken. International regimes (GS6-1) were defined by Stephen Krasner as “implicit or explicit principles, norms, rules and decision-making procedures around which actors’ expectations converge in a given area of international relations.”⁴⁶ This concept is used here because it is not limited to explicit, written agreements and to government organizations, but it also includes other, implicit processes, as well as other kinds of actors. In fact, agreements may not be between national governments, but among subnational governments, such as in the case of the 2005 Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement, which is a good-faith agreement among the governors of the eight riparian states on the side of the United States and 2 premiers of the two Canadian provinces. There may also be ecoregions without legally-binding agreements in place, such as the Northwest Pacific, but with a set of principles, norms, rules and decision-making procedures around which actors’ expectations converge. An action plan was launched in 1991 and a Regional Coordination Unit was

⁴¹ On the distinction between soft and hard law and for a discussion thereof, read Chinkin (2000), Abbott, Keohane, Moravcsik, Slaughter, and Snidal (2000), as well as Karlsson-Vinkhuyzen and Vihma (2009).

⁴² See Elliott (2012) and Balsiger and Uyar (2013).

⁴³ See Stacy D VanDeveer (2003) and Conca and Dabelko (2010).

⁴⁴ The regulatory noise (GS5-4) variable includes to the institutional diversity variable in M. E. Cox (2014).

⁴⁵ As per article 24 of the 1944 Chicago Convention on International Civil Aviation.

⁴⁶ Quoted from Krasner (1983, p. 2). The regimes (GS6-1) variable includes the transaction cost variable in M. E. Cox (2014).

established in Toyama, Japan, with an Office in Busan, South Korea. This would qualify as an international regime. There are also ecoregions where there is no international regime in place at the ecoregional level, such as in the Caucasus.⁴⁷ Radoslav Dimitrov calls this situation a nonregime.⁴⁸ In both the Northwest Pacific and the Caucasus ecoregions, even if there is no formal agreement at the ecoregional level, an ecoregional process is in place. In both cases, this process is not autonomous and benefits from external support, particularly of UNEP and donor organizations. Agreements are often seen as ways to reduce transaction costs.⁴⁹ The degree of autonomy of the agreement and process from other international organizations and donor organizations is important. Peter Haas claims that support from global processes such as UNEP, FAO and the World Bank, as well as regional processes such as the EU, is key for the development of regional environmental governance and its effectiveness. At the same time, he concedes that some independent processes such as the Baltic Sea and the North Sea, but also the Alps, managed to build strong institutions without much external support.⁵⁰

As far as international regimes are concerned, three fourth-tier variables were identified: decision-making (GS6-1-1), secretariat (GS6-1-2) and funding (GS6-1-3).⁵¹ Regarding decision-making, the first question is who decides. Usually, member states are the only actors with decision-making authority, but other actors can also take part in the decision-making process, such as international organizations like the EU or UNEP and donor organizations. What triggers a decision is a second question, which is closely related not only with agenda setting, but also with decision-making standards and triggering non-compliance procedures.⁵² The 1997 Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters contemplates some circumstances that trigger a non-compliance procedure; similarly, the 2005 Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement includes a checklist of items that help determine whether a decision should be taken or not. A third question concerns if the decision is taken by consensus, which is the most common practice at the international level, or by simple or strengthened majority. Majority decisions are rare and normally regard technical issues. In the literature on international regimes, majority decisions usually signal deeper cooperation among the parties. The acceptance of a majority rule implies that each party values the cooperation process more than the fact that a decision against their interest may be adopted. Consensus gives veto power to each party. Unlike the UN Security Council, there are no other kinds of veto power in ecoregional processes, but there are power relations that may de facto act as veto. A country can for example directly or indirectly threaten to cut some extra budgetary funding if a decision against their interest is adopted. Another issue with regard to decision-making is public participation and transparency.⁵³ Ecoregional agreements and processes usually allow public participation by allowing pre-approved NGOs and other relevant actors to participate as observers. This makes regional environmental governance transparent compared to other domains, such

⁴⁷ See UNEP and REC Caucasus (2009) and Balsiger (2013).

⁴⁸ On nonregimes, see Dimitrov (2006) and Dimitrov, Sprinz, DiGiusto, and Kelle (2007).

⁴⁹ Some classical references here are Keohane (1984) and Keohane and Nye (1998).

⁵⁰ See P. M. Haas (2016, pp. 432, 434); see also Andresen and Rosendal (2009) and, in the same book, Ivanova (2009).

⁵¹ The decision-making (GS6-1-1) variable corresponds to the “decision rule in use” (Var40a) variable in Miles et al. (2002) and to the “decision rules in practice” (RA32-210B) variable in Breitmeier et al. (2006), while combining the transparency variable in the political process box of Pamela A. Matson et al. (2016, p. 91) and the governance trigger and government knowledge use variables in M. E. Cox (2014); the secretariat (GS6-1-2) variable corresponds to the “secretariat body – functions” (SECF) and the “secretariat body – structure” (SECS) variables of the International Environmental Agreements Database project described in Mitchell (2003) and to the “role of the secretariat” (Var44), as well as “role of conference president and committee chair (Var45), in the Environmental Regime Effectiveness project database described in Miles et al. (2002), while the funding (GS6-1-3) variable corresponds to the “administrative financing” (FINAD) and “programmatically financing” (FINPR) variables therein.

⁵² On non-compliance procedures, see Cardesa-Salzmann (2012).

⁵³ On deliberation at the ecoregional level, see Klinke (2012).

as security or finance. Still, this does not mean that actors use the information available about the governance system.

The existence a secretariat is an important asset.⁵⁴ It helps making the ecoregion socially and politically visible to internal and external actors. It contributes to ecosystem stewardship.⁵⁵ Secretariats can have different roles. Some are purely servicing government organizations, such as the secretariat of the Alpine Convention. In this case, the role of the secretariat is limited to organizing meetings and preparing documentation on behalf of the contracting parties, as well as providing some basic mediation. The leadership supplied is very limited, as national governments are leading the process. Other secretariats are also providing some leadership, such as the secretariat of the Carpathian Convention, which is hosted by UNEP. Initially, secretariats are usually hosted by a member state. For instance, between 1978 and 2002 the secretariat of the Amazon Cooperation Treaty Organization (ACTO) was hosted by the member state that was organizing the next high-level meeting on a rotating basis. Even if an autonomous secretariat is created, the presidency or chairmanship of the process, which is usually on a rotation basis, continues to play a key role. The best-known example of this phenomenon is the rotating presidency of the European Union, which plays a key role even after the establishment of an elected president of the European Council in 2007.⁵⁶ At the ecoregional basis, this phenomenon is very common. In the case of the Aral Sea, it can go as far as moving the whole secretariat when a new country assumes the rotating chairmanship. The key role of presidencies can be explained by the opportunity they provide to contracting parties to influence the agenda of a process, given that agenda-setting is usually a prerogative of the presidency. It is also a way to claim additional human and financial resources for the ecoregional process. Then, the member states can decide to create a permanent secretariat, which can be autonomous or hosted by another organization, such as UNEP. Whether the secretariat is autonomous or hosted by a member state or by an international organization is important, because the hosting government or international organization will have a certain influence over the process. Outside of ecoregional governance, a typical example of this phenomenon is the International Renewable Energy Agency (IRENA), hosted by the United Arab Emirates in Abu Dhabi and supported by Germany.⁵⁷

Last but not least, support in terms of funding available is another important element to analyze ecoregional governance systems. The first issue is how much funding is available for action at the ecosystem level. Some international regimes at the ecoregional level can count on little to no funding, while others are better endowed. For instance, the Alpine Convention can be estimated to directly or indirectly mobilize around 5 million euros per year plus approximately 20 million euros of the EU Alpine Space Programme and at least 2 million euros raised by NGOs.⁵⁸ This is not negligible compared for instance to the East Asian Seas Programme of UNEP, which can currently count on little or no funding. In this regard, the existence of programs, funds, such as the International Fund for saving the Aral Sea (IFAS), and even banks, such as the Andean Development Corporation (CAF), which has now merged into the Latin American Development Bank, usually gives an idea of the order of magnitude of the funding available. Also, the proportion of funding spent on administrative functions, such as policymaking organs and program management and support, and programmatic functions, such as the production of knowledge, the piloting of projects, as well as direct implementation, is an important element. A process that dedicates significant funding to administrative functions is not necessarily weak. This may be the consequence of a policy mix that is more oriented towards normative production rather than other policy approaches such as financing or communication. This was the case, for example, of the Alpine Convention in the 1990s, which produced a great number of normative instruments.

⁵⁴ On the secretariats of multilateral environmental agreements, see Bauer, Busch, and Siebenhüner (2009) and Mauerhofer (2019). On regional centers, see Selin (2012).

⁵⁵ On ecosystem stewardship, see Chapin et al. (2009).

⁵⁶ On the role of the presidency of the European Union, see Tallberg (2006) and Thomson (2008); on the relationship between chairmanship and secretariat in the climate negotiations, see Depledge (2007).

⁵⁷ On the case of IRENA, see Graaf (2013).

⁵⁸ See Church (2011a, pp. 10, 97, 105).

Conversely, this may also be the sign of a weak process that does not manage to raise funding for its programmatic activities. This is the case, for instance, of the South-East Asia Seas Programme and of its Coordinating Body (COBSEA), which is supported by UNEP and has been in stand-by since the early 2010s because of “funding shortfalls,” but also “territorial disputes between the members, and competition with other environmental organizations,”⁵⁹ particularly the Regional Programme on Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) that is supported by the International Maritime Organization (IMO), the United Nations Development Programme (UNDP), the Global Environmental Facility (GEF) and the World Bank. One of the key advantages of PEMSEA over COBSEA is that it can count on a Regional Partnership Fund and on the support of three long term projects by the GEF in 1993-1999, 1999-2007 and 2007-2017. Still, it is important to know how much funding depends on external donors such as development aid. In the case of PEMSEA, there is a certain dependency of the process on donor funding and its taking over by the beneficiaries is one of the challenges of the latest project by the GEF.

Besides international regimes, the other key element to analyze collective-choice rules is coordination (GS6-2). Ecoregional agreements and processes do not take place in a void. There are many more multilateral environmental agreements and there are many other processes taking place at the same time and across different levels (global, regional, etc.) and sectors (energy, health, etc.). In this regard, some scholars speak of fragmentation⁶⁰ and they disagree on whether this is a good or bad thing. It is true that fragmentation can lead to confusion, duplication and sometimes waste of scarce human and financial resources, but it is also true that this results in more pluralism, adaptability and perhaps fitting solutions.⁶¹ Sometimes processes are nested, sometimes overlapping within each other. At the same time, there is always a certain degree of coordination among the various processes, either through formal processes or informally through the participation of the same people or the same organizations in the various processes. A key question is therefore how coordination takes place, but also how other processes interfere with decision-making. For instance, are there two-level games where actors use the existence of a decision-making process at one level to gain more leverage for decision-making at another level? Two-level games can narrow the win-sets of actors to options that are only acceptable to the other level. In practice, this means that a negotiator will not be able to make a compromise on a given position without consulting another level of decision-making, which can be at a lower but also higher level in a typical principal-agent relationship. The existence of binding or, more frequently, non-binding but still constraining consultations at different decision-making levels, such as the annual coordination meetings organized by the Council of Baltic Sea States with the participation of Baltic Sea regional governmental and non-governmental organizations like the Union of the Baltic Cities (UBC).

The seventh out of eight second-tier variables in Ostrom’s SES framework consists in constitutional-choice rules such as higher-level principles and norms. These higher-level rules are the basis for collective-choice and operational-choice rules. This tier was unpacked into three third-tier elements. The first one is principledness (GS7-1). Are there higher-level principles and norms at the ecoregional level? Examples of such principles include human rights, the precautionary principle, the principles of access to information, participation in decision-making and access to justice, which are enshrined in the 1997 Aarhus Convention, the polluter pays principle, the principle of cooperation and the principle of sustainable development, which can be defined as improving human well-being while conserving the earth’s life support systems over the long run.⁶² There are ecoregions that are undergoing conflict and where even the most basic principle of cooperation is absent. Higher-level principles should not be taken for granted. Where they exist, are they invoked frequently? This is usually a sign of principledness,

⁵⁹ Quoted from Zou (2015, p. 105). See also Van Dyke and Broder (2014).

⁶⁰ See Biermann, Pattberg, Asselt, and Zelli (2009) and Zelli and van Asselt (2013).

⁶¹ See Juma (2000) and Kanie (2007).

⁶² On human rights, see Risse-Kappen, Ropp, and Sikkink (1999). This definition of sustainable development is an adapted from the Millennium Ecosystem Assessment (2005). For the conventional definition, see the World Commission on Environment and Development (1987).

provided that this is done sincerely and not tactically or ironically. Higher-level principles and norms do not come from nowhere. They usually are the product of a process that lead to their emergence (GS7-2).⁶³ In this regard, it is important to understand whether these principles, including the whole cooperation process at the ecoregional level, emerged spontaneously or if they were more or less imposed by third parties such as other countries, international organizations or development cooperation.

These variables are important for ecoregional governance because they signal embeddedness or contestedness (GS7-3).⁶⁴ If higher-level principles are invoked frequently and sincerely and if they emerged spontaneously, it is more likely that they are taken-for-granted and that they may actually inform lower-level decisions. Otherwise, it is possible that they are contested or exposed to contestation. In this case, even higher-level principles and norms may become obsolete. The example is the polluter-pays principle. In France, it failed to be included in the Environmental Charter that was annexed to the French Constitution in 2005 because it can be interpreted as providing a right to pollute against a payment.⁶⁵ Also, it is difficult to implement. For example, even in the United States, water supply and sanitation remains heavily subsidized because of the difficulty to identify polluters and make them pay except in the case of major leaks. Contestedness of constitutional-choice rules may disrupt ecoregional agreements and processes because it undermines the trust on which basis decisions are taken at the ecoregional level. This is prominent where the principle of cooperation is undermined by conflict, such as in the case of territorial disputes in the East Asian Seas.

Contestedness of other principles can also be disruptive. Access to information can be particularly delicate. It is in fact difficult to take decisions where the evidence base is not shared or is even contested. In this regard, the eight and last variable identified by Ostrom to characterize SES governance systems is especially important. Monitoring and sanctioning rules (GS8) play in fact a key role for feedback loops within the governance system itself. Pamela Matson, Bill Clark and Krister Andersson in their SES governance framework represent “monitoring and enforcement, learning, adaptation” as the place where feedback happens in processes that can be fairly linear.⁶⁶ This variable was broken down into four third-tier variables. The first one is observation (GS8-1).⁶⁷ Without observation, the ecoregion would remain unknown to us and ecoregional agreements and processes would not exist. How is the ecoregion observed? The key issue here are the provisions about how is information gathered and knowledge generated to monitor the ecoregion. There are many ways in which this can be done. First this depends on who is doing it. Is it a government organization or an NGO? Is it a scientific expert or a lay person? Of course, this list of knowledge producers is not exhaustive. How is this knowledge shared? In this regard, the presence of boundary organizations such as the Regional Activity Centre for Information and Communication (INFO/RAC) under the Mediterranean Action Plan, is important.⁶⁸ The translation or boundary work that they perform among different groups such as scientists and decision-makers, but also the general public, is important to constitute the evidence base for decisions.⁶⁹ Even without a boundary organization in place, the existence of ecoregional assessments, reports, maps or other boundary objects can serve a similar purpose. Many ecoregional agreements and processes produce

⁶³ See Finnemore and Sikkink (1998) and Park (2006).

⁶⁴ The “embedding, contestedness” variable includes to the “interest disobey” (RF7-101G) and “interest incompatibility” (RF9-101I) variables in Breitmeier et al. (2006).

⁶⁵ See Prieur (2014).

⁶⁶ For the SES governance framework, see Pamela A. Matson et al. (2016, pp. 83-104).

⁶⁷ The observation (GS8-1) variable corresponds to the “scientific research” (SCIR) variable in Mitchell (2003) and includes the “contribution to knowledge” (Var60) variable in Miles et al. (2002) and the change in understanding (RC12 – 304B) variable in Breitmeier et al. (2006). It also relates to the science-based policy and metric diversity variables in M. E. Cox (2014), as well as the monitoring and enforcement, learning, adaptation box in Pamela A. Matson et al. (2016, p. 91).

⁶⁸ On boundary work, see for instance William C. Clark et al. (2011).

⁶⁹ See Jasanoff and Wynne (1998) and, with regard to regional seas, Jasanoff (1997).

indeed documents about the state of the environment in the ecoregion that are usually called reports, outlooks or assessments.

The second third-tier variable is evaluation (GS8-2).⁷⁰ Observing an ecoregion is usually not sufficient to trickle-down and feed-in a decision-making process. This is why many ecoregional agreements and processes develop specific means of verification and evaluation, such as the Compliance Committee of the Alpine Convention. These procedures are meant to verify that the contracting parties respect an agreement. Usually, they are among peers, which means that states verify the compliance of other states, but they can also be open to external actors, such as NGOs. In these circumstances, knowledge is therefore filtered through government organizations, which are made accountable for their decisions horizontally by peers from other countries. Vertical accountability with regard to their own citizens is usually left to the democratic processes within each country. This process can be mediated by NGOs and other external actors such as other international organizations in case the evaluation process is open to other types of actors. These procedures are usually non-confrontational in the sense that the party at fault is rarely singled out and blamed for not respecting an agreement or a decision; these procedures are usually seen as learning processes, where parties learn how the ecoregional agreement and process is implemented in the different countries. This can lead in turn to the diffusion and circulation of ideas and initiatives. How this experience sharing takes place is another important element for ecoregional agreements and processes.

The concept of sanctioning (GS8-3) must be nuanced.⁷¹ If rules are not followed, this rarely results in sanctions such as the suspension of voting rights or the payment of monetary indemnities. So, what happens if rules are not followed? Are there pre-defined sanctions? There is evidence that their existence is important for the sustainability of common pool resources such as fisheries or pastures at the local level and, generally, for compliance. A “scale of graduated sanctions for resource appropriators who violate community rules” is one of the eight design principles identified by Elinor Ostrom at the local level.⁷² However, this implies a high degree of trust in the sanctioning process. If trust is low, including pre-defined sanctions in an agreement may compromise the whole agreement. However, there are some exceptions such as the suspension of voting rights for countries that do not pay their assessed contributions to the regular budget. If there are few pre-defined sanctions, what are then the incentives to comply? There are many theories on why states and other actors comply to international agreements, such as the presence of a hegemonic power, the reduction of transaction costs of cooperation versus conflict and the social construction of a shared identity. Here, however, it is more whether the process developed some mechanisms that may incentivize compliance, such as the presence of a funding program or communication tools such as an ecoregional label for remarkable heritage, products or initiatives.

What happens then if rules are disputed? Dispute settlement (GS8-4) is the fourth and last third-tier variable.⁷³ While pre-defined sanctions are rare, many ecoregional agreements established dispute settlement mechanisms in case the parties do not agree on implementation. There are many kinds of mechanisms: they can be binding or voluntary and they can include mediation and arbitration. While their existence is more theoretical than practical in the case of mountain ranges and regional seas, there is a significant jurisprudence about river basins, such as in the case of the Gabčíkovo-Nagymaros Dams along the Danube. The presence of international tribunals such as the International Court of Justice and

⁷⁰ The evaluation (GS8-2) variable includes the “compliance approach” (RA49-212E) variable in Breitmeier et al. (2006) and the accountability variable in the political process box and to the monitoring and enforcement, learning, adaptation box in Pamela A. Matson et al. (2016, p. 91).

⁷¹ The sanctioning (GS8-3) variable is included in the management practices variable in the institutional arrangements box in Pamela A. Matson et al. (2016, p. 91) and includes the “select incentives” (Var24) variable in Miles et al. (2002).

⁷² See Ostrom (1990), McGinnis and Ostrom (1996) and M. E. Cox et al. (2010).

⁷³ The dispute settlement (GS8-4) variable corresponds to the “dispute settlement” (DISP) variable in Mitchell (2003).

the European Court of Justice can facilitate the recourse to these provisions.⁷⁴ For the first time, with its ruling in 2004 on the Etang de Berre, the European Court of Justice settled a dispute that was based on a regional seas agreement and particularly the 1975 Barcelona Convention for the Protection of the Mediterranean Sea against Pollution. The peaceful settlement of international disputes over shared waters is particularly important in areas prone to conflict such as the Middle East.⁷⁵ Dispute settlement mechanisms do not necessarily need to be used to be effective. Their mere existence, as well as the length and uncertain outcome of their proceedings, may play a role in avoiding the escalation of some conflicts.

Many of these third-tier and fourth-tier variables are not new. They are taken from the International Environmental Agreements (IEA) database project, from the Environmental Regime Effectiveness (ERE) project database, the Analyzing International Environmental Regimes (AIER) project database, the Socio-Ecologic Systems Meta-Analysis Database (SESMAD) project, as well as the governance framework for social-environmental systems (SES).⁷⁶ In this regard, it is interesting to note that most existing lists of variables focus on few second-tier variables. For instance, the ERE project focused more on network structure and collective-choice rules, while the AIER project rather instated on operational-choice rules, as well as monitoring and sanctioning rules. Also, the only third-tier variable that is included in all the previous frameworks is observation. This confirms the centrality of knowledge for ecoregional governance and for environmental politics in general. On this basis, one is tempted to quote the *Pensées* by Blaise Pascal, who said: “Let no one say that I have said nothing new; the arrangement of the material is new.”⁷⁷ However, this would be reductive because a large number of variables are adapted specifically to analyze ecoregional agreements and processes such as states (GS1-2), government (GS1-3), private sector, for-profit organizations (GS1-2), civil society, community-based, non-profit organizations (GS2-2), regulatory fit (GS5-1), regimes (GS6-1), decision-making (GS6-1-1), secretariat (GS6-1-2), funding (GS6-1-3), embedding, contestedness (GS7-3), observation (GS8-1), evaluation (GS8-2) and sanctioning (GS8-3). Most importantly, descriptions and specific questions were provided to guide research and to encourage a consistent use of the framework. Moreover, the ecoregional governance framework identifies new variables: under government organizations (GS1), ministries (GS1-3-1), parties (GS1-3-2), local authorities (GS1-3-3); under property-rights systems (GS4), ownership (GS4-1), ownership structure (GS4-3); under collective-choice rules (GS6), coordination (GS6-2); under constitutional-choice rules (GS7), principledness (GS7-1) and emergence (GS7-2). These new variables emerged as clearly relevant from the case studies. The explanatory power of these new variables as well as of the ecoregional governance framework to better understand ecoregional governance will now be explored.

⁷⁴ See Mendez (2013).

⁷⁵ On transboundary water conflict and cooperation, see for instance Mirumachi (2015) and, for a legal perspective, Dinar, Dinar, McCaffrey, and McKinney (2013). Specifically on transboundary water dispute resolution, see inter alia Delli Priscoli and Wolf (2009).

⁷⁶ See Mitchell (2003), Miles et al. (2002), Breitmeier et al. (2006), M. E. Cox (2014) and Pamela A. Matson et al. (2016, p. 91).

⁷⁷ Quotation of Pascal (1670, 22, translated by Honor Levi).

Social, economic and political settings (S)	
<p>S1 Economic development</p> <p>S2 Demographic trends</p> <p>S3 Political stability</p> <p>S4 Other governance systems: How do other processes of regional integration affect this ecoregion? Is there competition among processes of regional integration and ecoregional governance? How does globalization affect this ecoregion? What is its impact on its governance?</p>	<p>S5 Markets</p> <p>S6 Media organizations</p> <p>S7 Technology</p> <p>S8 Languages</p> <p>S9 Timeframe</p>
Governance systems (GS)	
<p>GS1 Government organizations</p> <p>GS1-1 Level: What is the prevalent level of decision-making with regard to this ecoregion: national or subnational, political or technical, etc.?</p> <p>GS1-2 States: What is the form of the states concerned: centralized, federalist, etc.? How strong is government control over its territory? Are there autonomist or separatist movements associated with this ecoregion? How does this affect the governance of the ecoregion?</p> <p>GS1-3 Government: What is the form of the governments concerned: presidential, parliamentarian, etc.? How is political representation organized: representative democracy (majoritarian, proportional, etc.), direct democracy (referenda, populism, etc.), authoritarianism, etc.? How legitimate are they?</p> <p>GS1-3-1 Ministries: Which ministries/agencies are involved in the governance process? Who is the focal/contact point? How are they positioned within the ministry/agency and vis-à-vis other ministries/agencies?</p> <p>GS1-3-2 Parties: What is the political affiliation of key players? How does it change over time?</p> <p>GS1-3-3 Local authorities: What is the role of subnational authorities in the governance of this ecoregion? What is the tendency (centralization, decentralization, etc.)? Is this the result of functional pressure on national authorities?</p> <p>GS2 Nongovernment organizations</p> <p>GS2-1 Private sector, for-profit organizations: What are their interests? Do they participate directly in the process or indirectly by lobbying governments? How are they organized? How representative are the private sector organizations involved in the process? How legitimate are they?</p> <p>GS2-2 Civil society, community-based, non-profit organizations: What is their role? Are they present locally, nationally or globally? How many members do they have? How are they organized? Are they mainly volunteer or professional? Grassroots or elite? How much funding can they mobilize?</p> <p>GS2-3 Hybrid organizations: Are there organizations combining government and nongovernment organizations: IUCN, etc.? Are multi-stakeholder partnerships in place: GWP, etc.?</p> <p>GS3 Network structure</p> <p>GS3-1 Relations: How can the governance structure be characterized: vertical/horizontal, concentrated/diffused, monocentric/polycentric, bipolar/multipolar, etc.?</p> <p>GS3-2 Power: What is the balance of power and how does it change? Are there hegemony, strategic alliances and free-riders? How interdependent are the parties concerned?</p> <p>GS4 Property-rights systems</p> <p>GS4-1 Ownership: Who owns the key components of the ecoregion?</p> <p>GS4-2 Ownership type: What predominant property-rights systems are in place: private, club, public, common, multiple, etc.?</p> <p>GS4-3 Ownership structure: How can they be characterized: anarchy, competition, oligopoly, monopoly, mixed?</p>	<p>GS5 Operational-choice rules (executive, lower-level laws, policies, regulations, decisions, guidelines, protocols, etc.)</p> <p>GS5-1 Regulatory fit: What is their geographic scope? Are they original developments or were they adapted from somewhere else? How adaptive are they? Are they timely? Are they responsive or proactive?</p> <p>GS5-2 Regulatory depth: Are they specific or generic?</p> <p>GS5-3 Regulatory style: Are they binding or voluntary? Hard or soft? What is the policy mix: regulation, financial, communication, direct implementation, etc.?</p> <p>GS5-4 Regulatory noise: How many conflicting policies are in place? How do they disturb each other?</p> <p>GS6 Collective-choice rules (regimes, framework conventions, etc.)</p> <p>GS6-1 International regimes: Can the governance of this ecoregion be characterized as an international regime? Is there a formal agreement? What are the transaction costs? How formally autonomous is it from other international organizations: UN, EU, etc.?</p> <p>GS6-1-1 Decision-making: Who decides? What triggers a decision? How are decisions taken: consensus, strengthened majority, simple majority, etc.? What is the role of the presidency? What kind of public participation is allowed? How transparent is decision-making? How is knowledge about the governance system used?</p> <p>GS6-1-2 Secretariat: Is a secretariat in place? What is its role (service, leadership, etc.)? Is it hosted by a Member State, the UN or is it autonomous?</p> <p>GS6-1-3 Funding: How much funding is available for action at the ecosystem level? Are there specific funding schemes such as banks, funds, programs, etc.? What is the proportion between administrative and programmatic functions? How much support comes from external donors?</p> <p>GS6-2 Coordination: How does multilevel and intersectoral coordination take place? Do other processes interfere with decision-making (two-level games, binding or nonbinding consultations, etc.)?</p> <p>GS7 Constitutional-choice rules (higher-level principles, norms, etc.)</p> <p>GS7-1 Principledness: Are there higher-level principles and norms? Are higher-level principles invoked frequently? Is it done sincerely, tactically or ironically?</p> <p>GS7-2 Emergence: How did higher-level principles and norms emerge? Did they emerge spontaneously or were they imposed? How?</p> <p>GS7-3 Embedding, contestedness: How much are higher-level principles taken-for-granted? Are they contested? Are they considered obsolete?</p> <p>GS8 Monitoring and sanctioning rules</p> <p>GS8-1 Observation: How is the ecoregion observed? What are the provisions about how is information gathered and knowledge generated to monitor the ecoregion? By whom? What kind of actor is it (government or NGO; expert or lay, etc.)? How is knowledge shared? Are boundary organizations or objects in place?</p> <p>GS8-2 Evaluation: What are the means of verification/evaluation available? Is evaluation among peers or external? How are actors made accountable? How does learning take place?</p> <p>GS8-3 Sanctioning: What happens if rules are not followed? Are there pre-defined sanctions? What are the incentives to comply?</p> <p>GS8-4 Dispute settlement: Is there a dispute settlement mechanism? What kind: binding or voluntary; arbitration or mediation, etc.? Is it linked to an international court? How does it work?</p>

Figure 7: Framework for the analysis of ecoregional governance with examples of research questions.

This theoretical framework was developed based on an in-depth literature review, as well as many presentations and discussions with other scholars and students. It also builds on an informal seminar of Sciences Po's CERI Research Group on Environment and International Relations, held in Paris on 16 February 2016, with the participation of Alice Baillat, Kari De Pryck, Leonardo Orlando and Adrien Estève.

Chapter 7: Case studies of ecoregional governance

To explore the explanatory power of this adapted framework, six cases of regional environmental agreements and processes were analyzed using this framework. The six cases are: the European Alps, the Andes Cordillera, the Mediterranean Sea, the Baltic Sea, the Amu Darya and the Great Lakes of North America. They were not selected on the basis of the effectiveness of the respective ecoregional agreements and processes or because of any particular state of the ecoregion. They cannot be considered as good practices to draw lessons from. They were selected based on the practical experience of the author, on their accessibility and on the potential interest for the readership. However, they are also representative of the diversity of ecoregions in the world. They include two examples from each one of the major ecosystem type identified under the WWF Global 200 project: terrestrial (Alps and Andes), freshwater (Amu Darya and Great Lakes) and marine (Baltic and Mediterranean). They are representative of the different kinds of regional environmental governance identified by Jörg Balsiger and Stacy VanDeveer: both subsectoral (Amu Darya, Baltic, Great Lakes, Mediterranean) and integrated (Alps, Andes) processes; both institutional (Andes) and functional (Alps, Amu Darya, Baltic, Mediterranean, Great Lakes) regions; both state (Alps, Amu Darya, Baltic, Mediterranean) and non-state (Andes, Great Lakes) governance, bearing in mind that they are all mixed.¹ Moreover, they include at least in part each major region of the world: Europe (Alps, Mediterranean and Baltic), Asia and the Pacific (Amu Darya), North America (Great Lakes), Latin America and the Caribbean (Andes), Africa and the Middle East (Mediterranean). Representativeness is important because it increases the likelihood that the results of this analysis are also valid in other contexts. However, cases from Europe are certainly overrepresented because of the background of the author, the abundance of scientific literature and the potential readership; instead, cases from Africa and Asia and the Pacific are definitely underrepresented.

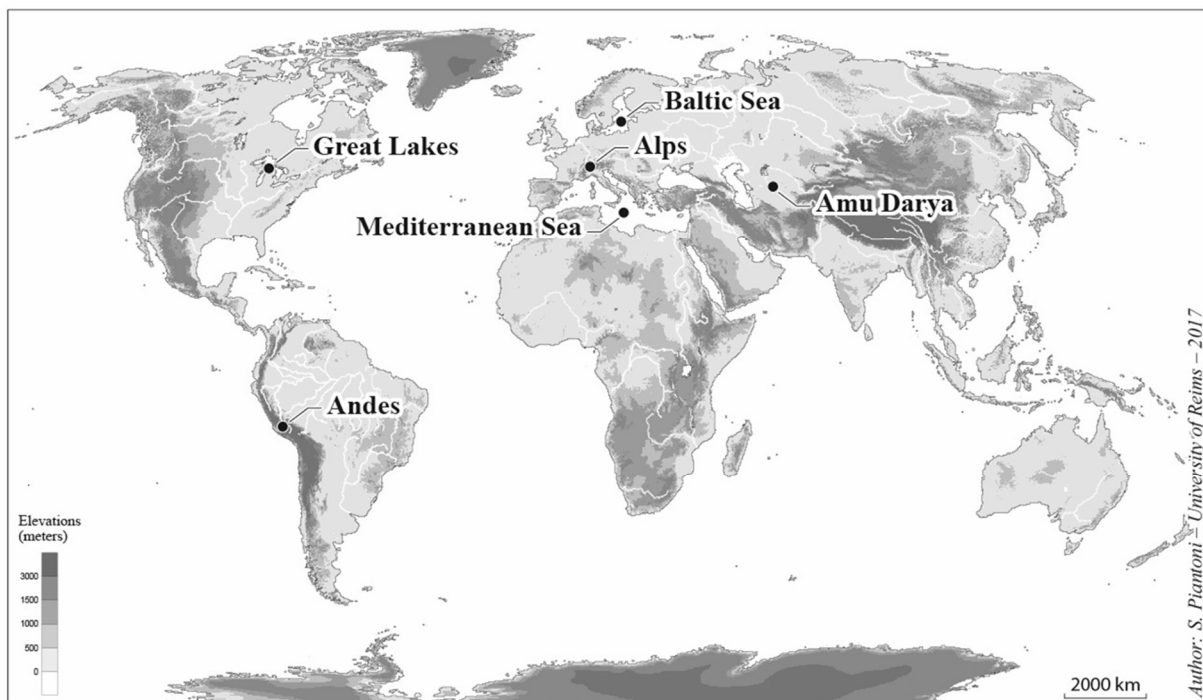


Figure 8: Geographical distribution of the case studies. Source: drawn by Sébastien Piantoni for this monography.

¹ See Balsiger and VanDeveer (2012).

Terrestrial ecoregions: the Alps and the Andes

The Alps and the Andes are two examples of terrestrial ecoregions. Both cases are from mountain areas. Other kinds of terrestrial ecoregions could have been used, such as deserts, grasslands and forests. According to Claude Raffestin, “the land and the sea, mountains and rivers, forests and deserts” share the fact of being “morphologies whose origin owes nothing to anthropic action.” They are “boundary areas” between unknown and uninhabited spaces and relatively known and partially inhabited places. However, we appropriate ourselves of these morphologies and we transform them into places in different manners. Some of these spaces “are integrated within places, but they appear as forgotten” as it is often the case of mountain ranges.² Why study them in particular? Mountains are examples of coupled human-environment systems where the environment imposes itself because of its majesty.³ Mountain areas are often portrayed as providers of ecosystem services. The United Nations enshrined this vision in 2015 with Sustainable Development Goal (SDG) 15 on Life on Land, which aims to “protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”, and particularly with its Target 15.4, which seeks, “by 2030, [to] ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development”. They are important reservoirs of biodiversity.⁴ They are also called water towers of the world, because glaciers are found on mountain tops and because of the risk represented by their melting due to climate change.⁵

At the same time, mountains areas are not just biodiversity or water. They are also home to many communities around the world. Mountain dwellers can be very different from each other. They range from rich urbanites on holidays, especially in winter, to traditional communities. With noteworthy exceptions such as Switzerland, people living in mountain areas tend to be poorer than those living down in the plains. At the same time, poor material conditions do not necessarily mean lack of rich cultural traditions. The contrary is in fact often true. For example, mountain areas are among the best represented biomes in the UNESCO World Heritage List, as far as both natural and cultural properties are concerned.⁶ However, living in mountains areas and keeping up mountain settlements is increasingly challenging in many parts of the world. There are many cases of mountain communities that are thriving, but there are also many cases where the population is aging and declining. This demographic crunch often goes hand in hand with economic crisis. For instance, mountain agriculture, which is important for the provision of many ecosystem services, including biodiversity, and for landscape protection, is struggling to keep up with the competition of mainstream agriculture. This is due to factors such as difficult conditions for mechanization and higher costs of transport. On the other hand, mass and elite tourism is usually seasonal and rarely sufficient to sustain mountain communities. In this context, authorities throughout the world struggle to keep up public services such as hospitals, schools and police in mountain areas. The main exception is around larger cities that are subject to urban sprawl.

The Mountain Forum counted not less than 140 mountain ranges, at least 30% of which run across borders.⁷ Together with the abovementioned factors, this contributes to explain why, of the different

² Quoted from Raffestin (1986a, pp. 176, 178), translation mine. On the concept of place (in French: *territoire*), see Allan Pred (1984).

³ On coupled human-environment systems, see the book edited by Turner et al. (1993), as well as the contribution by Easterling and Polsky (2004).

⁴ See Mountain Partnership (2014b).

⁵ See Mountain Agenda (1998) and Mountain Partnership (2014a).

⁶ See Magin and Chape (2004, p. 8).

⁷ Americas: Andes, Appalachians, Baja California, Cordillera de Talmanca, Guiana Highlands, Rockies, and Sierra Madre Del Sur; Europe: Alps, Balkans, Carpathians, Caucasus, Cordillera Cantabrica, Dinaric Alps, Jura, Kjolen, Pindhos, Pyrenees, Rhodopes, and Sudetes; Asia Pacific: Altai, Annamites, Arakan Yoma, Asir, Bintang, Chang-pai Shan, Dawna, Himalayas, Kelabit, Ningling Shan, Pegunungan Maoke, Tien Shan, Truong Son, and Zagros;

types, mountains perhaps are the terrestrial ecosystems that provide most examples of regional environmental agreements and processes. This is also due to the difficulty for such agreements and processes to emerge in other kinds of areas. Plains for instance usually overlap with river basins, while forest governance in many countries is so confused to make it difficult to intervene at the level of a forest area as a whole. The first noteworthy example was the Appalachian Regional Commission (ARC). Created in 1965, the Commission is a partnership between federal, state and local governments. It brings together fourteen states to promote the economic development of the Appalachian region, a mountain area struck by poverty, unemployment and emigration in the eastern part of the United States.⁸ At the international level, the first regional environmental agreement on a mountain area is the Alpine Convention. This process was launched at the beginning of the 1990s by Alpine states and the then European Economic Community. The Alps were chosen as a first case study because the Alpine Convention is among the most paradigmatic examples of ecoregional governance and because of the extensive literature on the subject. The second case study of terrestrial ecosystem is the Andes. This example is much less ordinary, as there is no agreement in place at the level of the whole ecoregion. There are some NGOs active at the ecoregional level and some initiatives that contribute to the institutionalization of ecoregional governance. There are also some atlases and reports that act as boundary objects among different types of actors and that participate to the construction of the ecoregion as a political object.⁹ Most importantly, there is the Andean Community. Created at the end of the 1960s, it is a regional integration organization, hence more ambitious than a regional environmental agreement such as the Alpine Convention. However, the focus of the Community is not mountains or the ecoregion. Even if balanced and harmonious development has been among its objectives since the very beginning, environmental concerns remained marginal until the end of the 1990s. The fact that a Council of Environmental Ministers was created only in 2004 is also a sign of the low profile kept until then by environmental issues, but also of a growing interest of the recent period.¹⁰ Moreover, only the northern and central parts of the Andes — the so-called Tropical Andes — are part of the Andean Community. It does not cover the whole ecoregion, as the southern part of the Andes is left out. Also, the Community includes areas outside of the Andes along the coast, in the Llanos plains and the Amazon forest. This counterexample will help better understand the example of the Alps and shed light on the dynamics of ecoregional processes without an agreement.

The Alpine ecoregion

To explore the explanatory power of this adapted framework, six cases of regional environmental agreements and processes were analyzed using this framework. They are representative of the diversity of ecoregions in the world and include two examples from terrestrial, freshwater and marine ecosystem types. Both terrestrial ecoregions are mountain areas. The case study of the Alps includes an analysis of the social, economic and political settings, of government and nongovernment organizations, of the network structure, of property-rights systems, of operational, collective and constitutional-choice rules, as well as monitoring and sanctioning rules. The analysis discusses both the Alpine Convention and the European Union's strategy for the Alps.

The Alpine ecoregion corresponds to the mountain range known as the Alps. While there is a certain difference, for instance, between the icy mountain peaks of the Jungfrau in the Swiss Alps and mild Mediterranean forests of the Mercantour National Park in France, the whole mountain range is usually considered to be a single ecosystem. WWF, for example, identifies temperate coniferous forests as the

Africa: Adamawas, Ahaggar, Atlas, Drakensberg, Eastern African Highlands, Ethiopian Highlands, Fouta Djallon, Mitumbars, Nimbas, and Tibesti.

⁸ For a reconstruction of the Commission's history, see Bradshaw (1992).

⁹ See especially Comunidad Andina. Secretaría General (2009) and Mendoza (2013).

¹⁰ Decision 596 (2004) of the Andean Community.

main trait unifying the region.¹¹ The Alps represent a key geographic landmark, present in most physical maps of Europe and defining the border of several countries (Northern Italy, Southern Germany, etc.). This bears consequences also for the purpose of national defense, with many states having developed specific corps for Alpine regions (e.g. the *alpini* in Italy, the *chasseurs alpins* in France, etc.). While flows within the region are significant, the Alps represent a barrier to transalpine transport, especially between Northern and Southern Europe.¹² Another key sector for the economy of the region is represented by tourism, which is particularly linked to winter sports. Tourism poses similar challenges throughout the region, from the easy access to ski resorts from the main cities to the sustainable use of water and energy for the maintenance of ski trails if snow is scarce.¹³ However, the Alpine region presents significant differences.¹⁴ Some of them have already been mentioned, for instance, the different perspectives between countries, such as France or Italy, that see the Alps also as a barrier to commercial flows between Northern and Southern Europe, and countries, such as Austria or Switzerland, that are concerned with intralpine flows. Also, even if each country has its own tourist destinations, the activity is not equally intensive in each part of the Alps.

The Alps present relatively few transboundary environmental problems, such as pollution. Even if Alpine valleys sometimes suffer from high levels of air pollution, such as the Arve Valley in France, the transboundary dimension is minimal. The physical conformation of the mountain range is such that peak to peak flows are limited. For example, water pollution tends to flow downstream from mountain tops, often within the same country. Some transboundary environmental issues, however, possess distinctive features that can be dealt with at the ecoregional level in manners that would be impracticable at the national level, such as climate change and melting glaciers.¹⁵ Ski trails absorb a terrific amount of water and depend on the presence of snow and the persistence of glaciers. Melting glaciers and river basins are physical phenomena that, despite anthropic interactions, evolve virtually irrespective of national borders and *can hardly* be managed by national institutions. However, it must be recognized that these issues might reflect more the concerns of the lowlands, which are afraid of suffering in the long run from water scarcity for irrigation, industrial and domestic use and of spoiling their ski holidays, than those of the highlands, which are usually more concerned with more immediate problems, such as

¹¹ See, for reference, Figure 3 **Errore. L'origine riferimento non è stata trovata.** See also Bätzing (1992) and, for a division of the Alps in different biogeographical provinces or natural units, see again Bätzing (2005, pp. 43, 47).

¹² For a more thorough analysis of the flows generated by Alpine transport, see the first volume of the *Report on the State of the Alps* (2007); see also the early OECD case study (1999), as well as the analyses by the Costs Subgroup of the Alpine Convention (2007). For a historical perspective on the crossing of the Alps, see Bernard Debarbieux (2002). For an introduction to tourism in the Alps, see Debarbieux (1995), Salsa (2005) and Machiavelli (2009); for an analysis of the transport issues related to the tourist sector, see the contributions by the Transport Working Group of the Alpine Convention (2008, 2009a, 2009b).

¹³ See the recent example of the Vancouver Winter Olympic Games (Austen & Branch, 2010).

¹⁴ See the wealth of information collected by Ulrike Tappeiner and presented in the *Mapping the Alps* (2008; 2008).

¹⁵ On water management, see the second volume of the *Report on the State of the Alps* (2009), the proceedings of the three water conferences (Innsbruck 2006, Munich 2008, and forthcoming Venice 2010), and the activities of the Water Platform of the Alpine Convention. On climate change in the Alps, instead, see the 2006 Climate Declaration and the 2009 Climate Action Plan; see also the report by the European Environment Agency (EEA) (2009); more generally, on climate change in mountain regions, see the report prepared for the Copenhagen Conference by the Centre for Development and Environment of the University of Berne (T. Kohler & Maselli, 2009). The two topics are closely connected and references to water issues are frequent in climate literature and vice versa. Similarly, the issue of biodiversity and ecological networks was also revived within the convention process through the integration of the Alpine Network of Protected Areas (ALPARC) within the Permanent Secretariat of the Alpine Convention in 2006 (Y. Kohler, Scheurer, & Ullrich, 2009), the creation of an Ecological Network Platform in 2007 (Hedden-Dunkhorst, Kretschmar, & Kohler, 2007), and the launching of a specific European project (ECONNECT), and the signature of a Memorandum of Understanding with the Convention on Biological Diversity in 2008. However, the topic had long been treated in the 1994 Nature Protection Protocol and in the 2004 study on Alpine flora and fauna (Onori, 2004).

employment and mobility. In this regard, the Alps are often considered to be “less favored areas” suffering from a “permanent natural handicap” for agriculture and other economic activities.¹⁶ As such, mountain areas like the Alps are often beneficiaries of special policies to counterbalance their supposed handicap for their competitiveness with regard to other areas.

Social, economic and political settings

The Alps are shared by eight high-income countries: Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia and Switzerland.¹⁷ However, income distribution and demographic trends vary remarkably across the ecoregion, with negative trends in the Italian (except along the Adige Valley) and Austrian Alps (except in Tyrol) and around the Uri Canton (in Switzerland), contrasted with positive trends especially in the French and Central Alps, along the Brenner axis between Italy and Germany.¹⁸ The eight countries concerned enjoy relatively high levels of political stability with the exception of Slovenia, which became independent in 1992 from Yugoslavia, a former socialist country, and which underwent a fast transition to democracy and a market economy.¹⁹ The Alps are part of several nested and overlapping governance systems. First and foremost, there is the 1991 Alpine Convention, which is an ecoregional agreement. Among regional integration processes, five out of eight countries are members of the European Union, which adopted in 2015 a Macroregional Strategy for the Alpine Region (EUSALP) and created in 2000 an Alpine Space Program that provides financial support to transnational projects across the ecoregion.²⁰ All countries are then members of other regional integration processes such as the Council of Europe. There is a certain division of labor among these processes, with the Alpine Convention involving more the national level and the EU Strategy the regional level, with the Council of Europe which has been playing a marginal role since the 1990s; at the same time, there is also competition for recognition and resources among the various processes.

Alpine countries are all among the most open market economies in the world.²¹ This exposes the Alps to both the process of globalization and of EU integration, which results in a considerable pressure to maintain competitiveness vis-à-vis other areas. Consequently, there is a tendency towards greater specialization, with investment focusing where considerable value can be added such as tourism and territorial marketing. The situation of media organizations is good in Austria, Germany and Switzerland, satisfactory in France and Slovenia, where there is considerable dependency of media on public authorities. There are noticeable problems in Italy because of considerable dependency of media on public authorities but also of the weight of organized crime, but they are more concentrated outside of the Alps.²² Technological development is high, although there is a significant gap between urban and rural areas.²³ Important cultural and linguistic differences exist across the Alps. The main languages are German, French, Italian and Slovenian.²⁴ There are also regional languages such as Arpitan, Friulan,

¹⁶ This language is taken from Directive 75/268/EEC of 28 April 1975. On the origins of the EU policy towards mountain areas, see Broggio (1992, 2002).

¹⁷ Levels of economic development for all case studies are derived from the World Bank country groupings by income at the time of writing.

¹⁸ See the 5th Report on the State of the Alps, dedicated to demographic changes in the Alps (2015). See also Bätzing (1996) and Viazzo (1989). Otherwise, democratic trends at the national level are taken from the World Bank’s World Development Indicators database (increase in population between 1960 and 2015).

¹⁹ Levels of political stability for all case studies are taken from the World Bank’s Worldwide Governance Indicators (political stability and absence of violence/terrorism) project at the time of writing.

²⁰ On the EUSALP, see Balsiger (2016).

²¹ Levels of market openness for all case studies are taken from the World Economic Forum’s Enabling Trade Index at the time of writing.

²² Levels of media freedom for all case studies are based on the Reports Without Borders’ World Press Freedom Index at the time of writing.

²³ Levels of technology development for all case studies are based on the International Telecommunications Union’s ICT Development Index at the time of writing.

²⁴ For further reference on cultural dynamics in the Alps, see the outcomes of the DIAMONT project (Boesch, 2007a, 2007b). On language issues, see the contribution by Angelini and Church (2008).

Ladin, Occitan and Romansh, but their use is marginal. English is more and more used as lingua franca to interact with foreigners, but even within multilingual countries such as Switzerland. Last not least, the Alpine ecoregion has been locus of political action since at least the 1950s, ranging from postwar conservationism to the environmental revival of the 1970s, from the creation of environmental institutions, such as UNEP and the national and subnational environmental ministries and agencies, to particular contingencies, such as electoral considerations, charismatic leaders, or natural disasters. Important milestones are the signature of the Alpine Convention in 1991, the launching of the EU Alpine Space Programme in 2000 and of the EU Strategy for the Alpine Region in 2015.

Government organizations

The prevalent level of decision-making in the Alpine ecoregion is national.²⁵ The Alpine Convention is an agreement among states plus the European Union. The latter however participates through its member states, so it is hard to affirm that a supranational level is involved. Despite immense workloads due to the many groups, platforms, conferences, meetings, projects, initiatives (with up to three events per week and agendas with up to fifteen items per day), the national delegations seem eager to affirm their ownership of the intergovernmental process, especially through the presidencies of the Alpine Convention and of the working groups and specific platforms.²⁶ Instead, the EU Strategy is led by regional governments. Even if national governments participate in the process, regionals prevail. As Jörg Balsiger rightly points out, even if it the Alpine Convention “looks and smells” like a typical regional environmental agreement like the Barcelona or Helsinki conventions, the parties have not embraced a sectorial approach, such as pollution control or biodiversity conservation, but a “comprehensive policy” that integrates several issue areas: population and culture, regional planning, prevention of air pollution, soil conservation, water management, conservation of nature and the countryside, mountain farming, mountain forests, tourism and recreation, transport, energy, and waste management.²⁷ They opted for an extremely ambitious framework that achieved producing an average of one implementing protocol a year in less than a decade, totaling a record of nine protocols, thus rendering the Alpine Convention one of the most prolific regional environmental agreements in the world. The protocol elaboration period lasted the whole decade of the 1990s. The EU Strategy also embraces a number of policy sectors: economic growth and innovation, mobility and connectivity, environment and energy, as well as governance including institutional capacity.

Overall, the implication of the political level has been low for many years, with ministers often absent from conferences at the ministerial level and little involved in the overall process. The prevalent level of decision-making is therefore technical within national administrations, but higher within regional administrations. Most states are federal (Austria, Germany, Switzerland) or strongly decentralized systems (Italy), but two are centralized (France, Slovenia). The control they exercise over their territory is generally strong.²⁸ However, border control has virtually disappeared with the introduction of the Schengen Agreements, except in Switzerland and at times of terrorist and migratory crisis, and the presence of public services in rural areas is diminishing. The most significant separatist movements can be found in South Tyrol and with the Northern League in Italy. However, they do not cover the whole ecoregion. The case of the Northern League is interesting, because they claim the independence of the Po Valley, which overlaps with the Alpine Arc. It is also interesting to highlight that Innsbruck and Bolzano, which are the capitals of Northern and Southern Tyrol, respectively, were chosen to host the Permanent Secretariat of the Alpine Convention with the strong support of the Italian government.

²⁵ On the key role of states in the Alpine Convention, see Church (2011a).

²⁶ For a critical outlook on the role of presidencies and leadership in the European Union, see, *inter alia*, Jonas Tallberg (2006).

²⁷ See Balsiger (2008). See, in particular, article 2 of the framework convention and, for its background, Danz (1990).

²⁸ Levels of government control for all case studies are taken from the World Bank’s Worldwide Governance Indicators (government effectiveness) project at the time of writing.

Making Bolzano one of the two symbolic capitals of the Alps was perhaps also a way to show that South Tyrol mattered for Italy.²⁹

Most states are parliamentary republics, except France that is a semi-presidential one and the two microstates that are both constitutional monarchies. The system of political representation at the national level is representative democracy with mainly proportional systems, except France that has a two-round majoritarian electoral system. Some countries have a strong tradition of direct democracy, such as Switzerland in some cantons and with its frequent referenda, as well as Italy, which also frequently resorts to referenda at national and local levels. Moreover, governments are considered as fully legitimate. However, France, Italy and Slovenia qualify as flawed democracies because of limits in the functioning of government, political participation and political culture.³⁰ Participation in ecoregional governance is usually delegated to technical ministries instead of the ministries of foreign affairs, which usually play a minor role in the processes. If this does not change the fundamental rules of the diplomatic game, this includes different agents, with different skill sets, different personal trajectories, and different interests. These are, generally speaking, young institutions, created between the 1970s and the 1990s and composed by a combination of biologists and other natural scientists, as well as economists, lawyers and other civil servants, with different levels of international experience; they possess different mandates, which are often associated with other issues, such as health, energy or spatial planning; and they are organized in different manners, both functionally and territorially, with some ministries being strongly centralized, while others are territorially dispersed; fixed budgets and spending flexibility also vary significantly across the Alps. For instance, the German federal ministry is relatively small, and it is the Bavarian state ministry that is mainly competent and has most resources. Focal points are usually mid-level civil servants within the respective ministries of the environment.

Political affiliation currently plays a secondary role in the governance of the Alpine ecoregion. In 1991, the Alpine Convention was negotiated and signed by both center-right and center-left governments including at least two environmentalists. In the mid-1990s, the presence of three ministers of the environment from green parties in France (Dominique Voynet), Germany (Jürgen Trittin) and Italy (Edoardo Ronchi), as well as of a left-wing government in Switzerland, did not have a significant impact on ecoregional governance. Still, this does not mean that party politics is irrelevant. It is often said that the Alpine Convention is a product of the capitals and not of the locals. The major environmental NGO in the Alps, CIPRA, does not miss a single opportunity to remind us that its four decades long work to promote an international framework for the conservation of the Alps succeeded involving the central governments (in the last twenty years), while it failed working with local authorities during its first two decades of existence.³¹ For this reason, it supported the creation of a network of municipalities called Alliance in the Alps, which represents only a tiny proportion of municipalities.³² At the same time, national delegations often invite representatives from local authorities to participate in international meetings. This is a way to better represent the actual issues of mountain communities, but also to build capacity of local authorities. For several decades, most countries underwent a process of decentralization of decision-making and deconcentration of public services. Building capacity of local authorities to participate in ecoregional governance is important in this context. However, many countries in the Alps are currently in the process of rationalizing the division of labor between the central government and local authorities, so if pressure used to be mostly on central authorities to decentralize, now all levels are experiencing pressure to optimize the use of resources. This contributes to explain the launching of the EU Strategy, which strengthens the participation of regional governments in Alpine governance,

²⁹ On Bolzano as a capital of the Alps, see Church and Maisetti (2011).

³⁰ Legitimacy of governments for all case studies is derived from the Economist Intelligence Unit's Democracy Index at the time of writing.

³¹ See, for instance, Price (2000, p. 192) or Götz (2008, p. 11).

³² On Alpine networks, read Del Biaggio (2009a).

which used to be scattered in three sub-regional communities: ARGEALP in the central Alps, ALPEADRIA in the Eastern part and COTRAO in the Western part.

Nongovernment organizations

The private sector is virtually absent from ecoregional governance with the exception of mountain farmers and cableway operators, which also represent the interest of the larger winter tourism sector. Their main concerns are obtaining further subsidies to support mountain farming against competition, on the one hand, and avoiding regulation that may be detrimental to winter tourism, on the other. They are organized through NGOs (EUROMONTANA and FIANET), which seldom participate in meetings of the Alpine Convention and which are particularly active at the level of the European Union, particularly in the case of mountain farmers. It is hard to evaluate the representativeness of these organizations, but their claims are definitely taken into consideration by national governments. There are of course other private interests that influence the governance of the Alpine ecoregion, such as industrial ones. They usually lobby directly government representatives and elected officials, who thus represent also their interests at the ecoregional level. With regard to civil society, mountains consist in a mobilizing factor for certain inhabitants, who represent themselves as mountain people, organizing themselves in civic or activist groups to pursue specific objectives. Many of these associations or networks at the ecoregional level came to existence before the creation of the Alpine Convention, such as the 19th century *alpine clubs* and CIPRA in the 1950s.³³ The role of NGOs is important for ecoregional governance. Some NGOs were admitted as official observers to the Alpine Convention and actively participate in the EU Strategy. Most NGOs active at the ecoregional level are present at the ecoregional (CIPRA), continental (EUROMONTANA) and even global (IUCN, WWF) level, often with national committees (CIPRA, WWF). It is more difficult for national and local NGOs such as Legambiente or ProMontBlanc to participate because they cannot justify their implication at the level of the whole ecoregion. The membership base is difficult to evaluate, but it tends to be limited, less for the alpine clubs and of WWF, and generally elite. They are undergoing a professionalization process, which is particularly advanced in the case of CIPRA and WWF. They can mobilize a significant amount of funding. In 2016, CIPRA International raised almost 1,3 million euros according to their annual report, to which one should add the funds raised by its national branches.

The governance system of the Alpine ecoregion is characterized by several hybrid organizations combining government and nongovernment organizations, as well as other kinds of actors. The first example is IUCN, which is a global organization and has mixed membership and provided legal support to the Alpine Convention during its inception phase and contributes to actions on protected areas and UNESCO World Heritage. An interesting case is CIPRA, which stands for International Commission for the Protection of the Alps from its French acronym, and was created in 1952 as a regional commission of IUCN, composed of representatives of national governments. The development of an ecoregional agreement was among its first objectives. However, in the 1970s it experienced a deep crisis and underwent significant transformation, becoming a classical environmental NGO. Because of its undeniable legacy and efforts, a certain ownership of the process of the Alpine Convention often transpires from the participation of CIPRA, to the point that it sometimes happens that, by accident, even government officials refer to the Alpine Convention as if it was the “CIPRA Convention.” However, a whole intergovernmental framework must not be confused with the laudable efforts of a single nongovernmental organization. There are also a number of networks of subnational entities, such as the Alpine network of protected areas (ALPARC), as well as the three working communities of regions and the network of municipalities, which were mentioned above and which are considered implementing partners of the Alpine Convention. As far as multistakeholder partnerships, there is the

³³ On mobilization in the Alpine region, see Françoise Gerbaux (2004), Andreas Götzt (2004), and Cristina Del Biaggio (2009b), specifically on environmental NGOs and networks; on the role of identity, see Bernard Debarbieux and Gilles Rudaz (2008; 2009); specifically on participation in the Alpine Convention, read the contribution of the author together with Sabaheta Ramcilovic (2009).

Mountain Partnership, which is hosted in Rome by FAO and is present at the global level. However, its involvement in the Alpine ecoregion is limited to promoting it as a model in other mountain ecoregions, acting as a vector of ecoregionalism.

Network structure

The governance structure at the ecoregional level is horizontal, concentrated at the national level. It is horizontal, because there is no authority above national governments. The Alpine Convention is an agreement among national governments plus the European Union. If the latter can be considered as a supranational institution, it does not act as such in the Alpine ecoregion. Even the EU Strategy ended up being endorsed by the Council of the EU, which is an intergovernmental body, and therefore received the agreement of all the member states. Regions and other subnational entities are also active, but few decisions about the whole ecoregion are taken at the subnational level. The network structure is polycentric with each capital acting as a center and multipolar, as there are several countries holding a significant amount of power. However, power in the Alpine ecoregion depends more on the institutional strength of the ministries of the environment of the parties than on traditionally understood economic power or political influence. The perception of France and Germany as diplomatic heavyweights is not fully reflected here, where the institutionalization levels and available capacity add considerable weight in favor of Italy, Austria, and Switzerland. It is not easy to think of balance of power in traditional terms. Within the EU, for example, France, Germany, and for to a certain extent Italy, weight more—economically, culturally, even militarily—than Austria and Slovenia, plus Switzerland and the microstates that are not EU member states.

There are certainly alliances based on certain affinities among countries, but they come and go. For instance, between 2004 and 2006, after the German and under the Austrian presidency of the Alpine Convention, at the meetings of the biennial ministerial conference (Alpine Conference) and of the biannual permanent committee,³⁴ there seemed to be a rift between German-speaking countries plus France, on the one hand, and Italy plus Slovenia, on the other, with Austria and Switzerland balancing between one side and the other,³⁵ and the secretariat being staffed mainly with German-speaking members.³⁶ Between 2007 and 2009, under French presidency, instead, the rift seemed to have shifted, with Italy, Austria and France often sharing the same positions *vis-à-vis* Germany, Liechtenstein, plus sometimes Slovenia and Switzerland. However, these shifts were more the effects over time of divergences over specific issues, such as the emphasis on environmental protection *versus* economic development or the role of NGOs in the convention, which may follow the divide between Latin and Northern Europe,³⁷ and sometimes may also reflect personal affinities. These effects depend much less on the hegemonic role of one country or another. Italy, Austria, and, to a lesser degree, France are the larger contributors to the regular budget of the Alpine Convention.³⁸ The former two countries are also hosting the permanent secretariat in the twin cities of Innsbruck and Bolzano. They would be more predisposed to take hegemonic positions, also because of their institutional strength, but they rarely do so.

Conversely, also parties that have a minor stake in the convention, such as Germany, or even microstates, such as Liechtenstein, often take the lead over several issues. CIPRA, for example, receives an important

³⁴ The Alpine Conferences meets biannually at the ministerial political level, while the permanent committee is the regular semestral general meeting of the ministerial administrative level, comparable to the COREPER (Committee of Permanent Representatives) in the European Union.

³⁵ For a critical perspective on Austria and Switzerland as Alpine countries, see Bätzing (2008).

³⁶ This transpires, for example, from the words of Thomas Scheurer (2008) or the former deputy secretary general, Ruggero Schleicher Tappeser (2006).

³⁷ For reflections on the linguistic dimension of this rift, see the contribution by Paolo Angelini and the author (2008).

³⁸ With 26.5%, 24.5%, and 18%, respectively. These proportions were calculated taking into consideration the surface, population, and GDP of the Alpine region in each state. See also p. 18.

part of its core funding from Liechtenstein and Switzerland³⁹ and, being based in Vaduz, it could be considered an important tool for the foreign policy of this microstate. Considering the role of CIPRA in the launching and development of this ecoregional initiative, the Alpine Convention could be regarded among the greatest successes of the foreign policy of Liechtenstein.⁴⁰ The fact is that the appropriation of the convention by the national governments, especially through the exercise of the various presidencies, allows each party to take the lead on specific issues they are interested in (such as transport for France, biodiversity for Germany, culture for Italy, etc.), and act as hegemon in their regard. Because of this configuration, the phenomenon of free riding is limited to some positions of Slovenia and Monaco, which rarely contribute to the convention's activities, because of lack of interest or institutional capacity.⁴¹ At the same time, it could be considered, paradoxically, extremely widespread. In fact, when a party takes the lead on an issue and creates, for example, a working group, if the other parties passively participate in the meetings, contributing to a minimal degree to the works, what is this other than free riding? While it could be interpreted as a simple division of labor, it is, arguably, a mixture of both, because, if most parties do not have the institutional capacity to fully contribute to each and every activity under the convention (so, they free ride the specific commitment of other parties) and they do not have the same level of interest in each topic. They prefer not impeding other parties from pursuing their objectives, so that other parties do not interfere with their own interests. Or, put it differently, the parties usually help each other pursuing their respective objectives. Interdependency in Europe is generally high and everyone is better off if countries cooperate. Still, this cooperative attitude is not a blank check. The parties remain vigilant that their main interests are not being threatened, especially before the conference of the parties.

Property-right systems

Who owns the key components of the Alpine ecoregion? The most important single owners are certainly national governments, which own national parks and forest, and can and do exercise their eminent domain over the whole territory. The rest of the ecoregion is owned by a plethora of public and private owners at various levels: among public owners, besides national governments, there are also regions, countries and municipalities, as well as a number of other public entities; as far as private owners are concerned, properties can be large, but not to the point of owning large forests or entire valleys. Sometimes private owners create cooperatives and consortia, for instance in agriculture and forestry. These groupings can have strong influence control over large areas such as whole valley, sometimes shadowing formal institutions, such as apple producers in the Val di Non, Italy. There is a long tradition of Alpine commons. However, the decadence of mountain agriculture and farming and the decay of traditional communities with their uses led to the disappearance of the institutions that oversaw common meadows, pastures and forests. Examples are the village of Törbel in Switzerland, described by Robert Netting and Elinor Ostrom, and the community of Regole of Spinale and Manez in Italy.⁴² Public or private property took over in most cases with common property having virtually disappeared from the Alps. However, this does not make commons insignificant for the Alpine ecoregion. The traditions of communities that sustainably managed these areas for centuries may conceal precious insights on their sustainable management in the future.

National governments constitute de facto an oligopoly over large parts of the ecoregion, especially as far as protected areas are concerned. Otherwise, considering the sheer number of owners and the different sectors involved, the ownership structure of the rest of the Alpine ecoregion can be considered anarchical. There are no major monopolists or other oligopolies, but a large number of owners that interact quite randomly. There are however sectors where markets started to emerge at the ecoregional

³⁹ The source is CIPRA's annual report for 2008, which is available online.

⁴⁰ On the implementation of the Alpine Convention in Liechtenstein, see, in particular, Thomas Bruha (2002).

⁴¹ On the implementation of the Alpine Convention in Slovenia, see Vesna Kolar-Planinsic (1998) and Senko Plicancic (2002).

⁴² See Netting (1981) and Ostrom (1990, pp. 61-65), as well as Nervi (2011).

level. The main example is the tourist industry. Particularly in winter, many communities across the Alps compete against each other to attract the largest number of tourists possible or to generate the greatest revenue from it. This is reflected in the push for harmonized regulations for example as far as the production of artificial snow is concerned or as far as heliskiing is concerned. Of course, less strict regulation or unfavorable taxation result in comparative advantages for another part of the Alps, which can be considered as unfair competition. Mountain agriculture is another example, but there the competition is more against non-mountain agriculture and the strategy adopted by most economic actors is creating niches through territorial marketing or other kinds of labeling, such as organic or biodynamic production, which is a way to mitigate the pressure of markets and revert to a more anarchical configuration. The ecoregion of course provides a great number of ecosystem services. Even if payments for ecosystem services are being piloted, this sector is far from a market configuration where goods and services are bought and sold and prices regulate demand and supply.⁴³ Of course, at the national level, this anarchy is mitigated by national legislation and, for EU member states, by community regulations, but this does not cover all sectors, such as culture and planning, and especially all countries, given that Switzerland is not part of the EU.

Operational-choice rules

The geographic scope of regulation at the ecoregional level coincides with the mountain area in the case of the Alpine Convention, to a larger area including several large urban areas in the proximity of the mountain range such as the cities of Lyon, Milan, Munich, Vienna and Zurich in the case of the EU Alpine Space Programme and an even larger area, particularly in Germany, as far as EU Strategy is concerned. The geographical scope of the last two institutional structures is explained by the need to promote actions that bring highlands and lowlands together instead of compartmentalizing them. However, this also results in lowland areas becoming eligible for funding that was meant for mountain areas. Still, it is possible to argue that, although the area of the Alpine Space Programme is much larger than the scope of the Alpine Convention, the EU funding program considerably boosted the transnational activities in the Alpine ecoregion.⁴⁴ Associating neighboring lowlands probably allowed raising funding that mountain areas would have otherwise not been possible to attract by themselves. Most regulations are original developments by and for ecoregional actors, even if inspiration may come from elsewhere. For instance, the development of the EU Strategy was clearly inspired by the experience of the Baltic and Danube areas, but was developed by ecoregional actors to respond to needs of the Alps and particularly the need to better involve the EU and the regions in the ecoregional process and to provide strategic guidance to the Alpine Space Programme. Legal instruments and institutional structures at the ecoregional level are little timely and adaptive because of lengthy negotiation, ratification and implementation processes; conversely, financial instruments such as the Alpine Space Programme and political documents such as the EU Strategy tend to be more adaptive because they were designed to be reviewed at regular intervals. In general, regulation tends to be more responsive to events such as natural disasters than proactive, even if some initiatives try to anticipate change, such as the various actions on disaster risk reduction and climate change.

The first attempts to regulate the Alpine ecoregion between the 1970s and the 1990s resulted in fairly shallow measures with few exceptions: the ban on the construction of new major road infrastructure and some specific rules about soil protection, which some tribunals in Austria considered sufficiently precise to be directly applicable. By the 2000s, it had become clear that action at the ecoregional level needed to focus on more specific, better defined issues, such as improving the knowledge about demographic climate in the Alps or the representation of Alpine sites on the UNESCO World Heritage List. The

⁴³ See the latest Report on the State of the Alps (2017, ch. 4)

⁴⁴ For an introduction on the relationship between the EU and the Alpine Convention, see Sébastien Marciali (2008). The position of the EU was not defined out of the blue. For a reconstruction of the paradoxical situation that led to this EU initiative towards the Alpine area, see the paper presented by the author at the 2010 convention of the International Studies Association (pp. 41-48).

Alpine Convention, in particular, embarked in a quest for specific issues that are better dealt with at the ecoregional level. At the same time, regulatory style went from a preference for legally binding to voluntary measures. The development, adoption and implementation of legal instruments proved to be little cost-effective. A shift can be observed in the 2000s with a move away from hard law to more soft measures. The policy mix changed from the prevalence of legal instruments to a more financial and communication approach. Of course, financial tools such as call for proposals under the Alpine Space Programme are still embedded in legal instruments that regulate the disbursement of funds. However, the overall approach moved away from the idea that problems could be solved by simply banning certain activities or externalities to the policy triptych of incentivizing good practices through seed funding, public authorities directly implementing demonstration projects and communicating widely best practices. However, this policy mix should not be interpreted sequentially. For instance, best practices can emerge even without incentives and can skip the pilot phase.

Last but not least, it is important to point out that this takes place in a policy environment with plenty of regulatory noise and mixed signals. Already at the ecoregional level, the EU Strategy interferes with the Alpine Convention and its implementation protocols, which in turn interfere with international, national and subnational measures such as in the abovementioned case of the Alpine ecological network. More specifically, if some legal instruments allow the conclusion of contracts to provide payments to farmers to spare farmland for ecological corridors, these policy tools interfere with, for instance, other financial measures that may encourage farmers to extend cultivated areas to boost production instead. Of course, the impact of one policy is attenuated by all other existing policies. Simple well-established legal principles such as normative hierarchy, more recent norms prevailing over older ones (*lex posterior derogat legi priori*) or more specific rules trumping more generic ones (*lex specialis derogat legi generali*) struggle to hold in such complex regulatory environments. This situation is common throughout developed countries, where regulatory noise and cross-sectoral coordination is a challenge.

Collective-choice rules

There is clearly an international regime for the Alpine ecoregion with a significant convergence of expectations. The Alpine Convention is the major formal agreement at the international level, while the EU Strategy is a recent addition. Both processes act as enabling factors, contributing to the reduction of transaction costs. For example, if an Alpine state wished to produce an environmental outlook on the Alps by itself, if the regular meetings did not take place and the permanent secretariat of the Alpine Convention did not exist to facilitate such initiatives, how much time would this country spend collecting information from other states, how many resources would be drawn into expensive consultancy and how representative of the available knowledge would the final outcome really be? Similarly, with the creation of the Alpine Space Programme, the Alpine countries, which are all also member states of the EU, with the exception of Switzerland and the microstates, succeeded in acting as a regional bloc at the European level, promoting Alpine interests in ways they would have probably not have been able to do by themselves. Another example is the promotion of the inscription of Alpine sites on the UNESCO World Heritage List with the creation of the UNESCO World Heritage Working Group of the Alpine Convention, which aimed at contributing to the harmonization of national tentative lists, again something that Alpine countries would have not been able to do unilaterally.⁴⁵

The EU Strategy represents a platform that is similar to the Alpine Convention, especially for regional governments. On the other hand, both processes have personnel, meetings and other fixed cost, which creates a certain inertia. It may happen that, for certain periods of time, the Alpine Convention or the EU Strategy do not create much value added. In this case, fixed costs may be greater than whatever advantage is drawn from the processes, except for the professionals working on it and for their suppliers, who make a living out of it. Still, this does not mean that the processes may not generate value in the future as transboundary issues may arise at the ecoregional level. Examples of potential issues they

⁴⁵ See Angelini, Church, and Weldeyesus (2010) and Alpine Convention. Italian Presidency (2014).

could intervene on are a damaging invasive species or severe natural hazards such as floods and landslides throughout the Alps. In this case, the presence of ecoregional institutions may facilitate the prompt identification of the problem at the right scale, as well as the development and implementation of appropriate solutions. There is no need to set up new institutions. However, the Alpine regime is not based on cost-benefit calculations, but on the shared belief that the Alps are important and that the existing regime can be useful from time to time, for instance by building capacity and generating knowledge at the Alpine level, and if necessary.

The Alpine Convention is an autonomous regime that does not depend on UNEP, FAO or other international organizations.⁴⁶ It is however a mixed agreement in the sense that the EU is a contracting party together with the national governments, but Brussels has not participated actively since the early 2000s. Still, the EU provides significant funding through the Alpine Space Programme and has recently scaled up its involvement through the EU Strategy. Still, the influence of Brussels should not be overestimated, as EU member states from the Alps except Slovenia are net contributors to the budget of the EU, so the funds of the Alpine Space Programme is technically money coming from the taxpayers of Alpine countries and staying in the Alps, even if the funding program is managed according to European rules. Also, the EU Strategy is not an initiative coming from Brussels. It was produced upon request of the regional and national governments of the Alps. The role of the European Commission was just to support the process. Decisions at the ecoregional level are taken by national governments. Decisions are taken unanimously and, whereas isolated positions are diplomatically tough to uphold, a single party can block the adoption of any decision.⁴⁷ All parties are equally sovereign and even Slovenia can veto France. Technically, some decisions on minor budgetary and other secondary issues could be taken by a majority vote, this never happens, as national governments always strive to reach consensus.

Rotating presidencies play an important role in both the Alpine Convention and the EU Strategy. In the latter case, they can be assumed by either a national or regional government. As presidencies set the agendas, they are an opportunity to influence the processes. While the presidencies of the Alpine Convention, which come with their agendas, rotate biannually, the chairmanship of working groups and specific platforms is generally assigned to a certain country, which is usually expected to provide logistical support (organize the meetings, arrange the venues, etc.) and often specialized expertise (produce background studies, propose working documents, etc.). The leading country is usually launched the initiative in the first place. Public participation in ecoregional governance is relatively low and is generally mediated by NGOs and national delegations. Even if processes are relatively open and transparent, the knowledge about the governance system is so low that the public does not make use of the opportunities available. The Permanent Secretariat of the Convention and CIPRA put significant effort to make it better known through various communication campaigns, but the Alpine Convention and the EU Strategy are virtually unknown to the greater public. The Secretariat of the Alpine Convention is a small team of a dozen collaborators split between Innsbruck, Austria, and Bolzano, Italy; there is also an even smaller team of four at the European Commission in Brussels, which provide support to the EU Strategy. The role of both secretariats is to service the contracting parties and to act as a facilitator and coordinator of the respective process in close coordination with the presidencies. Both unites have little capacity and political leverage to provide more than service. While the Secretariat of the Alpine Convention is fully autonomous, the EU Team depends on the European Commission and is therefore part of another institutional framework.

The Permanent Secretariat of the Alpine Convention plays an important role in facilitating and sometimes mediating negotiations, but with a dozen units of personnel and a yearly budget of around

⁴⁶ On autonomous institutional arrangements in multilateral environmental agreements, see Churchill and Ulfstein (2000), Bauer (2006) and Biermann, Siebenhüner, and Schreyögg (2009, ch. 7 and 9).

⁴⁷ Even if article 7(1) of the framework convention sets a three-quarter majority rule for certain decisions (internal rules, scientific research, and technical cooperation), all decisions were taken by consensus at least since 2000.

one million euros there is only so much it can do.⁴⁸ Proportionally, the team of four working on the EU Strategy from Brussels must count on about one-third of that budget, which is taken from existing funding from the Alpine Space Programme, which is the most substantial source of funding at the ecoregional level with its 139 million euros for the period 2014-2020 (85% co-funding), which corresponds to a little less than 20 million euros per year. According to European Commission, the EU Strategy “does not have its own financing, it will mainly be implemented by mobilizing and aligning existing EU and national funding relevant to the objectives and actions.”⁴⁹ The EU is by far the largest single contributor to ecoregional governance in the Alps. To have an idea of the total funding available for activities under the Alpine Convention, one should also count national and local sources, such as the French contribution to the network of Alpine protected areas, which is based in Chambéry and can count on seven units of personnel, or the Italian contribution for the Bolzano headquarters of the secretariat and two units of personnel.

Concerning the Alpine Space Programme, a European Regional Development Fund (ERDF) was launched in 1975 to support, on the one hand, very small enterprises and related infrastructure projects and, on the other hand, mountain regions, also within the Common Agricultural Policy (CAP).⁵⁰ The main objective of this pilot action was to provide support to disadvantaged areas and entities, which were perceived as particularly vulnerable to the increased competition generated by European integration. Over the years, the EU regional policy shifted from being only about economic redistribution to being increasingly focused on so-called interregional cooperation. This means that the EU now funds projects that bring together partners from different states (often divided by rivers, mountains, etc.).⁵¹ In 1990, the INTERREG initiative was launched under ERDF, further structuring collaboration in three strands—crossborder, “transnational” (*i.e.* regions) and “interregional” (*i.e.* among regions)—with the final objective of making national borders redundant in a progressively integrated Europe. Interestingly, already in the first two cycles (INTERREG I, 1990-1993; INTERREG II, 1994-1999), several regions corresponded to ecoregions (e.g. Atlantic Area, Baltic Sea Region, etc.), but the Alpine region was not considered unitarily.⁵²

Moreover, with the 1992 Maastricht Treaty, the European states included “strengthening economic and social cohesion” as an explicit objective of the EU, further deepening integration beyond national borders.⁵³ It must be noted that, until 2007, INTERREG was a simple program of ERDF and that, at the time, territorial cohesion was not yet specifically included among the formal objectives of EU structural funding.⁵⁴ Until recently, territorial cohesion remained on the side of the existing framework, but at the heart of the integration process. In fact, the budget dedicated to INTERREG went from €3.5 billion in 1994-1999 (INTERREG II) to €4.9 billion in 2000-2006 (INTERREG III). Only after significant

⁴⁸ According to decisions X/A2 and X/A5 with annexes (2009) the yearly budget of the Permanent Secretariat was of €875,000 for 2010. On the secretariat, see Irini Papanicolopulu (2004).

⁴⁹ Quoted from the Communication of the European Commission on the Strategy of the EU for the Alpine Region of 28 July 2015 (COM(2015)366, p. 4). See also the Conclusions of the Council of the EU of 27 November 2015 (14613/15, par. 23a).

⁵⁰ See regulation (EEC) 724/75 (1975).

⁵¹ See, for instance, Talbot (1977), and the report *The European Community and its Regions: 10 years of community regional policy...* by the European Communities (1985).

⁵² In the period 1997-1999, a pilot action was launched with a €10 million budget, involving two transnational working communities, ArgeAlp (Central Alps) and Alps Adriatic (Eastern Alps), created in the 1970s by subnational regions (LRDP, 2003, pp. 7, 20-22). On the important role of the Council of Europe and on the promotion of legal instruments for transboundary cooperation, such as the 1980 Madrid Convention, see Vedovato (1997); see, instead, Caveri (2002, pp. 71-77), on the 1994 European Charter on Mountain Regions. On transboundary cooperation in general, see also the article by Marie-Christine Fourny-Kober and Ruggero Crivelli (2003).

⁵³ See articles 2, 3(j), especially, 129b, 129c, and 129d of 1992 Maastricht Treaty (non consolidated version).

⁵⁴ EU structural funding is now composed of three funds: ERDF, the European Social Fund (to develop the European labor market), and the Cohesion Fund (to support less developed members).

advances in regional integration, European Territorial Cohesion (ETC) became an explicit objective of structural funding, which almost doubled to €7.8 billion for the program cycle 2007-2013 and stayed at comparable levels in 2014-2020. Still, this is just 2.5% of overall structural funding available.⁵⁵

Returning to the Alps, it is now interesting to note that the EU decided to launch an Alpine Space Programme to fund projects at the ecoregional level in the framework of INTERREG, following the model, for example, of the Baltic Sea Region Programme. In the period 2000-2006, the EU Alpine Space Programme provided 60 million euros (50% co-funding), a sum which more than doubled to 130 million euros for the period 2007-2013 (76% co-funding) and stabilized at 139 million euros (85% co-funding) for the period 2014-2020.⁵⁶ Even if there is no binding connection between the objectives of the Alpine Space Programme and the priorities under the Alpine Convention, there has been for many years much indirect coordination between the two processes.⁵⁷ Instead, the EU Strategy is meant to provide strategic guidance to the Programme. This may change the fact that, while there is no “Alpine Convention Fund” to support large scale projects of the Alpine Convention, the Alpine Space Programme *de facto* acted as such.⁵⁸ Much effort was put, for example, to integrate the results of the projects under the Alpine Space Programme in the database of the Alpine Convention, which is now published online (SOIA). It is tempting to speak of the “Europeanization” of the ecoregional process, but this would clearly be an overstatement: the convention remains an ecoregional initiative at the intergovernmental level with the active participation of NGOs⁵⁹ and the contacts with Brussels are rarely direct. The EU Strategy has changed this, but the process remains very much owned at the ecoregional level. What is arguably more significant is the indirect effect that the presence of the Alpine Convention had in the creation in 2000 of the Alpine Space Programme. In this case, the ecoregional ideal was adopted by specific actor as a basis for a policy intervention. However, it is important to point out that the Carpathian Convention did not manage to create a “Carpathian Convention Fund” for implementation projects or to catalyze other international organizations (e.g. the EU, UNEP, etc.) to create a “Carpathian Space Programme”.⁶⁰

To public resources, one should add the funding of NGOs, such as CIPRA. Altogether, there must be funding for close to 30 million euros per year for actions at the ecoregional level in the Alps, with the funding of the Alpine Convention covering mostly administrative costs, while the funding of the Alpine Space Programme is more project-oriented. The Alpine Convention has very limited project funding. Overall, there is proportionally limited support from external donors. This does not mean, however, that this support is not important. There are several foundations that regularly support the activities of CIPRA and of other NGOs, such as Mountain Wilderness, but also activities that contributed to official activities of the Alpine Convention such as the Ecological Network Platform. In the past, for instance, CIPRA received support by important benefactors, such as Prince Sadruddin Aga Khan. In 1990, at the World Economic Forum in Davos, he launched a mountain NGO, called Alp Action. Prince Sadruddin stood out for his personal commitment against large trucks in the Mont-Blanc Tunnel, while Alp Action got a reputation for a long series of concrete projects. Among the beneficiaries of Prince Sadruddin, besides

⁵⁵ Compare regulations (EC) 1783/1999 and (EC) 1080/2006 on ERDF and refer to the European Commission’s *Green Paper on Territorial Cohesion* (2008). See also the prospective study of INTERREG III (Bausch et al., 2005).

⁵⁶ The sources are the booklet *Bridging Potentials* (2008, p. 47) and the new brochure *Portrait of the Alpine Space Programme* by the Joint Technical Secretariat of the program. See also the catalogue of projects under the 2000-2006 INTERREG IIIB Alpine Space Programme (2006). Compare the figures reported at p. 57.

⁵⁷ On the model of the 2009 EU Strategy for the Baltic Sea, the proposed EU macro-regional strategy for the Alps could achieve a better coordination. At the same time, there is a possibility it would disjoin the EU and Alpine Convention processes, if the latter is not properly taken into account.

⁵⁸ On the previous efforts, see the article by the former Deputy Secretary General, Ruggero Schleicher-Tappeser (2006).

⁵⁹ See Götz (2004) and Church & Ramcilovic (2009).

⁶⁰ See Broggiato & Church (2008, p. 269).

Alp Action, there was also CIPRA. Over the years, several funders, often based in Liechtenstein and Switzerland and financed by banks, have supported CIPRA's activities in various capacities.

The last but not least variable about collective-choice rules is coordination. Under the leadership of the respective ministries of the environment, Italy, Austria, and Switzerland created specific fora to foster consultations between the central government and local authorities⁶¹ and count on dedicated teams for the follow up.⁶² While this adds a layer of complexity to the ecoregional process, in practice central governments and local counterparts can consult only before or after decisions are adopted and not during the negotiation of key decisions.⁶³ In Italy, this led to the obsolescence of the Council between the State and the Regions of the Alpine Arc, a specific configuration of the Council between the State and the Regions that was established by the law that ratified the Alpine Convention. Even if the consultation of the regions is legally binding, the Council has not met since the early 2010s. This is due to the shift of the Alpine Convention from emphasis on the legal dimension to a softer approach, as well as the emergence of the EU Strategy, which now performs the coordination function with the regions and facilitates their participation.

Constitutional-choice rules

In its article 2, the Alpine Convention mentions that “the Contracting Parties shall pursue a comprehensive policy for the preservation and protection of the Alps by applying the principles of prevention, payment by the polluter (the 'polluter pays' principle) and cooperation, after careful consideration of the interests of all the Alpine States, their Alpine regions and the European Economic Community, and through the prudent and sustained use of resources”. The four main principles are therefore precaution, polluter pays, cooperation and sustainable development. They are mitigated by the need to take into consideration the interests of all the parties at various levels: national, but also supranational and subnational. These principles are invoked frequently in the negotiations and there is no evidence that this is not done sincerely. These principles emerged at the ecoregional level during the negotiation phase of the Alpine Convention, which is contemporary and even precedes the 1992 Earth Summit in Rio. It is hard to say how much these principles came from elsewhere. All of the countries within the ecoregion are members of the Organization for Economic Cooperation and Development (OECD), where the polluter-pays principle emerged in the 1970s, and they were all involved in the various processes within the United Nations, where the principles of precaution and of sustainable development emerged in the 1980s. There is no evidence that these principles were imposed from elsewhere.

However, these principles are not present in the EU Strategy. While sustainable development and cooperation clearly inspire its various documents⁶⁴, the various documents that compose the EU Strategy never mention the two other principles of the Alpine Convention. However, the Strategy is meant to be complementary to the Convention and there is no account of the polluter-pays and precautionary principles being contested within the ecoregion, even if the polluter-pays principle is sometimes criticized as implicitly opening the door to pollution permits in exchange of fees or fines, thus

⁶¹ On Austrian institutions, see Marc Reiterer and Ewald Galle (2002) and the regular newsletter *Die Alpenkonvention*; on Italy, see Paolo Angelini *et al.* (2006) and the specific website www.convenzionedellealpi.it; on Switzerland, see Tim Enderlin and Maria Senn (2002).

⁶² On the creation of the Italian “coordination unit”, hosted by the European Academy of Bolzano (EURAC), see the special insert to the journal *Academia* (Coluccia, 2003), as well as its activity reports, available on EURAC’s website.

⁶³ On the two level game between the central government and local authorities, see the classical piece by Robert Putnam (1988), as well as the specific contribution by Stefan Brem and Stefano Bruno (1997).

⁶⁴ There is a core document produced by the DG Regio and submitted to public consultation in 2014, a communication and an action plan issued by the European Commission on 28 July 2015, some conclusion of the Council of the EU of 27 November 2015, as well as a resolution of the European Parliament of 13 September 2016.

representing a kind of merchandizing of natural resource. The EU Strategy mentions instead three other principles: the principle of “participation of all relevant stakeholders and partners” together with the principles of subsidiarity and proportionality. The latter two are clearly imported from the EU. Still, given that all countries except Switzerland and the microstates are members of the EU, it is difficult to argue that the principles of subsidiarity and proportionality were imposed by Brussels. They are very much embedded in the European integration process. The principle of participation, which is the extension to the right to information, is enshrined in the 1992 Rio Declaration and even has its own convention, the 1997 Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental issues, to which all Alpine countries are parties together with the EU.

All of these principles are very much embedded in the Alpine ecoregion and in the respective countries. There is a lot of normative circulation in the Alps.⁶⁵ This also takes the form of a standardization process, also vis-à-vis other mountain regions that supposedly shall embrace the model of the Alpine Convention.⁶⁶ There is no evidence of open contestation or obsolescence within the region. Even the fact that the precautionary principle and the polluter pays principle were not included in the EU Strategy does not mean that they are not important. They may be so much taken-for-granted that they did not even need to be recalled. The same goes for cooperation. Instead, even if it is not contested, the concept of sustainable development is subject to interpretation, with some countries and actors putting more emphasis on sustainability and others on development. This may have to do with the fact that the part of the different countries in the orographic limits of the Alps can be rather large, such as in the cases of Austria and Italy, or small, such as in the case of Germany, and to different levels of anthropization. Of course, the larger is the population and the amount of human activities the more difficult it is to focus only on nature conservation. In the 1990s, some local authorities expressed concern about the transformation of the Alps in what they called an “Indian reserve”, fearing that the whole mountain range would become a protected area with all the conservation measures that this implies. We are now far from that extreme, but the concept of sustainable development in the Alps must not be seen as a steady state where sustainable development is pursued in a fully consensual. Both partisans of strong conservation measures and champions of sustained economic growth are often frustrated by the situation. In the Alps, sustainable development be seen more as a dynamic equilibrium that is the product of both sustainability and development forces. For instance, there is much controversy on how to balance the safety of inhabitants and the presence of large carnivores such as bears, wolves and lynxes.

Monitoring and sanctioning rules

The Alps are among the best studied regions and ecosystems in the world. There is a long tradition of geographic research that goes back at least to the 18th century and the enlightenment. Still, mountain research is still embryonic, with a limited number of specialized researchers and very few specific institutions, such as research centers and scientific publications.⁶⁷ In the 1990s, the Alpine Convention tried to better structure the observation of the Alps by creating the System for the Observation and Information on the Alps (SOIA) in 1995. Initially, the Observatory started off as an elaborate system of

⁶⁵ For a perspective on the international sources of domestic politics, see the classical piece by Peter Gourevitch (1978); more specifically, on norm diffusion, read Susan Park (2006), while on environmental convergence, see Katharina Holzinger *et al.* (2008); on the role of the UN on regional institutions, see Alan Henrikson (1995); specifically on mountains, see Annie Villeneuve *et al.* (2002) and Dinah Shelton (2004).

⁶⁶ On the Alpine Convention as a model for other regions, see Price (2000), Bätzing (2003), and Balsiger (2007, 2008). On the design of the convention itself, see Walter Danz (1989, 1990; 1991) and the contribution by the author (2009). The Environmental Law Commission of IUCN played an important role in establishing standards for environmental agreements (Lausche, 2008).

⁶⁷ The two most significant journals for mountain research are *Revue de géographie alpine*, based in Grenoble, and *Mountain Research and Development*, based in Berne. On the history of Alpine research, see again Werner Bätzing (2001) and Thomas Scheurer and Jon Mathieu (2008). For other insightful contributions on mountain research, see Bernard Debarbieux (2001a) and Axel Borsdorf together with Valérie Braun (2008).

national focal points that were supposed to centralize information and share it on a common platform with the support of European institutions, particularly the Joint Research Center (JRC) in Italy. Out of the many services that the system was supposed to provide, the only concrete deliverable was a set of indicators and a report about the flora and fauna in the Alps, which took almost a decade to produce.⁶⁸ One of the objectives of the SOIA was also the production of regular reports on the state of the Alps. However, by the end of the decade, the SOIA was already struggling. Given that by 1998 the SOIA had not yet produced its first report, CIPRA started doing it instead. Also, in 1999 an International Scientific Committee on Research in the Alps (ISCAR) was established with the support of Switzerland. ISCAR is a network of the national academies of sciences of each Alpine country. Its main achievement is promoting the organization every two years of the ForumAlpinum, which is a fairly large scientific conference that aims at bringing together scholars working on the Alps and connecting them with the Alpine Convention. In 2006, ISCAR even proposed an Alpine research agenda that tried to translate the multiannual workplan of the Alpine Convention into research questions.⁶⁹ In the meantime, the Alpine Convention managed to transform SOIA. In 2006, a first report on the state of the Alps was produced by experts from each country and managed to produce a thematic report a very two years or so. These reports proved to be important to bring together information on a certain topic: transport (2006), water (2009), rural development (2011), demography (2013), tourism (2015) and the green economy (2016). This information would have otherwise remained scattered in each country. The Alpine Convention promotes therefore the production of knowledge at the ecoregional level.

By the end of the 2000s, the SOIA had thus become the repository where the data, maps and other information and materials collected to produce the various reports on the state of the Alps is stored and shared with potential users. As such, it now also contributes to the Shared Environmental Information System (SEIS) of the European Environment Agency (EEA) in Copenhagen. In 2016, an Alpine Virtual Observatory (AVO) was created. So far, this consists in the development of an Alpine Environment Data Analysis Center (AlpEnDAC), which is meant to be a modern and innovative IT infrastructure for the networking of select high-altitude research stations, one per Alpine country to share environmental data and provide analysis tools. This initiative emerged in the framework of the EU Strategy, is inscribed in its Action Plan and is related to the observation of high mountains as sentinels of climate change, especially because of the melting of glaciers. It is much more specific than the SOIA. The Action Plan makes extensive references to research, but it is meant as an ingredient of innovation, specialization and competitiveness and not from the perspective of observation of the ecoregion. Moreover, it is still unclear if and how this will contribute to a full Observatory and what is going to be the relationship with the SOIA, as well as other initiatives, such the Global Observation Research Initiative in Alpine Environments (GLORIA) in Austria, the Global Network of Mountain Observatories (GNOMO) in the California and the Global Earth Observation System of Systems (GEOSS) in Switzerland. Neither the SOIA nor ISCAR are proper boundary organizations. The link between the SOIA and the scientific community is too tenuous and, conversely, ISCAR is too distant from policy-making. On the other hand, the reports on the state of the Alps produced by the Alpine Convention probably qualify as boundary objects, given that they are produced by government-appointed experts from each country and then discussed and approved at the technical and political level by the Alpine Conference. As such, they do represent loci where knowledge is shared and ultimately coproduced by different communities.

Like many multilateral environmental agreements, the Alpine Convention can count on a compliance committee. There is no link between observation and compliance. The committee is more an exercise to verify the status of implementation of the convention and its protocols than a full compliance

⁶⁸ See Onori (2004). On the origins of SOIA, see Briquel (1995a, 1995b) and Gumuchian (1995). On the origins of SOIA, see Briquel (1995a) and Briquel (1995b); see also Gumuchian (1995); see also the former website www.soia.int (available from the historical archive: <http://web.archive.org>), as well as the new www.alpconv.org/en/home/soia (last accessed: 16 August 2019).

⁶⁹ Decision IX/10 (2006).

mechanism. The compliance committee or “verification group” was established in 2002 and is composed of the delegations of the Alpine states. It is observer-friendly in the sense that it allows official observers such as CIPRA and IUCN to comment on the reports submitted by the countries. However, the former secretary general, Marco Onida, considered it “not really independent”.⁷⁰ The evaluation is not performed by external experts or by a court, even if external experts have been invited to contribute to the process since 2015. The compliance committee is composed of countries that evaluate implementation of the Alpine Convention by other countries. This reduces the likelihood that contracting parties are too critical of other parties in fear of retaliation, given that the implementation of the Alpine Convention is not a priority in any country. The parties are therefore made accountable through the critical role that can play the observers through their comments about the country reports and the overall process.

Italy ratified all the protocols of the Alpine Convention only in 2013 during its latest presidency at the end of a legislative process that lasted more than a decade, while Switzerland decided not to. However, both countries embraced an “implementation without ratification” approach, demonstrating that, through measures taken nationally or locally, both states were de facto complying with the letter of the protocols to the convention.⁷¹ Until 2013, the compliance committee performed a comprehensive verification at regular intervals of all clauses of the convention and its protocols. By 2011, this was considered as excessively ambitious and time-consuming process. In 2013, the Alpine Convention decided to focus instead on specific issues for the period 2013–2016 and tourism and soil conservation. A recent development is the practice of providing interpretations about the implementation of specific articles, such as article 6(3) of the tourism protocol, “The Contracting Parties shall ensure that in areas attracting high numbers of tourists, a balance is struck between intensive and extensive forms of tourism”, and article 11(1) on the designation and management of Alpine areas threatened by erosion, “The Contracting Parties undertake to map Alpine areas threatened by extensive erosion on the basis of comparable criteria for quantifying soil erosion, and to register those areas in as far as this is necessary for the protection of material goods.” This development aims at encouraging the consistent implementation of the Convention across the various countries. As far as the EU Strategy is concerned, there is no elaborate compliance mechanism. It is just subject to regular reports by the European Commission, which also reports on the other macroregional strategies to assess the effectiveness of this instrument.

The compliance committee is however more an opportunity for countries to learn about what other countries do on the different topic of the Convention, such as the Environmental Performance Reviews (EPR) performed by the OECD and the UNECE, and therefore to share experience than an adversarial process. There are no predefined sanctions. In the worst case, the shortcomings of countries are mentioned in the report of the compliance committee to the ministerial conference that takes place every two years and then it is up to the ministers to take action, which they have never done so far. Then, countries that were singled out for shortcomings, such as Germany in 2006, usually spontaneously report on the measures adopted to fully implement their commitments. In any case, that is what the ministers would most likely request countries to do, like in the case of the EPR. As there are no predefined sanctions to comply, there are also no predefined incentives, other than the positive emulation of countries. Directly but mostly indirectly, all countries do a lot to comply and are keen on showing it, even showing off through publications and events to share experiences. Moreover, implementation actions may be eligible for EU co-funding from the Alpine Space Programme.

The framework convention does not have any provision about dispute settlement. The general principles of international law therefore apply. Except France, Monaco and Slovenia, all other countries in the Alps accept the compulsory jurisdiction of the International Court of Justice (ICJ) in case of dispute,

⁷⁰ See Onida (2008a, p. 19; 2008b, pp. 244–245).

⁷¹ See, on the verification group, Tim Enderlin (2002; 2002) and, in particular, the reports to the Compliance Committee produced by Italy and Switzerland in 2005. See also Angelini *et al.* (2006).

which is therefore binding provided that countries bring cases to court. However, this has never happened and is very unlikely to happen. Between 2006 and 2011, Alpine countries had strong disagreements with regard to the status of the Task Force on Protected Areas, which acted as the secretariat of the Alpine Network of Protected Areas (ALPARC). France “offered” to the Permanent Secretariat some units of personnel and offices in Chambéry, de facto creating an antenna of the secretariat in France. Other countries protested that the headquarters of the secretariat were located in Innsbruck and Bolzano, which were chosen on the basis of a competitive selection procedure, and that the status of this personnel and of the antenna in Chambéry violated the statutes of the Permanent Secretariat. While the option to take the case to court was contemplated, the legal situation was so complex that delegations opted instead to solve the issue within the institutional structure of the Alpine Convention, particularly the Alpine Conference and the Permanent Committee. This resulted in the Convention being stuck with this issue for several years. This put a strain on the relations between some countries and slowed down the process, which however managed to overcome the dispute with the transformation of the Task Force in an association supported by the French side. Given that it is a mixed agreement, involving both the EU and member states, and that the convention and almost all protocols, except the ones on forestry and spatial development, were ratified by the EU, there is also the possibility for the European Commission to bring cases in front of the European Court of Justice (ECJ) in case one or more member states do not comply. For instance, if Italy, Austria and Germany decide to build the Alamagna highway between Venice and Munich, creating a second major north-south axis among the three countries other than the Brenner, which already connects Verona to Munich, and do not follow the procedure outlined in the transport protocol of the Alpine Convention, which requires the agreement of the other parties, there is the risk for the ECJ to rule against the member states and uphold the protocol. This possibility is far from being speculative, as the ECJ has already intervened in the framework of the Barcelona Convention against France and may perhaps explain why it took more than a decade for the EU to ratify the transport protocol.

This case study is based on participant observation by the author as member of the Italian Delegation to the Alpine Convention between 2006 and 2010, on the research produced in the framework of his doctoral thesis at the University of Paris 1, France, and on a review of the scientific and grey literature available.

The Andean ecoregion

The second terrestrial ecoregion is the Andes. This chapter includes an analysis of the social, economic and political settings, of government and nongovernment organizations, of the network structure, of property-rights systems, of operational, collective and constitutional-choice rules, as well as monitoring and sanctioning rules. The analysis discusses both the Andean Community and the Mountain Partnership's Andean Initiative. The governance system of the Andean ecoregion is remarkably different from that of the Alps.

The governance system of the Andean ecoregion is remarkably different from that of the Alps.¹ The ecosystem of reference here corresponds to the mountain range (in Spanish: *cordillera*) known as the Andes. The Andes *Cordillera* are the longest chain on the planet, crossing a whole continent, from north of the equator to the southernmost cities in the world² and they can also be quite wide at the level of the tropics. From an ecological standpoint, this leads to an immense variety, ranging from forests to deserts, from glaciers to shrubs.³ The fact that they border with the Amazon Forest, the Argentinian *Pampa* and the Pacific Ocean contributes to further enhance their biological diversity.⁴ No other shared ecological reference is there except the *cordillera* itself. Like many mountain ranges, the Andes represent a main geographic landmark, defining state borders. Most remarkably, “highest summits” and “dividing waters” separate Chile from Argentina.⁵ However, also because of the difficult terrain, the exact location of borders is often controversial and led to significant quarrels, not only between Argentina and Chile, but also Peru and Ecuador, and Bolivia and Chile.⁶ Nevertheless, unlike their Alpine counterparts, the armed forces of the various countries did not create specialized military corps for mountain regions.

In the Andean region, a key sector from both a social and environmental perspective is mining.⁷ All Andean countries are leading exporters of minerals to the rest of the world. In recent years, their national economies greatly benefitted from the high prices of gold, oil, copper, natural gas, and other minerals. Central governments often employed revenues from mining to strengthen their positions both domestically, especially investing in infrastructure and internationally. The budget surplus of Chile, which brought public debt from more than 40% of GDP in 1989 to zero in less than twenty years, is a significant example, linked with the exceptionally high price of copper. While mining is an economic activity generally oriented toward export markets, it usually bears significant domestic consequences, both socially and environmentally. Mines are often in remote areas, which diminishes the capacity of the government to enforce the rule of law, and often expose workers (both those working by themselves and those depending on corporations) and inhabitants to inhumane conditions; mines are also often located in mountain areas, which results, for example, in the contamination of rivers and of the general

¹ See Church (2010).

² Namely, Ushuaia in Argentina and Punta Arenas in Chile.

³ See, the detailed atlas of the Tropical Andes recently published by the Secretariat of the Andean Community (2009), as well as the environmental outlook produced in 2003 together with UNEP (2003); see also, in German, the encyclopedic perspective of Rist (2013). This also depends on the “chosen reign”: the atlas distinguishes, for instance, between ecoregions and “phytoregions”.

⁴ In 2000, Conservation International, an NGO, identified Colombia, Ecuador, Peru, and Venezuela as “megadiverse” countries (2000; Williams et al., 2001, p. 13). An international organization of Like-Minded Megadiverse Countries (LMMC) was created in 2002 and its secretariat is hosted by India. Peru uses the slogan “*país megadiverso*” for national tourist promotion.

⁵ See article 1 of the 1881 Boundary Treaty between Argentina and Chile.

⁶ On border disputes in the Andean region, see, for instance, the contributions of the author on Argentina and Chile (2005, 2008a), as well as those on the 1966 Palena award (Barros, 1984; Rushworth & Smith, 1968); on Peru and Ecuador and Bolivia and Chile, see the extensive literature on the subject matter.

⁷ See, among others, the critical perspective on mining governance in Latin America by Slack (2009), as well as the monograph on the sustainability of the mining company Cerro Matoso by Milanés Reyes, Dávila Ladrón de Guevara, Rubio Peña, Jiménez Valencia, and Dávila Ladrón de Guevara (2006). For a daily life perspective, see Salas Carreño (2017).

environment (with frequent repercussions in the lowlands).⁸ In Colombia, this resulted in the total prohibition of mining in the *páramo* areas, a fragile grassland ecosystem at high altitude in the northern Andes. Inhabited by several groups, these areas are mostly inhabited by indigenous people. They are also important for water supply and carbon storage.⁹ Other high mountain ecosystems include *puna* grassland in the central part and forests in the South.



Figure 9: The Andean ecoregion with its geological, ecological and cultural perimeters. Source: drawn by Sébastien Piantoni for this monography.

⁸ The problem of the pollution of waters because of the use of mercury for gold extraction is particularly acute. See the portray of Peruvian gold rush frontier, La Rinconada, in *National Geographic* (Larmer, 2009).

⁹ A major project on *páramo* was funded by the Global Environment Facility (GEF) and was executed by a consortium of mainly regional academic institutions under the leadership of CONDESAN, an important regional NGO. On CONDESAN, see Saravia, Devenish, De Bièvre, and Peralvo (2013).

Another important driver for cooperation in the ecoregion is water. The management and development of freshwater basins in high mountains is of great importance because of hydropower production, drinking water and pollution mainly from mining, but also agriculture.¹⁰ Sill, looking at mountains from the perspective of flowing rivers deals with the concerns more of those living downstream than of mountain inhabitants. Also, it must be noted that, while several rivers originate from the Andes, they are rarely transboundary, with the important exception of the Amazon River (which flows towards the Atlantic) and of few smaller ones of pure bilateral interest (such as the Pastaza River between Peru and Ecuador). Last but not least, mountain agriculture is of great importance in the Andes. Supported by its impressive biodiversity, the Andes produce a huge variety of crops. For instance, Peru alone counts more than 3,000 varieties of potatoes. A International Potato Center (CIP) was even created in 1971 in Lima and is now one of the fifteen specialized research centers of the Consultative Group on International Agricultural Research (CGIAR), an international consortium of agricultural research organizations. Even if the contribution of mountain agriculture to the GDP of the countries of the region is not comparable to mining, the agricultural sector is important for employment, for communities and for ecosystems. If about 30% of the population of Andean countries work in agriculture, the percentage tends to be much higher in rural areas. As such, it supports the livelihoods of many mountain communities, thus contributing to the preservation of their cultural heritage. Also, agriculture is important for the protection of ecosystems because extensions can impinge upon forest or other natural areas and because of the use of fertilizers. Over the millennia, traditional communities have developed agricultural methods that are more respectful of mountain ecosystems than conventional agriculture. Traditional agriculture even contributed to shape some mountain ecosystems such as *páramos*, which can be considered as cultural landscapes.¹¹ Mountain ecosystems are important for agriculture and agriculture is important for mountain communities. The opposite is also true. Mountain communities with their agriculture and ancestral knowledge are important to preserve mountain ecosystems. The relationship is biunivocal.

Social, economic and political settings

Most countries in the regional are upper-middle income, with Chile being considered high income and Bolivia lower-middle. The general trend is a medium-high increase of population. There are however important differences between the north and the south. The northern part is among the most densely populated mountain zone in the world.¹² Four out of five highest capitals are in the Andes: La Paz and Sucre in Bolivia, Quito in Ecuador and Bogotá in Colombia. In the southern part, instead, mountain regions are scarcely inhabited and the vast majority of the population is found in the cities on or along the coast. Since the second half of the 20th century, a massive exodus from rural to urban areas is taking place and resulted in the rapid emergence of megalopolises, some of which are located at high altitudes, particularly Bogotá.¹³ These developments had important consequences for mountain regions, which found themselves in many cases strained because of, on the one hand, either booming population or

¹⁰ See the publication *Gestión para el desarrollo de cuencas de alta montaña en la zona andina* (1988) produced under an initiative of the UN Economic Commission for Latin America and the Caribbean (ECLAC) that looked critically at mining and that had a significant impact on how international cooperation saw these issues and designed projects. This process was also funded by the Italian Government and supported by UNEP together with the then Andean Pact. See also the background paper on upland watersheds prepared for the Bruntland Commission by Bandyopadhyay (1985). The Andean study represented an important reference for the development of projects, for example by CONDESAN (watershed initiative). In Bolivia, a controversial project is the Misicuni dam, also supported by the Italian Cooperation. By 2013, the dam is supposed to supply water to the city of Cochabamba, stage of the “water revolt” of 2000. The revolts were a consequence of the higher prices deriving from the privatization of the water sector imposed by the IMF (Kruse, 2005; Poupeau, 2002; Schultz, 2008).

¹¹ See Mujica Barreda (2011).

¹² See Devenish and Giannella (2012, pp. 2-4).

¹³ See, for instance, Andean Community (2003, pp. 62-63), and the three issues of the *Cahiers des Amériques Latines* recently published on these issues (“Centres-villes, centralité, décentralisation en Amérique latine,” 1994; “Changements démographiques en Amérique latine,” 2004; “Métropoles d’Amérique latine,” 2000).

depopulation and, on the other, growing needs for natural resources such as water, minerals, forest goods, and agricultural products by urban centers and a globalizing economy.¹⁴ However, people still living in mountain areas continue to perform important roles for the sustainable management of Andean ecosystems.¹⁵

The region has varying degrees of political stability. Even if their current relations have substantially improved, Peru and Ecuador fought a war between 1995 and 1998 at the end of a border quarrel that lasted several decades.¹⁶ For some prolonged periods, each country in the region had authoritarian regimes, often with the complicity of the United States: Colombia until 1957, Venezuela until 1958, Ecuador until 1979, Peru until 1980, Bolivia until 1982, Argentina until 1983 and Chile until 1990. Also, for several decades, revolutionary movements were active in most countries, sometimes with the external support of Cuba and the Soviet Union. For example, Chile experienced a democratically elected socialist government with Salvador Allende from 1970 to 1973, Peru was destabilized in the 1980s by terrorist organizations like the Shining Path (*Sendero Luminoso*) and Colombia suffered from one of the longest wars of recent times with the FARC *guerrilla*, which ceased its activities this year after more than fifty years of existence and is currently disarming. By the 1990s, the entire region had transitioned or was transitioning to democracy. The democratization process made progress, but also suffered setbacks and the process is still ongoing in many countries. Some countries are currently led by radical leftwing movements, particularly Venezuela, Bolivia and Ecuador. These governments were democratically elected. In the framework of the so-called Bolivarian revolution, the Venezuela government, however, is limiting political freedoms and is experiencing political unrest.

Dating back to the 19th century, Panamericanism is a unifying factor in Latin America, similar to Europeanism in Europe. The Latin American integration process generated a number of initiatives, such as the Organization of American States (OAS) and the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) in 1948, the Latin American Free Trade Area (LAFTA) in 1962, now Latin American Integration Association (ALADI) since 1980, but also the Latin American Economic System (SELA) in 1975. Subregional initiatives were also launched such the Andean Pact in 1969, now Andean Community of Nations (CAN), the Amazon Cooperation Treaty Organization (ACTO) in 1978 and MERCOSUR in 1991. Ideological groups of likeminded countries were also created with the Bolivarian Alliance for the Americas (ALBA) in 2006 and the Pacific Alliance in 2012. To bring these different initiatives together, the Rio Group was launched in 1986, now Community of Latin American and Caribbean States (CELAC) since 2010, and especially the Union of South American Nations (UNASUR), which was established in 2008. Each one of them can be seen as a building block towards deeper integration, but also as competing regional integration processes. They all maintain their legal basis, mandate, meetings, agendas, funding, secretariats and staff members that go along and that keep these processes going.

There is no formal institution corresponding to the Andean ecoregion. The closest contender is the Andean Community, a regional integration process based on the economy and trade. Its current members are Bolivia, Colombia, Ecuador and Peru. However, despite its reference to the Andes in its name and the importance of the *cordillera* for the identity of the community, it does not correspond to the entire ecoregion and it includes areas that are clearly outside, such as the Amazonian part of Peru. Historically, the community was created also to counter the hegemony of Brasilia and Buenos Aires, as well as an alternative and complementary experience to the then Latin American Free Trade Association (LAFTA). Chile left after the military coup of 1973 and Venezuela left in 2006 because of trade policy

¹⁴ See, among others, Hochstetler (2010, pp. [20-21]).

¹⁵ See, for instance, Blundo Canto, Cruz-García, Tristán Febres, Pareja Cabrejos, and Quintero (2016) regarding the case of a mountain community in Peru.

¹⁶ On the conflict and its solution, see the books by Toche, Ledesma, and Foy (1998) and Marcella and Downes (1999); see also the recent publication by the Plan Binacional de Desarrollo, celebrating the tenth anniversary of the end of the conflict (2009).

disagreements with Peru and Colombia. Still, this does not mean that, in the future, the Andean Community cannot develop into a regional environmental agreement, considering the long crisis it has been undergoing since the early 2000s. If this was the case and if it kept even part of its institutional setup, the Andean Community would become one of the most institutionally developed regional environmental process in the world. However, the attention that it has been paying over the past fifteen years to environmental and particularly mountain issues should not be mistaken for an “environmental turn” of the process, which remains firmly anchored on economic and now also social issues. Since the late 2000s, an Andean Initiative for Mountains of the Mountain Partnership, which is a multi-stakeholder partnership created at the 2002 World Sustainability Summit in Johannesburg and supported by FAO in Rome, has been trying to mobilize the governments and some other organizations to develop an institutional framework at the ecoregional level, following the model of the Alpine Convention. A declaration was produced in 2007 and a project for capacity building was implemented by FAO. This initiative must not be confused with the Andean Community, which is a more ambitious framework but whose scope is not the ecoregion.

The ecoregion is very much impacted by globalization. The sectors that stand out the most are certainly mining and agriculture. Regarding mining, not only there are several foreign companies running large operations, but also metals and other minerals are traded on global markets that are very competitive and where prices fluctuate and which can force extraction sites out of the market independently from conditions on the ground. This makes it difficult for countries to enforce social and environmental standards, even when prices are high because there is always the risk of prices going down again. Concerning food and agriculture, Colombian bananas and Chilean vineyards and wineries are certainly the best-known case of a globally traded produce, but the export of fruit and vegetables but also coffee, cocoa and many other products from Andean countries has increased significantly also in value. This led to an increased size of operations, which came along with a greater weight of financing and use of pesticides and genetically modified organisms (GMOs) to reduce risks in the sector but also regulation to be able to have access to markets in developed countries. Countries in the region adopted extremely different approaches to trade: if Chile and Peru are considered best and good at enabling trade, Ecuador is average, while Argentina, Colombia, Bolivia and Venezuela are bad or worst, meaning that the respective governments take measures that can be more or less restrictive of international trade. This reflects not only the need to protect certain segments of society and certain sectors of the economy from global competition, but also different ideological stances in the debate on the merits of international trade, finance and globalization. Still, the relative closure of some countries in the region does not reduce the importance of trade for them, such as oil exports for Venezuela, which is a founding member of the OPEC oil cartel, the export of hydrocarbons and minerals for Bolivia, as well as agricultural and hydrocarbon exports for Colombia and Argentina.

While in pre-colonial and colonial times, the Andes were crossed by economically important trade routes and transport corridors.¹⁷ Since independence, the most important trade routes went from the Andes and the rest of the newly independent republics to the sea and from there to the rest of the world, particularly Europe and North America. Of course, the bulk of mobility is local trade and commuting that can be very important in terms of volume particularly in the northern part, but this has not resulted yet in large infrastructure. The Panamerican highway, for instance, follows the line of the coast all the way from Mexico to Chile, never crossing the Andes, with the only exception of the trait between Santiago and Buenos Aires.¹⁸ Early leaders of the Andean Pact, such as the Peruvian president Fernando Belaúnde,

¹⁷ Historically, several ancestral paths (*caminos ancestrales*) have a significant import at the Andean level, such as the Great Inca road (*Gran ruta inca*) and its network of more than 35,000 miles of paths (Astuhamán González, 2008). Also, in colonial times, because of piracy, the trade route between Spain and Buenos Aires was not through sea; it transited instead on land through Central America, was shipped over sea to Lima and then transited again on land through the Central Andes (C. M. Lewis, 2002).

¹⁸ The highway was conceived at the V Panamerican Conference, held in 1923 in Santiago. On the early conferences, see Marichal (2002).

insisted on infrastructure integration (*integración física*) through transport and communications projects.¹⁹ In the 1970s, the first step consisted of industrial planning (*complementarización económica*) aimed at achieving import substitution. Infrastructure integration was seen as a key element to increase intraregional trade. Initially, the Andean Community was therefore seen as a tool to protect the economies of the member states from international trade. However, the implementation of this strategy was partial at best. To relaunch infrastructure integration at the continental level, in 2000, the Initiative for the Integration of Regional Infrastructure in South America (IIRSA), a massive investment program especially in the transport sector that is now part of the South American Council on Infrastructure and Planning (COSIPLAN) of UNASUR, was launched with the aim of improving the access to the interior of the continent and of promoting, at the same time, intraregional trade. Eight out of ten priority axes identified by the initiative cross the *cordillera* latitudinally or longitudinally.²⁰

Investment on transport infrastructure is being made at all levels. For example, decades of quarrels over the border line in the Cenepa district had left these peripheral and mountainous regions of Peru and Ecuador in utter misery. This further increased with the armed conflict. Together with the 1998 peace agreements, a Framework Agreement on Border Integration, Development and Neighborhood was signed in Brasilia, setting in motion a process aiming at settling this “historic debt”. The agreement resulted in a binational plan for the development of the border region, which entered into force for a period of ten years, was later renewed for five additional years, and included a binational fund that benefited from the support of development cooperation from the EU, some of its member states and Japan. Among the projects supported by the fund, five transboundary transport axes result at present under construction, four of which run across mountain regions.²¹ The tourist sector is relatively little developed, except for global landmarks such as the ruins of Machu Picchu or the glaciers of Patagonia. There are few initiatives to support tourism at the ecoregional level, except for the “Andean visa”, which is issued upon entrance in any member state of the Andean Community and grants freedom of movement within the community.²²

Regarding media organizations, there is much variability throughout the ecoregion. According to Reporters Without Borders, the situation is currently satisfactory only in Chile. There are noticeable problems with the freedom of the press elsewhere, with a situation that can be characterized as difficult in Colombia, because of the FARC and drug trafficking, and Venezuela, because of government control and repression. Technological development in the ecoregion is medium-high in the northern and southern part of the Andes, but medium-low in the central part. Like everywhere, there is an important divide between urban and rural areas that is accentuated in mountain zones also because of difficult accessibility. A unifying factor in the Andes and throughout so-called Iberian America, is the use of the Spanish language. Despite the great variety of Andean indigenous languages, such as Quechua or Aymara and their dialects, Spanish is official language in each Andean country. In Bolivia, Aymara and Quechua are also official languages; in Chile, Colombia, Ecuador, Peru, and Venezuela, Spanish is the

¹⁹ See the proceedings of the 1990 Caracas conference (Cabrera Ferrada, 1991, p. 13), as well as the article on physical integration by Latorre (1975).

²⁰ By December 2009, IIRSA counted on a portfolio of 510 infrastructure projects in the fields of transport, energy and communications, corresponding to an estimated investment of \$74.5 billion. IIRSA is backed, in particular, by three banks: the Interamerican Development Bank (IDB), the Andean Development Bank (CAF), and the Financial Fund for the Development of the River Plate Basin (FONPLATA). See, in particular, Mesquita Moreira (2008); see also Szary Amilhat-Szary (2003) and, for a comparative perspective between Southern Andes and Western Alps, Torricelli (2003).

²¹ By February 2009, the Binational Fund approved its support for 379 projects for a total of \$18.7 million. This might not seem much if compared with the estimated cost of the agreement, which was of \$3 billion in 1998. This included the proceedings from international cooperation, for example, the contributions of €40 and €106 million by the EU to the first and fifth axis, respectively, while Japan pledged ¥574 million for the construction of a bridge. Still, total funding is less than initially planned. See the publication by the Peruvian branch of the secretariat of the Binational Plan (2009).

²² See Decision 503 (2001).

only official language (in Chile, Andean languages are “co-official” in the indigenous communities; in Peru, they are also “co-official” where spoken by the majority of the population; in Ecuador, they are of “official use” by indigenous people; finally, in Venezuela, they are “official” only for the people speaking them).²³ The use of the Spanish language greatly facilitates international negotiations, which do not need costly translation or interpreting services. For the concrete implementation of certain projects, the usage of Andean languages is sometimes needed in remote areas.

Last not least, the Andean ecoregion has been locus of political action since at least the 1960s. The Andean Community was launched in 1969. Most of its institutions were created in the 1970s, during the institution building phase of the community, and reformed in the 1990s, at the height of a new wave of regionalism in Latin America and in the rest of the world. Like the EU and most other regional integration processes, the Andean Community experienced periods of rapid growth (the 1970s and the 1990s) and deep crisis (the 1980s and, somehow, the 2000s). CONDESAN, the only major NGO that is active at the ecoregional level, was created in 1993. Launched in the early 2000s, the first milestone of the Andean Initiative of the Mountain Partnership was the Tucuman Declaration of 2007. The timeframe of this case study is therefore the last fifty years and particularly the period since the rebirth of the Andean Community and the creation of CONDESAN in 1992.

Government organizations

The prevalent level of decision-making is national. The Andean Community is a product of the capitals and so is the Andean Initiative for Mountains. The Andean Community was launched in the late 1960s by the governments of the region, under the leadership of the president of Chile, Eduardo Frei, and of Colombia, Carlos Lleras.²⁴ The process is still led by national governments. However, both the states and the General Secretariat of the Andean Community are the main sources of policy proposals. The secretariat is composed of international civil servants that are independent from the members states. The supranational level has also significant influence over decision-making within the community. At the ecoregional level, the Andean Initiative also involves predominantly national governments. It is supported, however, by the Mountain Partnership, whose secretariat is hosted by the FAO in Rome. Therefore, the supranational level is also important for this initiative, even if decision-making stays with national governments. A recent development is the identification of CONDESAN, which is an NGO, as secretariat of the Andean Initiative. It is still unclear whether CONDESAN will limit itself to service the governments of the region or act on behalf of the FAO or if it will take a leading role in the process with the risk of alienating governments.

All the Andean states are centralized, except Argentina that is a federal republic with ten out of twenty-three provinces totally or in part within the ecoregion. Venezuela had a federal system that was de facto abolished with the 1999 constitutional reform. Governments often unevenly control their territory. Colombia experienced a conflict of more than fifty years that resulted in poor control over large parts of its Andean territory, even if the *guerrilla* was spread throughout the country. Another key issue in mountain regions is the indigenous question, which can vary significantly depending on the state, group and individual. Throughout the continent, when the *conquistadores* occupied the land, they tried to keep the Amerindians where they were through a system of *reducciones*, which were settlements modeled on towns and villages in Spain that were meant to “civilize” the indigenous populations. Many Amerindians, however, found shelter in remote areas, especially mountain regions. Sometimes they attempted resistance, such as in the Tupac Amaru rebellion in the 18th century near Cuzco and Lake

²³ On Andean languages, see the reference books by Torero (2005) and Adelaar and Muysken (2004), as well as the article in the *Revista Andina* on the use of innovative techniques for the study of Andean languages by Heggarty (2007).

²⁴ See the synthesis of the conference on the “construction” of the Andean Community, held in 1990 at the headquarters of the Corporación Andina de Fomento (CAF) in Caracas (Cabrera Ferrada, 1991).

Titicaca.²⁵ This is a common phenomenon: think also, for example, of the role of the Sierra Maestra for the *guerrilleros* during the Cuban Revolution or of the Alps and the Appennines for the *partigiani* during the Antifascist Resistance. During the colonial period, indigenous people were considered barely humans, often enslaved, which left the new republics in the early 19th century with the challenge to integrate them as full citizens. Some students of this period refer to this as a process of “internal colonization”.

Towards the end of the 19th century, the romantic *indigenista* literary movement became increasingly popular among the urban elites throughout the continent and was transformed, in the 20th century, into the *mestizo* ideology, namely the belief that the mixing of European and Amerindian “races” would contribute to the progress of the nation, genetically “reinforcing” indigenous populations. Basically, all Latin American countries followed this historical trajectory with only minor differences until the early 1980s, when this approach underwent strong criticism. Indigenous people were, in fact, portrayed as the objects of these policies, and not as the subjects thereof. This coincided with the emergence of several indigenous movements and initiatives empowering the participation of indigenous people in the shaping of their communities, with particular emphasis on their ethnical diversity and right to self-determination.²⁶ The reception and impact of these movements varied significantly depending on the country, with Ecuador and Bolivia, for instance, fully embracing their multiethnicity.²⁷ However, if there is an Andean identity that is particularly strong in the case of the four remaining member states of the Andean Community, indigenous people do not necessarily see themselves as one and there is no strong autonomist or separatist movement across the ecoregion. For instance, the Aymara ethnic group, which spreads in mountain areas from Bolivia to Peru and Chile, is currently engaged in a process to develop their communities beyond national borders. There is virtually no autonomist pretension. This is done with the sympathy of the Morales government in Bolivia and the support of international donors.²⁸ Rather than seeking autonomy, indigenous movements accept existing government structures. Indigenous leaders are more likely to try and win elections than create separate institutions.

Currently, Andean states have similar political systems in the sense that they are all presidential republics. Moreover, they all experienced various forms of non-democratic regimes. Just to mention the most recent ones, military *juntas* were in power in Colombia and Venezuela in the 1950s, in Bolivia, Peru, and Ecuador in the 1970s, and in Chile until the end of the 1980s.²⁹ All countries are representative democracies with majoritarian electoral systems. They are mostly two-round systems like in France, with the exception of Venezuela where a first-past-the-post system is in place. This ensures a certain political stability that can lead to bipolar party systems, thus making it difficult for small political groups such as the green party to be represented in parliament. There is little tradition of direct democracy, except in Venezuela where, since the Bolivarian revolution in 2003, a referendum is necessary to change the constitution and to impeach. Overall, the legitimacy of governments is questioned. It ranges from flawed democracies (Chile, Argentina, Peru, Colombia) to hybrid democratic-authoritarian systems (Ecuador, Bolivia, Venezuela).

²⁵ On ethnicity, markets, and migration in the Andes, see Larson and Harris (1995).

²⁶ See, inter alia, Máiz (2004a, 2004b). In 2007, this process led to the landmark adoption of the UN Declaration on the Rights of Indigenous Peoples (document A/RES/61/295).

²⁷ In 2009, the official name of Bolivia became, by government decree, “Plurinational State of Bolivia”, while in 2008 the new constitution of Ecuador mentions interculturality and plurinationality among its fundamental principles. The situation is different in Chile and Argentina, where the number of indigenous population living in mountains is low (e.g. the Aymara ethnic group), and more complicated in Peru and Colombia, which endured radical movements, such as the Shining Path and the FARC. However, also the Bolivian experience was not easy, considering the tensions between the relatively rich and European lowlands (Santa Cruz) and the prevalently poor and indigenous *altiplano* (La Paz).

²⁸ See the article on the Aymara *sin fronteras* project by Amilhat-Szary (2009). On alternative globalization and sustainable development in Latin America, see also Milani and Keraghel (2009).

²⁹ On foreign relations of military regimes in Latin America, see Mares (2001).

In 1979, the Andean Community established an Andean Parliament (*Parlamento Andino*), which is based in Bogotá. It is supposed to be the representative moment of the integration process. Its members used to be elected indirectly by the parliaments of the member states. The Andean Parliament was first convened in 1984. Initially, its members were elected by the respective parliaments of the member states. With only twenty members, it is by all standards a small parliament (the members were twenty-five before the withdrawal of Venezuela). In 1996, the Trujillo Protocol was adopted. This allowed representatives to be elected directly by the people using the same electoral system as for the members of national parliaments. Consequently, direct suffrages have already been held in the four member states plus Chile, whose representatives participate in the parliament since 2015 even if Chile is still not a member state of the Andean Community. Representatives from Argentina participate as observers, while Venezuelan representatives do not participate anymore since the country left the community. However, the Andean Parliament remains a consultative body, with oversight prerogatives but no legislative power. It is object of some criticism for its lack of political clout. The outcome of the recent elections for the Colombian representatives, which were held for the first time on March 14, 2010, and which resulted in a majority of blank votes, is symptomatic of those criticisms.

The ministries mostly involved in the process at the ecoregional level are the ministries of the environment. The focal point for the Andean Initiative is typically a mid-level civil servant in the ministry of the environment. This is often a heritage of the 2002 International Year of Mountains. At that time, most countries had created national committees to coordinate activities on mountains for the year. Subsequently, certain countries decided to create national mountain committees (*comité de montaña*) including representatives from various ministries, subnational governments, NGOs and other relevant stakeholders. The national focal points for the Andean Initiative of the Mountain Partnership, who are civil servants in ministries of the environment or in environmental units of foreign ministries, depending on the country, played a key role in the creation of these committees. However, the creation of national mountain committees proceeded slowly and unevenly. There are now committees in all countries except Chile, with Colombia having a number of institutes dealing with mountain issues and Peru having created committees at the subnational level.³⁰ By 2006, the Argentine mountain committee, which is hosted by the Argentine Ministry for the Environment, was the most developed institutionally and took the lead in the preparation of a meeting on mountains at the ecoregional level within the Andean Initiative of the Mountain Partnership. A first preparatory meeting took place in 2006 in Lima and a series of thematic axes were agreed upon. The following year, representatives of the national administrations of all Andean states, with the exception of Chile, met in Tucumán, Argentina. The Secretary General of the Alpine Convention was also present at this meeting.

In the case of the Andean Community, the ministries of foreign affairs accompany the process, while line ministries participate and take the lead on technical issues. Given the centrality of trade and economic issues for the integration process, the ministries of the economy are particularly active, but this is also true for examples of the ministries of social affairs, when issues such as welfare are discussed, but also of the ministries of the environment, when the community works on environmental policy. The national focal points for the Andean Community are at the respective ministries of foreign affairs, working typically under a deputy minister in charge of multilateral relations (Colombia, Peru) or in charge of international trade (Bolivia, Ecuador) within small teams in charge of regional cooperation and integration, or at the ministries of trade, where they exist (Colombia, Ecuador and Peru). They tend to form an administration within the administration and to generate bureaucratic effects. Unlike the UN or the EU, there are no permanent delegations of the member states to the Andean Community, which is headquartered in Lima, and therefore no permanent representatives. Their functions are covered if needed by the local embassies. However, meetings are usually attended by representatives of the ministries of foreign affairs and of the line ministries who travel on purpose from the different capitals,

³⁰ On the situation of national mountain committees in each country, see Devenish and Giannella (2012, pp. 26-27).

bust most work is done remotely by correspondence and with the support of the secretariat. Foreign ministries and diplomatic services lead the negotiations. Technical administrations are also involved on specific issues, such as trade ministries on trade matters and environmental ministries on environmental matters. In this regard, there is sometimes rivalry between foreign and environmental ministries. The latter are normally focal points for environmental processes, such as the Andean Initiative, which allows them to better master expertise, controlling communication flows. However, foreign ministries maintain a key role as far as international cooperation and development aid (*cooperación*) is concerned. For instance, if an Andean country were to receive aid for a specific activity, in most cases, such resources would need to be dealt with by specific offices in the foreign ministry.³¹

Among Andean countries, there is a strong ideological rift between Peru, Colombia and Chile, who have signed free trade agreements with the US and the EU, versus Venezuela, Bolivia and Ecuador, which have extreme leftwing governments, reject free trade and are part of the Bolivarian Alliance for the Peoples of Our America (ALBA).³² Argentina is instead member of MERCOSUR, the free trade area that it established with Brazil, Uruguay and Paraguay in 1991, which is currently negotiating a free trade agreement with the EU. The situation has been relatively stable for the past decade, except for Venezuela. Its government left the Andean Community in 2006 over divergences about the negotiation of free trade agreements, which played against its allies, Bolivia and Ecuador, in the ideological struggle with Peru and Colombia. The Venezuelan government then joined MERCOSUR in 2012, but did not participate in the negotiations on the free trade agreement with the EU and was actually suspended from MERCOSUR in 2016 because of non-compliance with its legal requirements but also for its political instability. Given that all countries are representative democracies, the political situation may change significantly at each major election, but the overall orientation of governments with regard to matters of interest for the ecoregion has not changed much since the early 2000s. For instance, Chile went from a center-left to a center-right government in 2010 and back to a center-left government in 2014 with no major impact on ecoregional governance.

Regarding local authorities, the Andean states are relatively centralized, but they recently had various experiences with the decentralization process. This is more due to political will of some leaders or to good governance programs of development cooperation agencies than functional pressure on central governments or popular demand. Peru, for example, is considered as the most centralized state in the region. It tried to reduce the number of its subnational regions with the aim of increasing their power, but the project was rejected by referendum in 2005. Always in Peru, the government first mandated land-use planning to regional governments, but then assigned it to the Ministry of the Environment.³³ In comparison, the Ecuadorian decentralization process started in the 1990s and is in a more advanced stage.³⁴ Local governments and organizations have less resources than their European counterparts, but their impact factor is not negligible. Within a project, CONDESAN counted not less than 216 institutions that, throughout the region, had capacity to deal with the protection of *páramo* areas and most of these institutions are local governments, organizations and universities. In most circumstances, while subnational authorities lack the capacity to participate in processes at the ecoregional level, they play a key role on the ground to collect information and implement projects. A greater involvement of local authorities and other stakeholders in ecoregional governance is probably desirable to increase the acceptance and the effectiveness of processes. For instance, according to some participants, in 2007 local authorities of Tucumán were reluctant about hosting a meeting of the Andean Initiative. They would have rather preferred using that resources to deal with more pressing issues. The possible benefits of the ecoregional process were very distant from their preoccupations on the ground. Perhaps a greater

³¹ This emerged clearly from the interview material.

³² For the debate on the potential of ALBA for regional integration, see the book by Katz (2006) and the articles by Segrelles Serrano (2006) and Serbin (2007).

³³ See Devenish and Giannella (2012, p. 25).

³⁴ For a continental perspective, see the CEPAL report on *Descentralización en América Latina* (Finot, 2001). On the Peruvian process, see Ballón Echegaray (2008), while on Ecuador, see the book by Frank (2007).

involvement of local authorities in the process would help them understand that, for instance, monitoring and strategies to deal with glacier melting is better done jointly among countries sharing the same problem. This may be costlier and less efficient if done by each country individually. At the same time, their participation would help the process focus on the actual needs of mountain communities and avoid developing policies and measures that are ill-suited to be applied at the local level and risk not being accepted.

Nongovernment organizations

At the ecoregional level, the private sector is currently not directly involved. The mining sector is, however, the most concerned, as most mining takes place in the Andes. Domestic and foreign mining companies lobby directly government organizations and do not participate in meetings at the ecoregional level. The mining sector is most weary about increased regulation, such as the prohibition of mining in *páramos* in Colombia, which resulted in a long legal struggle with the law first being considered unconstitutional because the definition of *páramos* was too extensive and, once a narrower definition was adopted, the law was even upheld by the constitutional court in 2016 against new accusations of unconstitutionality. The mining market is competitive and companies are not formally organized, also because they risk being considered as cartels. Illegal mining is also a problem in the region. Mining and the extraction of natural resources in general is a huge source of revenue for countries, because of its significant contribution to GDP and the employment provided, and governments, through concessions and taxes. Domestic and foreign mining companies are however often criticized by neighboring communities, political forces, as well as domestic and international NGOs because of low social and environmental standards and because of the risk of corruption due to the huge interests at stake. This “resource curse” is common to many countries and depends also on the governance system and property rights in place.³⁵ In this regard, many countries resorted to nationalization. The best-known examples are the nationalization of copper by the Allende government in Chile in the 1970s, which was reversed after the 1973 coup, and the nationalization of oil by the Chavez government in Venezuela in the 2000s. Within the Andean Community, the private sector has interacted with the regional integration process from the very beginning. In the 1960s, consultations were held with economic actors, in particular with the industrial, commercial and agricultural sector.³⁶ The initial opposition of Venezuelan industrialists was overcome as soon as the objective of further developing the industrial capacity of Andean countries became evident.³⁷

The agricultural sector is very important in the ecoregion. Historically, large estates were owned by few families. Otherwise, large estates are usually owned by elite families or by multinational corporations. They usually lobby governments directly and not through specific organizations. Similarly to the mining sector, this ownership structure is often contested. Land reform to make it possible for peasants to become landowners is a longstanding issue in many countries and is the major issue at stake in mountain areas, together with land productivity and access to markets. This led to revolts and even revolutions, such as the one that took place in 1952 in Bolivia, which resulted in significant expropriations and redistribution of land to smaller owners often of indigenous heritage. In Bolivia, peasants subsequently organized in unions. Venezuela also engaged in land reform in the 2000s and is still redistributing unused private and government land to poor farmers. Other countries such as Chile, Colombia and Peru also engaged in land reform at some point but were then reversed. Bolivia is the country in the region where the organizations of small farmers are the strongest. They sometimes participate in movements such as *Vía Campesina*, which coordinates peasant organizations of small producers, peasants and indigenous communities from across the world and which is present in all Andean countries but has no

³⁵ See Jones Luong and Weinthal (2010).

³⁶ See Cabrera Ferrada (1991, p. 10).

³⁷ Read the interview with Lleras Restrepo (1992, p. 11).

coordination of its activities in the Andes. There is no major organization bringing together small and middle-sized producers from the Andean ecoregion.

Concerning civil society, community-based and non-profit organizations, their number has grown in recent years and their importance has increased. Societies are increasingly wealthy and aware. Over the last two decades, per capita gross domestic product (GDP) grew substantially in all countries. Like everywhere, the number and activism of environmental NGOs has also grown.³⁸ However, at the time of the establishment of the Andean Community, the involvement of civil society as it is now intended was minimal. Like in the case of the EU, there is no NGO with a status of official observer.³⁹ If this was common practice in the 1960s, it is less so today. However, representatives from the scientific community, NGOs, other international organizations, and some other governments are from time to time invited to participate in the meetings, especially on environmental issues.⁴⁰ The establishment of the Andean Community has not led to a proliferation of Andean civil society organizations. The Consortium for the Sustainable Development of the Andean Ecoregion (CONDESAN) was created in 1993. It is an umbrella NGO, bringing together national and local organizations that are present in the Andes. National and local actors and initiatives are numerous and are often supported by international cooperation, such as the Mountain Institute, which is a US-based mountain NGO that is particularly active in Peru and benefits from the support of USAID and other US-based organizations. International NGOs, such as Conservation International, are also present in the region and are run usually through national offices. The membership base of NGOs is usually limited, but this does not mean that non-members necessarily disagree with their positions. Like everywhere, NGOs are increasingly professional. While many civil society organizations remain grassroots, they are now mostly elite, also because of their growing professionalism. Their capacity to mobilize funding is relatively high, especially thanks to development cooperation.

Given that the Mountain Partnership is a multi-stakeholder organization, its Andean Initiative maintains its hybrid character. Even if it is structured around representatives of the countries of the region, civil society representatives and observers from other countries and international organizations are regularly invited to the meetings and thus contribute to the process. This initiative was preceded by an intergovernmental consultation on sustainable development of mountain regions in Latin America, held in 1995 in Lima and organized by FAO to advance the implementation of Chapter 13 of Agenda 21. The Andean Initiative builds on a series of meetings at the global level on mountain ecosystems, held in Cuzco and Huaraz, Peru, before and during the International Year of Mountains (IYM), before the Mountain Partnership was created. The Second Global Meeting of the Mountain Partnership, held in 2004 in Cuzco, was the occasion for a first meeting of Andean partners in a “breakaway session”. Some priorities were set and certain initiatives proposed at that time and contributed to the 2007 Tucuman Declaration. A capacity building project was implemented by FAO in 2012-2014, focusing on the national level. In 2017, the decision was made to appoint CONDESAN, an NGO, as secretariat for the Andean Initiative. By combining international organizations, national governments and NGOs the initiative confirms its hybrid character.

³⁸ On environmental NGOs in Latin America, see M. Price (1994), Torres (1997) and Christen et al. (1998). For a recent ethnography of a Peruvian mountain NGO, see the doctoral thesis of Mereville (2010). Finally, on the growth in the number of NGOs worldwide, refer to Willetts (1996).

³⁹ The United Nations Economic and Social Council (ECOSOC) has been granting “consultative status” to certain NGOs since its creation (article 71 of the UN Charter). It is worth noting that, since the 1990s, the Council of Europe also recognizes consultative status to international NGOs (Resolution (93) 38). Within the EU, a Platform of European Social NGOs (Social Platform) was launched in 1995 and is regularly consulted by the European Commission. However, no NGO has the status of official observer of the EU. Like in the case of the Andean Community, the European Parliament is the representative moment of the integration process.

⁴⁰ The scientific community, NGOs, other international organizations, and some other governments are essential, for instance, to the implementation of the AAA, which explicitly refers to potential alliances with those actors, naming them individually (Comunidad Andina, 2007, pp. 5-20).

Network structure

The governance structure of the Andean ecoregion can be considered as rather horizontal, as there is no supranational structure bearing considerable weight throughout the ecoregion, even if the Andean Community does play a role in the northern and central part. The key actors are national governments, although some private companies, NGOs such as CONDESAN, as well as development cooperation and international organizations do play a role as well. As such, power tends to be concentrated in the seven capitals, so the network can be considered as polycentric. Also, the centers of power are at more than two, so the system is usually characterized as multipolar. Similarly to the EU, MERCOSUR or regional security organizations like NATO, the negotiating weight in the Andean Community is closely associated with traditional military, economic, and cultural power. Regarding balance of power, Argentina is clearly the most powerful state, with Colombia and Venezuela also carrying significant weight. The importance of Argentina is witnessed by its leading role in the Andean Initiative. Chile is a rising economic powerhouse in the region, while Peru is historically an important player. Within the Andean Community, the balance of power is straightforward. The number of countries is limited — just four — and they are split between two relatively large and wealthy countries — Peru and Colombia — and two smaller and less wealthy ones — Bolivia and Ecuador). There is no clear hegemon in the Andean region. However, positions are quite variable, depending on the issue at stake. Like in the EU, the community is more important for the two smaller than for the two largest members, especially as far as trade is concerned.⁴¹ The interdependence of countries in the ecoregion is low, despite the efforts of the Andean Community to boost trade and cooperation in the northern and central part.

Historically, the community was launched also because of dissatisfaction with the Latin American Free Trade Association (ALALC, now ALADI) integration process, led by Brazil and Argentina, i.e. the main regional hegemon and its main pretender.⁴² However, Chile withdrew from the Andean Community early on and cultivated bilateral and multilateral relations with likeminded countries such as Peru and Colombia that now form the so-called Pacific Alliance with Mexico. Venezuela, which had joined the community at a later state, instead withdrew in 2006, launching ALBA, an alternative group of likeminded countries resisting free trade. Within the ecoregion, it managed to align Bolivia and Ecuador, but they did not leave the Andean Community. On the continental level, traditional alliances date back to the War of the Pacific at the end of the 19th century and were revived by the military regimes. They were Chile with Brazil and Ecuador against Peru with Bolivia and Argentina. For the most part, they are outdated, but collective and institutional memory is hard to delete, and it sometimes produces alignment effects.⁴³ Moreover, Bolivian institutions, in particular, may have limited capacity to follow the negotiations, similarly to Paraguay within MERCOSUR, which may lead, in turn, to free-riding effects, i.e. to benefit from the efforts of other members without contributing equally.⁴⁴ However, even a small country such as Bolivia can veto community initiatives, as it did for an Andean plan on migration, proposed by Ecuador, for divergences on legal interpretation.⁴⁵ Both hegemonic and isolationist positions are short-lived in the Andean Community.

⁴¹ In 2009, according to Andean Community trade data, exports to member states accounted to 13.25% of total exports for Ecuador, 9.09% for Bolivia, and 6.90% and 6.25% for Colombia and Peru, respectively; imports from the Andean Community accounted to 17.15% of total imports for Ecuador, 12.80% for Bolivia, 11.28% for Peru, but only 4.99% for Colombia (elaboration by the author).

⁴² See, for instance, the article by Ferris (1981, p. 148), confirmed in an interview with Lleras Restrepo (1992, p. 12).

⁴³ In this regard, refer, in particular, to the works of Child (1979, 1985).

⁴⁴ On economic and institutional aspects of MERCOSUR, see, for instance, the works of Bouzas and Fanelli (2001); Bouzas and Soltz (2003).

⁴⁵ This information emerged from the interview material. Since the 1990s, several decisions were adopted in this sector, including the Andean passport, social security, consular affairs, customs documents, work-related migrations, document recognition, border integration and management, etc.

Property-right systems

Who owns the Andes? Large parts of the Andes are owned by the state in the form of national parks. All countries have national parks and a significant number of them are located in the Andes. There are also some privately owned protected areas, while some others are communal reserves.⁴⁶ In Peru, for instance, the flora and the fauna of these areas is protected, but neighboring communities can make traditional uses of the resources of these reserves, including marketing. While these areas are significant for the neighboring communities, they represent only a fraction of protected areas throughout the country. Communal rights are also recognized in other Andean countries and they can be significant for the respective communities. Overall, the right to nature is much more developed in Latin American countries than in Europe or North America.⁴⁷ However, communal rights to nature are subject to their being upheld by the state that can often decide to erase them with the stroke of a pen. For instance, large estates are often owned by elites or by large companies. If their private owners wish to extend them, this can be done either over natural areas or over communal land. In Peru, for instance, land-use planning is under the purview of the government. The establishment of communal reserves is meant to protect them against abrupt changes in the property-regime, which can cause the loss of the livelihoods of entire communities.

Another issue is the system of concessions for the exploitation of natural resources, such as gold. Not only this can disrupt communal tenure, but also this often results in the long-term appropriation of large parts of mountain areas. The benefits of such concessions are usually unevenly divided between the state and related service companies and local communities, which often receive little compensation and other benefits. Instead, they often suffer from the social and environmental externalities generated by the extraction of natural resources in terms of low labor standards and high pollution levels. Last but not least, parts of the central Andes in Peru and its southernmost tip in Chile and Argentina still qualify as wilderness with no significant human presence. As such, even if they cannot be legally considered as belonging to no one (in Latin: *res nullius*), these areas are de facto owned by nature.⁴⁸ Still, Peter Popatov and colleagues estimate that about 35% of intact forest landscapes in the tropical part and 1% of those in the southernmost part were lost since 2000 mainly to agriculture, logging and mining.⁴⁹ This implies a change in the property regime. According to them, the tropical part of South America, which also includes the Amazon Forest, is the geographic region in the world with the most significant loss of wilderness.

Even if the markets for minerals and agricultural products is generally competitive, as prices form at the global level, the overall ownership structure cannot be considered as fully competitive, as many countries are far from being functioning market economies. This means that mountain areas are not fully competing with each other. Many other factors come into play. At the local level, some families, companies or groups may act as monopolists or oligopolies and essentially fix the cost of labor and the value of land. This can generate significant rent. At the national level, states are by far the largest players for nature protection, even if protected areas owned by private foundations or the support received from development cooperation can be important. As such, national governments act as an oligopoly of nature protection. At the ecoregional level, however, no single actor or small group of owners monopolizes the many resources of the Andes. The ownership structure can therefore be characterized as generally anarchical, with some competitive elements.

Operational-choice rules

The question of the specific definition of the perimeter of the *cordillera* never came out of geography departments or, perhaps, regional development circles. The parameters differ, based on the definition

⁴⁶ See UNEP-WCMC (2016, p. 75).

⁴⁷ See Esborraz (2016).

⁴⁸ See Stocking (2010, p. 157).

⁴⁹ See Potapov et al. (2017, fig. 1 and 2).

used. Figure 9 shows three definitions: a geological definition, a cultural definition and the definition adopted by the secretariat of the Andean Community for their atlas of northern and central Andes (the so-called “Tropical Andes”). However, this proposal is limited to the scope of the study and does not include the southern part. The extreme diversity of the *cordillera* renders the adoption of the methods developed in Europe, as well as of any uniform method, fairly difficult. Consequently, the authors of the atlas considered a wide selection of available literature, including national maps, and combined it on an ad hoc basis.⁵⁰ In the figure above, an extension of this definition to the southern part is proposed based on the criteria to the ones used in the atlas. CONDESAN produced yet another definition also combining different methods: ecosystem classifications, ruggedness measures and altitudinal limits for the whole ecoregion. “As defined by this method, the Andes have an extension of more than 8,000 km, and occupy an area of 2,728,760 km² or 33.3% of the total area of the seven Andean countries, and 15% of all South America.”⁵¹ However, no specific regulation or policy was ever developed or implemented at the ecoregional level. Even CONDESAN struggles to implement projects throughout the whole ecoregion, particularly Chile. The only initiative that fully covers the Andean ecoregion is the Andean Initiative of the Mountain Partnership, but the participation of the different countries is uneven. The scope of the Andean Community, which also constitutes a free trade area, includes the whole territory of its member states, not only mountains. Moreover, the Andean Community never covered the whole chain: Argentina, which is sovereign upon the eastern half of the southern range, never joined, while Chile left in 1976 and Venezuela in 2006.⁵²

The Andean Initiative is based on the experience of the Alpine Convention and the Andean Community is heavily inspired by the European Union, which supports its institutional development. Some even speak of of “institutional mimesis”.⁵³ This is also thanks to the institutional cooperation between the EU commission and its secretariat (former JUNAC). In turn, some policy documents of the Andean Community are produced within other processes, such as the Andean Biodiversity Strategy, which was produced in 2002 in the framework of the CBD. Also, in 2012 CONDESAN produced a report on sustainable mountain development in the Andes in the framework of the Mountain Partnership. Similar reports were produced about all other major mountain ranges. This does not imply that all policy developments are exogenous. For instance, the two Andean Environmental Agendas (2006-2010 and 2012-2016) were original developments. The fact that there is a time horizon for these policy documents increases their adaptiveness, because they are supposed to be revised at regular intervals. However, they are not necessarily timely. The second agenda was developed as a contribution from the Andean Community to the Rio+20 Conference, but they do not necessarily respond to specific pressures such as environmental crises. However, it must be noted that, since 2014, environmental issues and particularly biodiversity, climate change and water resources are not considered as priority areas for the Andean Community anymore and these activities will most likely be discontinued, in the framework of the institutional reform and rationalization of the Andean Community.⁵⁴ The current priority areas are institutional reform of the community, social affairs, energy and convergence with UNASUR.

In the framework of the Andean Initiative, an Action Plan for the Sustainable Development of Andean Mountains was adopted in 2007, spelling out strategic objectives, specific projects, and potential partners, following the model of the Andean Environmental Agenda of the Andean Community. Five

⁵⁰ See, in particular, Josse et al. (2009, pp. 14-31, 35-36), as well as the methodological sections on the schemes by Van der Hammen and Santos, on the one hand, and by Navarro and Maldonado, on the other. For a critical perspective by an Alpine geographer on the definition of the Andean region, read Amilhat-Szary (2007).

⁵¹ Quoted from Devenish and Giannella (2012, pp. 1-2).

⁵² Historically, the community was created also to counter the hegemony of Brasilia and Buenos Aires, as well as an alternative and complementary experience to the then Latin American Free Trade Association (ALALC), now Latin American Integration Association (ALADI). Chile left after the coup of 1973. At the same time, Venezuela also left the 1995 G3 Free Trade Agreement with Mexico and Colombia.

⁵³ For instance, Quindimil López (2002).

⁵⁴ Decision 792 (2013). On the evolution of the Andean Community, see Contipelli (2016).

priority axes were identified: sustainable use of resources, preservation of natural and cultural heritage, institutional capacity building, climate change, and transversal issues (education, training, gender, age groups, networking, and local participation). However, the Andean Initiative faces the major challenge of positioning itself among the Andean Community, the Andean states (especially through the mountain committees), CONDESAN, and many other local, regional, and global initiatives on mountain regions, as well as dealing with the sheer extension of the whole *cordillera*. Some mountain committees are dynamic and are implementing projects (Argentina and Ecuador), some are currently being organized (Chile and Bolivia), while some situations are unclear (Peru and Colombia). Only the Venezuelan committee is not in place yet. The 2007 Action Plan is clearly a generic document that identifies issues to be dealt with and establishes priorities, but does not provide specific solutions, with few exceptions such as the need for capacity building. The document is clearly not legally binding. The approach is voluntary. On the other hand, the Regional Biodiversity Strategy of the Andean Community was approved by the Andean Council of Foreign Ministers (CAMRE), at the highest decision-making level after the Andean Presidential Council in 2002.⁵⁵ Even if the CAMRE can adopt legally-binding decisions, the strategy is not. The Regional Biodiversity Strategy sets some priorities and some goals, but those are only indicative of political will. With regard to the second Andean Environmental Agenda, there were talks of it being approved with a formal decision of the foreign ministers, thus becoming potentially binding and going from soft to hard law, depending on the contents and their formulation. The decisions of the CAMRE, in fact, may be legally binding for the member states, are preemptive to national legislation, and may also be directly applied by internal courts.⁵⁶ There is no legal or financial tool applicable to the whole area or significant parts of it. Therefore, the prevalent policy mix at the ecoregional level combines communication tools such as strategies, agendas and other documents with direct implementations carried on by government organizations or NGOs.

Regulatory noise in the Andean ecoregion not only comes from the presence of conflicting policies across sectors, but also differences in protection levels among countries. For instance, policies range from the total prohibition of mining in the *páramo* areas decreed by Colombia to relative lack of protection in Peru.⁵⁷ Moreover, frequent changes in policy, such as the attribution of land-use planning to subnational authorities in Peru that was subsequently given back to the central government, contribute to generate confusion. Another example is the Yasuní Project. In 2007, the Ecuadorian government proposed not to exploit the oil reserves buried under the Yasuní region in the Amazon, one of the areas with the most important biodiversity hotspots in the world and home to the Huaorani people and other indigenous tribes. Despite the fact that they are the largest known oil reserves in the country (estimated at 900 million barrels), the Ecuadorian government has proposed not to issue concessions to oil companies, but to lease, instead, the area to conservation groups for the symbolic “price” of \$350 million a year. Considering that the pledges received by 2012 were insufficient to proceed, the project was canceled in 2013. By doing this, the Ecuadorian government showed that the policy was more about creating an alternative form of revenue in the form of payment for an ecosystem service than protecting biodiversity. As a consequence, Petroecuador, the state oil company, started drilling within the national park in 2016. According to the Ecuadorian government, strict regulation is being enforced and specific technology is being used to minimize social and environmental impact. Also, the proliferation of regional integration processes generates institutional instability and produces regulatory noise. For

⁵⁵ Adopted with Decision 593 (2004).

⁵⁶ Refer, inter alia, to Jorge Quindimil Quindimil López (2006, pp. 295-298) and to the landmark decision of the Andean Court of Justice (*Tribunal de Justicia de la Comunidad Andina*) 2 IP 88 (1988) on a prejudicial interpretation of a decision of the Andean Commission requested by the Supreme Court of Colombia. This decision establishes “the absolute preemption of community law”, citing extensively the community law of the EU as precedent, in particular the Costa/ENEL (1964) and the Simmenthal (1978) cases. Refer also to the abundant literature on legally binding international agreements and the preemption and direct effect of community law.

⁵⁷ See the section on the *páramo* areas in the atlas published by the Andean Community (2009, pp. 12-17; Josse et al., 2009); see also the synthesis document produced by the politics component of the *páramo* project.

instance, are Andean Community decisions still binding even if their domains are not priority anymore for the community?

Collective-choice rules

The governance of the Andean ecoregion cannot be considered as an international regime. There is no formal agreement at the ecoregional level or convergence of expectations by the countries and other actors. There is an ongoing process, the Andean Initiative, which was launched by the Mountain Partnership, receives from time to time support from the FAO, but also by governments, and there is an ecoregional NGO, CONDESAN, which was initially created by the International Potato Center (CIP) in Lima with the support from the Canadian government, and is now formally autonomous. While this process comes with significant transaction costs, with meetings to be organized and documents to be produced, it also contributes to shape a common identity, identify issues that are shared by the whole ecoregion and propose joint solutions, usually in terms of projects to be funded by development cooperation and increasingly by government. On the other hand, the Andean Community is clearly an international regime. It is formally autonomous, but receives significant budget support and technical assistance from the EU. However, despite its identification with a mountain range, the community does not see itself as an environmental initiative. This also despite the fact that the Amazon Treaty — a fairly traditional environmental agreement — was launched as a reaction in the 1970s.⁵⁸ But quoting, *mutatis mutandi*, a student of cooperation in the Amazon, the Andean Community is “surprisingly undriven by transboundary environmental problems”, such as pollution from mining, melting glaciers and biodiversity.⁵⁹ Still, the institutional development of the Andean Community — the so-called Andean Integration System (SAI) — is extremely advanced, arguably the most advanced after the EU, counting a presidential council, a ministerial council, a trade commission, a parliament, a secretariat, a court, a development bank, a reserve fund, health, labor, and business consultative bodies, as well as a regional university that is now present in each Andean country. With regard to environmental issues, an Andean Committee of Environmental Authorities (CAAAM) was created in 1998.⁶⁰ Two years later, a Council of Environmental Ministers was also launched, raising the political level of environmental negotiations and signaling a capacity increase of Andean institutions, particularly of the respective Ministries of the Environment.⁶¹ By shaping common policies and by adopting common decisions, Andean states reduce transaction costs internally (*vis-à-vis* national legislators) and externally (*vis-à-vis* future environmental disputes).

Within the Andean Initiative, all decisions are taken by consensus of the governments. However, Argentina, which led the process for many years, played a key role, proposing meetings and preparing documents. After the 2016 Bariloche Declaration, Colombia took the lead until this year and Chile will take over for the next two years, now that a regional coordination mechanism was agreed upon at a meeting in Bogotá. CONDESAN is also very instrumental, particularly in the last few years, and it will be increasingly so, now that it will act as secretariat of the initiative. Of course, given that it provides the general framework of the initiative, the Mountain Partnership and FAO are also important for decision-making. The process is fairly open to the participation of interested parties, provided they are related to one of the key actors, they have something to share or can benefit from the process, they know about the meetings and they can find resources to travel. However, the process is relatively transparent,

⁵⁸ See, for instance, Ferris (1981, p. 55).

⁵⁹ Quoted from Hochstetler (2010, p. [2]). The Amazon Treaty is an ecoregional agreement launched in 1978 and transformed into an organization in 1995.

⁶⁰ Refer to Decision 435 (1996). These institutional developments were preceded by substantive decisions on environmental matters: Decision 182 (1983), launching the José Celestino Mutis Andean System on Agriculture, Food Security and Environmental Conservation; Decision 345 (1993), establishing a Common Regime for the Protection of the Rights of the Breeder of Plant Varieties; and Decision 391 (1996), creating a Common Regime on Access to Genetic Resources.

⁶¹ Refer to Decision 596 (2004).

as key documents are usually published online or circulated via email. Still, the number of people and organizations who are aware of this process is very limited.

Regarding the Andean Community, instead, even if there are power differences among the four member states, on ecological issues, for instance, Peru lags behind, while Colombia leads, within the legal fiction, all members are equal and decisions are taken by consensus. This means that Bolivia or Ecuador, for instance, may veto a decision. Still, it is difficult for a small country to maintain an isolated position for long at international negotiations. The presidencies of the community rotate on a yearly basis, but seem to have a negligible impact on the agenda. However, states are eager to avoid setbacks during their presidencies. For instance, regarding the debate on the relevance of the Andean Community vis-à-vis the other integration processes in the Latin American region (MERCOSUR, UNASUR, etc.), according to an interviewee, one of the reasons why the extinction of the community is not an option is that no one would allow this to happen under its own presidency. Even Ecuador, which held the rotating presidency in 2013, without trying to eliminate the Andean Community, tried to substantially cut it down, did not manage to do so. Overall, public participation is limited and channeled through consultative bodies or mediated by NGOs and representatives in the Andean Parliament. Transparency of decision-making and knowledge about the governance system is limited.

CONDESAN is going to act as secretariat pro tempore of the Andean Initiative. The decision was taken few months ago. Its role is meant to be of technical support, so it is not expected to provide much leadership. Moreover, this arrangement is temporary, which means that countries may decide to establish a permanent structure with international staff. However, UNEP was also meant to act as secretariat of the Carpathian Convention ad interim and to have a purely support role. Instead, UNEP's role is not temporary anymore and it has provided so far much leadership to the process. Still, CONDESAN is a medium-sized NGO and UNEP is a global program of a large international organization with much capacity and symbolic capital to count upon. Andean Community instead can count on its General Secretariat (formerly known as JUNAC) that is located in Lima. It has at least fifty units of personnel and a yearly budget of about \$5 million.⁶² The secretariat makes efficient use of available resources, considering the many sectors that have been at least partially communitarized: industrial and commercial development, social and environmental issues, political cooperation, and external relations. For example, it makes extensive use of videoconferencing, which is legally valid since 2004.⁶³ In most cases, technical committees and working groups are led more by the secretariat than by the states.⁶⁴ With regard to the secretariat, the rotating presidencies interpret their role as a formal one — as chairmen — more than in a substantial manner — as presidents.

Regarding funding, other than the above-mentioned budget of the Andean Community, it is difficult to provide an exact figure about the funding available for action at the ecosystem level. The most relevant source of funding is the former Andean Development Bank (CAF), which has now become Latin American Development Bank. Created in the 1970s in the framework of the Andean Pact, it has developed into a strong and independent institution that is now loosely related to the community. The CAF is a development bank (like EBRD) and not a fund (like ERDF) and is arguably one of the main spillover effects of this regional process. Since the end of the 1960s, it has funded several important development projects at the regional level, especially in the infrastructure sector, including river basin management, and it currently counts on an authorized capital of \$15 billion.⁶⁵ The CAF has joined forces with the Green Environment Facility (GEF) and the recently established Green Climate Fund (GCF) to support action in the region. This is arguably the greatest opportunity to fund projects at the ecoregional

⁶² See Quindimil López (2006). The budget of the secretariat was of seven million dollars before the withdrawal of Venezuela in 2006. On the effects of the Venezuelan withdrawal, see Giacalone (2010).

⁶³ See Decision 597 (2004). This is facilitated by the official use of a common language.

⁶⁴ This also emerged clearly from the interview material.

⁶⁵ Figure quoted from the yearly report of the CAF (2017, p. 205). On the contribution of the CAF to the Andean Community, see Zúñiga Quevedo (2003).

level. Regarding the Andean Initiative, the Mountain Partnership has funding for less than \$1 million per year for its global activities and only a fraction of it can be considered to be dedicated to activities in the Andes.⁶⁶ For the period 2012-2014, it managed to raise a little more than \$389,000 over three years from FAO to support a capacity building project in the region.⁶⁷ To these funds, it is important to add the funding disbursed or in kind contributions of governments that participate in the initiative, such as making personnel from the ministries available for meetings, collecting information for the reports and physically organizing meetings. CONDESAN instead does not publish online its annual reports, so it is difficult to evaluate their funding levels. However, their funding is mostly project based and varies from year to year.

It is commonly held that many environmental initiatives, including the Andean Environmental Agenda that was funded by the Spanish government or an outlook on climate adaptation that was produced by UNEP with the support of the Austrian government, would be impossible without aid, however it is not clear how much this depends from administrations not appropriating national funds for initiatives that could be funded through international aid.⁶⁸ The part of official development assistance in Andean countries is around 4% in Bolivia and under 1% in the other countries. It was significantly higher in the 1990s, with a peak of 18% in Bolivia, and its part is expected to be further reduced, as many traditional donor countries are still experiencing financial difficulties and the economies of Andean countries are growing. However, as CONDESAN points out, the funding to support environmental action, particularly biodiversity, climate change and desertification, increased in the last decade, which will most likely increase dependency on foreign aid. It is difficult to estimate how much funding goes for administrative functions and how much for programmatic ones. However, a good approximation would be to say that most funding from the Mountain Partnership and the Andean Community goes for administration, while most resources available from the CAF and development cooperation are dedicated to project implementation. Overall, there is great dependency on external donors at the ecoregional level. Even the CAF, which is mostly owned by Latin American government, relies on the GEF and the GCF to support its environmental projects.

This proliferation of, and synergies among, regional integration processes might confuse, but should not mislead. It is the reflection of so-called “open regionalism”. In the early 1990s, the UN Economic Commission for Latin America and the Caribbean (ECLAC), defined it as the process aiming at the reconciliation of “the interdependency produced by special preferential trade agreements with the interdependency essentially imposed by market trends derived from trade liberalization in general” and at the compatibility and complementarity of “explicit integration policies ... and policies aiming at the increase of international competition”.⁶⁹ Despite its origins in the trade debate,⁷⁰ the idea that,

⁶⁶ See Mountain Partnership (2017, p. 36).

⁶⁷ See the FAO project document TCP/RLA/3301(D) (2010).

⁶⁸ The Andean Environmental Agenda (AAA), for instance, was supported by the Spanish Ministry for the Environment, while the Global Environment Facility (GEF) funded the *páramo* project. For an anthropological perspective on aid governing, read the book edited by Mosse and Lewis (2005); instead, on the “Alliance for Progress” and the failure of US development aid to Latin America in the 1960s, see Taffet (2007). Most of the economic literature on free-riding, rent-seeking, or the principal-agent problem generally looks at the issue more from the perspective of donor countries that want to make sure their aims are fulfilled. It usually misses several aspects pertaining to recipient administrations that genuinely want to make the most of what they receive. For a broad assessment of aid effectiveness with randomized trials, but still from the same perspective, see Banerjee (2007).

⁶⁹ Quoted from CEPAL (1994, translation by the author). See also the earlier report *El desarrollo sustentable*, always by CEPAL (1991).

⁷⁰ Particularly, in the debate over whether regional trade agreements, pursuant to article XXIV of GATT 1947, were increasing or deviating trade. That same year, the Uruguay Round had come to a close, establishing the WTO and producing an “Understanding on Article XXIV”. Two years later, the WTO created a Committee on Regional Trade Agreements (CRTA) (Decision WT/L/127, February 6, 1996). In those years, while dependency theory was losing ground and the anti-globalization movement was not in the air yet, interdependency theory was the buzzword of the day.

paraphrasing ECLAC, whatever regional arrangement brings Latin Americans closer together and does not make them more distant from the world is a step in the right direction, would strongly influence Latin American regional integration since the 1990s. Therefore, it should not surprise us if, in South America alone, alongside OAS (Organization of American States), CEPAL, ALADI, SELA (Latin American Economic System), as well as “subregional initiatives” such as the Andean Community, the Amazon Treaty, and MERCOSUR, we see ALBA coming up in 2004, UNASUR in 2008, and, most recently, CELAC (Community of Latin American and Caribbean States), just to count the major regional initiatives. This might seem confusing, but it constitutes a dense tissue of regional integration. After all, the situation is not too different from the European case, where the EU coexists alongside UNECE, OECD, NATO, the Council of Europe, EFTA (European Free Trade Association), OSCE (Organization for Security and Co-operation in Europe), together with dozens of other regional agreements, including the Alpine Convention.

There is no overall coordination of these different processes. However, coordination is de facto produced by Andean states that participate in most if not all of these processes. Sometimes, the representatives of the different countries are the same across different processes, which facilitates coordination; other times, they are not and representatives are entrenched in usually small administrative units that buried within ministerial structures, carrying on their mandate at a purely technical level and struggling to coordinate not only with other government structures but also within the same ministry, not to speak of other countries. The fact that each one of these processes are headquartered in different capitals – ECLAC in Santiago, ALADI in Montevideo, the Andean Community in Lima, SELA and ALBA in Caracas, UNASUR in Quito – does not facilitate coordination, except for the diplomatic missions to the host country. However, coordination ultimately takes place directly at the level of heads of state with the practice of frequent summits. Meetings of foreign ministers can also serve this purpose, as their mandate covers all the areas of regional integration. The presidential level constantly interferes with decision-making in the various instances. Discussions carried on at UNASUR or CELAC can for example impact decisions of the Andean Community, such as the creation of a Latin American Parliament within CELAC and of a South American Parliament within UNASUR. The idea was to migrate the Andean Parliament to the South American Parliament, but the legal basis for the absorption needs to be established, as the Andean Parliament was created pursuant to an ad hoc international treaty. For the absorption to take place, a new treaty should be negotiated, signed and ratified by the member states.

Constitutional-choice rules

The Andean ecoregion is characterized by a certain principledness. In its founding documents, the Andean Community adopted an ambitious framework, aiming at achieving “integrated development” (*desarrollo integrado*), intended as a cooperative kind of development that aims at avoiding production redundancies and regional imbalances. According to this approach, Andean countries should not compete against each other; they should, instead, cooperate to achieve higher standards of development.⁷¹ In recent years, however, the community is moving from the concept of integrated development to that of “integral development” (*desarrollo integral*), to be intended as an alternative kind of development, more balanced and independent, that takes into consideration the different aspects of life.⁷² This concept first emerged in the 1990s and it concerned the industrial development of Bolivia and Ecuador and their use of natural resources, as well as the creation of “border integration areas”

⁷¹ See, for instance, the study by Durán and Lobos (1976), criticizing a regional approach that is excessively centered on economic issues, as well as the article on joint industrial planning by Salgado (1975) and on Andean multinational enterprises (EMAs) by Cherol and Núñez del Arco (1983). See also the more recent article by Ángel Casas on the history of the Andean Community from a development perspective Casas Gragea (2001).

⁷² For further deepening on this kind of approach, refer, for instance, to the works on “eco-socio-development” and “inclusive development” by Sachs (1997, 2004, 2007a, 2007b).

(*zonas de integración fronteriza* or ZIFs) under the Andean Community.⁷³ In the last decade, this concept was progressively extended to include “alternative” development and, particularly, rural development, going basically in the opposite direction to the EU, which went from the CAP to territorial cohesion. However, the Andean Community did not go as far as establishing an Andean Common Agricultural Policy (PACA).⁷⁴ In 2008, the CAF interestingly adopted, independently from the Andean Community, an *Agenda for Integral Development*, establishing frameworks in the fields of infrastructure, social development, environmental protection, and competition, international insertion and public policy. This is particularly interesting because, instead of employing a more global standard such as “green agenda” or “sustainability agenda”, CAF espoused the more Andean concept of “integral development”.

The reference to integral development is frequent, but is sometimes done with a vein of irony. Several key actors at the country level and within the Andean Community consider economic development to take precedence over alternative kinds of development. It is no surprise that, since 2013, environmental issues are not priority anymore for the community. The concept of integral development emerged spontaneously from within the region, but also as a reaction to the concept of sustainable development, which is perceived as not being sufficiently balanced between protection and development, independent from power structures and holistic vis-à-vis the various components of life. In a nutshell, sustainable development is seen as too anthropocentric. However, several actors frequently use the concept of sustainable development, especially in the context of development cooperation. The principle of sustainable development can therefore be considered as partially imported and induced by project funding. Still, the Andean concept of integral development and the Western concept of sustainable development are sufficiently close to each other to be compatible.

With regard to the emergence of higher-level principles such as sustainable development, the role of external partners should not be downplayed. They are important for normative circulation. The development of the Andean Community strikes for its resemblance to that of a smaller EU, to the point that some refer to the phenomenon of “institutional mimesis”.⁷⁵ This is also thanks to the institutional cooperation between the EU commission and its secretariat. The same can be said about the Andean Initiative and the Alpine Convention. Also, since the end of the 1990s, the place of the environment has risen significantly in the agenda of the Andean countries. For Chile, Peru, and Colombia, there is a general agreement that the negotiation of free trade agreements (FTAs) was instrumental in this regard, due to pressure from the US Senate.⁷⁶ This is certainly not the case for Bolivia, Ecuador, and Venezuela, which strongly opposed the Free Trade Area of the Americas (FTAA) and, unlike Santiago, Lima and Bogotá, did not engage in bilateral negotiations with the US.⁷⁷ The cooperation with and the negotiation of a free trade agreement with the EU at the level of the Andean Community as a trading block were also instrumental for its member states. Concerns of “environmental dumping” were also present on the

⁷³ It is as such that the concept was included in the new articles 111 and 126: “Industrial Development Programs shall ... provide for the implementation of a program for the comprehensive industrialization [*industrialización integral*] of [Bolivia and Ecuador’s] natural resources” and “the Member Countries shall undertake actions to promote the comprehensive development [*desarrollo integral*] of border regions and their effective incorporation in the national and subregional Andean economies”, respectively. See also the special issue of the Venezuelan journal *Aldea Mundo* on ZIFs, particularly the overview article by Ramírez (2005).

⁷⁴ Refer, in particular, to Decisions 501 (2001) on ZIFs, 614 (2005) on the Andean Strategy for Alternative, Integral and Sustainable Development, 621 (2005) and 708 (2008) on the Rural Development and Agricultural Productivity Fund. A proposal for an Andean CAP was first introduced in the early 1990s but failed to gain momentum and collapsed over trade issues in the early 2000s.

⁷⁵ For instance, Quindimil López (2002).

⁷⁶ Chile signed its FTA with the US in 2003, Peru and Colombia in 2006 (Ruiz-Dana, 2009, pp. 223-225; Schott, 2006). At the time of writing, the approval by the US Senate of the FTA with Colombia was still pending.

⁷⁷ On the FTAs, the FTAA and regional integration, see the book edited by Ahumada and Cancino (2003), as well as the contribution on the FTA with Peru by Ruiz Caro (2007).

negotiating table.⁷⁸ The levels of environmental protection are still not the same in all countries, with Colombia generally portrayed as upholding higher standards, while Peru is usually perceived lagging behind. However, policy convergence is noticeable at the regional level and general increase of environmental awareness can be appreciated among the member states.

Emulation of the institutions of the EU is remarkable: the Andean Presidential Council corresponds to the European Council; the Council of Foreign Ministers to the General Affairs Council of the EU; the Andean Commission to the Economic and Financial Affairs Council; the General Secretariat to the European Commission; the Andean Tribunal of Justice to the European Court of Justice, etc.⁷⁹ Norm circulation, especially between the Andean Community and the European Union, is facilitated by regular exchanges, particularly with the European Commission.⁸⁰ In this regard, the impact of the EU as an example for the Andean Community cannot be underestimated, also considering that the EU experience is, usually, the textbook case of regional integration also in Andean countries and that it is still relatively common for the political elites of Latin America to have studied in EU universities and resided in EU capitals. The principles of cooperation and of integral development are highly taken-for-granted. On the other hand, the emergence of the principle of integral development as opposed to sustainable development is a form of contestation of the latter. Sustainable development is not considered obsolete; Andean actors rather feel the need to complete it with other considerations, such as education and personal development, which should increase consciousness about social and environmental externalities and therefore risk aversion.

Monitoring and sanctioning rules

There is no single major observation, data, information and knowledge hub in the Andean ecoregion. With its Andean monitoring program, CONDESAN has however cumulated a large amount of knowledge about the ecoregion spanning over more than twenty years. CONDESAN also manages InfoAndina, a precious instrument to keep abreast of developments in the ecoregion, whose archives go back to 1994. The Documentation Center of the Andean Community also centralizes a good deal of information regarding the community and its member states. Otherwise, data, information and knowledge is scattered around a number of sources: IMHEA (Regional Initiative for Hydrological Monitoring of Andean Ecosystems) for hydrology, the Andean branch of GLORIA (Global Observation Research Initiative in Alpine Environments) for biodiversity, the Andean Forest Network for forest, etc. CONDESAN is actively involved in all of these initiatives, which explains why it is arguably the most important hub for the observation of the ecoregion. With the support of CONDESAN and UNEP, research centers such as GRID ARENDAL in Norway have also acquired significant data and knowledge about the Andes on issues such as climate change.⁸¹ There are no specific provisions about how information is gathered and knowledge generated about the ecoregion. There are no permanent boundary organizations, but a small number of boundary objects, such as the recent report on adaptation to climate change produced by GRID ARENDAL around which some experts and policy-makers gather.

⁷⁸ On the negotiations of a FTA between the Andean Community and the EU, see the assessment by Bustamante and Giacalone (2009); Giacalone de Romero (2008). See also the thesis by Molano (2010).

⁷⁹ On international mimesis, particularly between the Andean Community and the EU, read the insightful article by Quindimil López (2002).

⁸⁰ Several capacity building projects, funded by the EU, are currently being implemented on the following topics: drugs, institutions, statistics, trade, civil society, risk prevention, and social, economic and territorial cohesion (Molano, 2010). In 1979, a first cooperation agreement was signed and focused on agriculture, health, and education; in 1984, a second-generation agreement targeted economic and trade affairs; in 1993, a third-generation agreement included social and political development. In 2002, the negotiations for an association agreement were commenced. The same year, a first regional strategy for the Andean Community was launched by the EU for the period 2000-2006. A second strategy was recently inaugurated for 2007-2013, focusing on economic integration, drugs, and social and economic cohesion. These regional strategies are essentially funding programs for international cooperation. At the time of writing, the negotiations for an association agreement were still pending.

⁸¹ See Schoolmeester et al. (2016).

However, since the 2007 Tucuman Declaration, the improvement of data collection and information gathering and sharing is regularly mentioned as a priority at the ecoregional level. The Action Plan that was developed in Tucuman at the same time as the declaration also foresees the establishment of a network to gather and exchange official information at the ecoregional level as a capacity-building measure. The capacity-building project that was supported by FAO in 2012 and 2014 also came to the same conclusion, recommending the establishment regional knowledge, research and training hubs and an ICT infrastructure to support them. In the framework of this project, a great amount of information was gathered at the national level. However, the methods used to produce this information and the standards of quality were often different. In its final recommendations, the project also stressed the importance of verifying the information available, which is not always reliable. However, at the time being, it is an NGO that de facto performs this function. As such, there is no specific provision on how knowledge is shared such as standard protocols. This usually takes the form of reports produced in the framework of project work and depend on the terms of reference of the project framework. The fact that CONDESAN depends so much on development cooperation is a threat to the sustainability of the arrangement.

Given that there are no legally binding commitments at the ecoregional level, there is no verification mechanism. The activities of NGOs and international organizations are however regularly evaluated by their donors through their activity reports that are usually published on a yearly basis. So far, there is no regular report for the Andean Initiative, but relevant activities can be found in the yearly report of the Mountain Partnership. Moreover, projects such as the FAO project on capacity building are evaluated through activity reports. These reports are then evaluated externally by the donors that can decide on their basis to continue, increase, reduce or even discontinue support and particularly funding. This kind of sanction, however, is not always related to performance, but can also be due to changing priorities of the donor that can decide, for instance, to prioritize the Northern Africa over Latin America based on considerations that have nothing to do with activities on the ground. This also happens when donors have less resources available. One of the major limits of this form of evaluation is that learning is very limited and usually does not go beyond the direct beneficiaries and the evaluators themselves. More could be done to analyze the wealth of activity reports and project evaluations that are produced every year. For instance, key lessons learned from these evaluations could be gathered and shared by donors more widely. This would increase the knowledge base.

Also, there is no specific dispute settlement mechanism. In case of international dispute, the only Andean country that recognizes the compulsory jurisdiction of the ICJ is Peru. However, several Andean countries have taken other Andean countries to the ICJ for the settlement of international disputes, particularly over boundaries. With regard to the member states of the Andean Community, there is an Andean Court of Justice (TJCA). It is supposed to sanction non-compliance with the decisions of the community, which can be directly applicable, but the implementation process is uneven. Some observe that it is “more on paper than in reality.”⁸² Several cases were brought to the Andean Court. None, however, concerned environmental issues or the whole ecoregion as such.

This case study is based on fieldwork performed by the author in 2010 in Lima Peru, on the research produced in 2009-2011 in the framework of a Giorgio Ruffolo doctoral fellowship at Harvard University, United States, with the support of the Italian Ministry of the Environment, and on a review of the scientific and grey literature available.

⁸² See, for instance, José Andueza Andueza Acuña (1986, p. 14) and Anaya Vera and Polanco Lazo (2016) on its role in the settlement of international trade disputes; on the role of the General Secretariat in the procedures, see Tangarife Torres (2001); instead, on the domestic sources of non-compliance in the Andean Community, read Thomas (2014), as well as Phelan (2015).

Marine ecoregions: the Mediterranean Sea and the Baltic Sea

Marine regions are the second of the three major ecosystem types identified under the WWF Global 200 project. The cases of the Mediterranean Sea and of the Baltic Sea were chosen because they are often portrayed as two extremes: for instance, Peter Haas considers the Baltic Sea as a rare example of independent efforts to protect a regional sea, while the Mediterranean Sea is presented as a typical case of a regime supported by UNEP through its Regional Seas Programme; another example are Charène Jouanneau and Jesper Raakjær, who compare Baltic Sea's governance to a hare and the Mediterranean Sea's governance to a turtle. In both cases, the authors refer in particular to the respective ecoregional agreements, i.e. the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention), signed in Helsinki in 1974 and renegotiated in 1992, and the Convention for Protection of the Mediterranean Sea against Pollution (Barcelona Convention), signed in Barcelona in 1976 and renegotiated in 1995. Both seas are located at European Union's periphery to the north in the case of the Baltic Sea and to the south in the case of the Mediterranean Sea. In particular, the riparian states of the Baltic Sea are the EU member states from Northern Europe, former eastern bloc countries that have now joined the EU, plus the Russian Federation; the riparian states of the Mediterranean are the EU member states from Southern Europe, former eastern bloc countries; some of whom have now joined the EU, plus all North African and many Middle Eastern countries, including Turkey and Israel.¹ Both seas have a long history of trade and cultural relations that unite them and that contribute to create a common identity.

They are also both semi-closed seas, with the Mediterranean Sea that is separated from the Atlantic Ocean by the narrow Strait of Gibraltar and with the Baltic Sea that is separated from the Kattegat and the North Sea by the three narrow straits of Oresund, the Great Belt and the Little Belt. These narrow straits represent a clear delimitation of the two systems. Hydrologically, the Mediterranean Sea extends also beyond the Dardanelles, the Sea of Marmara and the Bosphorus into the Black Sea, but the latter is usually considered to be a separate sea with its own governance system, given that the Dardanelles and the Bosphorus are both very narrow and clearly demarcate the two seas. A Convention on the Protection of the Black Sea Against Pollution was signed in Bucharest in 1992. Otherwise, Bulgaria and Romania, which joined the EU in 2007, as well as Ukraine, the Russian Federation and Georgia should also be considered as riparian states. Even if they are semi-closed systems, they are still marine socio-environmental systems that require to engage in cross-scale and multi-level analysis to better understand their dynamics.² In the following paragraphs, the ecoregional governance framework takes into consideration the spatial, temporal, jurisdictional, institutional, management, network and knowledge scales at various levels.³

The Mediterranean ecoregion

Both marine ecoregions are regional seas. The first marine ecoregion is the Mediterranean Sea. This chapter includes an analysis of the social, economic and political settings, of government and nongovernment organizations, of the network structure, of property-rights systems, of operational, collective and constitutional-choice rules, as well as monitoring and sanctioning rules. The analysis discusses both the Barcelona Convention and the Union for the Mediterranean. The governance system of the Mediterranean ecoregion is remarkably similar to that of the Alps.

The Mediterranean Sea lies at the crossroads of Europe, Africa and the Middle East. For centuries, it has been and still is a central place for many civilizations.⁴ Etymologically, the name comes from Latin

¹ On the specificities of Marine governance in European seas, see van Leeuwen, Soma, and van Tatenhove (2015).

² On the importance of cross-scale and multi-level analysis for coastal and marine socio-ecological systems, see Glaser and Glaeser (2014).

³ For an illustration of different scales and levels, see Cash et al. (2006).

⁴ See the classical Braudel (1949), as well as Tabak (2008) and Salvemini (2009).

and means “the sea in-between the land”. The whole sea once was part of the Roman Empire. Ever since, it divides as much as it unites the people and the civilizations living along its shores. The Mediterranean now represents the southern border of the EU and the northern border for North African countries; it also defines the western border of the Middle East. In between, there are many islands, such as Sicily, Sardinia, Malta, Crete and Cyprus, some of which are independent countries. The islands are crossroads for maritime trade and the various cultures of the Mediterranean. The Mediterranean has been exposed to many wars among its riparian countries: the Israeli-Palestinian conflict, as well as the civil wars in Libya and Syria, just to mention the most recent ones. Moreover, some Mediterranean countries (Algeria, Egypt, Lebanon, Libya, Morocco, Syria, Tunisia) were colonized by other Mediterranean countries (France, Italy, Spain, Turkey). Because of these wars, but also because of the rift between the diffuse instability and poverty of the southern and eastern shore, as well as some neighboring areas, such as the Sahel and Afghanistan, and the sustained peace and wealth of the northern shore and adjacent countries, such as Germany and the United Kingdom, the Mediterranean has experienced in recent decades a significant migratory pressure, with thousands of people crossing it every year to escape war and misery, sometimes at the peril of their lives.⁵

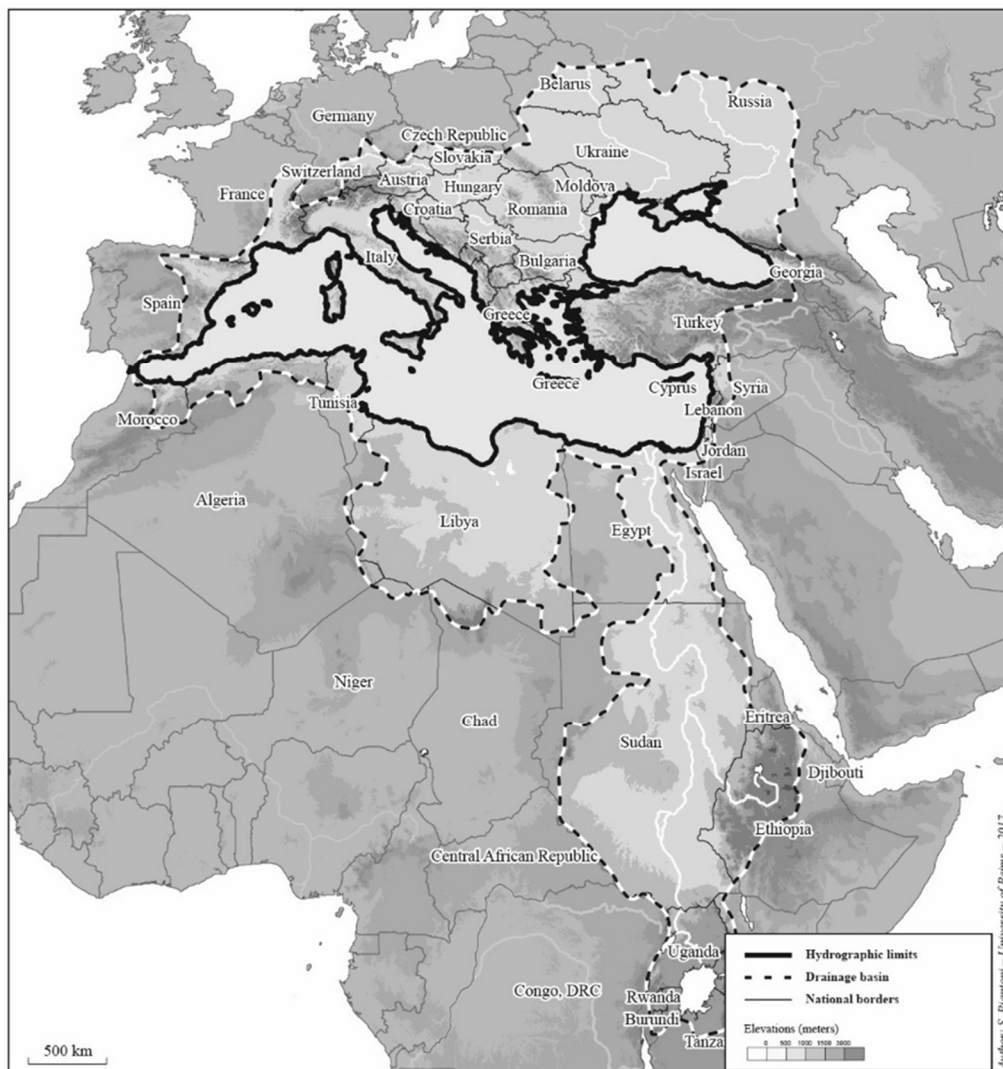


Figure 10: The Mediterranean ecoregion with its hydrographic limits and drainage basin. Source: drawn by Sébastien Piantoni for this monography.

⁵ On migration in the Mediterranean, read for instance Jaulin (2016) or Peraldi (2016) and, for a legal approach, Mussi (2017).

The size of the Mediterranean and the difficulty to enforce maritime borders makes the ecoregional level central to deal with issues such as migration. Other issues of ecoregional import include maritime transport and particularly container ship traffic, tourism including the cruise industry, fisheries and the conservation of marine biodiversity, the fight against water and air pollution, the protection of Mediterranean shrubs, which are spread throughout the coastal areas of the whole ecoregion, as well as the combat against desertification and fires.⁶ The management of coastal zones and particularly of estuaries and groundwater subject to infiltration of seawater is also a major challenge throughout the ecoregion.⁷ Last but not least, large oil and natural gas reserves are located around the ecoregion and under the seabed. Until recently, many riparian countries had not declared Exclusive Economic Zones (EEZ) to avoid geopolitical tensions, except for some that declared exclusive fisheries zones and ecological protection areas. In recent years, a renewed interest of countries to declare their EEZ and continental shelf is observed. This is also related to the recent discovery of large reserves of hydrocarbons off the coasts of Egypt, Cyprus and Israel. These are all drivers of cooperation at the ecoregional level and, if cooperation fails, of various degrees of conflict.⁸

Social, economic and political settings

All countries on the northern shore of the Mediterranean are high-income, while those on the southern and eastern extremity are upper-middle or lower-middle income, except Israel, which is high income. Regarding demographics, the population increase in the northern part is low, except for Spain and Albania that are medium-low. The little population growth that can be observed is often due to migratory inflows. On the other hand, to the south and east of the Mediterranean the population increases at medium-high speeds, except for Libya and Syria, where growth over the past few decades has been particularly high, but whose population recently suffered significant losses and departures because of war. Overall, the north-southeast divide is confirmed as far political stability is concerned. The countries to the north are relatively stable. The former Yugoslav republics of Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, as well as Albania, are quickly transitioning to democracy and a free-market economy after almost one decade of political unrest and in some cases even war during the 1990s. All other countries except Morocco experienced significant political instability during the last two decades, ranging from the Arab Spring in Tunisia and Egypt, to the attempted coup d'état in Turkey, to civil war in Algeria, Lebanon, Libya and Syria, as well as to the longstanding Israeli-Palestinian conflict.⁹ However, even in the north, some countries are more stable than others, with France possessing the most stable political system vis-à-vis Italy, Spain and Greece.¹⁰

There are a number of regional integration processes interacting with this ecoregion: besides the EU, NATO, the African Union and the Arab League, which cover only part of the ecoregion, the most significant process is the Union for the Mediterranean, which was established in 2008 and involves all riparian countries. The Union is the continuation of the Euro-Mediterranean Partnership, which was launched in 1995 and is also known as the Barcelona Process.¹¹ Strongly supported by France, it is a multidimensional initiative that covers the whole territory of the riparian countries plus Jordan and

⁶ With regard to vegetation, see for instance Lavorel (1999) and Scarascia-Mugnozza, Oswald, Piussi, and Radoglou (2000); concerning air pollution, read Lelieveld et al. (2002); on water scarcity, land degradation and desertification, see Rubio (2009); regarding natural gas, see for instance Amsellem (2016); on other natural resources, see Lacirignola (2015) and the latest edition of *Mediterra* (2016).

⁷ On water security, see Scozzari and El Mansouri (2011).

⁸ On drivers of cooperation among EU member states, read van Hoof, Hendriksen, and Bloomfield (2014).

⁹ See Labaronne and Ben-Abdelkader (2008) for a comparative perspective on transition between Mediterranean and East European countries.

¹⁰ For a geopolitical reading of the Mediterranean, see for instance Sanguin (2000) or Lacoste (2006).

¹¹ On the context of the Barcelona Process, see Zevi (1975), Balta (1992), Aliboni (1998) and Di Comite and Pace (1999), as well as Troiani and Semplici (2000), Barberini, Maffettone, Aymard, and al-Azm (2004), Meneguzzi (2008) and Stocchiero (2009) on the role of Italy and of the EU. For recent developments, see Cardwell (2009, 2011), Sedjari (2010), Daguzan (2016) and Coustillièrre (2017).

Mauritania. As such, the Union is closer to the Andean Community than to the Alpine Convention. There are also several ad hoc multilateral conferences on various issues, such as the 2015 Valletta Summit on Migration. While the African Union and the Arab League have a clear geographical scope, some actions of the EU and NATO also extend to all non-EU and non-NATO riparian countries through the European Neighbourhood Policy (ENP) and the Mediterranean Dialogue, respectively.¹² In this regard, non-member states from the Balkans and Turkey are engaged in specific programs as part of the EU enlargement agenda. This makes it possible to speak of an Europeanization of the Mediterranean.¹³ There is therefore significant overlapping between the ENP and the Union for the Mediterranean, which often benefits from instruments under the ENP and which can sometimes generate confusion. Also, there is often confusion between the Barcelona Convention for Protection against Pollution and the Union for the Mediterranean, which took over from the Barcelona Process and whose secretariat is located in Barcelona, Spain. This can also lead to synergies, such as in the case of the 2014 Regional Dialogue on Environment and Climate Change, that took place in Athens, Greece, where, by the way, the secretariat of the Barcelona Convention is also hosted.

The Mediterranean ecoregion goes from one extreme to the other also as far as market economy is concerned: it goes from best or good at enabling trade in the EU member states plus Israel and Morocco to average in Turkey and the Balkans, except Bosnia and Herzegovina, which is bad like in Tunisia mainly because of political instability; the situation then deteriorates not only in Libya and Syria, because of the ongoing war, but also in Algeria, Egypt and Lebanon mainly because of ongoing or recent strife. The northern part of the Mediterranean is therefore more integrated in the global economy, but the impact of globalization in the south should not be underestimated. Concrete examples are the competition faced by ports such as Marseille and Trieste for cargo from ports in the northern part of the EU, such as Rotterdam or Hamburg, but also the significant reduction of tourism in Egypt since the late 2000s and the impact it has on the economy of the whole country. Also, the Mediterranean is one of the most important trade routes in the world. Cargo from Asia to Europe, as well as oil from the Middle East to Europe and the Americas, is often shipped through the Suez Canal. The situation with media organizations is satisfactory only in France, Spain and Slovenia. There are noticeable problems in most countries. Turkey, Algeria and Morocco suffer from a difficult situation, which becomes very serious not only in Libya and Syria, but also in Egypt. Technological development follows similar patterns: it is high in the EU member states plus Israel but except Cyprus, which is medium-high like the Balkans, Turkey and Lebanon; technological development is medium-low elsewhere, including Albania. There is an important gap between urban and rural areas. The situation of remote islands and coastal areas can be particularly challenging. There are many languages and dialects spoken in the different countries along the Mediterranean. Arabic and French are official languages of both the Union for the Mediterranean and of the Barcelona Convention, plus English that is used as lingua franca in international negotiations. Phoenician, Greek, Latin and Sabir, a pidgin language based mostly on a combination of Italian dialects and used until the 19th century, all served as lingua franca at some point in time. Last but not least, the timeframe of this case study is going to be slightly longer than the one used for the Alps and the Andes and will span almost five decades, going back to the signature of the Convention in 1976.

Government organizations

The prevalent level of decision-making with regard to the Mediterranean ecoregion is national and technical. Political summits at the level of heads of state and government and ministerial conferences are often organized on a variety of issues, but they lack the regular follow-up at the ecoregional level that institutionalized processes such as the Barcelona Convention and the Union for the Mediterranean can provide. This reflects the fact that states are mostly centralized, except for Spain, which is rather

¹² On EU external governance, see Lavenex (2004); on the ENP and other policy instruments of cross-border governance in the EU, see Kramsch and Hooper (2004).

¹³ See Giannakourou (2005) and Gilek and Kern (2015).

decentralized with its seventeen autonomous communities, and Italy that, with its twenty regions, went from rather centralized to very decentralized, particularly in the last twenty years. Regardless of technological sophistication, effective control along the whole coast and up the many rivers and aquifers that compose the Mediterranean Basin of most countries is often difficult to establish. The situation becomes more difficult at sea and particularly high sea and in countries where technological development is medium-low. To bridge this gap, these countries request technology transfers from more developed countries and often obtain them, particularly within the ENP. Examples include remote sensing to monitor pollution levels and sources, as well as equipment to scan containers for illicit goods. Among the many autonomist, separatist or national liberation movements along the Mediterranean shores, including the Palestine Liberation Organization, the separatist movement in Catalunya is perhaps the one that affects the most the governance of the ecoregion because of the Barcelona Convention and because the secretariat of the Union for the Mediterranean is hosted in the Catalan capital. Like in the case of Bolzano for the Alps, one can imagine that the Spanish government put forward Barcelona as “capital” of the Mediterranean to signal that Catalunya is important for Spain.

The form of government is parliamentarian in Italy, the Balkans, Turkey and Israel, constitutional monarchy in Spain and Morocco and semi-presidential in France and elsewhere. All governments in the region consider themselves representative democracies. Electoral systems are mostly party-list proportional, except for France, which is two-round majoritarian, as well as Egypt, Libya and Syria, which have mixed systems. Forms of direct democracy such as referenda are relatively common in Italy, are used rarely in Spain, France and Greece and were used occasionally mainly in the context of constitutional reform in other countries. Several countries face different degrees of authoritarianism. Overall, the legitimacy of governments is uneven and ranges from flawed democracy in EU member states plus Israel and Tunisia to hybrid regimes in Turkey, Morocco, Lebanon and some countries in the Balkans such as Albania, Montenegro and Bosnia and Herzegovina to authoritarian regimes in Syria, Libya, Egypt and Algeria, whose level of legitimacy is difficult to measure but is or was contested through revolt and various forms of political unrest. At the ecoregional level, the ministries mainly involved in the governance process are the ministries of the environment, while ministries of foreign affairs lead the negotiations within the Union for the Mediterranean. In the case of EU member states, the directorate in charge of relations with the EU is usually involved. On a yearly basis, the Union holds sectoral meetings at the ministerial level, so most line ministries are involved in this process. The focal point is usually a high-level senior official of the leading ministry for the Union and mid-level for the Convention.

As far as political orientation is concerned, EU member states, the Balkan countries and Israel alternated center-right and center-left governments until recently with the emergence of new political movements beyond traditional party lines such as the Cinque Stelle in Italy, Podemos and Ciudadanos in Spain and La République En Marche in France. Greece currently has the only extreme left government in Europe. For North African and Middle Eastern states, including Turkey, the general trend since the 1970s is the crisis of nationalist regimes, the demand of greater democracy, particularly among educated and urban elites, and the rise of less secular political movements in favor of a greater role of Islam. This led to turning points such as struggles against some nationalist regimes, the Arab Spring and the presence of the Islamic State in Libya and Lebanon. Regions and other local authorities are marginal for decision-making at the ecoregional level, except within some EU funding schemes and macroregional strategies such as the 2014 EU Strategy for the Adriatic and Ionian Region, which covers only part of the Mediterranean Sea. All EU member states and countries that started an accession procedure in the EU experienced significant decentralization processes in the last decades. In some cases, the process has gone so far that, pressured by the recent financial crisis, countries such as Italy, Spain and Greece have even engaged a recentralization process in domains like the environment. Local authorities tend to be weaker in the southern and eastern part of the Mediterranean. The EU supports local authorities and decentralization processes in partner countries through the various instruments of the ENP. There is also a long tradition of bilateral technical assistance for instance between France and Francophone countries,

which often takes the form of decentralized cooperation between cities in France and cities in North Africa and the Middle East.

Nongovernment organizations

The private sector involvement in ecoregional governance is minimal. The main sectors concerned are transport, tourism and fishing plus inland and extractive industries. Agriculture and farming are also concerned because of its impact on water pollution. These sectors are usually organized at the national and, in some cases, subnational level. In the case of EU member states, interest groups usually form umbrella organizations to lobby more effectively in Brussels, given that many of these businesses are subject to EU sectoral policies. A typical example is *Europêche*, the association of national organizations of fishing enterprises in the EU. These organizations are generally representative of the private sector, particularly of mainstream and conventional approaches to production, but they are little involved at the ecoregional level. Businesses proposing alternative approaches such as organic aquaculture often do not feel represented by these organizations and contest their legitimacy. They feel more represented by civil society and particularly environmental NGOs, which constitute the vast majority of active NGOs.

Civil society is more involved in ecoregional governance than the private sector.¹⁴ Many NGOs participate in the Barcelona Convention as official observers and partners. A specific code of conduct was adopted in 2009.¹⁵ A Mediterranean Commission on Sustainable Development (MCSDD) was created in 1996 under the Convention. Half is composed of government representatives from contracting parties and half of representatives of local authorities, the business sector, the scientific community, NGOs, and intergovernmental organizations. It is the main framework for the participation of nongovernment stakeholders. It developed a Mediterranean Strategy for Sustainable Development (MSSD) in 2005 and 2016. Their involvement in the Union for the Mediterranean is mediated through the participation of some civil society organizations, particularly academia, in some projects supported by the Union. They can also be invited at some official meetings. Their role is to act as the critical conscience of ecoregional governance and as implementation partners. There is no need for official observers to be active throughout the whole ecoregion. About 40% of NGOs involved in the Barcelona Convention are national, 30% are international and 30% subnational.¹⁶ The number of NGOs participating in the ministerial conference of the Convention increased up to 30 in the early 1990s and decreased down to 15 at the end of the 2000s.

This happened despite a significant increase in the budget available for NGOs in the early 2000s. Public participation is a cornerstone to the 2008 Marine Strategy Framework Directive of the EU. Stakeholder involvement can be improved not only in the Mediterranean, but also in other areas.¹⁷ The funding that they can mobilize is substantial, mainly within projects funded by the EU and, for the southern part, development aid than through the Barcelona Convention or the Union for the Mediterranean. The NGOs involved are increasingly professional and elite. Besides hybrid organizations and multi-stakeholder partnerships such as IUCN and the Global Water Partnership (GWP), which is structured in both country and regional partnerships and has a Mediterranean program, a significant hybridization of organizations can be observed. For instance, publicly funded centers for research and training such as the International Center for Advanced Mediterranean Agronomic Studies (CIHEAM), play an important role in ecoregional processes. The most peculiar example is the Plan Bleu, which is a Regional Activity Center of the Barcelona Convention based in France, produces various studies and scenarios on the Mediterranean, is funded by the contracting parties and other institutions and partners, but has the statute

¹⁴ See the thesis of Kim (2014).

¹⁵ Doc. UNEP(DEPI)/MED IG.19/8 (2009).

¹⁶ Doc. UNEP/BUR/69/Inf.8 (2009).

¹⁷ See Hendriksen, Jouanneau, Koss, and Raakjaer (2014) and Kraan, Hendriksen, van Hoof, van Leeuwen, and Jouanneau (2014); on the case of Israel, read Weinthal and Parag (2003).

of a French NGO.¹⁸ Moreover, the fact that the activities of the Union for the Mediterranean is centered around the implementation of a number of projects encourages the development of partnerships especially between government organizations at the national level, local governments and academia. The involvement of the private sector and particularly of banks and foundations is usually limited to the provision of financial support. The secretariat of the GWP Mediterranean program is located in Athens like the secretariat of the Barcelona Convention, thus facilitating cooperation.

Network structure

Overall, the governance structure can be characterized as horizontal with no supranational authority. Even within the EU, member states clearly take the lead over the European Commission in most policy sectors and in both the Barcelona Convention and the Union for the Mediterranean. Given the secondary role of regional and local government, power tends to be concentrated in the capitals. Some other cities can become important centers for ecoregional governance by hosting structures such as the secretariat of the Union in Barcelona and the many Regional Activity Centers (RACs) of the Barcelona Convention throughout the Mediterranean. There is no single place centralizing processes at the ecoregional level, so the network structure can be considered polycentric. Even if France and, to a lesser degree, Italy and Spain, all tried to play leading roles in the past, no single country is so much more powerful and influential than the others to generate a unipolar or bipolar system. If the EU had a strong Common Foreign and Security Policy (CFSP), the EU could perhaps transform the governance system of the Mediterranean, but this is not yet the case. For instance, the Union for the Mediterranean adopted a co-presidency between a northern and a southern country. In 2012, it was decided that the EU was assuming the northern presidency from France and was keeping it on a permanent basis, while the southern one keeps rotating. However, EU member states keep having distinct positions on many issues such as migration and transport. EU common positions emerge slowly and often encounter resistance from member states. In this context, it is difficult for the EU to negotiate with other countries as a bloc. Despite the EU co-presidency, national delegations keep playing a key role in decision-making. On the other hand, EU member states maintain national presidencies and representation in the Barcelona Convention. The Mediterranean is clearly a multipolar system.

However, countries in the northern part, including Turkey and Israel, are significantly stronger than the ones in the south. The balance of power is clearly in favor of the north. The co-presidency of the Union for the Mediterranean is at the same time a way to institutionalize this divide and to bridge this gap; moreover, by having the EU take the northern co-presidency, EU member states tried to tilt the balance in their favor, while at the same time building capacity of the recently established European External Action Service (EEAS). In the early years of the Barcelona Convention and when the Union for the Mediterranean was launched, France tried to play a hegemonic role in the Mediterranean. Initially, many countries bandwagoned, with some freeriding both in the south and among other countries in the north. However, southern countries soon started questioning the legitimacy of a process captured by France and other northern countries proposed instead that the EU played a greater role, thus undermining the role of France. In the past, Italy also tried to take the lead of the Euro-Mediterranean Partnership, but recurrent political instability hinders the continuity of its foreign policy, making its initiatives short lived. At the ecoregional level, EU member states plus accession countries in the Balkans act more as an alliance of likeminded countries than as a hegemon. Countries from the southern part also often align over similar positions. Mediterranean countries are moderately interdependent: EU member states depend on Turkey and North African countries for the regulation of migratory flows; the EU is a key market for North African and Middle Eastern countries and the EU counts on these countries for energy supply; moreover, riparian countries depend on each other for the sustainable management of fisheries and for pollution control. The Mediterranean being strategic for global trade, other countries such as the United States, China and the Russian Federation are also active: for instance, the United States possesses

¹⁸ See Benoit and Comeau (2005).

a number of military bases in NATO member states throughout the Mediterranean, fights international terrorism, supports democratization processes and provides development aid in many southern countries; China has recently bought part of the Piraeus port in Athens, is supporting the development of infrastructure to facilitate trade and commercial penetration not only in the Balkans but also in the rest of Europe and is providing development assistance in North Africa; the Russian Federation has a large fleet in the Black Sea, possesses a naval base in Syria, has a long history of cooperation in North Africa and is increasingly active in Libya.¹⁹

Property-right systems

Who owns the Mediterranean Sea? Regarding saltwater, the property-right system is regulated by the 1982 UN Convention on the Law of the Sea (UNCLOS), which was ratified by all riparian states, except Israel, Libya, Syria and Turkey, and which reflects for the most part international custom. In a nutshell, the rights of passage and of use of fisheries and other natural resources progressively decrease with the distance from the coast: territorial waters (0 to 12 nautical miles) are fully subject to the laws of the riparian country; contiguous waters (12 to 24 nautical miles) are a buffer zone where laws such as border control can start being enforced; the exclusive economic zone (0 to 200 nautical miles) is where riparian countries control economic activities such as fishing; the continental shelf (0 to 350 miles maximum) is the area where riparian countries can extract natural resources from the seabed; the high sea is the area beyond the continental shelf, which is considered common heritage of mankind. These different zones are subject to declarations by the riparian countries that can have competing claims over the same area. Because of the proximity of some coasts and to avoid geopolitical tensions, Mediterranean countries have not declared all zones and some countries even declared no zone at all. This means that the central part of the Mediterranean is high seas.²⁰ Part of the Mediterranean Sea is therefore under a common property-right system and exposed to the so-called tragedy of the commons; the remainder is mainly public property or mixed public and common as we move away from the coast.²¹ Property can also be public and private for parts of the coastline and of the sea for which concessions were issued for resource extraction or for business development. In the countries where this is possible, increasing parts of the coastline are being sold and privatized. Overall, national governments constitute an oligopoly over territorial waters and exclusive economic zones, controlling their use not only through the respective navies and coastal guards, but also through marine spatial planning and the establishment of marine protected areas. Otherwise, the ownership structure is generally anarchical, especially in high seas, with some sectors like fishing, tourism and extractive industries being more competitive than transport, where state intervention is still widespread, despite liberalization attempts in the EU. A recent example is the intervention of the French government regarding the ferry company SNCM.

Operational-choice rules

The scope of the Barcelona Convention covers the whole Mediterranean Sea, except the Black Sea that has its own convention. The contracting parties to the Barcelona Convention are all countries with a Mediterranean shoreline plus the EU, but the Convention does not apply to internal waters and therefore it does not cover the whole basin and the respective countries. The catchment area of the Mediterranean Sea is very large, going down East Africa to Lake Victoria and the sources of the Nile and up to the sources of the Don River in the Russian Federation. Instead, the Union for the Mediterranean involves the whole territories of all riparian states plus Jordan and Mauritania, always except the Black Sea. In 2008, the Convention adopted an “ecosystem approach to the management of human activities that may affect the Mediterranean marine and coastal environment”, opening the door to a broader scope.²² However, this approach is still too generic to fully apply to the whole catchment area. Specific protocols

¹⁹ On the role of China, see Ekman (2016).

²⁰ For an updated map of declared maritime zones, see Katsanevakis et al. (2015).

²¹ About the scale issue for marine commons, see Berkes (2006).

²² Decisions IG 17/6 (2008) and IG 20/4 (2012).

such as the Land Based Sources Protocol extend also beyond the sea to the catchment area. Both the Convention and the Union are original developments, with elements of the Barcelona Convention clearly inspired from the Baltic Sea, whose convention was signed two years before. The Barcelona Convention was the first agreement to be developed under the UNEP Regional Seas Programme. Initially, UNEP played an important role to facilitate the sharing of experiences between the two areas; now the EU also contributes to normative circulation. The Barcelona Convention is a fairly rigid framework, as it adopts legally binding protocols whose negotiation and ratification is very time consuming. However, the framework convention and many protocols were renegotiated in the 1990s and 2000s, showing a certain degree of adaptability. The Convention also adopts non-legally binding Action Plans. There is a generic Mediterranean Action Plan (MAP), whose first version pre-dates the Convention and which was renegotiated in 1995 together with the Convention; there are also specific plans, programs, measures and initiatives that usually have a precise timeframe, providing grounds for regular updating and greater adaptability and timeliness. Usually, policy development is responsive to specific crises, such as oil spills or pollution from certain pesticides, but can also be proactive, such as in the case of adaptation to climate change.

Operational-choice rules can be quite specific and technical, targeting for instance well-identified pollutants. The Barcelona Convention adopted seven legally-binding protocols on pollution from dumping from ships and aircraft (1976, 1995), from transboundary movements of hazardous wastes (1996), from land-based sources (LBS) and activities (1980, 1996), from offshore exploration and exploitation of the continental shelf and the seabed and its subsoil (1994), on preventing pollution from ships and cases of emergency (1976, 2002), on integrated coastal zone management (ICZM) (2008), on specially protected areas (SPA) and biological diversity (1982, 1995). For the Barcelona Convention, the regulatory style combines binding and non-binding instruments, starting from the Convention, which is legally binding and the MAP, which is not; similarly, some protocols are accompanied by one or more specific action plans. Annexes to the protocols, such as lists of chemicals or endangered species, are often of great importance and may also be legally binding. A Mediterranean Trust Fund was established under the Convention for implementation of joint activities, but funding available is relatively low. Incommensurably more funding is available under the Union for the Mediterranean and in general the ENP. As the Union lacks a strong framework and legal instruments, its approach is project-centered, thus using more financial and communication tools. Last but not least, there is huge regulatory noise, with a great number of conflicting policies in place sending mixed signals. For instance, there is the Barcelona Convention's protocol on ICZM and the EU Marine Strategy Framework Directive, which applies to all regional seas of the EU and deals with both ICZM and the broader concept of marine spatial planning (MSP).²³ Regarding non-legally binding documents, there is a proliferation of strategies, policies, initiatives and plans within the Barcelona Convention, the Union for the Mediterranean, as well as other overlapping processes at different levels.

Collective-choice rules

The governance of this ecoregion can clearly be characterized as an international regime.²⁴ The Barcelona Convention is the main formal agreement on environmental matters and particularly pollution. The Union for the Mediterranean is institutionalizing cooperation also in other issue areas. All riparian countries proportionally contribute to the activities and funding of the Convention. In exchange, they benefit from shared rules, knowledge developed under the Convention, experience sharing and capacity building of participants, as well as some external funding for specific projects and initiatives. The Global Environmental Facility (GEF) also provides significant funding for projects that pursue the goals of the Convention, such as the Strategic Partnership for the Mediterranean Large Marine

²³ On the EU Framework Directive, see van Leeuwen et al. (2014); on the various regulatory systems applicable to biodiversity protection in the Mediterranean, see Mossone (2016); on the challenge of policy integration on desertification, see Briassoulis (2011).

²⁴ See Xenakis (1999).

Ecosystem. On the other hand, the Union is funded mainly by the EU and other donors. Partners in both northern and southern countries therefore mainly benefit from funding from Brussels and from experience sharing and capacity building of participants. The European Investment Bank (EIF) also supports some regional initiatives. The secretariat of the Barcelona Convention is hosted by UNEP and therefore is not formally autonomous. On the other hand, the secretariat of the Union for the Mediterranean is composed of personnel seconded by member states, the European Commission and other partners. However, the dependence of the Union on funding from the EU is such that it is also not fully autonomous. In both processes, decisions are taken by consensus, even if the Convention technically requires only two-thirds majorities of two-thirds of the contracting parties. They both have a rotating presidency. In the case of the Barcelona Convention, it changes every two years. The situation of the Union for the Mediterranean is more complicated. Initially, the presidency was also supposed to rotate every two years. A north and south co-presidency system was developed, with France and Egypt assuming the presidency from 2008 until 2012. Afterwards, the EU as such and Jordan assumed the co-presidency and still maintain it because of lack of other countries volunteering to take the co-presidency. In both cases, the presidency plays an important role in agenda setting, with the EU presidency of the Union playing the double role of co-presidency and main source of funding. The decision-making process is relatively transparent, particularly in the case of the Convention and makes frequent use of specific knowledge in the form of reports.

Two secretariats are in place at the ecoregional level: one of the Barcelona Convention and the other of the Union for the Mediterranean. The former is hosted by UNEP in Athens, while the latter is based in Barcelona. The latter is formally autonomous, but greatly dependent on funding from the EU. The secretariat of the Barcelona Convention has activity centers in other countries. The role of both secretariats is more service to the parties of the Convention and the Union than of leaders. The budget of both secretariats is of about 6 million euros. In the case of the Union for the Mediterranean, half of the budget comes from the European Union. This funding is mainly used to cover administrative expenses. Both secretariats rely on external funding, such as the Mediterranean Trust Fund, whose contributors are mainly France, Italy and Spain, the GEF, whose contributors are mainly developed countries, or the EU Regional South Programme under the European Neighborhood Instrument, for programmatic activities. The Programme is currently endowed with approximately 134 million euros per year, compared to about 25 million euros per year that managed to be raised under the Convention between the Fund and the GEF. This means that sources of funding at the ecoregional level are not balanced among riparian countries. Multilevel and intersectoral coordination takes place mainly through the participation of observers such as local governments and international organizations. For example, the secretariat of the Barcelona Convention can participate in some meetings under the Union for the Mediterranean. Other processes do interfere with decision-making, such as the EU, but also subnational institutions, particularly in federal or decentralized systems.

Constitutional-choice rules

The Barcelona Convention mentions the precautionary principle, the polluter pays principle, sustainable development, integrated coastal zone management, cooperation and a regional approach as higher-level principles for collective action.²⁵ An ecosystem approach was added in 2008, but it is more a goal than a principle. The 2008 Marseille Declaration that launched the Union for the Mediterranean also mentions the respect of “democratic principles, human rights and fundamental freedoms”, as well as the respect of the “legitimate interest” of each member and the principle of “variable geometry”. This does not mean however that there is no normative convergence around these principles in the legislation of riparian countries.²⁶ Principles are invoked sincerely. Most principles emerged spontaneously. Some were included upon request of northern countries, such as the respect of “democratic principles, human rights

²⁵ See P. M. Haas (1990).

²⁶ See the doctoral theses of Stefan (2015) and Zhou (2014).

and fundamental freedoms”, while some other were requested by south-eastern countries, such as the principle of “legitimate interest”. As such, they were object of negotiation. According to Paul Cardwell, “partnership is not borne out of practice” but is rather artificial, in the sense that its achievement required much effort from both sides of the Mediterranean.²⁷ Most principles are now taken for granted. The ecosystem approach is still emerging: if the objective of good environmental status was adopted by the Barcelona Convention, its scope still does not extend to the whole catchment area.²⁸ The principle of variable geometry can be at odds with a regional approach.²⁹ It is usually contested on environmental matters, as it may lead to unfair outcomes. The principle of differentiated responsibility between developed and developing countries is normally used instead. None of these principles are considered obsolete, despite several attacks to democratic principles, human rights and fundamental freedoms, for instance in Egypt and Turkey, and to the respect of the territorial integrity of riparian countries, such as Libya and Palestine.

Monitoring and sanctioning rules

The Mediterranean ecoregion is observed by research units at the national level that participate in research actions at the regional level, usually funded by the EU, UNEP or other donors.³⁰ Research outcomes are often used to produce reports under the Barcelona Convention and the Union for the Mediterranean, as well as NGOs active at the regional level, such as IUCN, which act as catalyzers and aggregators of observation at the ecoregional level. These reports are usually published and disseminated online. The Convention developed a network of Regional Action Centers (RACs), which focus on specific issues and contribute to the monitoring of the ecoregion: the Mediterranean Pollution Assessment and Control Programme (MED POL) in Athens, Greece, the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) in Valletta, Malta, the Plan Bleu in Sophia Antipolis, France, the Priority Actions Programme in Split, Croatia, the Specially Protected Areas RAC in Tunis, Tunisia, the Sustainable Consumption and Production RAC in Barcelona, Spain, the Information and Communication RAC in Rome, Italy. A Euro Mediterranean Water Information System (EMWIS) was established in 1996 to gather data and help countries develop national water information systems. On top of programmatic and project based research, the various protocols of the Barcelona Convention also established reporting and notification requirements about various issues. Initially, they only fed into the MED POL. Since 2008, in case a contracting party considers itself or another country to be non-compliant with a provision of the Convention and its Protocols, it can submit the issue to a Compliance Committee that was created under the Convention. The Committee is composed of seven members that are elected among a list of experts designated by three groups of countries: south-eastern countries, EU member states and other countries. A uniform and comprehensive reporting format was adopted together with quantitative indicators to measure the effectiveness of the Convention. The recommendations of the Committee are not binding. They are submitted to the Conference of the Parties for consideration. The Committee cannot issue sanctions, but recommendations on how to better implement the Convention and its protocols. Moreover, the EU being a party to the Convention and its protocols, the European Commission and EU member states may submit cases of non-compliance of EU member states also to the European Court of Justice (ECJ), which may issue binding judgements, even in the case where the EU ratified a protocol, while a member state has not. This happened in the Etang de Berre case, which is so far the only infringement case of a non-trade agreement by the ECJ.³¹ In this case, the Court requested France to take measures to limit pollution, which France is now doing. However, this is exceptional. Not only most parties to the Convention are not EU member states, but also most situations of non-compliance are dealt with in a softer manner by

²⁷ Quoted from Cardwell (2011, p. 237).

²⁸ See Cinnirella et al. (2014) and Raakjaer, Leeuwen, Tatenhove, and Hadjimichael (2014).

²⁹ See Joffé (2007).

³⁰ See Rossetti di Valdalbero, Schunz, and Liberatore (2015).

³¹ See the ECJ judgement (I-9328) of the *Commission vs. France (Etang de Berre)* case (C-239/03), 7 October 2004, as well as Hildering, Keessen, and van Rijswick (2009) and Mendez (2013, pp. 257-260).

supporting emulation among countries through the diffusion of normative discourses and the implementation of joint projects, which may also provide financial incentives.³² The latter is the key mechanism to pursue the objectives of the Union for the Mediterranean. The Barcelona Convention also developed a dispute settlement mechanism in the form of an arbitration procedure through an ad hoc three-person arbitral tribunal, to whom the parties may agree to give compulsory jurisdiction. No case has, however, been submitted so far.

This case study is based on a review of the scientific and grey literature available. It also builds on research by Ryan Hubeny, a former bachelor student at Sciences Po's Campus of Reims, as well as Claire Leroy, Julien Paraboschi, Pauline Ramirez and Younes Aggoun, former master students at the University of Reims, France.

³² See Kütting (2000) and Frantzi, Carter, and Lovett (2009).

The Baltic ecoregion

The second marine ecoregion is the Baltic Sea. This chapter includes an analysis of the social, economic and political settings, of government and nongovernment organizations, of the network structure, of property-rights systems, of operational, collective and constitutional-choice rules, as well as monitoring and sanctioning rules. The analysis discusses both the Helsinki Convention and the Council of the Baltic Sea States, as well as the European Union's strategy for the Baltic Sea. The governance system of the Baltic Sea ecoregion is elaborate.

The Baltic Sea is another semi-closed sea, located in Northern Europe.¹ The countries and people sharing its shore also share a long history of cooperation. Between the 12th and the 15th century, the Hanseatic League brought together many cities along the coast in a commercial and defensive confederation. At the same time, it was for centuries the theater of wars and struggles among riparian countries, the most recent ones being the Russo-Finnish War and, of course, the 2nd World War. During the Cold War, the Baltic Sea was crossed by the Iron Curtain, which split the Eastern Block (Eastern Germany, Poland and the Soviet Union) from the Western Block (Western Germany and Denmark), with Sweden and Finland maintaining a neutral status until they joined the European Union (EU) in 1995. After the fall of the Soviet Union, the Baltic Sea almost became an internal sea of the EU.² In fact, after Sweden and Finland, Poland, Lithuania, Latvia and Estonia also joined the EU in 2004. Only the eastern shore of the Gulf of Finland, where the city of Saint Petersburg and the estuary of the Neva River are located, and the city and region around Kaliningrad are not part of the EU.³ They are in fact part of the Russian Federation. Nowadays, the almost totality of the Baltic Sea is therefore under the purview of the EU and its member states. The main issues facing the Baltic Sea are related to pollution from land-based industrial and agricultural activities and sea-based transport and offshore activities, as well as wastewater treatment, waste dumping, spill response, ports, coastal management and biodiversity. It is also crossed by North Stream, one of the most important pipelines delivering natural gas from the Russian Federation to Germany.

¹ For an in-depth introduction on regional environmental governance in the Baltic Sea, read Joas, Jahn, and Kern (2012), Gilek, Karlsson, Linke, and Smolarz (2016) and Söderström (2017); for a comparison with the Mediterranean Sea focusing on the Barcelona and Helsinki Conventions, see Jouanneau and Raakjær (2014), while for a comparison with the North Sea, see P. M. Haas (1993).

² On the Europeanization of Baltic Sea governance, see Kern and Löffelsend (2008); for a critical take on the role of the EU, see Tynkkynen (2017).

³ On the specific case of Kaliningrad, see Gänzle and Müntel (2011).

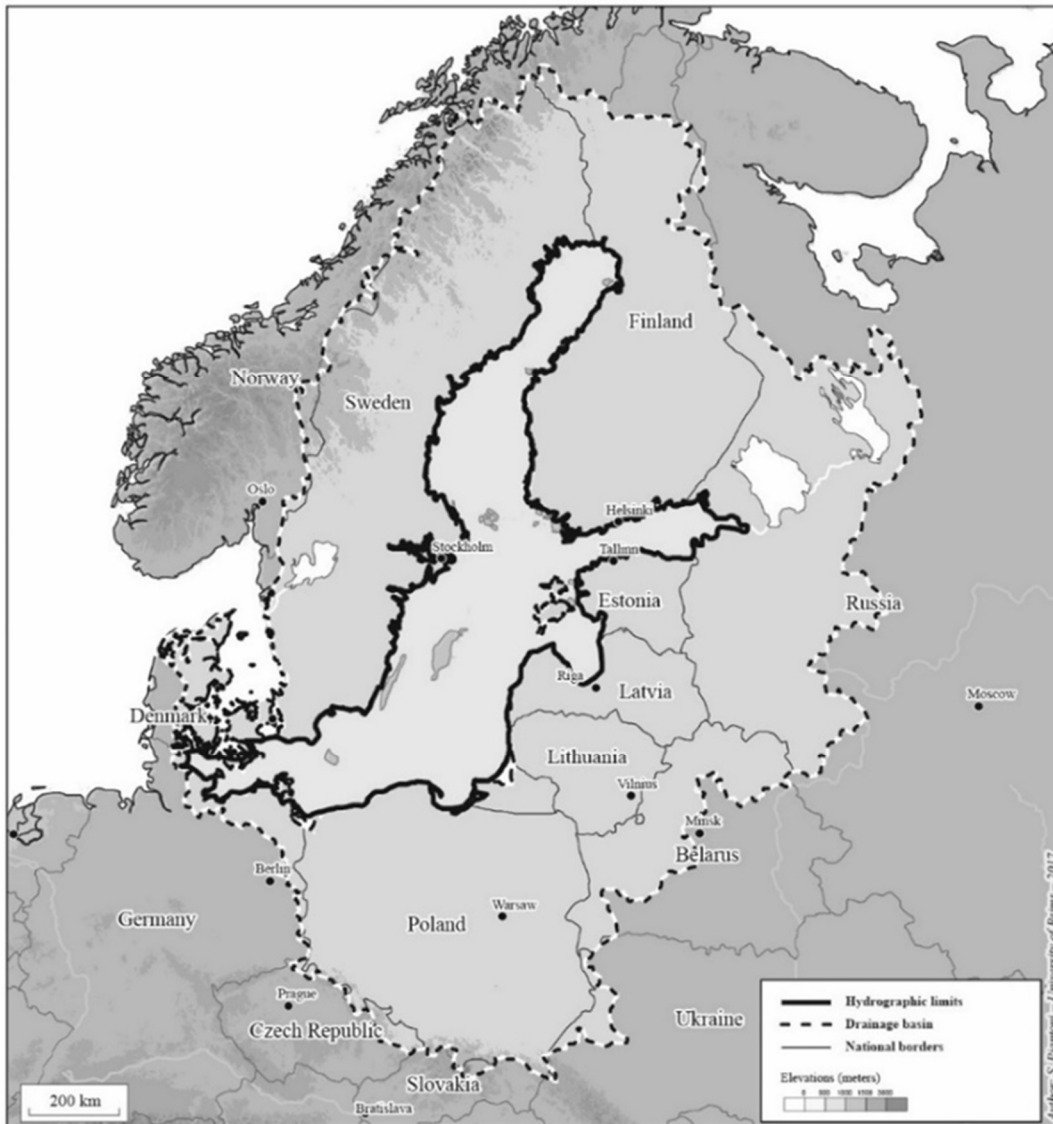


Figure 11: The Baltic ecoregion with its hydrographic limits and drainage basin. Source: drawn by Sébastien Piantoni for this monography.

Social, economic and political settings

All countries that share the Baltic Sea are high-income, apart for the Russian Federation, which is upper-middle income. From a demographic standpoint, all countries face a low population increase, except for Latvia, where the trend is slightly negative. The fertility rate is low among the local population, so the population increase is due to migration from southern countries, including in the Russian Federation. The political regimes are stable in the western and northern side of the Baltic Sea. The rest are former members of the Eastern Bloc that experienced a fast transition towards democracy and free-market conditions. The arrival in power of Vladimir Putin in 2000 marked a significant change in the transition process of the Russian Federation, but at the same time a consolidation of its post-Soviet institutions. In recent years, reactionary movements towards demographic change and sometimes European integration and democratization have appeared and gained strength throughout the region, particularly in Poland and Estonia.

The transition towards democracy and free market was accelerated in the countries that joined first, between 1999 and 2002, the North Atlantic Treaty Organization (NATO) and then, in 2005, the EU. It must be noted that Sweden and Finland are not members of NATO, because of their history of neutrality

during the Cold War and their historical ties with Russia. The EU is a relatively new player in the Baltic region, given that until the early 1990s only Denmark and a small part of the German coastline was under the purview of Brussels. The EU accession process first of Scandinavian countries in the mid-1990s and then of the former Eastern Bloc countries in the mid-2000s had a significant impact on the Baltic region, in terms of norm circulation and funding available to support cooperation. Within the EU, Germany, Scandinavian countries and the Baltic states tend to form a grouping of member states that is frequently aligned in its positions. Denmark, Sweden and Finland have a long history of cooperation in the framework of the Nordic Council, which was established in 1953 and also includes Norway and Iceland. Poland is instead member of the Visegrád Group, which sometimes defends a different vision of the EU. It is important to single out Poland, as it is the most populous country in the Baltic Sea basin, the one that has the largest agriculture, significant industry and is therefore source of both source and non-source pollution.⁴ The Russian Federation is instead member of the Commonwealth of Independent States (CIS), which brings together most former Soviet republics and that plays a key role in normative circulation in the region.⁵ Despite the fact that Estonia, Latvia and Lithuania are not members of the CIS, the fact that they are former Soviet republics is an element that reduces the distance with the Russian Federation, Poland and the Eastern part of Germany, at least in terms of administrative culture.⁶

Besides the EU, NATO and the CIS, the most relevant organization at the ecoregional level other than the Helsinki Convention is the Council of the Baltic Sea States (CBSS), which was created in 1992, whose membership is the same as the convention but which spans far more issues, including not only the environment, but also economic development, education, culture, security and human rights. The secretariat is based in Stockholm and its three priority areas are regional identity, safety and security, as well as sustainability and prosperity. Its highest-level body is the Baltic Sea States Summit at the level of heads of state and government, who meet every other year, and a conference of ministers of foreign affairs, which convenes every year. The Council is the equivalent of the Union for the Mediterranean in the Baltic Sea. A Committee of Senior Officials from the ministries of foreign affairs meets regularly and oversees the work of expert groups and task forces on specific topics, where line ministries participate. Like for the Union, the presidency rotates but every two years and there are many observer states from the wider region and of strategic partners, including the Helsinki Convention.

From an economic viewpoint, the Baltic Sea region may seem rather uniform if compared with the Mediterranean because all countries are EU member states except one. However, many differences appear at a closer look. The former Soviet republics of Estonia, Latvia and Lithuania formed the Baltic Free Trade Area between 1994 and 2004 before they entered the European Union and its economic space. This strengthened their economic ties. At the same time, they adopted the Euro between 2011 and 2015, thus further strengthening ties with the rest of the Eurozone. On the flip side, Denmark, Sweden and Poland remain outside of the Eurozone, even if they are EU member states, thus weakening their integration in the common market and across the Baltic Sea. This gradient is evident when looking at countries from the perspective of their capacity to enable trade, which is best in Germany, Scandinavian countries and Estonia, while it is good in Poland, Latvia and Lithuania. The Russian Federation is very different in this regard as it is considered by the World Economic Forum among the worst countries in the world at enabling trade. At the same time, all countries in the region are very much connected with the global economy, as demonstrated by the impact of the 2008 financial crisis throughout the region and of the 2014-2015 Russian financial crisis, linked not only to the economic sanctions after the annexation of Crimea and the war in the Donbass, but also to the fall of oil and gas prices. The economic divide is reflected in the situation of media organizations, which face noticeable problems in Poland and are in a difficult position in the Russian Federation, according to Reporters Without Borders; the same for the technological level, which is generally high, except in Poland and the

⁴ On the role of Poland, see Serafin and Zaleski (1997, pp. 405-408).

⁵ On the role of the Russian Federation, see Makarychev and Sergunin (2017) and Tynkkynen (2018).

⁶ For a critical review of economic integration in the Baltic states, see Vanags (2011).

Russian Federation, where it is considered medium-high. Since the 1970s, English has become the lingua franca of the Baltic Sea. German is also widely spoken in the area but lost its status of lingua franca sometime between the fall of the Hanseatic League and the end of the 2nd World War. Like for the Mediterranean, the timeframe for this case study will be longer than for terrestrial ecoregions and go back at least to the signature of the Helsinki Convention in 1974.

Government organizations

The prevalent levels of decision-making about the Baltic ecoregion is more national than subnational⁷ and is strongly grounded in the technical dimension. Presidents and prime ministers meet regularly in the framework of neighborly relations. Like in the case of the Mediterranean, ecoregional-level Baltic Sea States Summit of heads of state and government meets every two years. On the other hand, foreign ministers and line ministers meet regularly on many issues including defense, economy and finance, transport, health, culture, as well as the environment.⁸ In the transport sector, there is also a Baltic Pilotage Authorities Commission (BPAC) that brings together the pilotage authorities of the region to enhance maritime and shipping safety. Most governments are centralized, with the noticeable exception of Germany and Russia, which are federations. The control of the coast and sea is rather good, also because the coast is never too far and international waters all fall under the exclusive economic zone (EEZ) of one country or the other. Maritime boundary delimitation is almost exclusively covered by many bilateral and trilateral agreements concerning territorial waters, continental shelves, fishing zones and EEZs. The presence of the North Stream natural gas pipeline, which runs on the seabed and is of strategic importance for both Germany and the Russian Federation, means an increased level of control of the area. There are few separatist or autonomist movements in the ecoregion, except for some islands such as Åland, Finland, and Bornholm, Denmark, which are in the middle of the sea in-between countries and can be relatively distant from the mainland. Even if they form with five other islands the “B7” Baltic Islands Network, these autonomist movements follow more ethnic than ecoregional lines.

The form of government is constitutional monarchy in Denmark and Sweden, parliamentary in Poland, Estonia and Latvia and semi-presidential in the Russian Federation and Lithuania. All countries are representative democracies with proportional regimes in Poland, Denmark, Sweden, Estonia and Latvia and mixed proportional and majoritarian in Germany, Latvia and Russian Federation. The level of legitimacy varies widely across the region, ranging from some of the freest democracies in the world in Sweden, Denmark and Finland to flawed regimes in Estonia, Lithuania, Latvia and Poland, to a hybrid regime with elements of both democracy and authoritarianism in the Russian Federation. However, high levels of popularity give the Russian head of state high levels of popular legitimacy, despite elements of authoritarianism. It must also be noted that countries of the former Eastern Bloc experienced communist regimes until the early 1990s. The ministries involved at the ecoregional level are ministries of the environment for the Helsinki Convention and, as already mentioned, the ministries of foreign affairs for the Council. Under the Helsinki Convention, the heads of delegations meet at least once a year within the Helsinki Commission (HELCOM). Like in the Mediterranean, the focal point is usually a high-level senior official of the leading ministry for the Council and mid-level for the Commission.

It must be noted that there is a certain overlapping between the Baltic and Nordic dynamics.⁹ Nordic countries also include Norway, Iceland, as well as the autonomous regions of Faroe Islands, Greenland and Åland. Besides the Nordic Council, formed by parliamentarians, there is also a Nordic Council of Ministers, bringing together the line ministers from the member states. They developed specific partnerships in four sectors, which also involve the EU and often the Russian Federation as well, together with other international organizations: Northern Dimension Partnership on Culture (NDPC), Northern

⁷ See Kern (2011, pp. 24-32).

⁸ See Stacy D. VanDeveer (2011, p. 42).

⁹ For a Baltic-Nordic comparison, see Hermanson (2008); instead, see Wallis and Arnold (2011) on the link between the Baltic macro-regional strategy and Arctic policy and Wilson Rowe (2018) on Arctic governance.

Dimension Environmental Partnership (NDEP), Northern Dimension Partnership in Public Health and Social Well-being (NDPHS) and Northern Dimension Partnership on Transport and Logistics (NDPTL). Nordic-Baltic cooperation is therefore important to ensure coordination with the southern shore of the Baltic Sea and with Nordic countries from outside the ecoregion. As a result, the Nordic-Baltic Eight (NB8) group of countries was established and meets regularly. The NB8 does not include the Russian Federation.

EU member states in the region alternate center-left and center-right governments, with a partial alignment of center-right liberal and conservative governments in the 1990s until the mid-2000s. The ecoregion has since been politically fragmented between center-right, center-left and nationalist governments. A key feature of the last decade is the rise of nationalist movements throughout the region, particularly in Poland. The situation in the Russian Federation is peculiar and cannot be compared to EU member states. Besides being in transition from a communist regime, the Russian Federation has enjoyed significant levels of political stability since the election of Vladimir Putin to the presidency in 2000. Green parties are relatively strong in Germany and Finland and to a lesser degree in Sweden and Latvia.¹⁰ In the 1990s, relative political alignment and the fall of the Iron Curtain likely facilitated cooperation at the ecoregional level. Parliamentarians from riparian countries meet regularly under the Baltic Sea Parliamentary Conference (BSPC), founded in 1991, which also welcomes members of sub-national regional parliaments. Within the Baltic Sea, there are also instances of sub-regional cooperation. Members of parliament from Scandinavia have been meeting under the Nordic Council since 1952, while those from Estonia, Latvia and Lithuania also meet within the Baltic Assembly (BA), an organization founded right after independence. These networks are not representative of all members of parliament. Their function is mainly to share of experience and knowledge across the region, to build confidence and promote good neighborly relations.

Subnational authorities are only partially involved in the Council and the Convention, which remain mainly under the purview of the national governments and of the EU. Contrary to the case of the Alps, regional authorities are not particularly active within the 2007 EU Strategy for the Baltic Sea Region (EUSBSR), which is the first macroregional strategy to be developed and adopted and that showed the way to other ecoregions, such as the Danube and the Alps.¹¹ Unlike the case of the Alps, the strategy is therefore not the result of functional pressure from regional authorities that claimed greater involvement in decision-making and management at the ecoregional level. Some regional authorities are federated in the Baltic Sea Commission (BSC), which is in turn one of the six commissions of the Conference of Peripheral and Maritime Regions (CPMR), while some sub-regional authorities form the Baltic Sea States Subregional Co-operation (BSSSC). Neither the BSC nor the CPMR are representative.¹² Both networks try to bring together regional and sub-regional authorities and to defend their interests and perspectives vis-à-vis the national governments and the EU, particularly regarding the Council, the Convention and the Strategy. Regional and sub-regional authorities are more involved as main beneficiaries some EU funding schemes, such as the INTERREG Baltic Sea Region Program, which functions just like the Alpine Space Program, except that regional and sub-regional authorities are less involved in the program's management.¹³ This is also because the Baltic states are small like regions but are also independent countries, that Finland has no proper regional authorities and that Russian subnational divisions have no competence on external relations.

¹⁰ For a detailed account on the green movement in the Baltic region, refer to Hermanson (2008, pp. 64-66).

¹¹ On the impact of the EUSBSR on other macroregional strategies, see Gänzle and Kern (2016) and Gänzle and Mirtl (2017).

¹² Among the abundant literature on fisheries, see Aps, Fetissov, Kell, and Lassen (2009) and Arias-Schreiber, Linke, Delaney, and Jentoft (2019) and, on the role of research, Burns and Stöhr (2011) as well as Chuenpagdee and Jentoft (2018).

¹³ See Raagmaa and Stead (2017) on the impact of European territorial cooperation policies.

Like elsewhere in Europe, the region experienced a decentralization process over the last few decades, countered by partial recentralization over the last decade. This is in part due to functional pressure on national authorities that cannot do everything by themselves and, at the same time, on local authorities that sometimes lack the critical mass and capacity to deal with some issues. For example, Denmark has recently merged many municipalities to former larger units. The decentralization process has been slower in the former Eastern Bloc, which experienced several decades of a centrally planned economy, than in the Western part of Germany and Scandinavian countries, where there is a longer tradition of self-government.¹⁴ Local authorities also have their networks. Some cities are federated under the Union of the Baltic Cities (UBC), while the capitals and some other larger cities form the Baltic Metropolises Network (BMN). Moreover, the Turku process, led since 2010 by the cities of Turku, Finland, Hamburg, Germany, and Saint Petersburg, Russian Federation, has been trying to promote cooperation, particularly with Russian partners. This has been particularly useful in the context of troubled relations and sanctions against the Russian Federation.¹⁵

As already mentioned, islands also have their representative body called Baltic Islands (B7). Like for parliamentarians, these organizations are rather weak and not fully representative of all local authorities. For example, the members of Baltic Islands are now only five of the seven major islands of the Baltic Sea. However, they are important to bring together the interests and perspectives of local governments and to share experience and knowledge across the region. Like in the Mediterranean technical assistance from the EU and other development partners is an important element for the strengthening of local authorities in former Eastern Bloc members, especially during the accession process, as well as to support these networks and some of their activities.

Nongovernment organizations

Like in other ecoregions, the involvement of private companies in ecoregional governance is minimal, except fishing and to a lesser extent the transport and industrial sectors. The fishing sector is organized at the ecoregional level. The Baltic Sea Regional Advisory Council (BRAC) brings together representatives from the fishing sector and other interest groups affected by the EU Common Fisheries Policy (CFP).¹⁶ The BRAC is the successor of the International Baltic Sea Fisheries Commission (IBSFC), which was based on the 1973 Gdansk Convention and used to manage fisheries and fishing quotas in the Baltic Sea until the arrival of the CFP in 2007. It is a strong organization, lobbying for the interests of mainstream fishermen. The other sectors involved are transport, culture, industry and, indirectly, agriculture. These sectors are typically organized at the national level. However, there is a multi-stakeholder partnership called the Baltic Sea Forum (BSF) that includes the private sector and there is a think tank focusing on growth, innovation and competitiveness that is called the Baltic Development Forum (BDF), whose partners include private companies, alongside cities and other stakeholder types.¹⁷ At the ecoregional level, there is also a Baltic Sea Chamber of Commerce Association (BCCA). These organizations are representative of mainstream approaches, but not of the whole private sector in the ecoregion. Alternative businesses and some civil society organizations do not necessarily recognize their positions.

Also in the Baltic Sea, civil society is more involved in ecoregional governance, compared to the private sector. The Helsinki Commission accredits international NGOs as observers, provided that the issue areas covered are relevant for the Commission, that their membership spans several riparian countries and that they benefit from sufficient organizational stability. This is a sign of increasing professionalism of civil society organization. Observers are regularly, but not always, invited to the meetings of the Commission and its subsidiary bodies and have the right to access official documentation, to attend

¹⁴ See Hermanson (2008, pp. 64-66).

¹⁵ On the Turku Process, see Jetoo (2018b).

¹⁶ See Aps et al. (2009).

¹⁷ On the different networks active in the Baltic Sea, see Grönholm (2018) and Stacy D. VanDeveer (2011).

meetings, to submit statements and to be given the floor. However, they have no voting rights.¹⁸ Since 2001, the Council of the Baltic Sea States admits the participation of strategic partners, which are mostly other ecoregional and European networks and include representatives of a Baltic Sea NGO Forum that is organized annually by the Baltic Sea NGO Network, usually in the country chairing the Council. Given that the NGO Forum is a result of the Copenhagen Initiative, launched during the 2001 Danish Chairmanship of the Council, the Danish branch of the Baltic Sea NGO Network (formerly DANFØ) is traditionally instrumental for the functioning of the NGO Network.¹⁹ Strategic partners may be invited to participate in meetings or activities, but they do not have specific right. The status of strategic partner simply means that a given organization wishes to participate in the Council's activities and projects on a more continuous basis.²⁰ Despite increasing professionalism of civil society organizations, it emerges clearly from the programs of the NGO Forum and the sheer number of umbrella organizations that the ecoregion benefits from a dynamic civil society and there are still a number of grassroots organizations.

Baltic NGOs can mobilize a significant amount of funding especially from EU projects under INTERREG and for cooperation with the Russian Federation. Therefore, when funding dries up, the continuity of their actions becomes problematic. For this reason, there is a shift from short-term projects to long-term programs in the region.²¹ Several articles point to the tangled web of networked governance of the Baltic ecoregion.²² The hybridization of the action of governmental and non-governmental organizations can be observed in many aspects. For instance, Savitri Jetoo tells us how the John Nurminen Foundation (JNF), a privately held partnership from Finland, launched the Clean Baltic Sea Projects in 2004 and implemented, in cooperation with academia and the public drinking water supply and sanitation provider company Saint Petersburg Vodokanal, a project to upgrade wastewater treatment plants in order to alleviate eutrophication in the Gulf of Finland.²³ However, this phenomenon is not limited to blended funding from public and private, national and international sources: it includes hybridization between political and scientific institutions, as shown by Robert Aps for fisheries in the case of the Baltic Sea Regional Advisory Council. However, the most striking hybrid arrangement is Baltic 21. It is at the same time the adaptation by the Council of the Baltic Sea States of Agenda 21, adopted by the 1992 United Nations Earth Summit in Rio, which has been in the meantime updated in the Baltic 2030 Action Plan to take into consideration the Sustainable Development Goals, as well as a multi-stakeholder forum for cooperation on sustainable development. Baltic 21, now Baltic 2030, is a network steered, coordinated and monitored by a so-called "Senior Officials Group" of representatives of member states and organizations, including the European Union, some United Nations entities, other international organizations, development banks, networks of local authorities, civil society, academia and other stakeholders. Unlike the Mediterranean ecoregion, the involvement of the private sector, banks and foundations goes beyond the simple provision of funding. They instead often actively participate in other aspects of the governance process, as illustrated by the case of the JNF.

Network structure

The governance of the Baltic ecoregion is characterized, like for the other ecoregions analyzed so far, by a horizontal structure with all riparian countries at the same level. Even if ten out of eleven countries

¹⁸ See the "Guidelines on granting observer status to intergovernmental organizations and international non-governmental organizations to the Helsinki Commission" approved on 3-4 March 2015 (Annex 14 of Document HELCOM 36-2015).

¹⁹ See Grav (2009).

²⁰ See the "Principles and Guidelines for Third Party Participation in CBSS Activities and Meetings" adopted by the Ministers for Foreign Affairs of the CBSS Member States through written procedure in February 1999 and revised by the Council through written procedure in April 2009.

²¹ See Toptsidou and Böhme (2018, pp. 33-34).

²² Such as Grönholm (2018) and Aps et al. (2009).

²³ See Jetoo (2018c, pp. 241-242).

are member states of the EU and if the EU has developed extensive policies such as the EU Marine Strategy Framework Directive, EU Common Fisheries Policies, INTERREG Baltic Sea Region Program and EU Macroregional Strategy, national governments still have the lead over EU institutions in the Baltic Sea. As in other cases, not all EU member states are directly interested in the specific issues of the Baltic Sea, so these questions are more effectively dealt with by national governments. This does not undermine, however, the perceived necessity of cooperation at the regional level and the belief that no member state can solve the problems of the Baltic Sea by itself.²⁴ Also in the Baltic ecoregion, power tends to be concentrated in the capitals, depending on the level of decentralization of the countries. As a result, power distribution can be characterized as polycentric, with richer Scandinavian countries and Germany positioning themselves in leading positions.

This is exemplified by the cities chosen to host the secretariat of the key ongoing governance processes in the Baltic Sea: Stockholm for the Council of the Baltic Sea States, Helsinki for the Helsinki Convention, Copenhagen for the Nordic Council of Ministers, the Baltic Development Forum and the Baltic Pilotage Authorities Commission. The Managing Authority and Joint Secretariat of the Baltic Sea Region Program is currently hosted in Rostock, Germany. Other non-capital cities host the secretariats of some networks, such as Turku, Finland, for the Union of Baltic Cities and Uppsala, Sweden, for the Coalition Clean Baltic, Baltic University Programme Secretariat. Moreover, some secretariats are located outside of the ecoregion, such as the EU Macroregional Strategy that remains coordinated from Brussels, the Baltic Sea States Subregional Co-operation that is hosted in Oslo and the Baltic Sea Commission that is administered from Rennes, France. The secretariat of the Baltic Sea Region Spatial Planning Initiative in Riga is the only significant one in the former Eastern bloc. There is no major secretariat in the Russian Federation.

The prevalence of Scandinavian and Western countries should not be mistaken for a lack of balance in power relations.²⁵ If the Baltic states are objectively smaller and have resources more similar to regional authorities than to national governments, Poland remains the most populous riparian country, with a significant agriculture and industrial complex, and the Russian Federation has huge stakes in the Baltic Sea, where an important city such as Saint Petersburg is located. Moreover, the Baltic Sea is important for strategic considerations: the port of Saint Petersburg is a major hub for maritime trade; an important pipeline like the North Stream delivers natural gas to Germany through its seabed; last but not least, a significant part of the Russian navy is based in the Gulf of Finland. The Baltic Sea is therefore surprisingly multipolar. If the EU managed to assert its supranational authority, the Baltic Sea would be an almost completely internal sea of the EU, the network structure would be vertical and unipolar or occasionally bipolar, if the Russian Federation decided to weight in on specific issues. This means that, at the time being, there is no hegemonic power, though some players are economically and diplomatically more powerful than others.

The riparian countries of the Baltic Sea are highly interdependent. They are bound by institutions, particularly the EU, trade relations and common environmental problems. Trade between production centers and the littoral states in general is intensive and well-integrated: “In 2001, trade flows within the [Baltic Sea Region] were 2.4 times larger on average than the total trade flows outside the region,” creating the effect that most goods and services produced in the region remain in the region, while nonetheless traveling between countries.²⁶ The most economically important flow within the region is that of energy from Russia to the Baltic states and Germany. More than 2,000 cargo ships use the Baltic Sea every day, making the sea itself a central trade axis.

²⁴ See the outcomes for the Baltic Sea in Hendriksen et al. (2014, pp. 359-360).

²⁵ See Schymik (2013), as well as the abovementioned citations on the role of Poland and the Russian Federation in the governance of the Baltic ecoregion.

²⁶ Cited from OECD (2007, p. 20). I would like to acknowledge the contribution of Benjamin Alt to this paragraph.

Property-right systems

Who owns the Baltic Sea? Like in the case of the Mediterranean, the sea is under the UNCLOS, which instead was ratified by all countries; unlike it, the Baltic is completely covered by a web of bilateral and trilateral treaties defining its maritime boundaries and particularly the extension of territorial waters, contiguous zones, exclusive economic zones and continental shelves. There is no high sea properly speaking. All waters are under the purview of one country or the other. All of the Baltic Sea can be considered public property of the state exercising authority over the closest coast. However, even if there is no part of the sea that is under a common property regime, this does not mean that riparian countries exercise perfect control over what happens on the Baltic Sea and on what ends up in its waters. This is attested by the high levels of anthropogenic pollution and the resulting eutrophication, which make of the Baltic Sea one of the most polluted bodies of water in the world. Like in most seas, property can also be both public and private for parts of the coastline and of the sea where concessions have been issued for resource extraction, including oil and aquaculture, and for business development, such as tourist resorts. Like elsewhere, increasing parts of the coastline are being sold, leased or otherwise privatized, in the countries where this is possible. Also in the Baltic Sea, national governments constitute an oligopoly managing the sea, controlling it not only through their military power and other forms of law enforcement, but also through other tools such as marine spatial planning and the establishment of marine protected areas, which currently cover more than 11.8% of the surface of the Baltic Sea.²⁷ The ownership structure is therefore partially anarchical. In part, it is in fact under the purview of the European Union for those policy sectors that have been mostly Europeanized, such as trade, transport, fisheries and environment protection, where the Helsinki Convention also weights in; in part, it is not and each country does more or less as it pleases, particularly in relation with the Russian Federation or in sectors such as energy and tourism.

Operational-choice rules

There is an almost perfect fit between the Baltic Sea and the Helsinki Convention, which covers not only the sea but also inland waters. It must be noted however that the surface of the Baltic Sea varies between 415,000 km² and 374,000 km², depending on where the border to the North Sea is drawn.²⁸ States generally refer to the limits of oceans and seas identified in 1953 by the International Hydrological Organization. However, the drainage basin extends 1,615 km² also to parts of Belarus, Ukraine, which are both observers to the convention, as well as small parts of the Czech Republic and Slovakia, which are far away from the sea and are not even observers. The definition of the Baltic Sea region for the purposes of the Helsinki Convention has been a political process that culminated in the early 1990s with the inclusion of the catchment area, pointing at a slow acceptance of the ecosystem approach, which was formally adopted by the 2003 HELCOM Ministerial Meeting.²⁹ It must be noted that, if the adoption of the ecosystem approach may appear slow, it took place more than a decade before the Mediterranean Sea. A similar discourse is applicable to the Council of Baltic Sea States that brings together all riparian countries but does not adopt an ecosystem approach. Still Belarus, Ukraine and Slovakia all have the status of observer states to the Council. The EU Macroregional Strategy also does not adopt the ecosystem approach. Of course, it is directly addressed only EU member states, but it welcomes cooperation with the Russian Federation and Belarus and with other Nordic Dimension countries like Norway and Iceland.

The norms and policies enshrined in the Helsinki Convention and its amendments, in the more than 260 valid resolutions, in the 2007 Action Plan of the Helsinki Commission and in the decisions of the Council of Baltic Sea States are all mostly original developments. Sometimes they reflect EU or other commitments, such as the need for water bodies to reach “good environmental status” by 2020, which

²⁷ On marine protected areas in the Baltic Sea, see Borg, Kääriä, and Zweifel (2016).

²⁸ See Kelleher, Bleakley, and Wells (1995, ch. 6) and Köhn (1998, pp. 15-16).

²⁹ For a detailed account, see Larsen (2008); for a critical assessment of its implementation, see Valman (2013).

is in line with the 2008 EU Marine Strategy Framework Directive and is enshrined in the 2007 HELCOM Action Plan and the vision behind. It must be noted that the Action Plan was adopted the year before the Directive, but that it HELCOM sets a 2021 goal, which is one year later than the goal set forth by the EU. This can be explained by the fact that both documents were developed in parallel, that the Baltic Sea is among the most polluted bodies of water in the world, so cleaning it up is likely to take longer, and that the Directive does not apply to the Russian Federation, which is also a riparian state. The Baltic ecoregion is traditionally been at the forefront of ecoregional policy and processes, not only for marine ecosystems. As already mentioned, the Helsinki Convention was the first convention to be adopted under UNEP's Regional Seas Programme in 1974 and represented a model for other conventions, starting from the Barcelona Convention. Similarly, the EU Strategy for the Baltic Sea Region was the first macroregional strategy to be developed and it still represents an example to follow for other regions, including the Alps.

The Helsinki Convention is a rigid treaty. It was renegotiated at the end of the Cold War in 1992, just like the Barcelona Convention, and it took eight years for the renegotiated agreement to enter into force. While the latter adopts "protocols", which are legally binding secondary agreements on specific issues adopted under the framework convention, the former includes "annexes", which contain detailed regulations on specific issues: harmful substances; criteria for the use of Best Environmental Practice (BEP) and Best Available Technology (BAT); criteria and measures concerning the prevention of pollution from land-based sources; prevention of pollution from ships; exemptions from the general prohibition of dumping of waste and other matter in the Baltic Sea area; prevention of pollution from offshore activities; response to pollution incidents. The framework convention and its annexes are ratified by the contracting parties, which means that to update the text, including the annexes, it is necessary to go through the lengthy process of ratification by national parliaments, like in the case of protocols. So far, the Convention had been amended in 2000, 2001, 2003, 2007 and 2013. The design of the Helsinki Convention establishes however the Helsinki Commission and entrust it with adoption of further recommendations, which do not need to be ratified and are therefore not legally binding. Recommendations of the Commission are however subject to formal reporting and verification. The adoption of non-legally binding recommendations by the Helsinki Commission counterbalances the rigidity of legally binding recommendations in the annexes of the Helsinki Convention, which in turn add legal substance to the whole process.

Overall, the normative system is quite responsive. For example, as Stacy VanDeveer points, out in 1988 a joint ministerial declaration established a 50% reduction goal for emissions of nutrients and hazardous substances by 1995. The implementation of this declaration attracted much attention and efforts under the Convention. Major investments were made; many projects were implemented under the 1993 Baltic Sea Joint Comprehensive Environmental Action Programme (JCP), particularly in hotspots. Although the objective was not achieved in the 1990s, in 2001 the assessments made by the Hazardous Substances Project Team declared the 50% reduction goal "largely reached", even if this statement is controversial.³⁰ As a result, the 2007 HELCOM Action Plan adopted the more ambitious goal of achieving "good environmental status" by 2021. Moreover, the fact that the Commission meets regularly and can issue recommendations and assess their implementation ensures the general timeliness of operational rules. The Commission also regularly adopts strategic documents such as the 2007 HELCOM Action Plan, which will be updated in 2021 in anticipation of the non-achievement of the goal of "good environmental status". This shows the capacity of the ecoregional process to focus not only on specific issues or short-term projects, but also to have a long-term strategic vision for the Baltic Sea.

Norms are often specific and technical. However, besides the Action Plan, there are several generic documents, such as Baltic 21, now Baltic 2030, and of course the EU Macroregional Strategy. The

³⁰ See Stacy D. VanDeveer (2011, pp. 42, 49-51).

Conference of Ministers for Spatial Planning and Development is instrumental in this regard. In 1994, it adopted a document called *Vision and Strategies around the Baltic Sea 2010 (VASAB)*, outlining a framework for spatial development in the region and kicking off a cooperation process with the same name. At the end of this period, the Baltic Sea States Summit of heads of state and government, held in Vilnius, adopted another document called “A Vision for the Baltic Sea Region by 2020”, which then paved the way to a INTERREG-funded project that produced in the period between 2009 and 2012 the “*BaltSeaPlan Vision 2030*”. These documents are all very much focused on spatial planning at the ecoregional level. More recently there has also been a lot of emphasis on the governance of the Baltic Sea, with the Council of the Baltic Sea States Vision Group issuing a report called “*Vision for the Baltic Sea Region beyond 2020*”, focusing on the Council’s role, and the Ministry of Foreign Affairs of Estonia commissioning the study “*EUSBSR after 2020: Governance Remastered?*”, co-financed by INTERREG.

The proliferation of strategic documents on the governance and, more generally, the future of the ecoregion clearly shows that the Baltic Sea is characterized by high degrees of regulatory noise, with different signals coming from many sides. However, this cacophony is not fully uncoordinated, as riparian states participate in all of these processes and contribute to the development of all of these policies. Some of them take the lead on specific issues or processes, which results in others following, hoping sometimes for reciprocity about their own initiatives. This high degree of fragmentation is somewhat counterbalanced by the general alignment of these various initiatives that may differ in their focus but that share the same general objectives of promoting cooperation and the sustainable development of the Baltic Sea. The overall approach is normative. Available funding is limited compared to the other ecoregions that have been analyzed so far and consists in the financing necessary for the functioning of the Helsinki Commission, of the Council’s Secretariat and of the other processes but is not sufficient to make significant investments or provide large-scale incentives. For instance, the 1993 Baltic Sea Joint Comprehensive Environmental Action Programme, which was very ambitious with a cost of almost 30 billion euros, lacked dedicated financial resources. The only exception is the INTERREG Baltic Sea Program, which supports sixty flagship projects under the EU Macroeconomic Strategy and provides seed money to twenty-four more projects but the funding available is limited to about 50 million euros per year, which means less than one million per year per flagship project, which is very little for major projects such as infrastructure investment. The Council has also created a Project Support Facility, focusing on safety and security, but the funding available is extremely limited, with less than 350 thousand euros per year. Together with norms and funds, communication and piloting also play a central role, with ecoregional processes issuing all sorts of communication tools, ranging from documents to videos and other types of messages. So, the policy mix is certainly dominated by regulation, but financial and communication instruments are not irrelevant.

Collective-choice rules

What rules guide decision-making in the Baltic ecoregion? The Helsinki Convention, the Council of the Baltic Sea States and the other existing arrangements all constitute an international regime, enshrining the expectations of riparian countries about each other. The Convention is the main formal agreement at the ecoregional level, but it is seen as focused only on environmental issues and the domain of the ministries of the environment, just as much as VASAB is seen as the process under the ministers in charge of special planning. It is the Council that is the main process, institutionalizing cooperation also in other areas, even if it lacks a binding treaty and the elaborate institutional structure of the Convention. Both the Council and the Convention are autonomous processes. This is confirmed by the fact that, even if the EU is a contracting party to the Convention, Brussels is far from monopolizing the process, even after the adoption of the macroeconomic strategy, as it appears clearly from the 2018 HELCOM Brussels Ministerial Declaration. The Helsinki Convention is not serviced by UNEP, even if it was the first convention to be adopted under the Regional Seas Programme. All riparian countries benefit from cooperation at the ecoregional level, which allows to regularly convene and discuss issues of common

interest, such as pollution and the eutrophication of the Baltic Sea. Meetings are actually very frequent and the fact that representatives agree to meet is proof of the interest they bear for the process. Of course, projects may provide co-funding, but the general principle is that under the Convention each delegation pays for its participation and that each state provides the same amount of funding to the Commission. This attests an egalitarian approach but is also a sign of interest for participation in the international regime.

In both the Council and the Commission, decisions are taken only by states and based on consensus. Decisions are based on the preparatory work carried on by a Committee of Senior Officials, expert groups and task forces in the case of the Council and by the Commission and its Working Groups in the case of the Ministerial Meetings under the Convention. Studies and assessments are also taken into consideration, such as the one made in 2001 by the Hazardous Substances Project Team on the 50% reduction goal for emissions of nutrients and hazardous substances and the two HELCOM holistic assessments, now called “State of the Baltic Sea” report, using the same terminology found in other ecoregions, which showed that major efforts are still necessary to achieve a good environmental status of the Baltic Sea.³¹ Otherwise, the need to have meetings at regular intervals under the various processes is what bureaucratically triggers declarations and sometimes decision-making. Both the Commission and the Council have rotating chairmanships, who take pride in their leadership role, have priorities and, sometimes more than others, steer the process in one direction or the other. In both cases, the presidency rotates every two years in alphabetical order. In 2016, the European Union assumed the chairmanship of HELCOM for the first time. In fact, the European Union is in part competent for policies in the Baltic Sea, in which cases it can act and vote instead of its member states. Public participation is not direct. It is usually mediated by non-governmental organizations with the status of observers in the case of the Commission or strategic partners in the case of the Council or through participatory processes such as the NGO Forum under the Council and the Fisheries and Environmental Forum and the Agricultural and Environmental Forum under the Commission. The international regime is rather transparent. Even if all decisions and documents are not published online and, of course, all discussions and negotiations do not take place in a public setting, observers have substantial rights of access to meetings and documentation and may submit statements for consideration of the Commission, which are published on the HELCOM Meeting Portal. The portal is freely accessible to the informed public. Its archives go back to 2004.

There are more than two secretariats of the ecoregional process: the office of the Commission in Helsinki, the secretariat of the Council in Stockholm, as well as others, such as the VASAB in Riga. They are all autonomous and have hosting agreements, except for the unit coordinating the EU Macroregional Strategy, which is under the European Commission. They all service the contracting parties and were not entrusted with particular leadership roles. As already mentioned, the funding available at the ecoregional level is limited. The budget of HELCOM’s secretariat is of 2 million euros per year and the figure for the secretariat in Stockholm must be similar. There are no banks or funding schemes at the ecosystem level other than the INTERREG Baltic Sea Region Programme and the Council’s Project Support Facility. Overall, there must be a little more than 50 million euros per year available for actions at the ecoregional level. If we assume that the budget of the two major secretariats goes almost fully for administrative support and that at least 10% of the funding available under INTERREG must also cover administrative overheads, this leaves no more than 40 million euros per year or 80% of the overall funding for programmatic functions and project implementation. Given that most of the resources available come from the EU and considering that most littoral countries are net contributors to the budget of the EU, there is probably no or very little funding currently available at the ecoregional level from other sources.

Coordination in the Baltic ecoregion can be tricky. Regarding funding, there is for instance no formal coordination between the EU Macroregional Strategy and the INTERREG Baltic Sea Region

³¹ Refer to Andersen et al. (2010) for the first edition and to Bergström et al. (2018) for the second edition.

Programme.³² HELCOM created five permanent working groups to deal with specific issues: implementation of the ecosystem approach, maritime, reduction of pressures from the catchment area (former land), response, state of the environment and nature conservation (former habitat and monitoring and assessment); it has also created three temporary groups: sustainable agricultural practices, ecosystem-based sustainable fisheries and maritime spatial planning, jointly with VASAB. These issues correspond roughly to those mentioned in the Helsinki Convention: various dimensions of pollution, environmental impact assessment and exploration and exploitation of the seabed and its subsoil. The coordination among the groups is ensured by the Commission, to which all of them have to report, and ultimately to the ministerial meetings under the Convention, which bring together the ministers of the environment. However, these are not the only issues of ecoregional import.

The Council, which is steered by heads of state and government and by ministers of foreign affairs, also works on issues such as regional identity, sustainability and prosperity, as well as safety and security. While the Council clearly makes an effort to coordinate with Baltic 2030, the EU Macroeconomic Strategy and VASAB, it barely acknowledges HELCOM. The activities of HELCOM are rather indirectly coordinated through the contracting parties or through its status of strategic partner of the Council since 2001, together with other regional and ecoregional processes. Instead, the Council is not an observer to the Convention, even if it participates in its Expert Group on Sustainable Development, reflecting the fact that it is the more specific Commission that must coordinate with the more generic Council and not vice versa. This results in the relative isolation of HELCOM, which is often perceived as a sectoral endeavor.³³

Other processes clearly interfere with negotiations and provide opportunities for two-level games, such as the parallel negotiations for the 2007 HELCOM Action Plan and the 2008 EU Marine Strategy Framework Directive. This may also happen between national delegations and sub-national authorities but is mostly limited to the case of Germany because of its federal form of state and the competence of the Länder Schleswig-Holstein and Mecklenburg-Vorpommern on several issues of interest for the Baltic Sea, such as the environment.

Constitutional-choice rules

In its article 3, the Helsinki Convention mentions the following fundamental principles, guiding its action: the principle of individual or joint measures, the precautionary principle, the use of best environmental practice and best available technology, the polluter-pays principle, the use of measurements and calculations that are produced in a scientifically appropriate manner, and the no-harm principle outside of the Baltic Sea, no-unacceptable environmental strains, waste disposal and risks for human health inside the area. The ecosystem approach was then added and formally adopted in 2003. The principle of individual or joint measures is close to the principle of variable geometry found in the Mediterranean and can be explained by the presence of different groups of countries, such as Germany, Scandinavia, the former Soviet Union and the former Eastern bloc. The precaution, polluter-pays and no-harm principles are fundamental principles, shared by many environmental conventions and agreements on transboundary waters, particularly those negotiated in the 1990s, such as the 1992 UNECE Water Convention, which was also adopted in Helsinki, and are invoked frequently. The principle of scientifically appropriate measurements and calculations stems from the importance of verification and assessment and is a cornerstone of the international regime; instead, the concepts of best environmental practice and best available technology were commonly referred to for the implementation of the 1993 Baltic Sea Joint Comprehensive Environmental Action Programme, when the identification of alternative solutions was particularly important for pollution hotspots, particularly in the former Iron Curtain countries. The ecosystem approach is central to the implementation of the Convention and the

³² See Toptsidou and Böhme (2018, pp. 33-34).

³³ See Jouanneau and Raakjær (2014).

2007 HELCOM Action Plan, but not necessarily in the framework of the Council and other processes, which also formulate and often refer to general principles in their decision-making.

Monitoring and sanctioning rules

The observation of the Baltic ecoregion is a key element of its governance system. The Helsinki Convention features four articles on scientific and technological cooperation, reporting and information. It encourages cooperation in science technology and research, foreseeing the harmonization of the permission procedures and the observation methods and baseline studies for monitoring. In the Convention, the emphasis is not on supporting the independent conduct of research, but on research conducted directly or through regional or international organizations, such as HELCOM. In fact, HELCOM and the other processes at the ecoregional level produce a large number of studies and reports, usually through working groups and task forces, that are essential to monitor the state of the Baltic Sea.

Over the years, this resulted in a fragmentation of the information available on the Baltic Sea. For this reason, upon the adoption of the 2007 HELCOM Action Plan, whose preamble enshrines the vision of a “healthy Baltic Sea environment, with diverse biological components functioning in balance, resulting in a good environmental/ecological status and supporting a wide range of sustainable human economic and social activities”, it became necessary to prepare an holistic assessment that went beyond specific assessments such the one produced in 2001 by the Hazardous Substances Project Team, whose first edition was published in 2010 and whose second edition has just been released in 2018 and is now called the State of the Baltic Sea, like in other ecoregions.³⁴

Regarding pollution, the adoption of the ecosystem approach to assessments is important because the application of standards for permissible exposure based on the maximum admissible concentration (MAC) of chemicals has become obsolete. The MAC approach is based on the assessment of the effects of pollutants at the organism level, but this is wrong because it does not take into consideration the interaction, which can be synergetic or antagonistic, among different pollutants. Moreover, the MAC approach does not allow to assess how the level of concentration and its duration affect the ecological status of water bodies, which can be located in different ecoregions and may tolerate higher or lower levels of toxicity. To assess the quality of surface water it is therefore essential to take into consideration the specific aquatic ecosystem and chemical conditions, as the MAC approach does not consider the effect of compounds and multi-stage transformations of pollutants after they enter water.³⁵

The data, maps, studies and reports produced under the HELCOM are freely available through its websites. Data and maps were brought together through various mostly EU-funded projects through various online platforms and interfaces. Of course, to produce such information and knowledge, the Commission and other ecoregional processes rely also on basic and applied research produced by academia and think tanks. To support cooperation among scientific actors at the ecoregional level, the Council of the Baltic Sea States developed in the context of the EU Macroregional Strategy and with the support of the INTERREG Baltic Sea Region Programme a Baltic Science Network, which is supposed to provide overall coordination, promote research at the macroregional level, encourage mobility of researchers and contribute to a better representation of macroregional interests with respect to the EU. Baltic TRAM is another EU-funded project supported by the Council, which aims in this case at improving the connection between research and the business sector to link expertise with industrial needs.

The Helsinki Convention asks the contracting parties to report to the Commission at regular intervals on the legal, regulatory and other measures taken for the implementation of the convention, including its annexes and the recommendations adopted in their framework, as well as on the effectiveness of

³⁴ See Andersen et al. (2010) and Bergström et al. (2018).

³⁵ See Landis (2004) and Suter II (2016). I would like to acknowledge the contribution of Vahagn Tonoyan to this paragraph.

these measures, including the problems encountered. Moreover, contracting parties or the Commission may request information on discharge permits, emission data or environmental quality, if available. Actually, information about permits, the results of water-quality sampling and the objectives of the contracting parties must be available to the public, except if intellectual property, including industrial and commercial secrecy, or national security and the confidentiality of personal data is concerned.

Evaluation therefore takes place regularly through the working groups and task forces, but no specific verification or compliance committee has been established.³⁶ The provisions of the Convention and the recommendations adopted by HELCOM, as well as the goals contained in the 2007 HELCOM Action Plan and Baltic 2030 act as targets against which a system of core indicators is regularly collected to evaluate progress towards the goal of achieving good environmental status and published online and in reports. These indicators were agreed upon by HELCOM and are presented as a dashboard that allows monitoring the achievement of the agreed targets. This is a typical example of governing by goals or targets.³⁷ Evaluation therefore is eminently carried on among peers with a strong technical component. The groups where these processes take place are the main instances where learning takes place, as the representatives of different countries share their experience and learn about the experience from other countries. Regarding accountability, the emphasis is more on the collective responsibility of littoral countries to achieve a good environmental status than on the specific responsibility of individual states or companies.

In case of damage, the Helsinki Convention foresees the development of specific rules, but this provision has not been implemented so far, except as far as the liability for damage resulting from vessel-based pollution, where the Commission simply recommends the contracting parties to accede to the relevant conventions concluded under the auspices of the International Maritime Organization.³⁸ There are also generic provisions for dispute settlement in case of confrontational measures, which shall lead, upon common agreement, to an ad hoc or permanent arbitration tribunal or to the International Court of Justice. In theory, the European Court of Justice can also be seized in case of dispute, like in the *Etang de Berre* case. However, contracting parties have never made active use of these provisions. The institutional structure of the Convention, through the Commission and the Working Groups, has been sufficient to deal with the issues that have emerged so far and has contributed to give continuity to cooperation in the Baltic ecoregion.³⁹

This case study is based on a review of the scientific and grey literature available. It also builds on research by Benjamin Alt, a former bachelor student at Sciences Po's Campus of Reims, as well as Barbara Le Guillou, Matthieu Dupire, Stéphanie Bonnaffoux and Valentin Obara, former master students at the University of Reims, France.

³⁶ See for instance Jetoo (2018c, p. 241).

³⁷ For a review of this approach, see Kanie and Biermann (2017) and Morsetto, Biermann, and Pattberg (2017).

³⁸ See Fitzmaurice (2006, p. 124).

³⁹ See again Valman (2013) on the relative institutional stability around the Baltic Sea.

Freshwater ecoregions: the Amu Darya and the Great Lakes

The third major ecosystem type is constituted by freshwater regions, also known as river basins, watersheds, drainage systems or catchment areas. These terms might have slightly different meanings but are here considered as synonyms for the sake of this analysis. They are areas where freshwater converges to the same body of water, typically a river, and eventually to the sea. The cases of the Amu Darya in Central Asia and of the Great Lakes in North America were chosen not only because they contribute to give a balanced representation of ecoregions at the global level within the scope of this monography, but also because the Amu Darya and more generally the Aral Sea basin is representative like no other water body, except perhaps the Lake Chad, of mostly unsolved problems related to water quantity, while the Great Lakes are representative of mostly solved issues of water quality. The Amu Darya was also chosen because of the experience of the author on water resources in the region.

Both the Aral Sea and the Great Lakes are large drainage systems that include both rivers and lakes and both natural and artificial water infrastructure, such as canals and dams. They are both of course connected with groundwater systems. They are both characterized by governance arrangements that go back to the early 20th century and that significantly evolved over the decades. The institutional context of Central Asia and of North America is different, except the fact that the former Soviet Union, the United States and Canada all share the federal form of state. However, the post-Soviet transition, on the one hand, and the bilateral relations between a superpower like the United States and a country with a significantly smaller population and economy like Canada, make the institutional context quite specific in both cases.

The Amu Darya ecoregion

Both freshwater ecoregions are lake systems. The first freshwater ecoregion is the Amu Darya river basin. This chapter includes an analysis of the social, economic and political settings, of government and nongovernment organizations, of the network structure, of property-rights systems, of operational, collective and constitutional-choice rules, as well as monitoring and sanctioning rules. The analysis discusses both the Interstate Commission for Water Cooperation in Central Asia and the International Fund to save the Aral Sea.

The Amu Darya is the largest river in Central Asia and one of the two tributaries of the Aral Sea.¹ Even if the level of water stress is at least theoretically not dramatic², the area where the river is located is relatively dry. The lower reaches of the Amu Darya run between the Karakum and the Kyzylkum deserts. For this reason, irrigation developed in some cases as early as five millennia ago. At the end of the 19th century and the beginning of the 20th century, the Russian Empire first and then the Soviet Union planned and built large canals such as the Karshi and the Karakum canals, which was built in the 1950s to bring water to Turkmenistan and its capital Ashgabat.³ This resulted in excessive withdrawals that made the once fourth largest lake on the planet almost disappear, turning it into a desert, destroying the livelihoods of the local population and provoking serious health problems in the surrounding area, because of the dispersal of the salt and toxic chemicals that were once dissolved in the water.⁴

But it was not just a water system that was built by the Soviet Union, but a water-energy complex that used cheap electricity produced by small and large hydropower plants such as Nurek to lift huge amounts

¹ For a general introduction to the Aral Sea basin, read Dukhovny and Schutter (2011) and Zhiltsov, Zonn, Kostianoy, and Semenov (2018), as well as Zonn, Glantz, Kostianoy, and Kosarev (2009) for specific references; on environment and security related issues in the Amu Darya basin, see UNEP, GRID Arendal, and Zoi Environment Network (2011).

² According to the global analysis by Revenga, Brunner, Henninger, Kassem, and Payne (2000).

³ On the continuity between the Russian and Soviet period, see R. A. Lewis (1966) and Matley (1970).

⁴ On the desertification of the Aral Sea, see Breckle (2012).

of water, sometimes more than 100 meters, to fields that depended on this water to be productive, such as in the case of the Karshi pumping cascade.⁵ In Soviet times, there was an exchange between the upstream countries of Tajikistan and the Kyrgyz Republic that provided water for irrigation in the summer months and the downstream countries of Turkmenistan and Uzbekistan that provided energy for heating in the winter months. Since the fall of the Soviet Union in 1991 and the civil war that broke out in Tajikistan between 1992 and 1997, which started off as a confessional war, partially spilled over from Afghanistan, between Islamist and secular forces and continued along ethnic lines between Tajiks and Uzbeks, and the ensuing tensions between Uzbekistan and Tajikistan, the water-energy complex was disrupted and ceased to exist in the 2000s.

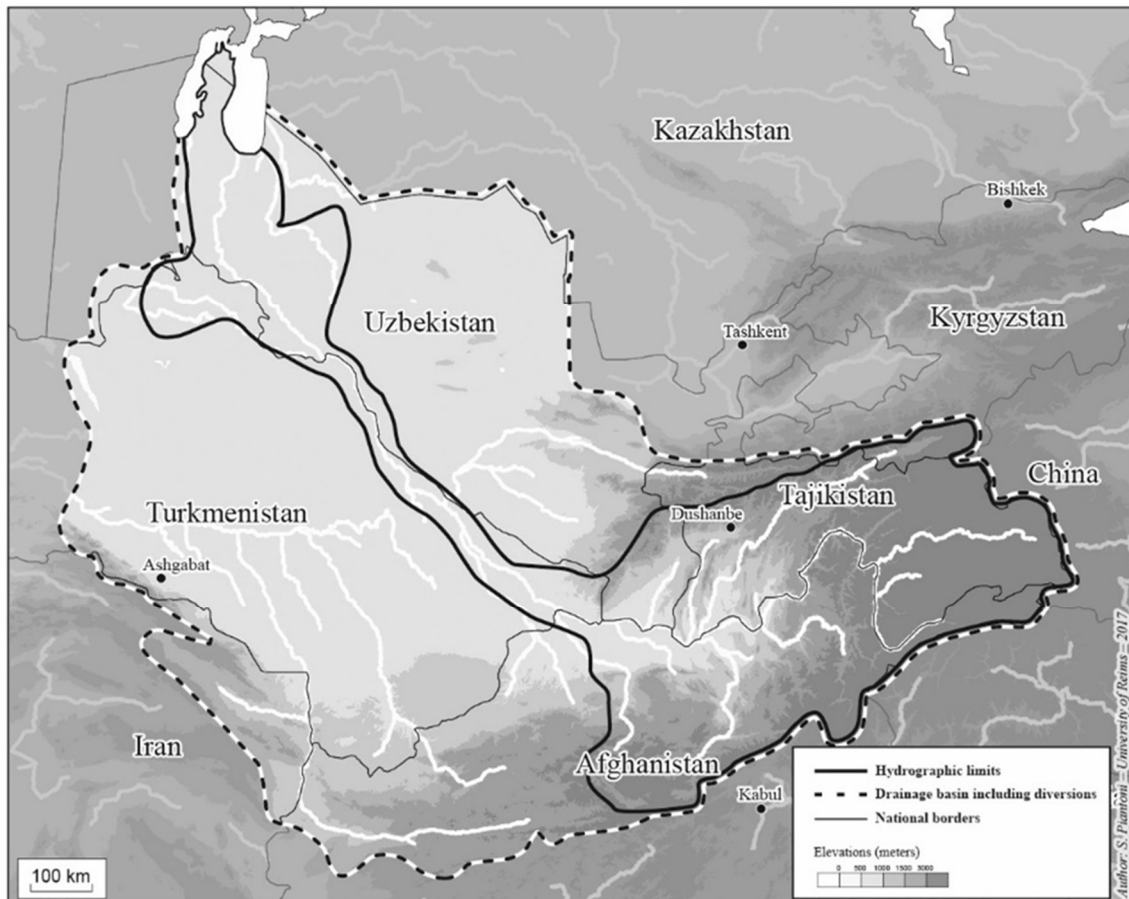


Figure 12: The Amu Darya ecoregion with its hydrographic limits and drainage basin including diversions. Source: drawn by Sébastien Piantoni for this monography.

The Amu Darya, also known as Oxus in classical texts, is a river at the crossroads of the Iranian and Turkic world. Its sources are located in the Pamir Mountains, north of Pakistan and India and west of China, along the Silk Road. For almost two centuries, it was at the center of the Great Game between the Russian and British Empire and still marks the border with Afghanistan. Most of the Amu Darya basin used to be part of the Soviet Union and now finds itself in the former Soviet republics of Tajikistan, Turkmenistan and Uzbekistan, with a small part in the Kyrgyz Republic and a larger area in Afghanistan. Unlike the Syr Darya, which is the other tributary of the Aral Sea, it is possible to clearly identify upstream and downstream countries for the Amu Darya. Tajikistan, the Kyrgyz Republic and Afghanistan are located upstream of the Amu Darya and its tributaries, while Turkmenistan and

⁵ About the Karshi pumping cascade, see Glantz (1999, pp. 31, 166), Kostianoy and Kosarev (2010, p. 80), as well as Dukhovnyi and Schutter (2011, pp. 164-167, 216).

Uzbekistan find themselves downstream. This puts downstream countries in a position of dependence on what happens upstream.

The main issue facing the Amu Darya basin is the disappearance of the Aral Sea and the management of the Pre-Aral region, which is the area that used to be along the coast and under the seabed. Other problems include high levels of withdrawal of water for irrigation, particularly for the production of cotton and other water-intensive crops in Uzbekistan, Turkmenistan and Tajikistan. This is of course related to the disappearance of the Aral Sea, but also to the dependence of large amounts of people on irrigated agriculture for their livelihoods. Another major issue is the impact of water-related disasters, due to inadequate disaster risk management and a limited number of protective infrastructure, such as levees, dams and reservoirs, particularly upstream in mountain valleys, where the flow is stronger. Building dams upstream would in turn allow tapping the hydropower potential of the basin, which is huge, such as in the case of Nurek and Rogun, as well as other small and medium size hydropower plants.⁶

Another problem is water turbidity with impacts on irrigation, hydropower and, last but not least, the provision of clean drinking water to the population. Water quality can be an issue also because of the presence of mining in the basin, because of low levels of wastewater treatment in heavy and light industry, as well as in large and small settlements, where at least half of the population lives.⁷ Short-term, seasonal and yearly variability, alternating dry and wet years, too little and too much water, combined with long-term variability due to climate change, receding glaciers in the high reaches and advancing deserts in the low reaches of the Amu Darya, which is also due to soil management, are also matter of concern. Last but not least, the prospects of increased water use in Afghanistan, as soon as more than four decades of war are over and as soon as the agriculture and hydropower sectors of the northern provinces start developing again, are also a matter of concern for the basin.

Social, economic and political settings

All upstream countries of the Amu Darya, i.e. Tajikistan, Afghanistan and the Kyrgyz Republic, are low-income economies, while Uzbekistan is lower-middle, and Turkmenistan is upper-middle. Their higher income in downstream countries is related to natural gas and oil reserves, as well as to industrial development, particularly in Uzbekistan. The region is growing fast from a demographic point of view, with medium-high to high levels in all countries in the basin, due to fertility rates, as well as an increase in life expectancy. Since the 1970s, the region experienced a process of urbanization, except in Tajikistan, where a drive to rural areas took place in the 1970s and again in the 1990s during civil war; since the 1990s, this process has been coupled with a significant migration movement, often seasonal, especially towards the Russian Federation. After the fall of the Soviet Union, political regimes have been stable, except for Afghanistan because of the Soviet invasion in the 1970s, the civil war in the 1990s and the NATO intervention since 2001, for Tajikistan during the civil war between 1992 and 1997 and for the Kyrgyz Republic with its revolutions in 2005 and 2010. However, given the small part of the basin located on the Kyrgyz side, the vast majority of the basin has been remarkably stable since the late 1990s, except for Afghanistan, of course. The former Soviet republics have been slowly transitioning from the Soviet system towards more democracy and free market, while Afghanistan has been struggling to transition from the Taliban regime. Transition is still ongoing in all countries sharing the basin.⁸

The Amu Darya basin is located at the heart of Central Asia. After the failure of the Central Asian Union in the 1990s, there is no strong regional integration process in Central Asia. Otherwise, the former Soviet republics tend to gravitate more towards the Commonwealth of Independent States (CIS), which they

⁶ On technical path dependency in water resource management, read Moss and Dobner (2016)

⁷ On environmental problems in the Aral Sea basin, read Jashenko, Kosaki, Pachikin, Ishida, and Aronov (1998), Glantz (1999), Létolle (2008), as well as Peachey (2004).

⁸ See in particular Weinthal (2002) and Sehring (2009).

created after the fall of the Soviet Union, while Afghanistan tends to gravitate more towards the South Asian Association for Regional Cooperation (SAARC) that it forms together with India, Pakistan and Bangladesh. Other significant regional integration processes for riparian countries are the Eurasian Economic Community (EAEC) and the Collective Security Treaty Organization (CSTO), mainly supported by the Russian Federation, the Economic Cooperation Organization (ECO), mainly supported by the Islamic Republic of Iran, the Conference on Interaction and Confidence-Building Measures in Asia (CICA), mainly supported by Turkey, and the Shanghai Cooperation Organization (SCO), mainly supported by China. Because it was part of the Soviet Union, the region is part of both the United Nations Economic Commission for Europe (UNECE) and the Economic Commission for Asia and the Pacific (ESCAP), which launched the Special Program for the Economies of Central Asia (SPECA) in 1998, involving also Afghanistan and Azerbaijan. Central Asia Regional Economic Cooperation Program (CAREC) is another important process, created by the Asian Development Bank (ADB) in 1997, with similar objectives. The Regional Economic Cooperation Conference on Afghanistan (RECCA) is also instrumental in the relations with Kabul. Last but not least, the Organization of Islamic Cooperation (OIC) is also a relevant in a predominantly Muslim region.⁹

Most of these regional integration processes deal directly or indirectly with water issues. However, the main regional integration process on water resources is the International Fund to save the Aral Sea (IFAS), which is arguably the only well-functioning integration process in Central Asia, perhaps together with the Regional Environmental Centre for Central Asia (CAREC), which deals only with environmental issues and in part with water resources. IFAS is a unique process, as it was initially created if not under at least parallel to the Interstate Commission for Water Cooperation (ICWC). The 1992 Almaty Agreement among the five former Soviet republics gave continuity to the existing rules to manage the shared waters. It created the Commission to decide on water allocation in the Aral Sea basin and to coordinate the two Basin Water Organizations (BWO), formerly known as Uprvodkhozes, that had been created in the late 1980s to manage the Amu Darya and the Syr Darya and that still exist. The Interstate Commission for the Aral Sea (ICAS), which managed the Aral Sea Basin Programme (ASBP), and the Interstate Commission for Sustainable Development (ICSD), with focus on environment protection, were both created at the same time. IFAS was established in 1993 to support projects on the Aral Sea. By 1997, the need to simplify the system had become obvious. ICAS merged with IFAS and the ICWC, ICSD and ASBP were all put under IFAS. So, now IFAS finds itself in a coordinating position. IFAS is a very high-level process for a basin organization, as it can meet at the level of presidents and prime ministers, contrary to ICWC, which usually meets at the level of ministers or deputy ministers.

Like the Baltic ecoregion, the Amu Darya basin may appear economically uniform, except for Afghanistan. However, many differences appear at a closer look. First of all, Turkmenistan's economy is known to be closed to global markets, even if it depends greatly on the export of natural gas, mainly to China and the Russian Federation, and on the import of everything else. Tajikistan is much more open but still ranks among the worst countries at enabling trade, according to the World Economic Forum, whereas no data is available for Uzbekistan, which probably stands somewhere in the middle. The fact that all countries in the basin are landlocked must also be taken into consideration as far as access to global markets is concerned. The situation of media organizations is difficult in all countries, according to Reporters Without Borders, particularly in Turkmenistan and Uzbekistan. However, the way society is organized is very different from the West and it is difficult to compare the situation in the countries of the region, using Western standards, also considering the Soviet heritage and the Islamist presence. Technological development is low in Afghanistan and went from being relatively high in the Soviet period to significantly lower after independence, also because of the brain drain that all riparian countries

⁹ For an overview on water cooperation in Central Asia, see Libert and Lipponen (2012).

suffered a lot from since the 1990s, except perhaps Uzbekistan. However, the technical level is still higher than in many developing countries.

The languages spoken in the basin are Tajik and Dari, which are Indo-Iranian, as well as Uzbek, Turkmen, Kyrgyz and Karakalpak, which are Turkic, plus other minority languages. Russian is still the main interethnic communication language in the former Soviet republics, while English is the main international language used in Afghanistan and its use is growing also in the rest of Central Asia, particularly among the urban youth. The fact that Tajik and Afghan government officials share similar languages facilitates cooperation between the two countries.

Government organizations

The prevalent level of decision-making on the Amu Darya basin is national.¹⁰ Regional organizations are just the expression of national authorities. There is no supranational organization capable of ruling against specific countries. Subnational authorities are subordinated to the national level. At the national level, water management is considered a political issue, as well as a technical one, contrary to many other countries, particularly in Europe, where water management is frequently reduced to a technical issue. All the states in the Amu Darya basin are centralized. The governments of downstream countries exercise firm control over their territory, while this is more difficult in poorer upstream countries. The situation of Afghanistan is of course different, with the government struggling to control the territory because of the ongoing war. Since the Soviet invasion in 1979, Kabul has been left out of the management of the basin. In the mid-2000s, it started participating in the regional integration process through RECCA, SPECA, CAREC and as observer in IFAS. In the late 2000s, Afghanistan was about to join IFAS, until it realized that it was not ready yet, as its position was still weak. At the time being, Afghanistan fully participates only in technical-level cooperation on hydrology, environment protection and disaster risk reduction, usually on a bilateral basis.

The basin is not exempt from ethnic tensions and autonomist movements. The most important ones led to the creation in the early 1990s of the Autonomous Republic of Karakalpakstan within Uzbekistan, along the former shore of the Aral Sea, and the Gorno-Badakhshan Autonomous Region (GBAO) in Tajikistan, where the sources of the river are found. Of course, GBAO must not be confused with the Badakhshan Province, which covers the Afghan side of the Pamir mountains and whose culture is close to that that can be found on the Tajik side. Moreover, ethnic tensions arise sometimes in the area, but they do not have much impact on the management of the basin, which depend more on interstate relations. This means that intergovernmental relations can be good even if there may be tensions and incidents on the ground and that good relations between governments trump other dynamics that may exist.

All riparian states are presidential regimes, except of the Kyrgyz Republic, which has become parliamentary after the revolution of 2010. Afghanistan is a special case, as it currently has both a president and a chief executive officer, following contested elections in 2014. Presidential elections are simple majoritarian in Turkmenistan and Tajikistan and two-round majoritarian in Uzbekistan and Afghanistan, while parliamentary elections are majoritarian in Afghanistan, two-round majoritarian in Turkmenistan and Uzbekistan, while they are mixed majoritarian and proportional in Tajikistan. The prevalence of majoritarian systems reduces the political representation of minorities, particularly if there are no districts where they are majority. In any case, political representation is different from Western standards, with a tendency to concentrate authority in the hands of the president and its government. The Economist Intelligence Unit considers all governments in the region to be authoritarian. However, legitimacy is therefore hard to assess but governments are stable, the population seems accepting of the situation and manifestations of discontent are rare.

¹⁰ For an introduction to the legal and institutional dimensions of water cooperation in Central Asia, see Boisson de Chazournes (2006) and Janusz-Pawletta and Gubaidullina (2015).

In the former Soviet republics and more generally in many developing countries, water often has its own ministry, signaling the importance of the resource for development. In the Amu Darya basin, the ministries directly involved at the basin level are those in charge of water: Ministry of Water Resources in Uzbekistan, Ministry of Energy and Water Resources in Tajikistan and Afghanistan, State Committee for Water Management in Turkmenistan, Department for Water Resources and Land Reclamation of the Ministry for Agriculture, Food Security and Land Reclamation in the Kyrgyz Republic. However, the exact list of ministries may change from year to year. For instance, water used to be with agriculture in both Turkmenistan and Uzbekistan, while it used to form a standalone ministry in Tajikistan before it merged with energy. In the past, they have sometimes been merged with the environment portfolio. Ministries of foreign affairs are also involved, particularly in the case of Afghanistan. The head of delegation is typically the minister, deputy minister or head of department of the ministry in charge of water. This is quite high level, especially for European standards. The ministries or other government agencies in charge of the environment are little active at the basin level, even if they are often responsible for some water-related issues, such as water quality and permits.

There are also the country representatives at the Executive Committee of IFAS. This is a unique institution, in the sense that its members sit in the country holding the rotating chairmanship of IFAS for two years. The country representatives are typically mid-level staff members of the ministries in charge of water resources. As they work from abroad and given that the leadership of the ministries in the capitals are in direct contact, representatives are sometimes cut off from what happens in their country, especially towards the end of their two-year mandate.

The party affiliation of government representatives is irrelevant, given the political circumstances. What is clear is that nationalism is strong and that Islamists are systematically excluded from government positions in all countries. Governments strive however to maintain a balance among regional and ethnic groups. In Tajikistan, for instance, the government is careful about maintaining balance between officials from the north and from the south of the country, which used to be opposed during the civil war. In all countries, balancing is not always easy, particularly considering the strong role of the presidency. The relative stability of political representation gives continuity to government action. Incremental change is the norm, while radical change typically involves high-profile decisions at the president level. Subnational authorities have no direct role at the basin level, including in Afghanistan, despite the weakness of the national government. However, decisions and behavior at the subnational and local level can have a significant impact on the basin, particularly as far as irrigation and industry are concerned.

In all countries, a decentralization process is ongoing, usually supported by Western donors. This process concentrates on building capacity of local authorities and improving the regulatory framework. At the same time, all countries are in different stages of a water sector reform, moving from administrative to basin management, in line with the concept of Integrated Water Resources Management (IWRM) and with the 2000 EU Water Framework Directive.¹¹ This is resulting in the identification of basins and sub-basins and the creation of river basin organizations with offices in the basins themselves. Often, these offices are simply former regional branches of the national ministries that are slightly changing scope from regional to the basin level. So, in the water sector, it is difficult to call this process decentralization, even if some responsibilities as well as human and financial resources are moved to the basins, often with extrabudgetary support from donors. This is more a reorganization of water management through the adoption of a new scope for existing structures for water management at the subnational level.¹² Given the difficult budget situation of the governments of upstream countries, donor support is particularly important to give continuity to government action on issues such as water resources.

¹¹ See in particular Zinzani and Bichsel (2018).

¹² See also Abdullaev and Rakhmatullaev (2015).

However, this reorganization is going along with new processes and institutions at the basin and sub-basin level, such as the creation of river basin councils, whose aim is to bring together the different stakeholders. Still, for the time being, this process is happening inside the countries, with almost no consequence at the interstate level, which is under IFAS, ICWC and BWO Amu Darya. The BWO was designed in the Soviet period as the main river basin organization for the whole basin, making sure that enough water reaches the shores of the Aral Sea every year. However, since the fall of the Soviet Union, its concrete function is to operate interstate canals and to ensure that riparian countries, except of course Afghanistan, which does not take part in the system, respect withdrawal limits. Otherwise, everything that is not strictly interstate or of common interest is managed at the national level, which means most of the water system.

Nongovernment organizations

Private companies and other non-governmental organizations do not participate directly in ecoregional governance. They do so indirectly through their governments, which can be from outside of the region. There are many private companies in the basin, ranging from small and large farmers, to large industrial and mining complexes, some of which are held by foreign companies. They are important for the respective governments because agriculture employs a significant proportion of the population and because industry, mining and natural resources are an important source of revenue in all countries. Most large companies deal directly with government officials. There are no large private water contractors, except for some engineering and construction companies that participate in water-related projects but do not however play any direct role at the ecoregional level. Many farmers are organized in cooperatives, hire water technicians (*mirob*) and are encouraged to form water user associations (WUAs), which are often supported by Western donors and which mostly provide for collective services that used to be provided by collective farming in the past.¹³ Representatives of WUAs, which are often weak organizations, usually participate in the governance system at the sub-basin level but are nowhere to be seen at the Amu Darya level, which is purely interstate.

WUAs are the closest thing to community-based organizations in the water sector but the fact that they are also providing collective services makes them a hybrid between organizations that represent users and service providers. Local NGOs are typically organizations gravitating around either a ministry or a donor, on which they depend. Of course, international NGOs such as Oxfam, Welthungerhilfe, etc., are also present on the ground. They may have some reach outside of the country where they operate at the Amu Darya level through the presence of offices in other countries of the region, through their headquarters and especially through their bilateral donor organizations, such as USAID and Swiss Development Cooperation (SDC), or multilateral organizations that may also act as donors, such as the World Bank and the United Nations Development Programme (UNDP), which also have regional programs in Central Asia, but the direct influence of NGOs at the basin level is minimal, except perhaps through contributions to the ASBP.

However, a unique NGO that is at the same time local and international is the Aga Khan Development Network (AKDN), the Aga Khan being the spiritual leader of the Ismailis, a moderate sect of Islam that is present in Badakhshan, an area split between Afghanistan and Tajikistan in the higher reaches of the Amu Darya, as well as the northern part of Pakistan. Because the Ismailis diaspora is spread all over the world, AKDN is present in many countries, including in post-Soviet Afghanistan and Tajikistan, and not only in the respective parts of these countries where Ismailis are majoritarian. If AKDN, which currently enjoys good relations with both Kabul and Dushanbe, has little or no reach at the ecoregional

¹³ See for instance Abdullaev, Kazbekov, Manthritilake, and Jumaboev (2010) and Lerman and Sedik (2017) on the specific case of the Kyrgyz Republic; on gender issues, see Nixon and Owusu (2017); on training aspects, see Balasubramanya, Price, and Horbulyk (2018).

level, it is instrumental in maintaining good relations on both sides of the border. AKDN and other NGOs can mobilize significant funding thanks to external donors.

WUAs and certain local NGOs are de facto hybrid in the sense that WUAs are often involved in fee collection on behalf of water service providers, usually under the national government, and are therefore perceived as quasi-government institutions, while certain local NGOs work so closely with national and local authorities that it is sometimes difficult to set the two apart. A similar argument can be made between local and especially international NGOs and donors.

Network structure

The structure of relations among riparian countries in the Amu Darya basin is horizontal.¹⁴ Even if some authors have spoken of Uzbekistan as hydro-hegemon¹⁵ in the basin, in the sense that they benefit from inequitable allocation of water and they control or at least try to control information, it is hard to characterize the situation as such. First of all, Turkmenistan also benefits from generous allocation of water, perhaps even more disproportionately. As Kai Wegerich points out, this situation is inherited from the Soviet period, where “the downstream riparian states, Turkmenistan and Uzbekistan, were utilized to produce cotton while upstream Tajikistan used water for energy production”.¹⁶ Of course, Uzbekistan is perhaps the most powerful country in the region, with the largest population, significant natural gas reserves and a developed industrial complex and infrastructure. However, most importantly, a significant part of both Turkmenistan and Uzbekistan is covered by desert with very little precipitation. The needs of both countries in terms of water are therefore high. Turkmenistan also enjoys significant natural gas and oil reserves, but its population is much smaller and its agricultural and industrial complex is less developed than in its neighbor to the east.

If Uzbekistan and Turkmenistan are larger, wealthier and ultimately more powerful, they are still downstream countries and, as such, find themselves in a position of weakness, in the sense that they depend on water flowing from upstream countries, in this case mostly Tajikistan, from where approximately 80% of the water runoff of the Amu Darya basin comes from, as well as Afghanistan and the Kyrgyz Republic.¹⁷ In the period following independence, Turkmenistan’s foreign policy has however been characterized by strict neutrality, which translated in the almost isolation of the country from the rest of the world, including its neighbors, particularly in the decade before the death of former president Saparmurat Niyazov in 2006.¹⁸ The path of Uzbekistan has been different but also shared some resemblances. In the period until the death of former president Islam Karimov in 2016, the relations of Uzbekistan with neighboring countries have often been complicated, favoring bilateral relations over multilateral relations in the region, such as those within IFAS and, in general, around the basin.

Moreover, during and after the civil war in Tajikistan, relations between the two countries, where significant minorities of Tajiks and Uzbeks live, have often been tense, particularly around water resources. Uzbekistan opposed the completion of the Rogun hydropower project, which had started in Soviet times, with all means possible, including constant blaming in international fora, the implementation of temporary blockades, the suspension of the delivery of natural gas and even threatening military intervention, in case Tajikistan went ahead with the project. In return, Tajikistan, which is a country with few natural resources other than water, started branding itself as a “water country” and being extremely active on water cooperation at the global level, while keeping cooperation

¹⁴ For an introduction to water, poverty and power, read Watkins (2006); for an in-depth critical analysis of water and power in Central Asia, see Menga (2017).

¹⁵ See Wegerich (2008), Menga (2016), as well as Zeitoun et al. (2017); for a case study from the Syr Darya basin, see Zinzani and Menga (2017); for a critical reading of the concept of hydro-hegemony, see Warner et al. (2017).

¹⁶ Quoted from Wegerich (2008, p. 71).

¹⁷ See Lipponen (2011, p. 108).

¹⁸ On the international cooperation of Tajikistan on water resources, see Church (2014a).

with the reluctant neighbor to the minimum.¹⁹ This contributed counterbalancing the threats of Uzbekistan and resulted in the World Bank conducting an independent feasibility study that turned out generally in favor of the completion of the project and in the resuming of construction, which is currently scheduled to be completed around 2030.

The arrival of Gurbanguly Berdimuhamedow in 2007 in Turkmenistan and especially of Shavkat Mirziyoyev in 2017 in Uzbekistan is changing the dynamics among the countries in the region. This is starting a new era of cooperation with opportunities also for the Amu Darya basin. For instance, both the president of Tajikistan and the president of Uzbekistan have spoken in favor of the joint construction of two new reservoirs and hydropower plants in the Tajik part of the Zarafshon, which is a tributary of the Amu Darya and runs through important cities such as Penjikent and Samarkand.

However, if relations with Tajikistan are improving, relations with the Kyrgyz Republic have become difficult. Over the last few years, Bishkek has been contesting fiercely the water allocation that was set up in Soviet times and the institutional setting that oversees it to the point of suspending its participation in IFAS and its bodies in 2016 because “the reforms (...) repeatedly proposed by Kyrgyzstan were not carried out” and because IFAS “does not take into account hydropower aspects of water use and the requirements of individual countries of Central Asia.”²⁰ If this situation has limited direct impact on the Amu Darya, as only a small part of the Kyrgyz Republic falls within the basin, this is undermining the functioning of IFAS and therefore ICWC and the BWO.

So, the three upstream countries, if they share many interests and features, are far from constituting a united front within the basin and at the regional level. Tajikistan remains engaged with IFAS, but remains a small and relatively poor country, similarly to the Kyrgyz Republic, which is instead contesting IFAS. In the meantime, Afghanistan remains in an observer position within IFAS and considers itself not ready to fully engage in cooperation at the basin level. The war is not over and its development plans are not clear, particularly with regard to the development of irrigation and possibly hydropower in its part of the basin.²¹ Afghanistan can therefore be considered as a free-rider in the sense that it is using the shared resource without giving much in return, except perhaps participating in some technical projects. For instance, all riparian countries contribute proportionately to the ASBP, but not Afghanistan.

Property-right systems

The Amu Darya basin ownership structure is straightforward, with each part of the basin being under the sovereignty of the riparian states. Within the countries, the land on which water flows is typically under a regime of public, private or communal property. Pastures under communal property without proper management are often an issue in the region, because of overgrazing that results in soil degradation and contributes to desertification and natural disasters such as floods and landslides. Some lands are effectively owned and managed by the state, such as in the case of national parks or nature reserves. Even if the state still controls a large part of the economy in the former Soviet republics of Central Asia, many lands are private property, which limits what the state can do on water management and restricts the use of eminent domain.²² Publicly and privately held land may also be mismanaged, leading to undesirable outcomes. However, the property regime of water and water-related infrastructure is a complex issue, like in most places. Rainwater is in fact typically property of the landowner, but

¹⁹ For an introduction to the water and energy crisis in Central Asia, including the Syr Darya, see Libert, Orolbaev, and Steklov (2008); for a Tajik perspective, see Laldjebaev (2010), while on the soft power of Tajikistan on water resources, see Church (2017); for a critical perspective, read Menga (2015).

²⁰ Citation of a statement by Dinara Kemelova, First Deputy Minister of Foreign Affairs of Kyrgyzstan, at the 3rd High Level Dialogue between the European Union and Central Asia and Afghanistan, held in Brussels on 19 May 2016. I would like to express gratitude to Dinara Ziganshina for this quote.

²¹ See Horsmann (2008) and Zoi Environment Network (2013).

²² On irrigation in small farms in Tajikistan, read Dörre and Goibnazarov (2018).

groundwater located under the land is not. Typically, groundwater is considered a mineral resource owned by the state. A special water use permit is necessary to extract it. These permits are typically issued by national authorities. Then, there is the issue of canals, pipes and other infrastructure used to deliver water. Those within farms, factories and buildings are typically property of the owner, which in some cases can be the state. In case of former collective farms or housing that has been privatized, the ownership of these canals, pipes and other infrastructure is sometimes unclear, because they have not always been transferred from the state to the new owners or associations of owners, such as WUAs. These hydrotechnical elements are also key components of a basin, especially in the case of highly anthropic basins such as the Amu Darya.

Inter-farm and inter-building canals, pipes, levees, dams and all other water-related infrastructure, as well as of course large and small rivers and lakes, are typically property of the state or local authorities, which may have them managed by public, private or hybrid water service providers. State-run water service providers are the norm, which confirms the key role of the state and public authorities in general for water resources in the basin. In all riparian countries, water is the property of the state. Public authorities faced difficulties in transitioning from a planned economy, where they were both regulators and operators, to a market economy, where public authorities typically have a more regulatory role. Some countries, particularly in the case of the Kyrgyz Republic and, to a lesser degree, Tajikistan, have been trying to integrate some market elements in the management of water service providers, working particularly on the cost-recovery basis and considering water as a commodity. However, this process is in its infancy and governments maintain a strong control over water resources, also because of the need to ensure coordination at the interstate level.²³

Interstate canals, water-related infrastructure and the transboundary parts of rivers are shared by riparian countries. Some of them are formally owned by the BWO Amu Darya, which is supposed to jointly manage them. So, even if public property prevails by far over other types of property at the basin level and if some interstate institutions are in place to manage the shared resource, water in the Amu Darya basin is a typical example of a common pool resource. In fact, no riparian country can control access to the resource and, even if it is renewable in the sense that the water cycle makes it circulate in the basin from the glaciers to the Aral Sea, there is rivalry for the resource, because once it is grabbed, there is less for downstream reaches and especially for the Aral Sea.

Operational-choice rules

The operational-choice rules in place are for the most part fitting the Amu Darya basin. The scope of IFAS and ICWC covers, in fact, the whole basin, except for Afghanistan.²⁴ These institutions were set up in the Soviet period, when there already was significant experience with the basin approach. In theory, Afghanistan could join IFAS, ICWC and BWO Amu Darya and the fit would be perfect. These institutions were original developments, designed on purpose to solve the Aral Sea crisis.²⁵ They were an important component of the follow-up to the master plans for integrated management of water resources in the Amu Darya and Syr Daria basins developed in the 1980s to solve the problem of the Aral Sea, taking into consideration the nexus among irrigation, hydropower and other types of water uses.²⁶ In particular, the master plans limited water extraction per hectare of irrigated land and shared the resource in the form of a percentage of the available volume for each one of the five republics. The

²³ On the challenges of the transition period, see Wegerich (2004).

²⁴ On the shift from administrative to hydrological boundaries, see Wegerich (2015).

²⁵ See for instance the historical and spatial analysis published in the edited book by Академия наук СССР. Институты и антропологии им. Н. Н. Миклухо-Маклаа and Академия наук СССР. Научно-исследовательский координирующий центр Арал (1991).

²⁶ For a recent perspective on the nexus approach in Central Asia, see Granit et al. (2012); specifically on water and food security, see Madramootoo, Dukhovny, Baker, and Fyles (2011).

master plans were updated at regular intervals and values were set for the last time in 1987 by the Ministry of Land Reclamation and Water Management of the Soviet Union in Moscow.²⁷

The BWO Amu Darya was created, among other things, to monitor the respect of these limits and update these values on a regular basis at the operational level. Since 1997, the BWO is mandated to make on-the-spot adjustments to water allocation based on actual water availability in the basin, essentially based on measurements at Termez, on the border between Uzbekistan and Afghanistan, provided that they fall within 10% of the total available water resources. If they exceed these limits, the ICWC must be seized for further adjustments. Similarly, since 1998, the BWO is authorized to increase withdrawals in case of emergency situations. However, because of the tense relations between upstream and downstream countries, this system works mostly among downstream countries. In 2007, Turkmenistan and Uzbekistan signed an agreement to meet bilaterally every fifteen days with the BWO to discuss the day-to-day management of water distribution. This is very important for example for the Karshi cascade. Six large pumping stations located on the Turkmen side lift water 132 meters above the Amu Darya to irrigate about 500 thousand hectares of land on the Uzbek side.²⁸

The system of operational rules is rather responsive. However, Dinara Ziganshina assesses practices in the Amu Darya basin about extremes such as droughts and floods to be “reactive rather than proactive.”²⁹ The system in place is designed mostly for rather short-term adjustments at intervals between one day and one year. This system is not really designed to tackle longer-term adjustments to phenomena such as the decade-long disappearance of the Aral Sea and climate change. The Aral Sea crisis is a typical example of failure of a quota-based system for natural resources management. In fact, water flows are hard to anticipate and it is difficult for governments to ensure the respect of withdrawal limits.

Operational rules at the basin level are therefore quite specific about water quantity, while they are generic regarding other issues such as water quality and ecological status. Limits set by ICWC are based on international treaties and are legally binding for the contracting parties. The overall approach is strictly based on regulation. The financial component is limited to the projects under the ASBP and to various projects and programs implemented by development partners. Projects under the ASBP subsidize activities that are meant to have a positive impact on the Aral Sea basin. The program aims at providing a coordinated and balanced response to the Aral Sea crisis. It is jointly funded by all riparian countries, including upstream ones but excluding Afghanistan, and is supported by a wide range of development partners.

However, other projects implemented in the basin do not necessarily go in the same direction as the ASBP and do not always consider the Amu Darya basin as a whole. For instance, if projects such as the Rogun hydropower plant and other hydropower-related projects undergo much scrutiny because of the impact of the reservoir filling and of the hydropower management on the river flow in terms of withdrawals, little or no attention is paid to rural development projects and programs, such as those supported by the European Union and the World Bank, that aim at sustaining the livelihoods of the rural population but that also result in the rehabilitation of infrastructure without giving too much thought on the impact on withdrawals. For example, every rehabilitated pump usually means more water taken from the river. Donor leave these issues entirely with the riparian countries.

Moreover, national governments and local authorities may have plans to increase agricultural or industrial output, including aquaculture, which often translates into an increase of irrigated land or withdrawal of industrial water.³⁰ This is happening on the backdrop of demographic growth both in

²⁷ See the Minutes 566 of the meeting of the Scientific-Technological Council of 10 September 1987, approved on 3 December 1987 by Nikolay Vasiliev, Minister of Land Reclamation and Water Management of the Soviet Union.

²⁸ See Dukhovnyi and Schutter (2011, pp. 164-167).

²⁹ Quoted from Ziganshina (2016, p. 4); see also Abdullaev (2011).

³⁰ On inland fisheries, refer to the report by Thorpe and Anrooy (2009).

urban and rural areas, as population increase in rural areas is still stronger than the urbanization process. Of course, governments encourage at the same time water saving, as manifested by the Turkmen holiday “A Drop of Water is a Grain of Gold”, which is celebrated every year on the first Sunday of April, better management, for instance at the local and sub-basin level and through WUAs, and improved crops, like the Uzbek decision to switch to winter wheat to save water, and technologies, such as drip irrigation. As a result, even if all governments agree about the importance of water saving in a region that is partially desertic and about the fact that the Aral Sea crisis needs to be addressed, resulting policy signals are mixed with a high degree of disturbance, particularly with policies that favor rural and industrial development. Still, many policies are win-win, such as the creation of multipurpose reservoirs that can be useful for irrigation, hydropower, disaster risk reduction, as well as recreation.

Collective-choice rules

So, the percentage of how much water each riparian country is authorized to withdraw was decided in Soviet times in Moscow. Instead, the total volume of water available every year is established every year by the ICWC. Representatives meet at the level of heads of the national water authorities. Decisions are made by consensus for the whole Aral Sea basin, including the Syr Darya, and are based on hydrometeorological data. Then there is the ASBP, which developed from a diagnostic study produced in 1991 by the Soviet Union in collaboration with UNEP and is vaguely inspired by the action plans of regional seas. There have been three programs so far: 1994-2002 (ASBP-1), 2003-2010 (ASBP-2) and 2011-2015 (ASBP-3). ASBP-1 was supposed to require between 500 and 750 million dollars over 10 to 15 years. It is estimated that the ASBP-1 represented an investment of more than 300 million dollars by riparian countries and that ASBP-2 exceeded one billion dollars, to which donor support must be added.

The implementation of ASBP-3, which consisted in more than three hundred projects, has however been complicated by tensions between upstream and downstream countries especially about hydropower development, while ASBP-4 is still under development after the two downstream chairmanships of Uzbekistan (2015-2017) and Turkmenistan (2017-2019), which resulted in the riparian countries deciding to go ahead and develop the new program without the Kyrgyz Republic. Chairmanships in fact rotate and play a key role in the process, as they physically host the Executive Committee of IFAS for two years. They set the agendas of meetings and pursue certain priorities, not always successfully, for the duration of their mandate.

The governance of the Amu Darya basin is part of the international regime of the Aral Sea basin. The regime is held together by an intricate legal framework, including a large number of international treaties and secondary sources, sometimes dating back to the Soviet period. However, the regime is more or less functioning in the sense that riparian countries expect each other to participate and follow its rules. The regime is kept in place at the cost of an elaborate set of institutional layers and a large amount of meetings.

In exchange, riparian countries ensure good neighborly relations by jointly managing waters and benefit from generous funding from donors and other development partners for the implementation of projects at the national and regional level within but also outside the framework of the ASBP. The exact amount of funding available from donors is difficult to calculate and varies across time and from one country to the other because of different levels of development, but it is in any case significant. In the 1990s, donors committed about 400 million dollars to support implementation of ASBP-1, which was about two-thirds of the overall cost of the program. In the case of Tajikistan, donors covered 62% of total water expenditures in the country in 2014, up from 11% in 2007.³¹ It is hard to tell how much of this funding goes for programmatic functions, how much for administrative issues and how much is lost due to corruption. However, given the importance of infrastructure rehabilitation in the water sector and the

³¹ See Namov LLC (2016).

low cost of labor in the region, it is safe to say that more goes to the concrete implementation of programs.

Fundraising for water issues in the Aral Sea basin is in fact not too problematic. The disappearance of the Aral Sea represents one of the worst environmental disasters in the world. António Guterres, United Nations Secretary General, spoke of a “tremendous shock” after visiting the area in June 2018. Moreover, the war in Afghanistan ensures high levels of funding available for a region where some countries such as Germany or Switzerland, but also the United States and the Russian Federation, fear that conflict over natural resources management and particularly water may result in a contagion effect throughout the region.

Still, it must be noted that IFAS is formally autonomous from other international organizations. If Turkmenistan, which strongly supports the United Nations because of its neutrality, proposed many times to establish a regional structure on water issues under the United Nations, other countries are not yet supportive of the idea. They rather maintain the autonomous structure in place.

Public participation at the basin level is strictly through government representatives under IFAS. Some donors and multilateral development partners provide technical assistance to the Executive Committee of IFAS and take part in the preparation of the ASBP, thus making the overall process slightly more transparent to outside inquiry than the rest of the international regime. The information available on the internet is limited to what the chairmanships and Executive Committee of IFAS, the Scientific Information Center of ICWC and few other instances make available, usually with the support of project funding.

There is no IFAS Secretariat properly speaking. These functions are exercised by the rotating chairmanship and by the Executive Committee of IFAS, which has branches in each riparian country. There is an ICWC Secretariat in Dushanbe, while the Scientific Information Center of ICWC is based in Tashkent and fully staffed and paid for by Uzbekistan, also with branches in each riparian country. The BWO Amu Darya is based in Urgench, Uzbekistan, with branches in Kurganteppe, Tajikistan, and Turkmenabad, Turkmenistan. The general principle in the region is that the hosting country pays for the expenses of the hosted structures. The staff of basin institutions is therefore generally local, except for the Executive Committee of IFAS, whose staff is composed by representatives from each riparian country. This increases the credibility of IFAS as a regional process, while undermining the other structures, which may be suspected of being too close to the host country.

Intersectoral coordination in the Amu Darya is not performed at the basin level, except for the establishment of withdrawal limits and the development of the ASBP. The bulk of intersectoral coordination currently takes place at the national level. Former Soviet republics have a long tradition in the intersectoral management of land, energy and water resources.³² Since the late 2000s, all riparian countries are engaged in one way or the other in the adoption of IWRM.³³ Coordination usually takes place at the government level through policy or planning documents such as water-related laws, river basin plans and feasibility studies for water-related infrastructure and other projects.

The governments of riparian countries are effective at developing national priorities and sticking to positions. Changes are rarely exogenous. They are rather the product of domestic change and sometimes interaction among riparian countries. Other processes indirectly interfere with basin governance. For instance, both Uzbekistan and Tajikistan have tried to use the United Nations, the World Water Forum, as well as a host of other venues and partners, to change the terms of the discussion about the completion of the Rogun hydropower project. Donors and other external factors may interfere with decision-making.

³² See in particular Dukhovny and Horst (2008), as well as Wouters, Dukhovny, and Allan (2007), Dukhovny, Mirzaev, and Sokolov (2008) and Dukhovny, Sokolov, and Ziganshina (2014).

³³ See for example Abdullaev and Rakhmatullaev (2015).

However, power is sufficiently concentrated at the level of the central government to make decisions-making relatively straightforward.

Constitutional-choice rules

The 1992 Almaty Agreement mentions the principles of cooperation and interdependence to pursue policy coordination for economic growth and better living standards.³⁴ It also mentions the equal rights and responsibilities of the former Soviet republics of Central Asia, as well as the need to ensure the rational use and protection of water resources. This call for rationality and balance in the use of natural resources corresponds more or less to the concept of sustainable development. These are the general principles still guiding to this day water cooperation in Central Asia, to which it is possible to add, perhaps, the concept of mutually beneficial solutions, which is often found in official documents and statements, such as the 2009 Joint Statement of the Heads of States Founders of IFAS.³⁵

However, perhaps the most important guiding principle for water cooperation in the Amu Darya basin is the water allocation among riparian countries, decided in 1987 by the Ministry of Land Reclamation and Water Management of the Soviet Union in Moscow (Table 2 and

Table 3). This allocation is based on a number of assumptions and divides the basin in three parts: Upper Amu Darya, Middle and Lower Amu Darya, Aral Sea. For the Upper Amu Darya, it considers Kyrgyzstan, Tajikistan, as well as the Surkhandarya Province of Uzbekistan; for the Middle and Lower Amu Darya, it divides water equally between Uzbekistan and Turkmenistan; for the Aral Sea, it considers the Dashkhowuz Province of Turkmenistan, as well as the Khorezm Province and the Republic of Karakalpakstan of Uzbekistan.

For an outside observer, these principles seem highly inequitable, especially if one compares water allocation per person between Tajikistan, on the one hand, and Uzbekistan and Turkmenistan, on the other (Figure 14). However, all countries seem accepting of this allocation, take its yearly adjustment to predicted flow very seriously and strive to show that their actual withdrawals, if they are not always exactly within established quotas, they are at least not too far away from the agreed limits. Acceptance derives from the fact that downstream countries are partly desertic, hugely depend on water and are ultimately those who suffer directly from the disappearance of the Aral Sea.

Another reason why upstream countries accept this allocation is that, if one compares water allocation per hectare of irrigated land between upstream and downstream countries (Figure 15), which is the key parameter in countries where agriculture uses more than 90% of freshwater resources, it appears that on average upstream countries are allocated more water per hectare, about twice as much as Uzbekistan. The reason for this difference is mentioned in the 1992 Almaty Agreement, i.e. the need to consider the imbalance in irrigated land in Tajikistan, which is less than in neighboring countries also because of its mountain terrain. The agreement does not mention how this can be taken into account. However, it is possible to assume that this can be done through monetary transfers where downstream countries compensate upstream countries for the imbalance, through technological transfer to increase productivity or through a renegotiation of water allocation.

These principles are far from being obsolete. They are now deeply engrained. No country is ready to open this Pandora box. The only exception is the Kyrgyz Republic, which has been openly contesting the current system for years now. The allocation decided in Soviet times therefore remains a cornerstone for water management in the Amu Darya basin. However, the end of war in Afghanistan and the development of its economy will probably force riparian countries to reconsider water allocation in the basin and possibly the whole management system.

³⁴ On the international legal framework for water management in Central Asia, read Ziganshina (2014).

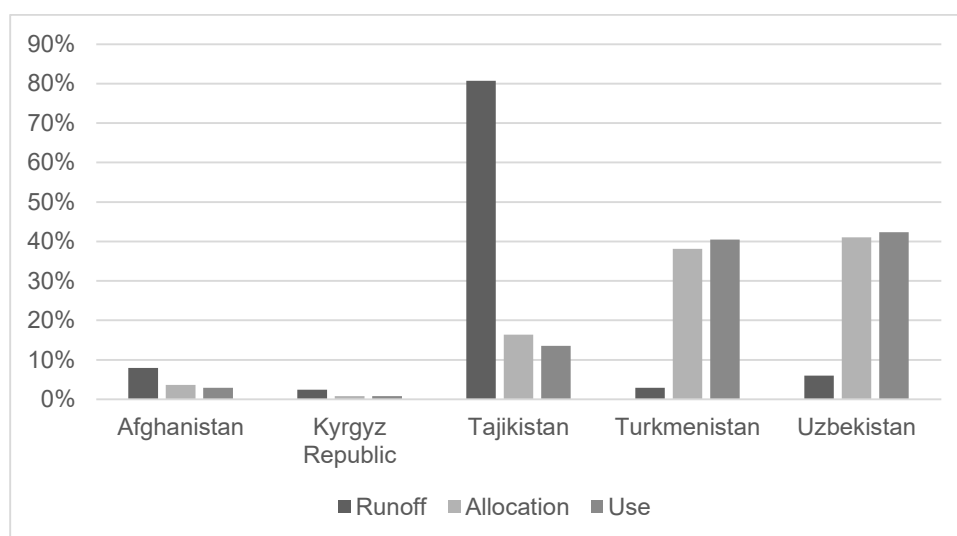
³⁵ On the specific question of the 1992 UNECE Water Convention, see Libert, Trombitcaia, Enderlein, Vykhryst, and Steklov (2011) and Libert (2015).

Table 2: Total water runoff, allocation, use in the Amu Darya basin

Country <i>Unit of measure</i>	Water runoff <i>km³/year</i>	Water allocation <i>km³/year</i>	Water use <i>km³/year</i>
Afghanistan ³⁶	6.18	2.10*	2.00**
Kyrgyz Republic	1.90	0.45	0.54
Tajikistan	62.9	9.50	9.40
Turkmenistan	2.27	22.15	28.15
Uzbekistan	4.70	23.85	29.40
Total	77.95	60.15	69.49
Source ³⁷	EC IFAS (2011)	ICWC (2011)	BWO (2010)

Table 3: Total population, irrigated land and agriculture use in the Amu Darya basin

Country <i>Unit of measure</i>	People <i>million</i>	Irrigated land <i>thousand ha</i>	Agriculture withdrawals <i>percentage</i>
Afghanistan	7.84	460	98,6%
Kyrgyz Republic	0.06	22	93.0%
Tajikistan	5.00	469	90.9%
Turkmenistan	2.14	1,732	94.3%
Uzbekistan	5.07	2,321	90.0%
Total	20.11	5,004	
Source ³⁸	LandScan (2011)	Dukhovny & Sokolov, Zonn (2002)	AQUASTAT (2000-2006)

**Figure 13:** Water runoff, allocation, use in the Amu Darya basin per country (percentage)

³⁶ Values for Afghanistan are based on the assumption made by the Soviet Union when deciding upon regional allocation in 1987 (*) and on estimates for water use (**), mentioned in UNEP et al. (2011, p. 44).

³⁷ These figures are taken from Lipponen (2011, pp. 107-111) and UNEP et al. (2011, p. 44).

³⁸ These figures are taken from Lipponen (2011, pp. 107-111) and Wegerich (2008, p. 83).

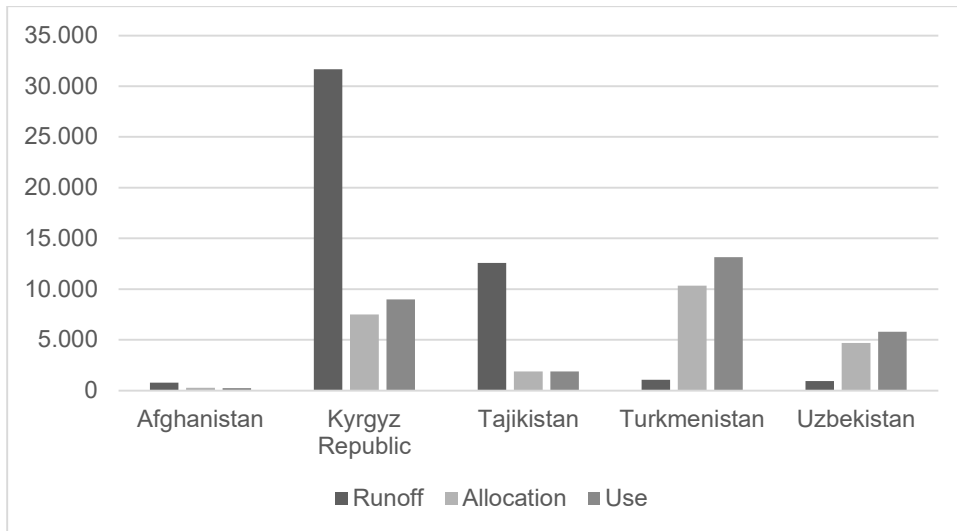


Figure 14: Water runoff, allocation, use in the Amu Darya basin per person (m³/year)

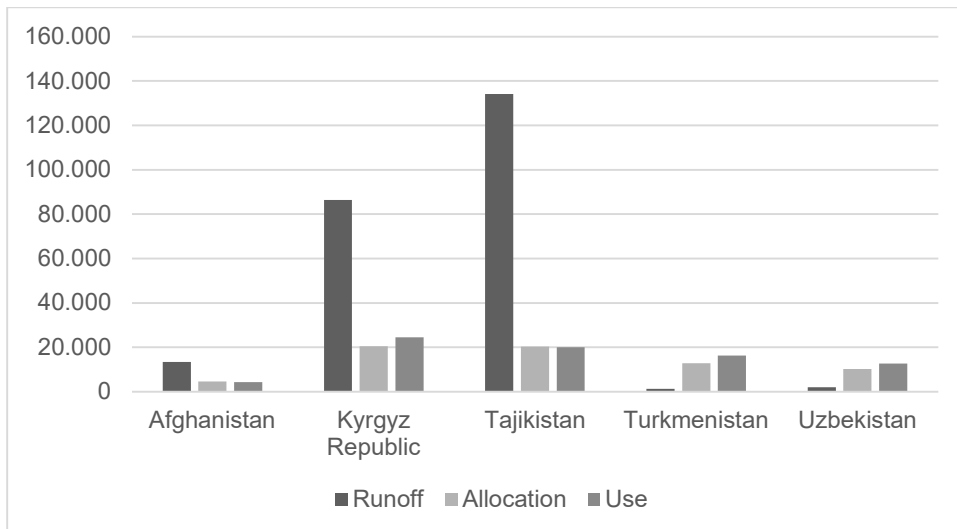


Figure 15: Water runoff, allocation, use in the Amu Darya basin per hectare of irrigated land (m³/year)³⁹

Monitoring and sanctioning rules

The Aral Sea basin is perhaps among the best studied water bodies in the world due to its decade-long disappearance and the huge problems that result from this. Hundreds of reports have been written and more than forty models of the basin have been developed by different organizations. In Soviet times, an elaborate observation system was in place, involving both ministries, such as the Central Asian Irrigation Research Institute (SANIIRI), which had been established in 1924 in Tashkent, and the Design and Technological Institute for Water Automatization and Sensing in Bishkek, and academia, such as the Aral Research Coordination Center of the Academy of Science of the Soviet Union that was based in Nukus, Uzbekistan.⁴⁰ After independence, because of the need of data for decision-making, particularly of flow predictions based on hydrometeorological data for ICWC to set yearly limits for water

³⁹ Calculation of the author adjusted for the percentage for agriculture of total freshwater withdrawal at the country level (latest available data from FAO AQUASTAT).

⁴⁰ See Zonn et al. (2009, pp. 68-69).

withdrawal, the Scientific Information Center of ICWC, which is still active, was established in Tashkent and a Coordination Metrological Center of ICWC was established in Bishkek, which is instead now defunct.⁴¹

The Scientific Information Center of ICWC, which has been fully staffed and funded by Uzbekistan since its creation, is meant to collect water-related information and knowledge about the Aral Sea basin and provide it to the ICWC to support decision-making. This puts it in a key position to observe the Amu Darya basin. So, it has become over the years the knowledge hub on water resources in the region. However, its proximity to Uzbekistan has been contested for years especially by upstream countries, which cooperate only in part, refuse to provide more data than the strict necessary for ICWC to take decisions and consider some analysis made by ICWC as controversial. For instance, Viktor Dukhovny, long-time director of the Center, defends that, according to an average warming scenario, the consequence of climate change in the region will be a reduction of water availability by 2050.⁴² Representatives of upstream countries argue however that water availability will first increase due to snow and glacier melting and that this should be taken into consideration by ICWC for decision-making about allocation.

This deadlock results in lack of reliable data and poor forecasting. The analysis of Amu Darya forecasts between 1991 and 2001 showed that the forecasts for the growing season proved correct in four out of ten cases, whereas those for the non-growing season have never been correct.⁴³ For this reason, development partners have been supporting for years all sorts of national and regional projects to improve the data and knowledge base about water resources in the region, including through remote sensing, especially to study the retreat of glaciers and the levels of lakes and reservoirs.⁴⁴ Through these projects, some development partners, such as the World Bank or the German International Cooperation (GIZ), are developing parallel databases that they use to support their own decision-making in the region, including Afghanistan, on issues such as risk assessment.

The biggest limit of the monitoring rules in place in the Amu Darya basin is that, because of the disappearance of the Aral Sea, so much emphasis is put on water quantity that little is done on water quality and the ecological status of the basin. Moreover, it is for everyone to see that, for more than six decades, the system in place has failed to restore the Aral Sea to its previous levels. In the 1980s, the Soviet Union had developed a whole planning system and a wide range of institutions to address the issue. After independence, the former Soviet republics disbanded the planning system. For instance, the Amu Darya master plan expired in 2010 and has not been updated since 1984.⁴⁵ Riparian countries kept only the quota system in place, often failing to allocate the correct amount of water and to respect the quotas.

In the Amu Darya basin, this results in tensions between downstream and upstream countries, usually around the release of sufficient water for irrigation during the growing season in the summer and the risk of flooding during the melting season in the spring, such as in 1998, which resulted in substantial damage downstream and that unfortunately causes every year significant damage upstream. Moreover, downstream countries frequently accuse upstream countries of not respecting the established limits and of not ensuring a regular flow of water. The biggest tensions arose between Uzbekistan and Tajikistan around the reactivation of the Rogun hydropower project after the Tajik civil war. The Uzbek side defended its position with all means possible, including constant blaming in international fora, the

⁴¹ For a review of the water-related information system in Central Asia, see Denisov and Libert (2012).

⁴² See especially Dukhovny (2018), produced in the framework of the USAID-funded project “Transboundary water management adaptation in the Amudarya basin to climate change uncertainties”.

⁴³ See Ziganshina (2016, p. 4).

⁴⁴ On the Altyn Asyr artificial lake that is currently undergoing construction in Turkmenistan, see Zonn and Kostianoy (2014).

⁴⁵ See Васильев, Трунова, and Сафонов (1984).

implementation of temporary trade blockades, the suspension of delivery of natural gas and even threatening military intervention.

The 1999 Ashgabat Agreement about the Status of IFAS and its Organizations mentions that disputes and disagreements shall be resolved by negotiations and consultations. No formal dispute settlement mechanism is in place. The water-related disputes around Rogun are among the reasons that convinced the United Nations Secretary General to establish in 2007 the United Nations Regional Center for Preventive Diplomacy for Central Asia (UNRCCA) in Ashgabat, which works closely with the United Nations Security Council, and to give it a mandate to follow closely the situation around water resources. For many years, not only the United Nations, particularly through the United Nations Economic Commission for Europe (UNECE) which services the 1992 Water Convention, but also other countries and organizations, such as the World Bank, used their good offices to ensure that the dispute would not escalate into conflict.⁴⁶

The possibility of taking the dispute to the International Court of Justice was also considered, but no country in the region has so far accepted the compulsory jurisdiction of the court. In the end, the conduction of a feasibility study by the World Bank on purely technical grounds allowed the countries of the region, as well as investors, to be reassured about the concrete implementation of the project and find a common ground. However, it is the change in leadership in Uzbekistan that ultimately allowed going beyond the dispute and even envision the joint construction by Tajikistan and Uzbekistan of two reservoirs and hydropower plants in the Zarafshon river basin. This is a concrete sign of changing tides for cooperation in the Amu Darya ecoregion.

This case study is based on participant observation by the author as officer and consultant of the United Nations and the European Union in Turkmenistan and Tajikistan between 2011 and 2019, on a training organized in 2012 by the Russian, East European, and Eurasian Center (REEEC) of the University of Illinois, Urbana-Champaign, with the support of the US State Department and on a review of the scientific and grey literature available. It also builds on research by Angel Versetti, a former student at Sciences Po's Campus of Reims.

⁴⁶ See Wolf (2007) and Delli Priscoli and Wolf (2009) on managing water-related conflicts and Jozan (2012) for a sociological inquiry on the specific case of the Aral Sea; see also Moerlins, Khankhasayev, Leitman, and Makhmudov (2008) and Stucki, Wegerich, Rahaman, and Varis (2016).

The Great Lakes ecoregion

The second freshwater ecoregion is the Great Lakes. This chapter includes an analysis of the social, economic and political settings, of government and nongovernment organizations, of the network structure, of property-rights systems, of operational, collective and constitutional-choice rules, as well as monitoring and sanctioning rules. The analysis discusses both the International Joint Commission between the United States and Canada and the Great Lakes-St. Lawrence River Basin Water Resources Council. The governance system of the Great Lakes ecoregion is remarkably similar to that of the Baltic Sea.

The North American Great Lakes, not to be confused with those in Eastern Africa, is a system of five major interconnected lakes: Superior, Michigan, Huron, Erie and Ontario. Water flows from west to east. The lakes drain into the Saint Lawrence River, which in turn drains into the Atlantic Ocean. The Saint Lawrence river is also part of the basin. The Great Lakes form one of the largest freshwater systems in the world. The area is located between the central and eastern part of Canada and the United States, along the border. It includes the whole of Michigan, as well as parts of the US states of Illinois, Indiana, Minnesota, New York Ohio, Pennsylvania and Wisconsin and of the Canadian provinces of Ontario and Quebec.

Because of the latitude, precipitations and hydrological configuration, the Great Lakes have little or no problems with water scarcity. Eventual Problems with water levels are related to management issues, precipitation variability, as well as climate change. Their big problem is water quality, especially in Lake Erie, which is the shallowest among the five lakes, and in Lake Ontario, which is located in the lowest part of the drainage system, where a lot of pollution ends up. The main water quality problem is eutrophication, like in the Baltic Sea.¹ This means that the waters suffer from excessive loads of nutrients. They are particularly the nitrogen and phosphorus coming from fertilizers used in agriculture and, indirectly, cattle breeding, but also from sewage, including phosphate detergents, which have now been phased out. Eutrophication typically results in algal growth, loss of water clarity, oxygen depletion and ultimately the “dying out” of water. This happened in the 1960s in Lake Erie, causing a wave of popular concern. However, before this happens, increased nutrients can also be benefic for the fishing industry and algaculture, because of increased fodder, before bioproductivity collapses because of lack of oxygen.² The regulation of water levels can also be a problem especially for navigation, particularly in Lake Ontario and the Saint Lawrence River and agriculture.³ Pollution from oil transport and refineries, hydraulic fracturing and groundwater are also issues.⁴ It should not be forgotten that part of the modern oil and plastic industry was born along the shores of Lake Erie, that a large number of refineries are located in the basin and that fracking is taking place also within the basin, with consequences for both surface and groundwater.

¹ There are studies, comparing the Great Lakes with the Baltic Sea, such as Rafal and Jerzy (1988) and Jetoo (2018a).

² See Reitze (1968) and Regier (1992).

³ See Pentland (2013), Shlozberg, Dorling, and Spiro (2014), as well as Clamen and Macfarlane (2015).

⁴ See Francis (1989) on groundwater and Schroeck and Karisny (2012) for a legal perspective on fracking in the Great Lakes.

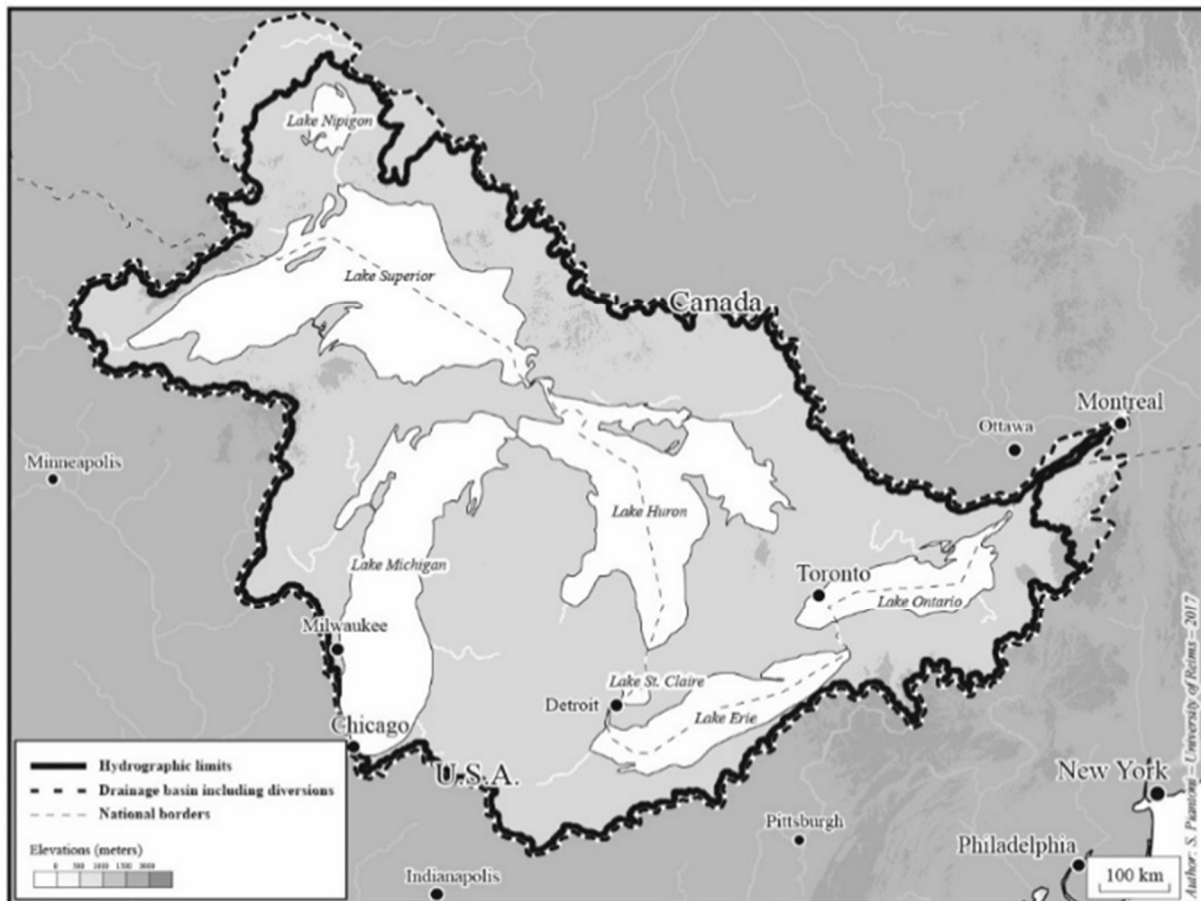


Figure 16: The Great Lakes ecoregion with its hydrographic limits and drainage basin including diversions. Source: drawn by Sébastien Piantoni for this monography.

However, eutrophication can occur also in complex ways. This was the case of the unprecedented algal bloom of 2011 that was linked not only to high phosphorus loading from agricultural practices but also to meteorological conditions and slow circulation of water in the lake.⁵ This led to problems such as drinking water contamination in Toledo, Ohio, in 2014 that was due to microcystin, which is a poisonous toxin produced by algae cyanobacteria in the lake source water.⁶ Other complex dynamics can be linked to climate change, as well as the high level of persistent toxic substances in the water. According to Lee Botts and Paul Muldoon, problems include “the persistence of concentrated ‘hotspots’ of toxic contaminants in sediments on the lake bed, especially in ports and near industrial outfalls, the buildup of bioaccumulative toxics in the flesh of fish and other aquatic life, as well as airborne deposition of pollutants.”⁷ The issues are so many that interactions can be so complex, so as to be virtually unpredictable. Further issues include other types of pollution such as organochlorines and other chemical compounds coming from pesticides, pharmaceuticals and industry, overfishing, water diversions, hydropower production, navigation and exotic pests such as the sea lamprey, which attacks fish in the basin and which has been a problem for more than a century.⁸ Recreation is another significant factor in the basin.⁹

⁵ See Michalak et al. (2013).

⁶ See Jetoo, Grover, and Krantzberg (2015).

⁷ Quoted from Botts and Muldoon (2005, p. 27).

⁸ See Shimizu, Regier, Kay, and Ulanowicz (1997, p. 363).

⁹ For a general introduction to the Great Lakes ecoregion, read Weller (1990) and refer to Fuller and Shear (1995).

Social, economic and political settings

The Great Lakes ecoregion is shared by two of the highest income countries in the world. Still, there can be significant variation locally, including areas with important concentrations of people living below the poverty line, particularly in some rural areas, urban neighborhoods and Native American territories.¹⁰ Looking at the dynamics between urban and rural areas, demographic trends tend to follow the same trends as the economy, as wealthy areas tend to attract more people due to migration movements. However, the situation can be different in some poor urban neighborhoods, which can also experience population growth, especially due to migration from poorer countries and, in some cases, rural areas. In both countries, the political system is stable with regular alternation between left-wing and right-wing governments at the national level and a tendency towards more stable political orientation at the level of governors of American states and premiers of Canadian provinces.

The main ecoregional process in the basin is the International Joint Commission. It is based on the 1909 Boundary Waters Treaty between Canada, which was then a dominion of the United Kingdom, and the United States. The treaty applies to all transboundary waters and not only to the Great Lakes basin.¹¹ It follows the model of the International Boundary and Water Commission, created in 1889 by the United States and Mexico. The two commissions are among the oldest water-related transboundary institutions in the world. The main focuses of the treaty are, first, to ensure free navigation, second, to control water diversions, third, to fight water pollution and, last but not least, to solve management issues and disputes amicably. Essentially, the 1909 Boundary Waters Treaty sets some general principles for transboundary water management and the International Joint Commission, which is composed by three commissioners from each country, is responsible to produce recommendations for the management of shared waters. These recommendations are not legally binding upon the two countries, but they are generally followed.¹²

The other major ecoregional process is the Great Lakes – Saint Lawrence River Water Resources Council and Regional Body, which was established by the 2005 Great Lakes – Saint Lawrence River Basin Sustainable Water Resources Agreement at the subnational level between the governors of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin, on the American side, and the premiers of Ontario and Québec, on the Canadian side. Unlike the International Joint Commission and the Boundary Water Treaty, this arrangement is specific to the basin and echoes the Great Lakes Commission, which was established on the basis of the 1955 Great Lakes Basin Compact among the eight riparian states on the American side, with the two Canadian provinces as observers. Both the agreement and the compact focus on committing not to divert water from the water-abundant Great Lakes basin to other water-scarce areas, “keeping the water in place, and keeping the Great Lakes intact as functioning natural systems.”¹³ The compact was also about water quality and other issues, setting up a consultative process at the state level that resembled to the International Joint Commission.

The bilateral relations of Canada and the United States are very important for the ecoregion, as well as regional integration processes, such as the 1994 North American Free Trade Agreements (NAFTA), including Mexico, which is expected to be replaced by the 2018 United States-Mexico-Canada Agreement (USMCA), currently undergoing the process of ratification.¹⁴ Both agreements are important

¹⁰ On the role of Native Americans, see Hand (2007).

¹¹ Refer to the edited book, Norman, Cohen, and Bakker (2013).

¹² For a general introduction to the governance of the Great Lakes ecosystem, read Valiante, Muldoon, and Botts (1997); for a historical overview of the first seventy years of the International Joint Commission, read Spencer, Kirton, and Nossal (1981).

¹³ Quoted from Karkkainen (2018, p. 3); on interstate water compacts, refer to Zimmerman (2012); see also Hill (1989), Allee (1993), Hall (2006), as well as Chaloux and Paquin (2013); for a critical perspective see Sproule-Jones (2002) and Petrash (2007).

¹⁴ On the influence of geopolitics at the ecoregional level, see Jetoo, Thorn, Friedman, Gosman, and Krantzberg (2015).

because they include environmental provisions and safeguards.¹⁵ Stricter environmental standards were a condition set by both the United States and Canada for the renegotiation of USMCA and for the ratification of NAFTA, which resulted in the 1993 North American Agreement on Environmental Cooperation (NAAEC) and the creation of a Commission for Environmental Cooperation (CEC), composed of a governing body called Council, of a Joint Public Advisory Committee and of a Secretariat that is based in Montreal, Quebec.¹⁶ The scope of NAFTA and NAAEC is of course much larger than the Great Lakes ecoregion, but it includes them and interferes with its governance, just like bilateral relations. However, given that NAFTA is just a free trade area, the level of interference is somewhat lower than in the case of more economically integrated regions such as Europe or Latin America. There is no discernable competition between the environmental dimension of NAFTA and the Great Lakes basin. Instead, the environmental provisions and safeguards of NAFTA and the principles and institutional structure of NAAEC can encourage action at the ecoregional level.

However, general economic competition within the North American region and global markets may have an influence on the Great Lakes ecoregion. Over the past decades, this influence has been rather positive for the basin with the relocation of polluting industrial activities to other parts of the world, particularly China and Mexico, but not with regard to the expansion of intensive agricultural production for export markets, including Asia and Europe. The fertilizers and pesticides used in intensive agriculture and, indirectly, in cattle breeding have in fact a negative impact on eutrophication in the basin. If industrial pollution has perhaps receded, agricultural and farming pollution has instead increased due to the effects of regional integration and globalization. This complicates ecoregional governance because it has little grasp of and control over regional and global processes. Even if the United States is arguably the most powerful country in the world and even if its current president is trying to change the terms of trade in the region and globally by renegotiating NAFTA and by imposing tariffs on China, it is unsure how much this is possible and what will be the consequences for the ecoregion. If trade restrictions apply to certain countries, it is difficult to tell if they are not compensated by trade expansion with other countries in a highly competitive market such as cereals and other agricultural products. Both countries are in fact considered by the World Economic Forum among the world champions at enabling trade.

The situation with media organizations is generally satisfactory in both countries. The population enjoys high levels of access to all kinds of information through government agencies and media organizations, particularly through the internet. Cooperation at the ecoregional level is facilitated by the fact that English is spoken throughout the basin, even if there is a prevalence of French in the eastern part that is located in Quebec. However, virtually all relevant stakeholders speak English, which is by far the prevalent language in the basin.

Government organizations

The prevalent level of decision-making in the Great Lakes ecoregion is at the federal and state level. Even if the International Joint Commission is a binational entity, it produces non-binding recommendations and has no decision-making power. In both countries, it is the federal government that is responsible for foreign affairs and that can take decisions about transboundary waters, such as the Great Lakes and the Saint Lawrence River. However, national authorities do not act alone, as they often follow the recommendations of the commissions and much of the implementation takes place at the state and provincial level. The level of decision-making is both political and technical, in the sense that high-level government officials regularly participate in the process, such as foreign ministers and province premiers for Canada and state secretaries and state governors for the United States. At the same time, the issues at stake can be extremely technical. For this reason, a number of technical boards were

¹⁵ For a timely overview of North American environmental governance, see Temby and Stoett (2017).

¹⁶ See Bugeda (1998) and, on public participation, Fitzmaurice (2008); on the pre-NAFTA period, see Carroll (1983).

established and meetings are held at with the participation of technical level staff members of the government agencies involved in the process, as well as technical experts, such as scholars and consultants.

Both riparian countries adopt a federalist form of state. The American states and Canadian provinces being competent for many issues related to water and the environment, except those things of interstate import, such as navigation over interstate watercourses, diversions from interstate basins, such as in the case of the Great Lakes, and pollution generated from or having impact on more than one state. For example, the provinces of Ontario and Quebec have primary jurisdiction over the federal government on pollution.¹⁷ The control of the federal and state governments over the land and waters is strong compared to most other countries.

At the same time, the federal form of state gives states and provinces significant autonomy and relations between the federal and state governments can be tense. In the ecoregion, there are autonomist movements in some states. The strongest of these movements is in Canada, with a significant number of French-speaking Quebecois wanting to leave the English-speaking rest of the country. However, this and other secessionist movement has little or no impact on ecosystem governance. On the American side, less than one-quarter of the population is favorable to secession.¹⁸ There have also been proposals for a spatial reorganization of the political geography of North America that foresaw the creation of a Great Lakes megaregion or megalopolis, also called the Foundry nation, but little or no follow-up was given to these proposals.¹⁹ The concept of Great Lakes megalopolis refers to the continuum that is progressively created by the urban sprawl of large cities along the Great Lakes, including Milwaukee, Chicago, Detroit, Cleveland, Buffalo, Montreal and Toronto.

The form of government is presidential in the United States and constitutional monarchy in Canada. They are both representative democracies, characterized by majoritarian electoral systems that tend to generate bipolar electoral systems, where minority groups, such as green parties or representatives of indigenous people, struggle to find representation. At the local level, there can be instances of direct democracy through, for example, townhall meetings and referenda, as well as significant parts of the population that can be engaged in political or civic activism; at the national level, representatives can also make direct appeals to the population in ways that can sometimes appear as populist, particularly in the United States. Also for these reasons, the Economist Intelligence Unit, after weighting in several objective criteria, considers Canada to be a full democracy and the United States to be a flawed democracy. Overall, both governments can be considered as legitimate.

The ministries formally involved in the 1909 Boundary Waters Treaty and International Joint Commission are the Foreign Ministry in Canada and the State Department in the United States. However, their involvement is limited to requesting and receiving recommendations, studies and other communications from the Commission and to negotiating treaties or other types of international agreements, such as the 1972 Great Lakes Water Quality Agreement. The Commission then convenes several boards on specific issues, such as water quality, science and health professionals, or areas, like the Souris River, the Red River, the Rainy-Lake of the Woods Watershed and the Saint Croix River Watershed. The members of these boards, which are always binational with equal participation from both sides, if possible, can be representatives of line ministries and other government agencies, like the United States Environment Protection Agency or the Canadian Ministry of Environment and Climate Change, the United States Army Corps of Engineers, as well as elected officials from local governments, like states, countries and cities within the basin.

¹⁷ About water policy in Quebec between the federal and the provincial government, see Brun and Lasserre (2010).

¹⁸ Refer to Muskal (2014) who cites a poll by Ipsos and Reuters. I would like to thank David Teuscher for the references about secessionism in the United States.

¹⁹ See Garreau (1981) and more recently Kotkin (2013) and Khanna (2016), who refer to the America 2050 proposal of the Regional Plan Association.

Both the Canadian Foreign Ministry and the US State Department are solid administrations. The Canadian Ministry of Environment and Climate Change and the United States Environment Protection Agency are instead both smaller administrations but are currently facing different trends, i.e. strengthening on the Canadian side and weakening on the American side. The focal points in both administrations are mid-level civil servants, who work closely together with the American and Canadian sections of the Commission, which are based in Ottawa and Washington, DC, as well as with the regional office of the Commission, where staff members from both countries can be found, which is based in Windsor, Ontario.

At the state level, those involved in the 2005 Great Lakes – Saint Lawrence River Basin Sustainable Water Resources Agreement and the 1955 Great Lakes Basin Compact are higher level. These are in fact high profile interstate initiatives, led by the governors and premiers themselves. It is their offices, alongside the state-level natural resources and environmental administrations, that are mainly involved. Otherwise, senior officers at the level of directors or deputy directors are typically involved.

From a political standpoint, if we look at the level of federal-level presidents or prime ministers as an indication of the political orientation of the government, the 1907 Boundary Waters Treaty was negotiated and signed at a time when the United States president and the Canadian prime minister were not from the same political side. Theodore Roosevelt was in fact a right-wing republican and Wilfrid Laurier was a left-wing liberal. Actually, the other landmark agreement on the Great Lakes, i.e. the 1972 Great Lakes Water Quality Agreement, was also approved when the two governments had radically different political orientation, with the republican Richard Nixon on one side and the liberal Pierre Trudeau on the other. This cannot be said for the 1978 version of the agreement and the 1987 protocol, where there was more political alignment on both sides towards the left side of the political spectrum, in the former case, and towards the right side, in the latter case. However, the configuration where the two governments are on the other side of the political spectrum can be found again for the latest update to the water quality agreement with the 2012 protocol, with the democrat Barack Obama on the one hand and the conservative Stephen Harper on the other.²⁰ Overall, saving the Great Lakes from pollution seems a historically bipartisan endeavor. It is nevertheless striking that little normative change was achieved during the two long periods of political alignment on the two sides of the border: between 1935 and 1952, with a predominance of left-wing governments on both sides, and between 1984 and 2000, with right-wing governments until 1992 and left-wing ones until 2000.

The situation is similar for the state and provincial level. If we look at the time of adoption of the 1955 Compact and of the 2005 Agreement, in both cases the federal governments were on different political sides. However, when we look at the state level, we notice that there was a general alignment (eight out of ten) of right-wing governors and premiers in 1954 (the Compact was adopted in early 1955, so preparatory work took place the previous year), except for the American states of Michigan and Ohio. A similar alignment (seven out of ten) of, this time around, left-wing governors and premiers can be observed in 2005 (the Agreement was approved in late 2005), except for Minnesota, New York and, once again, Ohio, which had republican governors. At the state level, the conditions for action were in both cases the opposed political orientation of the two federal governments and the relative alignment of the state governments. The situation in 2005 was particular, with the Canadian federal government and the two provinces along Lake Ontario and the Saint Lawrence River being left-wing, while the United States federal government was right-wing with the republican George Bush Jr. In this period, the United States federal government was generally resisting international-level climate and environmental action. This resulted in a number of state and city-level initiatives on climate and environmental issues, such as the 2001 New England Governors and Eastern Canadian Premiers Climate Change Action Plan and the 2007 Midwestern Greenhouse Gas Reduction Accord, adopted at a time when the Canadian federal government had also turned right-wing and started resisting climate action. The 2005 Agreement

²⁰ For the context, see Krantzberg (2012).

falls under this period of North American politics. This phenomenon also involved some republican elected officials that were more sensitive to climate and environmental issues.²¹

Both Canada and the United States possess a decentralized political system. Since the beginning of the Great Lakes regime, which at the turn of the 20th century was a matter purely in the hands of the federal governments, there is an overall tendency towards greater involvement of subnational authorities in the ecoregional process, particularly since the beginning of the 21st century. This is attested not only by the 2005 Agreement, but also by the Great Lakes and St. Lawrence Cities Initiative, launched in 2003 by the Mayor of Chicago Richard Daley.²² In general, subnational authorities are conscious of the fact that they are responsible for the concrete implementation of basin-level policies and they want to have a say in the development of these policies. The state-level river basin organizations set up by the 1955 Compact and the 2005 Agreement, for instance, i.e. the Great Lakes Commission and the Great Lakes – Saint Lawrence River Water Resources Council and Regional Body, respectively, are voluntary arrangements that mimic the functioning of the International Joint Commission and ultimately aim at providing a competing platform. In 2008, the 2005 Agreement was presented to the US Congress for consent, like it had previously done in 1968 for the 1955 Compact.²³ It was therefore renamed 2008 Compact, but just for the US side. This does not seem to be due to functional pressure on the Commission, whose workings have always been very inclusive of state, city and other local level representatives, but because of political pressure from the states and cities. Like in the case of the Alps, these initiatives are also ways for local political figures to position themselves on the national scene and send messages to the federal government and to their actual or potential constituencies. This contributes to explain why the level of activity and interest for these initiatives is fluctuating.

Nongovernment organizations

If riparian states and provinces were a country, their GDP would be worth 6 trillion dollars. This would represent the fourth economy in the world. The basin hosts the headquarters of some of the largest and wealthiest private companies in the world, such as Ford, General Motors and Walgreens. It is also shared by two countries with vibrant private sector economies. The main economic activities in the basin are farming, industry, navigation, fishing and recreation. These sectors are organized at the national level but also ecoregionally. For instance, regarding navigation, there is an American Great Lakes Ports Association (AGLPA) and a Lake Carriers Association (LCA), representing the interests of ports and the shipping industry on the United States side of the basin. One of the biggest issues for navigation is the management of the Saint Lawrence Seaway, which connects the Great Lakes with the Atlantic Ocean through a series of waterworks that are managed by the Saint Lawrence Seaway Management Corporation in Canada and by the Saint Lawrence Seaway Development Corporation in the United States. Like elsewhere, private companies and their associations, where they exist, direct their attention more towards federal and state authorities than to ecoregional processes, in which they rarely participate. These processes are in fact seen more as the domain of government representatives and environmental NGOs than of the business sector. Of course, there are exceptions like the International Joint Commission's Great Lakes Water Quality Board, which includes two members from business and two members from agriculture out of more than thirty members.

There is a long history of civil society engagement in the Great Lakes.²⁴ For instance, environmental NGOs such as the Nature Conservancy and its Canadian counterpart played a key role in the establishment of relatively pristine heritage areas, particularly wetlands, that complement areas of concern as high quality biomonitoring sites to assess health level of the basin ecosystem. These areas

²¹ On the activation of subnational authorities on climate policy in North America, see Selin and VanDeveer (2009), as well as Norman and Bakker (2013).

²² See Jetoo (2018c, p. 243).

²³ See Palay (2008).

²⁴ For an overview, see Francis and Lerner (1997); see Freedman and Neuzil (2018) for an update.

were then included in a recommendation of the International Joint Commission after being endorsed by its Scientific Advisory Board. They were instrumental in the creation of the first biodiversity databases at the ecoregional level. Like in the Alps, environmental NGOs led the way also on ecoregional knowledge with the 1987 Great Lakes United report on the State of the Great Lakes, written by more than two hundred civil society representatives. The production of State of the Great Lakes reports was then picked up by federal-level environmental authorities, which have been publishing State of the Great Lakes reports since 1995, compiling indicators, assessing the status and identifying trends for the basin.

Civil society organizations active at the ecoregional level can be both grassroots, professional or both, such as the Waterkeeper Alliance, a professionally run network of more than three hundred grassroots organizations that defend the right to drinkable, fishable and swimmable waters throughout the United States. Within civil society organizations, there is a significant presence of scholars. Some of them are invited to participate for instance in some of the Commission's boards, while others dedicate part of their research time to community engagement either independently or through various organizations. Another distinguishing feature of North American civil society organizations is the extensive use of litigation and class action, which is rare and not always possible in other parts of the world. The level of financial and human resources that can be mobilized by civil society organizations is significant and is a reflection of both the level of economic wealth of the two riparian countries, as well as the culture of philanthropy, particularly in the United States. For example, a grassroots organization like the Milwaukee Riverkeepers reports raises about 500 thousand dollars per year, while an umbrella organization like the Waterkeeper Alliance reports almost 10 million dollars per year.

Some boards of the International Joint Commission bring together governmental and non-governmental organizations. The same can be said about the ecoregional processes at the state and city level. However, there are also fully hybrid organizations, such as the Council of the Great Lakes Region, which was created in 2011 to bring together the public sector, the private sector and civil society. It gathers resources to support projects in the main areas of interest for the Great Lakes except farming. Another form of hybrid organization are public-private partnerships, which are developing slowly in the basin. For example, the venture capital that supports the P3GreatLakes Initiative, supported by a Great Lakes Protection Fund grant, is currently looking for public authorities interested in developing green stormwater infrastructure, environmental impact bonds and community-based public-private partnerships, in particular. In this case, the ecoregional level is leveraged by the public sector to encourage the private sector to look for business opportunities in new areas where public funding is limited. However, not all states have legislation that is fully supportive of public-private partnerships and their development remains controversial because of the disruption of market conditions and the risk of corruption.

Network structure

The governance structure of the Great Lakes ecoregion is horizontal between the two riparian countries, vertical between the federal and state governments within each country and again horizontal among states and cities. Power is mainly concentrated in the two federal capitals and in the ten state and provincial capitals. As such, it has at least a dozen of different centers, but dynamics are generally bipolar between the two countries with few initiatives escaping the binational principle or limited to only part of the basin, if it is not because of the need to address specific problems. The balance of power is clearly on the United States side of the basin, where the greater part of the economic activity takes place and population lives. In the words of the former Canadian prime minister Pierre Trudeau, "Living next to you is in some ways like sleeping with an elephant. No matter how friendly and even-tempered is the beast, if I can call it that, one is affected by every twitch and grunt."²⁵ The two sides of the basin are however highly interdependent. Canada is the third trading partner of the United States and the United States are by far the first trading partner for Canada, with five times the volume of its second

²⁵ Quoted from his speech at Washington Press Club on 25 March 1969.

trading partner. This means that, if the two countries are indeed interdependent, Canada depends more on the United States than vice-versa. Both countries share the Great Lakes basin and its waters, on which the livelihoods of more than 50 million people depend. The two largest cities in Canada, Toronto and Montreal, are located within the basin.

While the level of dependence of the Canadian side of the basin on the United States varies over time, the prevalence of the United States over Canada is a constant, certainly over the last century or so, when an ecoregional process started to emerge round the Great Lakes. The United States are the clear hegemony of North America. After the Anglo-American War between 1812 and 1815, the relations between the two sides of the ecoregion have been peaceful. An alliance progressively consolidated, particularly during the two world wars, and has never been really questioned since both countries formed and joined the North Atlantic Treaty Organization (NATO) in 1949. Given the Canada's lesser power, it would be easy to characterize it as a free-rider but this is certainly not the case in the Great Lakes ecoregion. Since the 1909 Treaty at least, both countries have adopted and respected a strict binational principle. For instance, both countries contribute the same number of commissioners to the International Joint Commission, there is a section of the Commission in both countries and the regional office is not only jointly staffed but also located along the border.

Property-right systems

Like in the case of the Amu Darya basin, the ecoregion is perfectly shared between the two countries. There are no high waters. The Great Lakes basin can be considered under a common property regime between the two countries. The 1895 Harmon Doctrine tried to impose a sovereigntist vision, according to which the water found on one side of the border was property of that country and that there were no shared waters.²⁶ This doctrine has never really been applied to the Great Lakes basin, certainly not in the 1909 Treaty and in the subsequent activity under the International Joint Commission. Instead, the Commission has always managed the shared waters setting aside the interests of each country and looking at the whole basin on both sides of the border. Moreover, under common law, which applies to both countries, freshwater is common property owned by everyone. However, in the Eastern part of the United States and Canada, the so-called riparian doctrine applies. This means that those who own property along a watercourse have the right to use water from it, provided the waterflow is kept for the free use of others. This includes not only withdrawal for drinking, household and irrigation purposes, but also fishing, navigation and other uses. Moreover, in both countries, Native Americans may have special rights to waters within the basin.²⁷

In the Great Lakes ecoregion, freshwater is abundant. The riparian states and provinces decided through the 1955 Compact and the 2005 Agreement not to divert and sell it to other basins, particularly in the more arid western part of the United States.²⁸ This does not mean however that the Great Lakes escape from the tragedy of the commons and that shared waters are always well managed. Problems typical of common pool resources emerged over the decades, particularly related to water quality and fisheries, for which a Great Lakes Fisheries Commission was created. Other property regimes coexist. Large water infrastructure is typically public property, run by the federal or state governments through government-controlled subsidiary companies, such as the Detroit Water and Sewerage Department, which runs the Detroit Wastewater Treatment Plant, arguably the most important in the basin to ensure the water quality of Lake Erie. Of course, private property is also widespread in most sectors, such as farming, industry and housing, and as far as smaller water infrastructure is concerned. There are many waterworks private contractors. In few cases, water service provision has been privatized, but this is the exception and not

²⁶ See McCaffrey (1996) for a historical perspective.

²⁷ See Hand (2007) on the role of Indian tribes and water and Phare (2013) for a transboundary perspective.

²⁸ See Karkkainen (2018); on the prospect of bulk transfers, see Lasserre (2013).

the rule. The relationship between public and private regimes is normally subject of statutory regulation or contractual arrangements.

Operational-choice rules

As mentioned earlier, there is no perfect fit between the two main processes and the ecoregion. The 1909 Treaty and the International Joint Commission apply to all transboundary waters, while the 1955 Compact and the 2005 Agreement involve the states and provinces that share the basin. This is important because of all the American states and Canadian provinces, only Michigan is fully within the basin. For all other states and provinces, the Great Lakes basin represents only a minor part of their territory. This peripherality increases the need for focused attention to the basin. It is true that the 1978 Great Lakes Water Quality Agreement is among the first regional environmental agreements to adopt an ecosystem approach. However, the emphasis there is not about focusing the work on the Commission on the basin, but on the integration of air, land, water and the biosphere, including humans, in the management of the Great Lakes. This was especially due to the realization that about one-quarter of the phosphorous pollution in the basin comes from airborne deposition of both toxic and conventional pollutants from agriculture and coal production and that all these elements are interconnected.²⁹ In the 1978 Agreement, the ecoregion is not the watershed but the “problemshed”.³⁰

The design of basin water norms and institutions are largely original developments, bearing resemblances with older river commissions in Europe and especially those set up between the United States and Mexico.³¹ The 1909 Treaty is perhaps the first international agreement with an explicit mandate to fight pollution and played a key role in the development of international environmental law.³² As already mentioned, state-level processes roughly follow the model of the federal-level arrangement. They are designed to be highly adaptative, as attested by longevity of the 1909 Treaty and the Commission more than one century after its creation and its capacity to address issues that had not been thought of initially, such as public health.³³ In this regard, the Commission is probably the first regional environmental organization to even create in 2015 a Great Lakes-St. Lawrence River Adaptive Management Committee.³⁴ The aim of this pioneering committee is to undertake the monitoring, modeling and assessment related to current plans and changing conditions. The Commission works both in response to ongoing crises, such as the algal bloom of 2011 in Lake Erie and the water overflow of 2017 in Lake Superior and Lake Ontario and in anticipation of future ones, such as the impact of climate change.

The recommendations and other decisions of the International Joint Commission and of the Great Lakes-St. Lawrence River Basin Water Resources Regional Body and Council are extremely technical. They are usually based on in-depth studies performed by the Commission’s boards or other subsidiary bodies. They might not be legally binding, but they are generally followed by the federal and state governments, as well as other relevant authorities, of both countries. The Commission and its boards have some delegated authority for the operational management of strategic binational water infrastructure. For instance, the Lake Ontario – Saint Lawrence River Board controls the outflow from the Moses-Saunders Dam between Cornwall, Ontario, and Massena, New York. This is important to ensure at the same time

²⁹ See the abundant literature on this issue, such as Francis (1986), Regier (1992), Caldwell (1994) and, more recently, Jetoo and Joas (2018).

³⁰ On the concept of problemshed, see (Mollinga, Meinzen-Dick, & Merrey, 2007) and more recently Mollinga et al. (2007).

³¹ For a comparative perspective of the arrangements of the United States with Mexico and Canada, see Brown (2010).

³² Refer to Karkkainen (2018, p. 5).

³³ See Botts and Muldoon (2008); for a critical perspective, see Krantzberg and Manno (2010).

³⁴ On adaptive management in the basin, see Karkkainen (2006); instead, about the adaptive capacity of the Great Lakes regime, see Jetoo and Krantzberg (2016); about the Commission as a model, see Clamen (2005) and Linton and Hall (2013).

the production of hydropower and the navigability of the Saint Lawrence Seaway. This has a significant economic impact. It is estimated that suspended navigation can cost up to 50 million dollars per day for the regional economy.

Overall the policy mix includes regulation, financial and communication measures with a prevalence of regulation. The federal-level Commission and its boards and the state-level Regional Body and Council issue a great number of resolutions and other decisions, which are the principal approach towards basin regulation. Finance is also an important tool. On the American side, the two main instruments are the federal-level Great Lakes Restoration Initiative (GLRI), the state-level Great Lakes Commission (GLC) and Great Lakes Protection Fund (GLPF). The latter was launched by Barack Obama in 2009, whose objective is to clean up the areas of concern. The Fund has so far managed to raise almost 2 billion dollars from various government agencies to implement 3.5 thousand projects throughout the basin. The areas of concern are 43 toxic hotspots for priority remedial action that were identified under the 1987 Protocol amending the 1978 version of the Great Lakes Water Quality Agreement. Pollution in the Great Lakes is in fact not just diffuse non-point source pollution coming from farming and households. They are also concentrated in some places. Hotspots remediation would improve overall water quality. According to Bradley Karkkainen, only two hotspots have been fully cleaned up so far.³⁵

The Great Lakes Commission is the partnership of riparian states. It receives financial support from state agencies and various foundations, as well as from some NGOs and universities. Since 1955, it has been supporting projects and different initiatives in favor of Great Lakes priorities, starting with water quality. Every year, it provides more than 8 million dollars for programmatic activities. Instead, the Great Lakes Protection Fund is a privately held non-profit corporation, created by the governors of riparian states in 1989, which funds a wide range of projects with the long-term objective to improve ecosystem health of the Great Lakes. It does not receive any direct contribution from the states. The Fund works thanks to an endowment of 81 million dollars provided by the riparian states. The endowment is then invested in a portfolio. The returns of approximately 4% per year are fully used to support projects in favor of the Great Lakes' ecosystem.³⁶ Every year, the Fund invests an average of about 3 million dollars. These three programs already make of the Great Lakes the ecoregion with the greatest amount of funding for programmatic activities among those that we studied so far and we have not considered funding from the Canadian sides!

Like elsewhere, the number of conflicting policies, especially supporting agricultural and industrial expansion, is huge. For instance, the plans of the Trump administration to bring industrial production back to the United States means bringing back also the environmental nuisances that had been externalized to Mexico, China and other parts of the world. This might be better for environmental protection at the global level, as environmental standards are generally higher in the United States than in the countries where production had moved, but not necessarily better for the eutrophication in the Great Lakes. This is just one among hundreds of other examples at all levels. While eutrophication and other problems are of general concern, these issues are not the only ones on the political agenda and must compose with other priorities at the local, national and international level both in the United States and Canada. Even if the signal about the need to clean up the Great Lakes sent by both countries is strong, these are forcibly mixed with other signals that directly or indirectly interfere with it.

Collective-choice rules

The governance of the Great Lakes ecoregion clearly constitutes an international regime. The formal agreements behind may not be perfectly fitting the ecoregion and its boundaries, but their focus is clear. The regional environmental agreements and processes in place reduce the transaction costs of setting up ad hoc commissions to address issues as they arise, as it was the case prior to the 1909 Treaty and the

³⁵ See Karkkainen (2018, p. 12).

³⁶

establishment of the International Joint Commission. Similarly, the 1955 Compact and the 2005 Agreement avoid the high cost of dispute in case a state or a community wishes to divert water from the basin by setting clear rules and institutionalizing cooperation. From a taxpayer perspective, is this worth the cost of the meetings and the structures that were put in place over the years? There is no straightforward answer to this question. The fact that the two federal-level administrations and ten state-level governments involved keep supporting the process over the decades is probably a sign that lack of cooperation would result in higher costs for all sides, such as the abovementioned estimated 50 million dollars per day of non-navigability of the Saint Lawrence Seaway.

The system in place is totally autonomous from other processes such as the United Nations and the North American Free Trade Agreement (NAFTA). Key decisions are made by the International Joint Commission, which is composed of three commissioners appointed by Canada and three commissioners appointed by the United States, who serve in their personal capacity and not as country representatives. There is a quorum of four and they may take decisions by majority, which concretely means that at least one commissioner from the other country must agree. However, decisions are normally taken by consensus. This is not a perfectly independent body, in the sense that it has sections in both Ottawa and Washington, DC, which are in regular contact with both federal governments. This is important to facilitate consultations and ensure that the decisions rendered by the Commission are fully acceptable by both sides. In fact, the Commission renders non-binding recommendations that need to be implemented by federal and state authorities. There is no rotating presidency of the Commission, but two chairs, one from each country. Boards function in a similar way, striving for consensus. Both the Commission and the Boards usually give the possibility to commissioners and board members to submit independent reports, if they disagree with the advice rendered.

Secretariats are different than in other ecoregions. In particular, the Commission does not have a proper secretariat but can count on three offices and more than fifty staff members dealing mainly with coordination, research, communication, legal, finance, as well as general administration. Its role is purely service. The two national sections are completely paid for by the host countries, while the cost of the regional office in Windsor, Ontario, is shared by the two countries. Regarding administrative costs, a report by the United States Government Accountability Office shows that at the end of the 1990s the federal government's contribution to the International Joint Commission was of about 3.4 million dollars, with more than 80% of these resources covering administrative costs.³⁷ To these figures, one must add the cost of contributions from the Canadian side.

The state-level processes also have offices. The largest one is the Great Lakes Commission, which counts on 5 commissioners per state, usually senior and mid-level officers from state administrations, plus about thirty staff members. It is hosted in Ann Arbor, Michigan. Its cost is of more than 2 million dollars per year, which means that about one-quarter of the resources of the Great Lakes Commission are devoted to administration, while the rest is used for programmatic functions. The other state-level hub is the office of the Council of Great Lakes Governors, which is hosted in Chicago, Illinois, and services also the Great Lakes-St. Lawrence River Basin Water Resources Council and Regional Body, as well as the Great Lakes and St. Lawrence Cities Initiative. It has about ten staff members, five working on the state-level activities and five working on cities. All things considered, it is safe to assume that there are at least 20 million dollars spent every year to cover the administrative costs of the ecoregional process. There is little or no support from outside of the basin, other than from federal and state-level sources, as well as foundations from the two countries.

Regarding public participation, the International Joint Commission does not foresee the presence of observers, but its thematic boards often include representatives of different types of stakeholders, nominated by the two governments, including environmental NGOs, and frequently hold meetings open to the public. The technical reports of the boards are usually preceded by consultations with stakeholders

³⁷ See United States Government Accountability Office (1998).

in the various phases of production, from the preparation of the terms of reference to the report design and from the development of contents to the presentation and discussion of the results. For example, the State of the Great Lakes technical reports involve more than 180 experts through meetings and webinars and are discussed in a public forum before being released. The Commission can also resort to polls to learn more about public opinion, as the Great Lakes Water Quality Board did in 2015 and 2018. The Commission itself holds public meetings throughout the basin every two years to ensure that everyone's voice is heard. Overall, the process is relatively transparent. At the same time, the governance system is not easy to navigate for citizens. The movement is more from institutions trying to involve citizens and civil society. The learning curve for grassroots organizations is steep. Larger, more professional organizations have more access.

Neither the International Joint Commission nor the state-level processes are purely sectoral. However, they are dominated by water and environment-related government agencies. Coordination takes place mostly within other federal and state level institutions involved, such as, in the United States, the State Department, the White House and perhaps most importantly the Senate and Congress. That is where water and environment-related issues are weighted against other priorities. The Commissioners and those involved at the state and provincial level are conscious about this and anticipate the issues that may arise, such as regarding the recent decision by the International Joint Commission's Lake Ontario – Saint Lawrence River Board to keep the level of Lake Ontario high, which may hurt the local economy, such as recreation facilities along the lakeshore, but avoids higher costs for the regional and national economy due to the potential disruption of the supply chain over the Saint Lawrence Seaway in case of fast release of water by the Moses-Saunders Dam, which would lower the level of Lake Ontario. Given the federal system in place in both countries, two level games between the federal and state level and between different branches, particularly the State Department and the Senate in the United States, are always possible. However, emphasis is always put on pursuing common interests in the management of the Great Lakes ecoregion.

Constitutional-choice rules

The ecoregional process is highly principled. The 1909 Treaty mentions several principles, starting from conflict prevention and the will to settle all disputes. Other principles include free and open navigation on an equal, non-discriminatory basis, as well as the twin principles of exclusive jurisdiction and control over waters on each side and, at the same time, no harm or interference, including pollution, on the other side of the border, providing the same legal remedies to the injured parties on both sides of the border. In general, the 1909 Treaty foresees that anything that may result in any injury on the other side shall be submitted to the approval of the International Joint Commission. However, the most pervasive principle is not mentioned anywhere, i.e. symmetry or at least binationality. In fact, virtually all activities under the 1909 Treaty are on an egalitarian basis, with both countries being represented by the same number of commissioners, providing roughly the same number of staff members and amount of funding. Other guiding principles for the Commission are the pursuit of the common interest of both countries, independence, impartiality, science-based decision-making, sustainable development, pollution prevention, as well as the precautionary approach even in the absence of scientific consensus.

Even at the state level, where American states outnumber Canadian provinces eight to two, an effort is constantly made to include Canadian representatives in all meetings and activities. Another important principle, adopted by the Great Lakes states since the 1950s, is the formal prohibition of diversions to other basins. In fact, the 1909 Treaty subjected such possibilities, which would probably have an impact on water levels, to the approval of the federally controlled Commission. In case of an agreement between the two federal governments, nothing in the 1909 Treaty would have stopped the federal government to transfer water from this water-abundant basin to the water-scarce western states, provided no objection came from the Canadian side. For this reason, the Great Lake states formally adopted this principle and went great lengths to receive the consent of Congress first in 1968 and then in 2008.

These principles are invoked frequently and guide the action of the Commission and of the state-level processes. The principles emerged spontaneously progressively over the decades from the activities of the Commission. They were not imposed by anyone. They sometimes led to fierce discussions but their level of taken-for-grantedness is high. I am not aware of them being particularly contested. The only obsolete principle is the 1895 Harmon Doctrine, which adopted a strict territorial principle to water resources. However, the concept has been contested from the very beginning and has never been applied.³⁸

Monitoring and sanctioning rules

Science-based fact finding is the nuts and bolts of the International Joint Commission. The two riparian countries regularly request the Commission to investigate issues of concern that might result or escalate into disputes. It is estimated that more than 130 disputes have been averted or reconciled so far.³⁹ Science is at the core of the work of the Commission. Science-based decision-making is among its guiding principles. This is also due to the technical nature of many of the issues at stake. As a result, the Commission has high in-house research capacity with a great number of research or scientific officers, compared to other processes. Moreover, it created a Great Lakes Science Advisory Board, which works closely with the Commission and the Great Lakes Water Quality Board and which created two standing committees, i.e. the Science Priority Committee and the Research Coordination Committee. The Science Advisory Board and its committees can be considered a boundary organization, bringing together representatives of both government and academia, where problems are framed jointly, teams are built together to co-create solution-oriented transferable knowledge aiming at the integration and application of created knowledge in the practice of the Commission and in research.⁴⁰ On top of this, many scholars are members and actively participate also in other boards under the Commission, as well as state-level initiatives.

On the side of academia, the International Association of Great Lakes Research stands out as the main scientific network at the ecoregional level. It organizes annual conferences and publishes the *Journal of Great Lakes Research*. The network was launched in 1953 and its hub is the University of Michigan's Center for Great Lakes and Aquatic Sciences.⁴¹ Every year, the Association organizes State of Lake conferences. They are designed to bring together scholars and managers. They usually focus on one lake at a time. By the way, it is no coincidence that both the Association and the Great Lakes Commission are based in Ann Arbor, Michigan. They were both launched in the mid-1950s, when Michigan was playing a leading role in the process. The same happened in the mid-2000s, with the Mayor of Chicago becoming a leading figure in the ecoregion and several offices ending up in Chicago.

The State of the Great Lakes technical report, jointly produced at regular intervals since 1995 by the Canadian and American federal-level environmental agencies, plays a key role in the monitoring of the basin. The starting point is a system of indicators developed and updated by the two government agencies. Data is therefore collected at the expert level for each one of the five lakes and compiled using a traffic light system that is similar to the one found in the Baltic Sea. With the 2012 Protocol, a 40% phosphorus reduction target and a system of targets for other substances, differentiated per lake, were established and are currently being updated. These indicators are evaluated against these targets. Indications about whether the trend is improving, deteriorating or unchanged are also provided. Environmental NGOs and the interested public are typically involved in the process. Otherwise, data and other information is collected on a need-to-do basis, especially for the reporting requirements of the 1909 Treaty, the 1972 Agreements and subsequent versions and amendments, as well as the requests of

³⁸ See again McCaffrey (1996).

³⁹ Estimation taken from Delli Priscoli and Wolf (2009, p. 196); see also Clamen (2013).

⁴⁰ On transdisciplinary research, see among others Wiek and Lang (2016) and Church (2018).

⁴¹ See Jetoo (2018c, p. 240).

the Commission. Overall, reporting requirements have increased over time, particularly with the 2012 Protocol. The reports are typically public and shared through the Commission's website.

Also because of the peculiar dispute settlement-oriented nature of the International Joint Commission, there is no compliance committee to ensure the respect of the 1909 Treaty and subsequent agreements other than the Commission. There is also no specific procedure to ensure that the recommendations of the Commission are followed by the two countries other than raising the issue to the attention of the Commission itself. The 2012 Protocol introduced a Progress Report on the implementation of the Great Lakes Water Quality Agreement that the two countries must produce jointly every three years. Based on these reports, every approximately nine or ten years the two countries shall review the operation and effectiveness of the Agreement, which is less than the five-year requirement under the 1972 Agreement. In any case, recommendations are normally followed, so the problem rarely emerges, if it was not that water quality remains an issue, particularly in Lake Erie, Lake Ontario and more than forty hotspots, despite decades of implementation and billions of dollars spent.⁴² There are no predefined sanctions for non-compliance and failure to reach agreed upon objectives.

However, the real question that should be raised is what the situation of the Great Lakes basin would be if there was no International Joint Commission. Certainly, there would be more disputes and less cooperation. This is a clear success for the Commission. The answer has often been different regarding the Great Lakes Commission and the other state-level processes. According to Kelly Kane, the "Compact has not shaped the laws governing the Great Lakes' protection, nor has it 'had any substantive impact on water rights in the basin'."⁴³ However, it would not be fair to reduce state-level initiatives at the ecoregional level to the ineffectiveness of their normative dimension. The Great Lakes Commission and the Great Lakes Protection Fund have supported many projects. More is spent on programmatic activities than in administration. Even if this is little compared to action at the federal level, this contributes to raise awareness about the Great Lakes and to create the conditions conducive towards greater cooperation.

This case study is based on a review of the scientific and grey literature available. It also builds on research by Yena Cho, a former bachelor student at Sciences Po's Campus of Reims, as well as Tania Dutriaux, Tung Vu, Vincent Bailly and Axel Mbina, former master students at the University of Reims, France.

⁴² For a review of the implementation gaps, see McLaughlin and Krantzberg (2011).

⁴³ Citing (Hall, 2006), who also quoted (Kane, 2017, p. 423).

Conclusion: from recurrent patterns to design principles

The six case studies are analyzed based on an ecoregional governance framework. Despite the diversity of context, the similarity of the governance system of the six cases is striking. Highly and moderately recurring patterns have been identified. Innovative or overlooked features are also highlighted, together with non-recurring patterns. Although the main level of analysis of this monography is the international level, these recurring patterns may also extend to the subnational level. They are not design principles, but they may be taken into consideration for the design or redesign of current and future regional environmental agreements and processes.

Looking at six ecoregional agreements and processes allowed to realize that they share many features. If one can expect that cases from Europe and its neighborhood such as the Alps, the Baltic Sea and the Mediterranean Sea, share similar institutional and political characteristics due to the European Union and the process of Europeanization, resemblance in totally different contexts such as the Andes, the Amu Darya and the North American Great Lakes comes as a surprise. Likewise, if a certain level of convergence between ecoregional processes and agreements within the same type of ecosystem is to be expected, such as between the Baltic and the Mediterranean, this is more surprising between cases of different ecosystem types, such as river basins and mountain areas. The causes of this resemblance, which can also be mimetism or path dependency¹, are manifold and certainly include normative circulation, which can be haphazardous, such as a negotiator looking for language to borrow from another document, or deliberate, such as between the EU Macroregional Strategies for the Baltic and Alpine regions. Reasons may however lie deeper into the way political interactions develop around ecoregions, which may bear some resemblances, such as the key role of science and experts.

In the following paragraphs, I outline the recurring patterns found from the analysis of the six case studies. To do so, I identify first those items that occur in all or almost all cases (at least five out of six cases) and then those that occur in most cases (between three and four). Finally, I also single out less frequent solutions that might be either innovative or solutions that have been so far overlooked in other contexts, but that may have potential for transferability, as well as non-recurring patterns, i.e. variables for which common grounds could not be found.

These features are clustered according to the groups of variables identified in the framework to analyze ecoregional governance. Of course, these recurring patterns depend on the framework for the analysis of ecoregional governance used to structure the case studies. On the one hand, this is essential to ensure the comparability of the case studies and to increase the likelihood that the knowledge produced is valid eternally and therefore generalizable; on the other hand, some of these resemblances might be spurious in the sense that they may be unwillingly induced by the questions raised. The variables were defined in ways to avoid as much as possible overlapping and spurious relations.

As far as the context is concerned, it appears clearly from the six cases that the social, economic and political settings can be extremely different. The context of ecoregional agreements and processes is not always the same. Ecoregional agreements and processes can be found in developed and developing countries, with positive, stable or negative population growth, with stable or unstable political systems, open or closed markets, media friendly or unfriendly countries, high and low technological levels, as well as different language contexts. There does not seem to be one kind of external context that determines the emergence of ecoregional agreements and processes. The presence of other potentially conflicting regional integration process deserves special attention. In all the cases studied so far, other regional integration processes seem to compete with ecoregional processes. These processes typically

¹ On mimetism, see Quindimil López (2002), while on path dependency, see Mahoney (2000) and Pierson (2014) and, on environmental issues Levin, Cashore, Steven, and Auld (2009).

refer to regions defined according to socio-economic or political criteria. Perhaps this contributes to create a culture of non-exclusive regional integration that opens the door or keeps the door open to environmental regionalism.²

Government organizations

In all or almost all cases, the prevalent level of decision-making is national. In all cases, national governments play a central role in decision-making at the ecoregional level. Particularly in federal and other decentralized systems, subnational governments may also play a role. The environment and foreign ministries are in charge. For water resources, it can be water ministries. Foreign ministries are always involved in one way or the other. In one case, the role of the foreign ministries is prevalent over line ministries; in another case, it is the opposite. Both ministries are usually marginal within governments. There are separatist movements, with minimal effects on ecoregional governance. Perhaps international borders increase the likelihood of ethnic minorities. In some cases, ecoregional processes may give separatist movements another scope to focus on other than separatism. Decentralization processes are ongoing. Ecoregional agreements and processes are consistent with this tendency. In some cases, the rationalization of political action is leading towards partial recentralization.

In most cases, the type of decision-making is technical and civil servants run the process, except in the two freshwater cases, where the political level is also involved. The focal points in ministries in charge are typically mid-level civil servants. In two cases, political level or high-level civil servants are involved, depending on the importance of the issues at stake.³ Alternating or opposing political orientation might favor ecoregional dynamics. However, alignment has been important in at least four occasions across the six cases, particularly at the beginning or in renegotiation phases. Government should have good control of the area. However, the high seas and deep waters of the Mediterranean Sea and the high mountains and deep forests of the Andes are not easy to control. Moreover, it is interesting to point out that, in the Great Lakes, state and city authorities are competing against national authorities. This has been going on for more than six decades but, so far, the impact has been limited compared to action at the national level.

Some non-recurring patterns also emerge from the analysis. It does not matter if the form of state is federalist or centralized, with local authorities that are participating or absent. It also does not matter if the form of government is presidential or parliamentarian, democratic or authoritarian. However, the form of both state and government influences political dynamics within and between countries.

Nongovernment organizations

In all or almost all cases, the private sector is represented by governments and rarely participates directly. It interacts mostly with local and national governments and legislatures. They are sometimes represented at the ecoregional level by interest groups and organizations. Representatives of the private sector reflect the positions of mainstream businesses. For this reason, they are sometimes contested by alternative types of businesses, who however struggle to participate and be represented at the regional level. NGOs are increasingly professional and can mobilize significant funding. Professionalization is common in global environmental politics. National and local branches help them remain grassroots. In some cases, they have more funding than government organizations for ecoregional activities. Hybrid organizations can be found everywhere. In some cases, they take the form of multi-stakeholder partnerships. This is consistent with the observed hybridization of government action, observed at many levels. Blended funding is a specific kind of hybridization.

In most cases, NGOs are official observers, acting as critical conscience of the process. However, there are two cases where NGOs are not officially designated and one where they play no role. In one case,

² On open regionalism, read CEPAL (1994).

³ On the importance of hierarchy and petting orders, see Pouliot (2016).

academia is very present, but this is more the exception than the rule. There are some NGOs at the ecoregional level. In two cases, ecoregional NGOs play a leading role. In many cases, they are networks of other NGOs or other types of stakeholders like cities, parks, etc. NGOs often benefit from European Union structural funds and donor funding. NGOs can receive more support than they provide, particularly in developing countries. Moreover, it is interesting to single out the case of the Great Lakes, where ecoregional authorities organize regular meetings with the public. They are called Public Forum and they take place every two years. They also organize polls about public opinion. Always in the Great Lakes, NGOs make frequent use of litigation. This is peculiar to the American legal culture, but the ongoing diffusion of class actions can make this possible also elsewhere. In the Baltic Sea, instead, there is a hybrid organization, bringing together science and government representatives. It is active in the fishing sector under the EU Common Fisheries Policy. In the Alps, a hybrid organization has become an NGO. However, this creates confusion even many decades after the switch from hybrid to civil society.

Network structure

In all or almost all cases, the governance structure is horizontal, concentrated, polycentric and multipolar. Countries are at the same level. Power is concentrated in the capitals, which represent centers, together with other cities. In one case, the system is bipolar at the federal level and multipolar at the state level. There are different groups of countries. These countries and these groups can have different trajectories. Groups can form along geographic or political lines. Power is distributed unevenly among these groups. Interdependence among countries is moderate or high. This does not mean that it cannot be otherwise, as there is one case where interdependence is low. There are neither hegemon nor free-riders. There is however one case with a clear hegemon and one case with a clear free-rider.

Property-rights systems

In all or almost all cases, market competition is in place in few sectors, like tourism. Public authorities monopolize the sectors under their mandate, such as environment protection, while the situation is quite anarchical in other sectors. Common pool resource is the predominant type of ownership for marine and freshwater ecoregions. Among terrestrial ecoregions, public property regimes prevail, as access is more controllable and the resource is almost illimited.

Table 4: Recurring patterns in regional environmental agreements and processes (first part)

	A. Government organizations	B. Non-government organizations	C. Network structure	D. Property-rights systems
Highly recurring	<ol style="list-style-type: none"> 1. The prevalent level of decision-making is national 2. The environment and foreign ministries are in charge 3. There are separatist movements, with minimal effects on ecoregional governance 4. Decentralization processes are ongoing 	<ol style="list-style-type: none"> 1. The private sector is represented by governments and rarely participates directly 2. Representatives of the private sector reflect mainstream businesses 3. NGOs are increasingly professional and can mobilize significant funding 4. Hybrid organizations 	<ol style="list-style-type: none"> 1. The governance structure is horizontal, concentrated, polycentric and multipolar 2. There are different groups of countries 3. Interdependence among countries is moderate or high 4. There are neither hegemon nor free riders 	<ol style="list-style-type: none"> 1. Market competition is in place in few sectors, like tourism

	A. Government organizations	B. Non-government organizations	C. Network structure	D. Property-rights systems
Moderately recurring	a. The type of decision-making is technical b. The focal points in ministries in charge are mid-level civil servants c. Alternating or opposing political orientation d. Government have good control of the area	a. NGOs are official observers, acting as critical conscience of the process b. There are NGOs at the ecoregional level c. NGOs benefit from European Union structural funds and donor funding		a. Common pool resources is predominant type of ownership for marine and freshwater ecoregions
Innovative or overlooked	i. Great Lakes: state and city authorities are competing with national authorities	i. Great Lakes: ecoregional authorities organize regular meetings with the public ii. Great Lakes: NGOs make frequent use of litigation iii. Baltic Sea: there is a hybrid organization, bringing together science and government iv. Alps: a hybrid organization has become an NGO		α. The ownership of key components of ecoregions depends on the ecosystem type
Non-recurring	α. Federalist or centralized form of state, participating or absent local authorities β. Presidential or parliamentary form of government, democratic or authoritarian political regime			

Some non-recurring patterns emerge again from the analysis. The ownership of key components of ecoregions depends on the ecosystem type. Among terrestrial ecoregions, there is a mix of public and private property, with one case including some communal property in high mountain pastures; for marine ecoregions, there is a prevalence of public property, with some private property or concessions along the coast and common property for the high seas; for freshwater ones, there is a mix of public and private property, with a prevalence of public for key water infrastructure. Areas under common law are a case apart.

Operational-choice rules

In all or almost all cases, normative developments come from reactions to crises or problems. In two cases, they can also be proactive. Proactive regulation is typically related to planning or programming exercises. Binding and non-binding, hard and soft law are combined. With one exception, there is always a legally binding international convention, as well as non-binding recommendations and other documents. In mountain and marine ecoregions, there is a trend towards more voluntary commitments. The policy mix is dominated by regulation and finance. The financial approach came afterwards. Communication is present in all cases except one but is less prominent than other policy types. There are many conflicting policies and mixed signals. Ecoregional level operational rules are part of a complex web of policies that are often conflicting. Different processes send mixed signals. Frequent changes further complexify the context. In at least one case, however, the overall direction is consistent.

In most cases, there is an environmental process, fitting the ecoregion and a broader process that does not. The interaction between what is inside the ecoregion and what surrounds it needs broader

frameworks. In two cases, however, there is no process that fits perfectly the ecoregion. Ecoregional agreements and processes are usually original developments. There are however two cases that borrowed extensively from other ecoregions. The normative dimension is generally little adaptive, while financial other tools are more flexible. In the freshwater case, the production of operational regulations is more adaptable than in the other cases. In marine and freshwater ecoregions, operational regulations are specific and technical. In the two mountain cases, they are instead generic. All cases feature generic strategic planning documents. An interesting case is the Amu Darya, where an ecoregional body meets at regular intervals to adjust operational regulations depending on forecasts. In this case, the issues at stake are high; permanent structures are available; governments are committed to follow-up.

Collective-choice rules

In all or almost all cases, ecoregional processes constitute international regimes. With one exception, all the cases observed qualify as international regimes with a significant convergence of expectations among participating actors. Ecoregional processes possess a formal agreement. With two exceptions, an international treaty, often called framework convention in marine and mountain ecosystem types, formalizes interactions among states within the ecoregional process. Formal agreements reduce the transaction cost of ad hoc solutions. They create the framework for meetings, documents and decisions once and for all, giving continuity to a process instead of short-term solutions. Decisions are taken by government representatives, by consensus, at different levels. Even if majority vote is possible in at least two cases, countries strive for consensus. Levels include ministerial (political, conferences of the parties), high level civil servants (technical, permanent committee) or mid-level civil servants with experts (technical, working groups). Presidency are on a rotating basis and play a leading role. Most presidencies provide leadership and formulate priorities. This increases ownership, even if presidencies rarely achieve all their goals. One process includes only two countries, which makes systematic cochairing possible.

There are two or more offices acting as secretariat. They are either secretariats of different processes or branches of the same structure. Minor secretariats are often hosted by the same headquarters. Secretariats provide services to the countries. Secretariats do not lead processes. There is one case, however, where the secretariat of the process, which is hosted by the United Nations, provides some leadership. Secretariats have budget only for administrative functions. The funds available to secretariats for programmatic functions are usually symbolic. Funds and programs are created and managed separately. In general, funding exceeds 30 million euros per year, mostly for programmatic functions. These resources are channeled through different funding schemes. The highest funding is for freshwater ecoregions with more than 100 million dollars per year; followed by marine ecoregions with more than 50 million; the least endowed type of ecoregion are mountains. Two-level games interfere with decision-making. This is true not only in relations between national and subnational governments, as well as other international processes, but also between executive and legislative branches.

Most ecoregional processes are formally autonomous. In three instances, however, they are linked to the European Union and, in two instances, to the United Nations. Development cooperation and European Union structural funding play a facilitating role. Most secretariats are autonomous bodies. There are two secretariats that are serviced by the United Nations and two more by the European Union. Public participation is usually ensured through official observers. There can be accreditation procedures. Sometimes, to be accredited organizations need to maintain a presence in the whole ecoregion not to represent too narrow interests. In the freshwater cases, there are no official observers. Processes are relatively transparent. There are few confidential elements. Documentation is available to the informed participant, usually through online portals. There is one case of lower and one of little transparency. In these cases, donors and funding programs can help increase transparency. Multilevel and intersectoral coordination happens mostly through observers. National delegations and the government structures behind, particularly interagency coordination at the level of prime minister or parliament, also play a key role. Programming and the strategies of development partners also contribute to coordination.

Among innovative or overlooked solutions, in the Andes, a new international regime is emerging from an ongoing process and an ecoregional NGO. However, it is unclear how sustainable it can be in the long term without a formal agreement. Also in the Andes, a key regional financial institution started off as an ecoregional investment scheme. It has now outgrown the ecoregion and is present in the wider region. In the Great Lakes, instead, some subsidiary bodies are multi-stakeholder. The countries must include representatives from different types of actors, such as business, academia and civil society. It is important to single out that the European Union has ecoregional-level funding schemes. The best known ones are the marine and mountain-based schemes for interregional cooperation, as well as support to the Union for the Mediterranean.

Last but not least, it must be noted that funding arrangements are different, also in size of funding available. Cases include national initiatives, funding schemes from the European Union, subnational authorities, private foundations, endowments and development banks.

Constitutional-choice rules

All ecoregional agreements and processes formalize their guiding principles. The most common ones are cooperation and sustainable development. Other examples include the precaution and the polluter-pays principles. Ecoregional relations are very principled. Principles are invoked frequently and sincerely. There is at least one case, however, where they are sometimes invoked ironically. Principles emerge spontaneously. They are sometimes the product of normative circulation. Project funding can also help with the emergence of specific principles. Principles are highly taken for granted. Few principles are being contested. There is just one case where some principles and norms have perhaps become obsolete.

Monitoring and sanctioning rules

In all or almost all cases, reports and studies are produced about the ecoregion. They are normally produced by working groups or scientific structures of ecoregional processes, scholarly networks or NGOs. They can represent boundary objects between scientists, governments and other types of actors.⁴ There is no triggering of verification procedures and no predefined sanctions. Compliance is rather ensured through peer pressure. In at least one case, the availability of project funding may encourage compliance. There are little or no cases litigated in front of international tribunals. There is one exception where the combination of an ecoregional agreement and the European Union treaties led to court.

In most cases, scientific structures can be created at the ecoregional level for monitoring. There are two cases where they do not exist and one where the structure is contested. In two cases, they act as boundary organizations. Ecoregional processes create knowledge bases about the ecoregion. They usually take the form of a web platform. Atlases and maps are often included. There are two cases without such knowledge base. Evaluation is normally among peers. In two cases, external experts are frequently involved in assessment procedures. Reports and meetings can produce learning about the ecoregion. They are often related to project implementation and evaluation. The case of the Mediterranean Sea is interesting in this regard. An ecoregional agreement-related case was adjudicated by the European Court of Justice. As mentioned above, this has been the first of such cases so far. In the Great Lakes, many disputes have been avoided thanks to the ecoregional process. The International Joint Commission plays a key role for dispute prevention.

Non-recurring patterns include compliance committees not being the norm. Basin commissions can review their own compliance. In one case, there are periodic assessments, but no formal compliance committee. A system of indicators against predefined targets is not the norm. A dashboard of indicators is available in cases with pollution problems. They use a traffic light color code to identify critical parameters. In these cases, hotspots have also been identified to compensate the lack of geographical

⁴ On boundary work, see for instance William C. Clark et al. (2011).

specificity of generic indicators. Also, finger-pointing for non-compliance is not the norm. It may happen in some occasions, but processes are usually not designed for finger-pointing. There is one case of retaliation, which resulted in other countries and organizations providing good offices. Another non-recurrent pattern is that different kinds of arbitration are foreseen: in some cases, it is binding arbitration of the International Court of Justice or other regional courts; in one case, submission is binding but acceptance is not; in another case, disputes are only solved by negotiation. This case is the one where most tension can be observed.

Table 5: Recurring patterns in regional environmental agreements and processes (second part)

	E. Operational-choice rules	F. Collective-choice rules	G. Constitutional-choice rules	H. Monitoring and sanctioning rules
Highly recurring	<ol style="list-style-type: none"> 1. Normative developments come from reactions to crises or problems 2. Binding and non-binding, hard and soft law are combined 3. The policy mix is dominated by regulation and finance 4. There are many conflicting policies and mixed signals 	<ol style="list-style-type: none"> 1. Ecoregional processes constitute international regimes 2. Ecoregional processes possess a formal agreement 3. Formal agreements reduce the transaction cost of ad hoc solutions 4. Decisions are taken by government representatives, by consensus, at different levels 5. Presidency on a rotating basis, it plays a leading role 6. There are two or more offices acting as secretariat 7. Secretariats provide services to the countries 8. Secretariats have budget only for administrative functions 9. Funding exceeds 30 million euros per year, mostly for programmatic functions 10. Two-level games interfere with decision-making 	<ol style="list-style-type: none"> 1. All ecoregional agreements and processes formalize their guiding principles 2. Principles are invoked frequently and sincerely 3. Principles emerge spontaneously 4. Principles are highly taken for granted 	<ol style="list-style-type: none"> 1. Reports and studies are produced about the ecoregion 2. There is no triggering of verification procedures, no predefined sanctions 3. There are no cases litigated in front of international tribunals
Moderately recurring	<ol style="list-style-type: none"> a. There is an environmental process, fitting the ecoregion and a broader process that does not b. Ecoregional agreements and processes are original developments c. The normative dimension is little adaptive, while financial and other tools are more flexible d. In marine and freshwater ecoregions, operational regulations are specific and technical 	<ol style="list-style-type: none"> a. Ecoregional processes are formally autonomous b. Secretariats are autonomous bodies c. Public participation is ensured through official observers d. Processes are transparent e. Multilevel and intersectoral coordination happens through observers 		<ol style="list-style-type: none"> a. Scientific structures are created at the ecoregional level for monitoring b. Ecoregional processes create knowledge bases about the ecoregion c. Evaluation is among peers d. Reports and meetings produce learning about the ecoregion

	E. Operational-choice rules	F. Collective-choice rules	G. Constitutional-choice rules	H. Monitoring and sanctioning rules
Innovative or overlooked	i. Amu Darya: an ecoregional body meets at regular intervals to adjust operational regulations	i. Andes: a new international regime is emerging from an ongoing process and an ecoregional NGO ii. Andes: a key regional financial institution started off as an ecoregional investment scheme iii. Great Lakes: some subsidiary bodies are multi-stakeholder iv. The European Union has ecoregional funding schemes		i. In the Mediterranean, an ecoregional agreement-related case was adjudicated by the European Court of Justice ii. In the Great Lakes, many disputes have been avoided thanks to the ecoregional process
Non-recurring		α. Funding arrangements are different, also in size of funding available		α. Compliance committees are not the norm β. A system of indicators against predefined targets is not the norm γ. Finger-pointing for non-compliance is not the norm δ. Different kinds of arbitration are foreseen

The lists in Table 4 and Table 5 are not design principles.⁵ I do not by any mean imply or suggest that this is what should be done. They are simply recurrent patterns found in six ecoregional agreements and processes. This is what usually happens. This does not mean that they are panaceas, that they are valid in each and every situation.⁶ There is no one-size-fits-all. They simply mean that this is what can be found in most cases. Moreover, recurring patterns are subject to interpretation. They can however be taken into consideration in the negotiation and renegotiation phases of ecoregional agreements and in the design and redesign of ecoregional processes.

The case studies are also meant to provide concrete illustrations of how ecoregional agreements and processes work out in practice. I hope they are useful. When I started working on the design of ecoregional agreements more than twelve years ago, I sought but could not find this kind of guidance at the ecoregional level. It is now available. It can certainly be improved and enriched with further cases and analysis, which may confirm or infirm some of these patterns and perhaps find new ones. Hopefully, this guidance can also be applied and adapted to the real world and can help solve some concrete problems and contribute to the practice of sustainable development.

⁵ On design principles, see McGinnis and Ostrom (1996) for commons and M. E. Cox et al. (2010) for natural resources management.

⁶ About going beyond panaceas, see Ostrom et al. (2007) and Ostrom and Cox (2010).

Bibliography

- Abbott, K. W., Keohane, R. O., Moravcsik, A., Slaughter, A.-M., & Snidal, D. (2000). The concept of legalization. *International Organization*, 54(3), 401-419.
- Abdullaev, I. (2011). *Transboundary water management in Central Asia*. Paper presented at the Climate Diplomacy in Perspective: From Early Warning to Early Action, Berlin.
- Abdullaev, I., Kazbekov, J., Manthritilake, H., & Jumaboev, K. (2010). Water user groups in Central Asia: emerging form of collective action in irrigation water management. *Water Resources Management*, 24(5), 1029-1043. doi:10.1007/s11269-009-9484-4
- Abdullaev, I., & Rakhmatullaev, S. (2015). Transformation of water management in Central Asia: from State-centric, hydraulic mission to socio-political control. *Environmental Earth Sciences*, 73(2), 849-861. doi:10.1007/s12665-013-2879-9
- Adelaar, W. F. H., & Muysken, P. (2004). *The languages of the Andes*. Cambridge: Cambridge University Press.
- Ahumada, C., & Cancino, A. (Eds.). (2003). *Comunidad Andina y MERCOSUR en la perspectiva del ALCA*. Bogotá: Centro Editorial Javeriano.
- Aliboni, R. (1998). *Partenariato nel Mediterraneo: percezioni, politiche, istituzioni*. Milano: FrancoAngeli.
- Allee, D. J. (1993). Subnational governance and the International Joint Commission: local management of United States and Canadian boundary waters. *Natural Resources Journal*, 33(1), 133-151.
- Allen, J., & Cochrane, A. (2007). Beyond the territorial fix: regional assemblages, politics and power. *Regional Studies*, 41(9), 1161-1175.
- Allen, J., Massey, D. B., & Cochrane, A. (1998). *Rethinking the region*. London: Routledge.
- Allison, G. T. (1969). Conceptual models and the Cuban missile crisis. *American political science review*, 63(3), 689-718.
- Allison, G. T. (1971). *Essence of decision: explaining the Cuban missile crisis*. Boston: Little, Brown.
- Alpine Convention. (2015). *Report on the state of the Alps: demographic changes in the Alps*. Innsbruck-Bolzano: Permanent Secretariat.
- Alpine Convention. (2017). *Report on the state of the Alps: greening the economy in the Alpine region*. Innsbruck-Bolzano: Permanent Secretariat.
- Alpine Convention. Italian Presidency. (2014). *Results achieved by the UNESCO World Heritage Working Group of the Alpine Convention (2007-2014)*. Innsbruck-Bolzano: Permanent Secretariat.
- Alpine Space Programme. (2006). *Alpine Space Programme INTERREG IIIB project booklet (2000-2006)*. Rosenheim: Alpine Space Programme, Joint Technical Secretariat.
- Alpine Space Programme. (2008). *Bridging potentials: projects of the INTERREG IIIB Alpine Space Programme*. München: Alpine Space Programme, Joint Technical Secretariat.

- Amilhat-Szary, A.-L. (2003). L'intégration continentale aux marges du MERCOSUR: les échelles d'un processus transfrontalier et transandin. *Revue de Géographie Alpine*, 91(3), 47-56.
- Amilhat-Szary, A.-L. (2007). L'intégration andine et ses présupposés: la région andine existe-t-elle? *Cahiers des Amériques Latines*(50), 22-40.
- Amilhat-Szary, A.-L. (2009). Ruralité, ethnicité et montagne: le référent andin dans le projet de territoire "aymaras sin frontera". *Revue de Géographie Alpine*, 97(2).
- Amsellem, D. (2016). Méditerranée orientale: de l'eau dans le gaz ? *Politique étrangère*, Hiver(4), 72. doi:10.3917/pe.164.0061
- Anaya Vera, E., & Polanco Lazo, R. (2016). The court of justice of the Andean Community: a new forum for the settlement of foreign investment disputes? *Transnational Dispute Management*(2).
- Andersen, J. H., Korpinen, S., Laamanen, M., Wolpers, U., Claussen, U., Durkin, M., . . . Zweifel, U. L. (2010). Ecosystem Health of the Baltic Sea 2003-2007: HELCOM Initial Holistic Assessment *Baltic Sea Environment Proceedings*. Helsinki: HELCOM.
- Andonova, L. B. (2010). Public-private partnerships for the earth: politics and patterns of hybrid authority in the multilateral system. *Global Environmental Politics*, 10(2), 25-53. doi:10.1162/glep.2010.10.2.25
- Andonova, L. B., Betsill, M. M., & Bulkeley, H. (2009). Transnational climate governance. *Global Environmental Politics*, 9(2), 52-73. doi:10.1162/glep.2009.9.2.52
- Andonova, L. B., & Mitchell, R. B. (2010). The rescaling of global environmental politics. *Annual Review of Environment and Resources*, 35(1), 255-282. doi:10.1146/annurev-environ-100809-125346
- Andresen, S., & Rosendal, K. (2009). The role of the United Nations Environment Programme in the coordination of multilateral environmental agreements. In F. Biermann, B. Siebenhüner, & A. Schreyögg (Eds.), *International organizations in global environmental governance* (pp. 133-150). Abingdon: Routledge.
- Andueza Acuña, J. G. (1986). *El Tribunal del Pacto Andino*. Quito: Tribunal de Justicia del Acuerdo de Cartagena.
- Angelini, P., & Church, J. M. (2008). The logic of multilingualism in the Alpine Convention. In L. Voltmer & E. Chiochetti (Eds.), *Harmonising legal terminology* (pp. 37-46). Bolzano: EURAC.
- Angelini, P., Church, J. M., & Weldeyesus, E. (2010). La protezione integrata dell'ambiente alpino: armonizzazione delle Liste Propositive a livello ecoregionale. *Gazzetta ambiente*(6), 27-32.
- Angelini, P., Ventura, E., & Martini, M. (Eds.). (2006). *La Convenzione delle Alpi: politiche, leggi e misure di attuazione in Italia*. Bolzano: EURAC.
- Aps, R., Fetissov, M., Kell, L. T., & Lassen, H. (2009). Baltic Sea Regional Advisory Council as a hybrid management framework for sustainable fisheries. In C. A. Brebbia & E. Tiezzi (Eds.), *Ecosystems and Sustainable Development* (Vol. 7, pp. 163-172). Southampton: WIT Press.
- Arias-Schreiber, M., Linke, S., Delaney, A. E., & Jentoft, S. (2019). Governing the governance: small-scale fisheries in Europe with focus on the Baltic Sea *Transdisciplinarity for small-scale fisheries governance* (pp. 357-374). Berlin: Springer.

- Aron, R. (1955). *L'opium des intellectuels*. Paris: Calmann-Lévy.
- Astuhuamán Gonzáles, C. W. (2008). Descripción histórica y arqueológica del ramal central del sistema de caminos Inka y recomendaciones para la selección de sitios y tramos de intervención en el desarrollo del proyecto de gestión de los paisajes andinos *Estudio Lineamientos de Gestión*. Lima: Instituto de Montaña.
- Austen, I., & Branch, J. (2010, 9 February). Everything is in place in Vancouver, except snow. *New York Times*, p. B11.
- Bäckstrand, K. (2003). Civic science for sustainability: reframing the role of experts, policy-makers and citizens in environmental governance. *Global Environmental Politics*, 3(4), 24-41. doi:10.1162/152638003322757916
- Bäckstrand, K. (2006). Multi-stakeholder partnerships for sustainable development: rethinking legitimacy, accountability and effectiveness. *European Environment*, 16(5), 290-306. doi:10.1002/eet.425
- Badie, B. (1995). *La fin des territoires: essai sur le désordre international et sur l'utilité sociale du respect*. Paris: Fayard.
- Balasubramanya, S., Price, J. P. G., & Horbulyk, T. M. (2018). Impacts assessments without true baselines: assessing the relative effects of training on the performance of Water User Associations in Southern Tajikistan. *Water Economics and Policy*, 4(3), 1850007. doi:10.1142/s2382624x18500078
- Ballón Echegaray, E. (Ed.) (2008). *Balance del proceso peruano de descentralización desde los gobiernos regionales*. Lima: EED.
- Balme, R. (Ed.) (1994). *Le territoire pour politiques: variations européennes*. Paris: L'Harmattan.
- Balme, R. (Ed.) (1996). *Les politiques du néo-régionalisme: action collective régionale et globalisation*. Paris: Economica.
- Balsiger, J. (2007). *Regionalism reconsidered: the Alpine Convention as a model of earth system governance*. Paper presented at the Conference on the Human Dimensions of Global Environmental Change, Amsterdam.
- Balsiger, J. (2008). Regional sustainable development in the European Alps *EUI Working Paper MWP*. San Domenico di Fiesole: European University Institute.
- Balsiger, J. (2012). New environmental regionalism and sustainable development in the European Alps. *Global Environmental Politics*, 12(3), 58-78. doi:10.1162/GLEP_a_00123
- Balsiger, J. (2013). *Regional approaches in the Caucasus mountain region: context, processes, and actors*. Paper presented at the Towards a scientific network in the Caucasus mountain region, Tbilisi.
- Balsiger, J. (2016). The European Union strategy for the Alpine region. In S. Gänzle & K. Kern (Eds.), *A 'macro-regional' Europe in the making: theoretical approaches and empirical evidence* (pp. 189-213). London: Palgrave Macmillan.
- Balsiger, J., & Debarbieux, B. (2011). Regional environmental governance: interdisciplinary perspectives, theoretical issues, comparative designs (REGov), University of Geneva. *Procedia Social and Behavioral Sciences*, 14(1-8). doi:10.1016/S1877-0428(11)00210-2

- Balsiger, J., & Nahrath, S. (2015). Functional regulatory spaces and policy diffusion in Europe: the case of mountains. *Environmental Science & Policy*, 49, 8-20. doi:10.1016/j.envsci.2015.01.004
- Balsiger, J., & Prys, M. (2016). Regional agreements in international environmental politics. *International Environmental Agreements: Politics, Law and Economics*, 16(2), 239–260. doi:10.1007/s10784-014-9256-3
- Balsiger, J., Prys, M., & Steinhoff, N. (2012). The nature and role of regional agreements in international environmental politics: mapping agreements, outlining future research (pp. 33). Hamburg: GIGA.
- Balsiger, J., & Uyar, A. (Eds.). (2013). *Comparing regional environmental governance in East Asia and Europe: proceedings*. Kyoto: Research Institute for Humanity and Nature.
- Balsiger, J., & VanDeveer, S. D. (2010). Regional governance and environmental problems. In R. A. Denmark (Ed.), *International studies encyclopedia online*. Oxford: Blackwell Reference Online.
- Balsiger, J., & VanDeveer, S. D. (2012). Navigating regional environmental governance. *Global Environmental Politics*, 12(3), 1-17. doi:10.1162/GLEP_e_00120
- Balta, P. (Ed.) (1992). *La Mediterranee reinventee: réalités et espoirs de la coopération*. Paris: La Découverte.
- Bandyopadhyay, J. (1985). Rehabilitation of upland watersheds: background paper. Geneva: WCED.
- Banerjee, A. V. (2007). *Making aid work*. Cambridge, MA: MIT Press.
- Barberini, G., Maffettone, S., Aymard, M., & al-Azm, S. J. (Eds.). (2004). *Il Mediterraneo: ancora mare nostrum?* Roma: LUISS University Press.
- Barros, J. (1984). *Palena: un río, un arbitraje*. Santiago: Santillana del Pacífico.
- Bätzing, W. (2001). De la "géographie régionale" à une recherche scientifique coordonnée au sein de la "Convention alpine". *Revue de Géographie Alpine*, 89(4), 211-220.
- Bätzing, W. (2003). The Alps, a model region for the mountains of the world? Fundamental thoughts about the IYM 2002. *Journal of the IUAA*(1), 59-63.
- Bätzing, W. (2008). Die Schweiz und Österreich als "Alpenländer"? Zum wirtschaftlichen, kulturellen und politischen Stellenwert der Alpen in beiden Staaten. *Geographische Rundschau*, 60(3), 4-13.
- Bätzing, W., & Messerli, P. (1992). The Alps: an ecosystem in transition. In G. Stone (Ed.), *The state of the world's mountains: a global report* (pp. 45-91). London: Zed.
- Bätzing, W., Perlik, M., & Dekleva, M. (1996). Urbanization and depopulation in the Alps. *Mountain Research and Development*, 16(4), 335-350.
- Bätzing, W., & Rougier, H. (2005). *Les Alpes: un foyer de civilisation au cœur de l'Europe*. Lausanne: LEP.
- Baudin, M. (2009). *Le développement durable, nouvelle idéologie du XXIe siècle?* Paris: L'Harmattan.

- Bauer, S. (2006). Does bureaucracy really matter? The authority of intergovernmental treaty secretariats in global environmental politics. *Global Environmental Politics*, 6(1), 23-49. doi:10.1162/glep.2006.6.1.23
- Bauer, S., Busch, P.-O., & Siebenhüner, B. (2009). Treaty secretariats in global environmental governance. In F. Biermann, B. Siebenhüner, & A. Schreyögg (Eds.), *International organizations in global environmental governance* (pp. 174-192). Abingdon: Routledge.
- Bausch, T., Dax, T., Janin Rivolin, U., Parvex, F., Praper, S., & Vanier, M. (2005). Alpine Space prospective study: sustainable territorial development in the Alpine Space, towards long term transnational cooperation (full report). Rosenheim: Alpine Space Programme.
- Beaussier, A.-L. (2009). Le retour de l'Etat américain et la montée du conservatisme. *Revue française de science politique*, 59(1), 130-133.
- Benoit, G., & Comeau, A. (2005). *A sustainable future for the Mediterranean: the Blue Plan's environment and development outlook*. London: Earthscan.
- Berg, P., Glotfelty, C., & Quesnel, E. (2015). *The biosphere and the bioregion: essential writings of Peter Berg*. London: Routledge.
- Berge, E., & Laerhoven, F. v. (2011). Governing the commons for two decades: a complex story. *International Journal of the Commons*, 5(2), 160-187. doi:10.18352/ijc.325
- Bergström, L., Ahtiainen, H., Avellan, L., Estlander, S., Haapaniemi, J., Haldin, J., . . . Zweifel, U. L. (2018). State of the Baltic Sea: second HELCOM holistic assessment 2011-2016 *Baltic Sea Environment Proceedings*. Helsinki: HELCOM.
- Berkes, F. (2006). From community-based resource management to complex systems: the scale issue and marine commons. *Ecology and Society*, 11(1).
- Biermann, F., Pattberg, P., Asselt, H. v., & Zelli, F. (2009). The fragmentation of global governance architectures: a framework for analysis. *Global Environmental Politics*, 9(4), 14-40. doi:10.1162/glep.2009.9.4.14
- Biermann, F., Siebenhüner, B., & Schreyögg, A. (Eds.). (2009). *International organizations in global environmental governance*. Abingdon: Routledge.
- Binder, C. R., Hinkel, J., Bots, P. W. G., & Pahl-Wostl, C. (2013). Comparison of frameworks for analyzing social-ecological systems. *Ecology and Society*, 18(4). doi:10.5751/ES-05551-180426
- Blundo Canto, G., Cruz-García, G. S., Tristán Febres, M. C., Pareja Cabrejos, P., & Quintero, M. (2016). Many ecosystem services and few employment and marketing opportunities: the paradox of an Andean community in Peru *CGIAR Research Program on Water, Land and Ecosystems* (pp. 5). Battaramulla: IWMI.
- Bobbio, N. (1976). *La teoria delle forme di governo nella storia del pensiero politico*. Torino: Giappichelli.
- Boesch, M. (2007a). Analysing the influence of cultural differences on regional development in the Alps *DIAMONT* (Vol. 1, pp. 112). Bolzano: EURAC research.
- Boesch, M. (2007b). Is "culture" still relevant to regional policy? Discussions from DIAMONT, a European Union research project. *Mountain Research and Development*, 27(1), 4-9.

- Boisson de Chazournes, L. (2006). The Aral Sea basin: legal and institutional aspects. In M. Finger, L. Tamiamiotti, & J. Allouche (Eds.), *The multi-governance of water: four case studies* (pp. 147-172). Albany, NY: State University of New York Press.
- Borg, J., Kääriä, P., & Zweifel, U. L. (2016). Ecological coherence assessment of the Marine Protected Area network in the Baltic *Baltic Sea Environment Proceedings*. Helsinki: HELCOM.
- Borsdorf, A., & Braun, V. (2008). Panorama de la recherche sur la montagne en Europe et dans le monde. *Revue de Géographie Alpine*, 96(4), 101-116.
- Börzel, T. A. (2016). Theorizing regionalism. In T. A. Börzel & T. Risse (Eds.), *The Oxford handbook of comparative regionalism* (pp. 41-63). Oxford: Oxford University Press.
- Botts, L., & Muldoon, P. (2008, 2008). *Using the Boundary Waters Treaty for the 21st century: revitalizing the Great Lakes governance regime*. Paper presented at the Boundary Waters Treaty Centennial Symposium.
- Botts, L., & Muldoon, P. (Eds.). (2005). *Evolution of the Great Lakes water quality agreement*. East Lansing, MI: Michigan State University Press.
- Bourdieu, P. (1972). *Esquisse d'une théorie de la pratique précédée de trois études d'ethnologie*. Genève: Droz.
- Bourdieu, P. (1979). *La distinction: critique sociale du jugement*. Paris: Éditions de Minuit.
- Bourdieu, P. (1994). *Raisons pratiques: sur la théorie de l'action*. Paris: Seuil.
- Bouzas, R., & Fanelli, J. M. (2001). *Mercosur, integración y crecimiento*. Buenos Aires: Fundación OSDE.
- Bouzas, R., & Soltz, H. (2003). *Instituciones y reglas en procesos de integración asimétricos: el caso del Mercosur*. Hamburg: Institut für Iberoamerika-Kunde.
- Braat, L. C., & de Groot, R. (2012). The ecosystem services agenda: bridging the worlds of natural science and economics, conservation and development, and public and private policy. *Ecosystem Services*, 1(1), 4-15.
- Bradshaw, M. J. (1992). *The Appalachian Regional Commission: twenty-five years of government policy*. Lexington, KY: University Press of Kentucky.
- Braudel, F. (1949). *Méditerranée à l'époque de Philippe II*. Paris: Armand Colin.
- Breckle, S. W. (Ed.) (2012). *Aralkum, a man-made desert: the desiccated floor of the Aral Sea*. Berlin: Springer.
- Breitmeier, H., Levy, M. A., Young, O. R., & Zurn, M. (1996). The international regimes database as a tool for studying international cooperation *IIASA Working Paper*. Laxenburg: International Institute for Applied Systems Analysis.
- Breitmeier, H., Underdal, A., & Young, O. R. (2011). The effectiveness of international environmental regimes: comparing and contrasting findings from quantitative research. *International Studies Review*, 13(4), 579-605. doi:10.1111/j.1468-2486.2011.01045.x
- Breitmeier, H., Young, O. R., & Zurn, M. (2007). The international regimes database: Architecture, key findings, and implications for the study of environmental regimes. In K. Jacob, F. Biermann, P.-O. Busch, & P. H. Feindt (Eds.), *Politik und Umwelt* (pp. 41-59). Wiesbaden: VS-Verlag.

- Breitmeier, H., Young, O. R., & Zürn, M. (2006). *Analyzing international environmental regimes: from case study to database*. Cambridge, MA: MIT Press.
- Brem, S., & Bruno, S. (1997). The Swiss debate on the Alpine Convention: more than a two-level game (pp. 44). Zürich: Institut für Politikwissenschaft, Abteilung Internationale Beziehungen.
- Brenner, N., & Elden, S. (2009). Henri Lefebvre on state, space, territory. *International Political Sociology*, 3(4), 353-377.
- Bretherton, C., & Vogler, J. (2000). The European Union as trade actor and environmental activist: contradictory roles? *Journal of Economic Integration*, 15(12), 163-194.
- Briassoulis, H. (2011). Governing desertification in Mediterranean Europe: the challenge of environmental policy integration in multi-level governance contexts. *Land Degradation & Development*, 22(3), 313-325. doi:10.1002/ldr.1018
- Briquel, V. (1995a). D'un système d'observation des Alpes à un système d'information. *Revue de Géographie Alpine*, 83(2), 19-34.
- Briquel, V. (1995b). Des descripteurs pour un système d'observation des Alpes. *Revue de Géographie Alpine*, 83(2), 35-50.
- Broggiato, A., & Church, J. M. (2008). Carpathian Convention: one step ahead, three steps back? *Environmental Policy and Law*, 38(5), 267-271.
- Broggio, C. (1992). Les enjeux d'une politique montagne pour l'Europe. *Revue de Géographie Alpine*, 80(4), 26-39.
- Broggio, C. (2002). La politique de la montagne en France: représentations, discours et montagne. *Hérodote*, 107(4), 147-158.
- Brown, C. (2010). Comparative approaches to governance and management of water resources in North America. *Vertigo*(7, hors série). doi:10.4000/vertigo.9721
- Bruha, T. (2002). Implementation of the Alpine Convention in Liechtenstein. In T. Treves, L. Pineschi, & A. Fodella (Eds.), *International law and the protection of mountain areas* (pp. 117-122). Milano: Giuffrè.
- Brun, A., & Lasserre, F. (2010). Politique nationale de l'eau au Québec: constat et perspectives. *Vertigo*(7, hors série). doi:10.4000/vertigo.9721
- Bugeda, B. (1998, 1998-1999). *Is NAFTA up to its green expectations? effective law enforcement under the North American Agreement on Environmental Cooperation*. Paper presented at the Symposium: Resolving International Environmental Disputes in the 1990s and beyond.
- Bührs, T. (2009). *Environmental integration: our common challenge*. Albany, NY: SUNY Press.
- Bull, H. (1977). *The anarchical society: a study of order in world politics*. Basingstoke: Palgrave.
- Burns, T., & Stöhr, C. (2011). Power, knowledge, and conflict in the shaping of commons governance. The case of EU Baltic fisheries. *International Journal of the Commons*, 5(2), 233-258. doi:10.18352/ijc.260
- Bustamante, M., & Giacalone, R. (2009). An assessment of European Union cooperation towards the Andean Community (1992–2007). In P. d. Lombaerde & M. Schulz (Eds.), *The EU and world regionalism: the makability of regions in the 21st century* (pp. 149-170). Farnham: Ashgate.

- Cabrera Ferrada, A. (1991). Hablan los constructores de un sueño. *CAF Revista de Integración*(3), 8-20.
- CAF. (2017). Informe anual 2016. Caracas: CAF.
- Caldwell, L. K. (1994). Disharmony in the Great Lakes basin: institutional jurisdictions frustrate the ecosystem approach. *Alternatives*, 20(3), 26.
- Cardesa-Salzmann, A. (2012). Constitutionalising secondary rules in global environmental regimes: non-compliance procedures and the enforcement of multilateral environmental agreements. *Journal of Environmental Law*, 24(1), 103-132. doi:10.1093/jel/eqr022
- Cardoso, F. H., & Faletto, E. (1984). *Dependência e desenvolvimento na América Latina: ensaio de interpretação*. Rio de Janeiro: Zahar.
- Cardwell, P. J. (2009). *EU external relations and systems of governance: the CFSP, Euro-Mediterranean partnership and migration*. London: Routledge.
- Cardwell, P. J. (2011). EuroMed, European Neighbourhood Policy and the Union for the Mediterranean: overlapping policy frames in the EU's governance of the Mediterranean. *Journal of Common Market Studies*, 49(2), 219-241. doi:10.1111/j.1468-5965.2010.02119.x
- Carroll, J. E. (1983). *Environmental diplomacy: an examination and a prospective of Canadian-US transboundary environmental relations*. Ann Arbor, MI: University of Michigan Press.
- Carter, D. B., & Goemans, H. E. (2011). The making of territorial order: new borders and the emergence of interstate conflict. *International Organization*, 65(1), 275-309.
- Casas Gragea, Á. M. (2001). La Comunidad Andina: 30 años en busca del desarrollo. *Revista de Fomento Social*, 56(221), 65-91.
- Cash, D. W., Adger, W. N., Berkes, F., Garden, P., Lebel, L., Olsson, P., . . . Young, O. (2006). Scale and cross-scale dynamics: governance and information in a multilevel world. *Ecology and Society*, 11(2).
- Castells, M. (2000a). Materials for an exploratory theory of the network society. *British Journal of Sociology*, 51(1), 5-24.
- Castells, M. (2000b). *The rise of the network society*. Oxford: Blackwell Publishers.
- Caveri, L. (2002). *L'Europa e la montagna*. Verbania: Tararà.
- Centres-villes, centralité, décentralisation en Amérique latine. (1994): *Vol. 18. Cahiers des Amériques Latines*. Paris: IHEAL Editions.
- CEPAL. (1991). El desarrollo sustentable: transformación productiva, equidad y medio ambiente *Libros de la CEPAL*. Santiago de Chile: CEPAL.
- CEPAL. (1994). *El regionalismo abierto en América Latina y el Caribe: la integración económica en servicio de la transformación productiva con equidad*. Santiago de Chile: CEPAL.
- Chaloux, A., & Paquin, S. (2013). Green paradiplomacy and water resource management in North America: the case of the Great Lakes-St. Lawrence River Basin. *Canadian Foreign Policy Journal*, 19(3), 308-322. doi:10.1080/11926422.2013.845582

- Chambers, W. B. (2001). *Inter-linkages: the Kyoto Protocol and the international trade and investment regimes*. Tokyo: United Nations University Press.
- Changements démographiques en Amérique latine. (2004): *Vol. 47. Cahiers des Amériques Latines*. Paris: IHEAL Editions.
- Chapin, F. S., III, Carpenter, S. R., Kofinas, G. P., Folke, C., Abel, N., Clark, W. C., . . . Swanson, F. J. (2009). Ecosystem stewardship: sustainability strategies for a rapidly changing planet. *Trends in Ecology & Evolution*, 25(4), 241-249. doi:10.1016/j.tree.2009.10.008
- Chasek, P. (2009). *Mind the gap: confronting the MEA implementation gap in the pacific island countries*. Paper presented at the International Studies Association annual conference, New York.
- Cherol, R. L., & Núñez del Arco, J. (1983). Empresas Multinacionales Andinas: un nuevo enfoque de la inversion multinacional en el Grupo Andino. *International Lawyer*, 17(2), 309-332.
- Child, J. (1979). Geopolitical thinking in Latin America. *Latin American Research Review*, 14(2), 89-111.
- Child, J. (1985). *Geopolitics and conflict in South America: quarrels among neighbors*. New York, NY: Praeger.
- Chinkin, C. (2000). Normative development in the international legal system. In D. Shelton (Ed.), *Commitment and compliance: the role of non-binding norms in the international legal system* (pp. 21-42). Oxford: Oxford University Press.
- Christen, C., Herculano, S., Hochstetler, K., Prell, R., Price, M., & Roberts, J. T. (1998). Latin American environmentalism: comparative views. *Studies in Comparative International Development*, 33(2), 58-87.
- Chuenpagdee, R., & Jentoft, S. (Eds.). (2018). *Transdisciplinarity for small-scale fisheries governance: analysis and practice*. Berlin: Springer.
- Church, J. M. (2005). *The Rapprochement between Argentina and Chile, 1978-2001*. (MPhil), Cambridge University, Cambridge.
- Church, J. M. (2008a). La crisis del Canal de Beagle. *Estudios Internacionales*, XLI(161), 7-34.
- Church, J. M. (2009, 17 February). *On the design of regional environmental agreements in Europe: the case of the Alpine Convention*. Paper presented at the International Studies Association annual conference, New York.
- Church, J. M. (2010). Environmental regionalism: the challenge of the Alpine Convention and the “strange case” of the Andean Community *CID Research Fellow Working Paper* (pp. 82). Cambridge, MA: Harvard University, Center for International Development.
- Church, J. M. (2011a). *La Convention alpine, une organisation internationale: la pyramide à l'envers et le retour de l'état*. (PhD), Université de Paris 1, Paris.
- Church, J. M. (2011b). *La Convention alpine, une organisation internationale: la pyramide à l'envers et le retour de l'état*. (Doctorat), Université de Paris 1 - Panthéon-Sorbonne, Paris.
- Church, J. M. (2014a). International cooperation of Turkmenistan in the water sector. In I. S. Zonn & A. G. Kostianoy (Eds.), *The Turkmen Lake Altyn Asyr and water resources in Turkmenistan* (pp. 291-310). Berlin: Springer.

- Church, J. M. (2014b). Quelle innovation institutionnelle pour la gouvernance de la durabilité ? In J.-Y. Grosclaude, R. Pachauri, & L. Tubiana (Eds.), *Les promesses de l'innovation durable* (pp. 277-286). Paris: Armand Colin.
- Church, J. M. (2017). The soft power of Tajikistan on the water agenda: cross-scale dynamics. In S. S. Zhiltsov, I. S. Zonn, A. G. Kostianoy, & A. V. Semenov (Eds.), *Water resources in Central Asia* (pp. 1-14). Cham: Springer.
- Church, J. M. (2018). Pathways of adaptation to climate change: analysis and transformation of the governance system of the Ardennes mountain area. *Journal of Alpine Research*, 106(3), 14. doi:10.4000/rga.5108
- Church, J. M. (Ed.) (2008b). *A collection on the Carpathian Convention* (2 ed.). Bolzano: Italian Ministry for the Environment - EURAC.
- Church, J. M., & Maisetti, N. (2011). On the sustainability of urban institutional dynamics: capitalization, decentralization, and the case of two Alpine cities. *Environnement Urbain / Urban Environment*(5), 24-37.
- Church, J. M., & Ramcilovic, S. (2009). Participation in the Alpine Convention. In B. Majtényi & G. Tamburelli (Eds.), *Sustainable development and transboundary co-operation in mountain regions: the Alpine and the Carpathian Conventions*. Budapest: L'Harmattan.
- Churchill, R. R., & Ulfstein, G. (2000). Autonomous institutional arrangements in multilateral environmental agreements: a little-noticed phenomenon in international law. *American Journal of International Law*, 94, 623-659.
- Cinnirella, S., Sardà, R., Suárez de Vivero, J. L., Brennan, R., Barausse, A., Icely, J., . . . Turner, K. (2014). Steps toward a shared governance response for achieving Good Environmental Status in the Mediterranean Sea. *Ecology and Society*, 19(4). doi:10.5751/ES-07065-190447
- Clamen, M. (2005). The International Joint Commission. a model for inter-American cooperation? *Vertigo*(2, hors-série). doi:10.4000/vertigo.1885
- Clamen, M. (2013). The IJC and transboundary water disputes: past, present, and future. In E. S. Norman, A. Cohen, & K. Bakker (Eds.), *Water without borders? Canada, the United States, and shared waters* (pp. 70-87). Toronto: University of Toronto Press.
- Clamen, M., & Macfarlane, D. (2015). The International Joint Commission, water levels, and transboundary governance in the Great Lakes. *Review of Policy Research*, 32(1), 40-59. doi:10.1111/ropr.12107
- Clark, W. C. (1987). Scale relationships in the interactions of climate, ecosystems, and societies. In K. C. Land & S. H. Schneider (Eds.), *Forecasting in the social and natural sciences* (pp. 337-378). Dordrecht: Reidel.
- Clark, W. C. (2007). Sustainability science: a room of its own. *PNAS*, 104(6), 1737-1738. doi:10.1073/pnas.0611291104
- Clark, W. C., & Dickson, N. M. (2003). Sustainability science: the emerging research program. *PNAS*, 100(14), 8059-8061. doi:10.1073/pnas.1231333100
- Clark, W. C., Tomich, T. P., van Noordwijk, M., Guston, D., Catacutan, D., Dickson, N. M., & McNie, E. (2011). Boundary work for sustainable development: natural resource management at the Consultative Group on International Agricultural Research (CGIAR). *Proceedings of the National Academy of Sciences*, 113(17), 4615-4622. doi:10.1073/pnas.09002311108

- Coluccia, S. (2003). Tra Roma e Bolzano, distanze ravvicinate (a colloquio con Paolo Angelini). *Accademia*(33), 45-46.
- Comunidad Andina. (2007). *Agenda Ambiental Andina (2006-2010)*. Lima: Comunidad Andina, Secretaría General.
- Comunidad Andina. Secretaría General. (2009). *Atlas de los Andes de norte y centro*. Lima: Secretaría General de la Comunidad Andina.
- Comunidad Andina. Secretaría General, & UNEP. (2003). GEO Andino 2003: perspectivas del medio ambiente. Lima-México: CAN - PNUMA.
- Conca, K. (2006). *Governing water: contentious transnational politics and global institution building*. Cambridge, MA: MIT Press.
- Conca, K. (2012). The rise of the region in global environmental politics. *Global Environmental Politics*, 12(3), 127-133. doi:10.1162/GLEP_a_00132
- Conca, K., & Dabelko, G. D. (2010). *Green planet blues: four decades of global environmental politics* (4th ed.). Boulder, CO: Westview Press.
- Conservation International. (2000). Megadiversity data tables. Retrieved from www.conservation.org/xp/CIWEB/home
- Contipelli, E. (2016). La Comunidad Andina de Naciones y la evolución del proceso de integración socioeconómico en Latinoamérica. *Estudios de Deusto*, 64(1), 261-280. doi:10.18543/ed-64(1)-2016pp261-280
- Convention alpine. (2007). *Report on the state of the Alps: transport and mobility in the Alps*. Innsbruck-Bolzano: Secrétariat permanent.
- Convention alpine. (2009). *Report on the state of the Alps: water and water management issues*. Innsbruck-Bolzano: Secrétariat permanent.
- Convention alpine. Groupe de travail transports. (2008). *Mobilité durable dans les Alpes: bonnes pratiques et analyse du système de mobilité*. Grenoble: Convention alpine.
- Convention alpine. Groupe de travail transports. (2009a). *Mobilité touristique durable dans les Alpes*. Paris: Convention alpine.
- Convention alpine. Groupe de travail transports. (2009b). *Public transport accessibility of Alpine tourist resorts from major European origin regions and cities: synthesis report*. Paris-Wien: Convention alpine.
- Convention alpine. Groupe de travail transports. Sous-groupe coûts. (2007). *Les coûts réels des transports dans les corridors transalpins*. Roma: Convention alpine.
- Corcuff, P. (2003). *Bourdieu autrement: fragilités d'un sociologue de combat*. Paris: Textuel.
- Coustillière, J.-F. (2017). Projet euro-méditerranéen, une nécessaire reconstruction. *Confluences Méditerranée*, 100(1), 188. doi:10.3917/come.100.0177
- Cox, M. E. (2014). Understanding large social-ecological systems: introducing the SESMAD project. *International Journal of the Commons*, 8(2), 265-276. doi:10.18352/ijc.406

- Cox, M. E., Arnold, G., & Tomás, S. V. (2010). A review of design principles for community-based natural resource management. *Ecology and Society*, 15(4). doi:10.5751/ES-03704-150438
- Cox, R. W. (1986). Social forces, states and world orders: beyond international relations theory. In R. O. Keohane (Ed.), *Neorealism and its critics* (pp. 204-254). New York: Columbia University Press.
- Cox, R. W. (1996). *Approaches to world order* (Vol. 40). Cambridge: Cambridge University Press.
- Crépu, M. (2007). Le développement durable, une idéologie? *Revue des deux mondes*(10-11).
- Cudney-Bueno, R., & Basurto, X. (2009). Lack of cross-scale linkages reduces robustness of community-based fisheries management. *PLoS ONE*, 4(7), e6253. doi:10.1371/journal.pone.0006253
- Daguzan, J.-F. (2016). Les politiques méditerranéennes de l'Europe: trente ans d'occasions manquées. *Politique étrangère, Hiver*(4), 24. doi:10.3917/pe.164.0011
- Danz, W. (1989). *Guide to an Alpine Convention* (Vol. 5/89). Vaduz: CIPRA.
- Danz, W. (1990). *Modèle pour la Convention alpine*. Vaduz: CIPRA International.
- Danz, W., Aebersold, H., & al. (1991). *La Convention alpine: mesures à prendre*. Vaduz: CIPRA International.
- Dardel, E. (1952). *L'homme et la terre: nature de la réalité géographique*. Paris: Presses Universitaires de France.
- Dasgupta, P. (2001). *Human well-being and the natural environment* (2 ed.). Oxford: Oxford University Press.
- Dasgupta, P. (2010). Natural capital and sustainable development. In P. Dasgupta, W. C. Clark, J. Bongaarts, S. Carpenter, R. Kates, E. Ostrom, J. Schellnhuber, & B. L. Turner II (Eds.), *Sustainability science: an introduction (draft)*.
- Debarbieux, B. (1995). *Tourisme et montagne*. Paris: Economica.
- Debarbieux, B. (2001a). Conclusion: la montagne dans la recherche scientifique, statuts, paradigmes et perspectives. *Revue de Géographie Alpine*, 89 (2), 101-121.
- Debarbieux, B. (2001b). Différenciation et désignation géographique des objets alpins: six manières de faire *Revue de Géographie Alpine*, 89(4), 43-65.
- Debarbieux, B. (2002). La traversée des Alpes: une histoire d'échelles et d'intérêts, d'épousailles et de divorces. *Revue de Géographie Alpine*, 90(3), 11-24.
- Debarbieux, B. (2009). Les régions de montagne comme référents de l'action collective (éditorial). *Revue de Géographie Alpine*, 97(2), 5-12.
- Debarbieux, B. (2012). How regional is regional environmental governance? *Global Environmental Politics*, 12(3), 119-126. doi:10.1162/GLEP_a_00126
- Debarbieux, B., Price, M. F., & Balsiger, J. (2013). The institutionalization of mountain regions in Europe. *Regional Studies*, 1-15. doi:10.1080/00343404.2013.812784

- Debarbieux, B., & Rudaz, G. (2008). Linking mountain identities throughout the world: the experience of Swiss municipalities. *Cultural Geography*, 15(4), 497-517.
- Debrix, F., & Barder, A. D. (2009). Nothing to Fear but Fear: Governmentality and the Biopolitical Production of Terror. *International Political Sociology*, 3(4), 398-413.
- Del Biaggio, C. (2009a). The institutionalization of the alpine region: an analysis based on a study of two pan-alpine networks (Alliance in the Alps and Alparc). *Revue de Géographie Alpine*, 97(2), 99-112.
- Del Biaggio, C. (2009b). L'institutionnalisation de la région alpine à travers l'étude de deux réseaux pan-alpins (Alliance dans les Alpes et Alparc). *Revue de Géographie Alpine*, 97(2), 85-98.
- Delli Priscoli, J., & Wolf, A. T. (2009). *Managing and transforming water conflicts*. Cambridge: Cambridge University Press.
- Denisov, N., & Libert, B. (2012). *Water information in Central Asia: a framework for future development*. Paper presented at the Managing water information in Central Asia, Almaty.
- Depledge, J. (2007). A special relationship: chairpersons and the secretariat in the climate change negotiations. *Global Environmental Politics*, 7(1), 45-68. doi:10.1162/glep.2007.7.1.45
- Deutsch, K. W. (1963). *The nerves of government: models of political communication and control*. New York: Free Press.
- Devenish, C., & Giannella, C. (2012). *20 years of Sustainable Mountain Development in the Andes: from Rio 1992 to 2012 and beyond*. Lima: CONDESAN.
- Di Comite, L., & Pace, R. (Eds.). (1999). *Integrazione politica ed integrazione economica nel bacino mediterraneo*. Bari: Cacucci.
- Dimitrov, R. S. (2006). *Science and international environmental policy: regimes and nonregimes in global governance*. Lanham, Md.: Rowman & Littlefield Publishers.
- Dimitrov, R. S., Sprinz, D. F., DiGiusto, G. M., & Kelle, A. (2007). International nonregimes: a research agenda. *International Studies Review*, 9(2), 230-258. doi:10.1111/j.1468-2486.2007.00672.x
- Dinar, A., Dinar, S., McCaffrey, S., & McKinney, D. (Eds.). (2013). *Bridges over water: understanding transboundary water conflict, negotiation and cooperation* (2 ed.). Singapore: World Scientific.
- Dörre, A., & Goibnazarov, C. (2018). Small-scale irrigation self-governance in a mountain region of Tajikistan. *Mountain Research and Development*, 38(2), 104-113. doi:10.1659/MRD-JOURNAL-D-17-00085.1
- Dukhovny, V. A. (Ed.) (2018). *The future of the Amu Darya Basin in the context of climate change*. Tashkent: SIC ICWC.
- Dukhovny, V. A., & Horst, M. G. (2008). Transition to IWRM in lowlands of the Amu Darya and the Syr Darya rivers. In J. E. Moerlins, M. K. Khankhasayev, S. F. Leitman, & E. J. Makhmudov (Eds.), *Transboundary water resources: a foundation for regional stability in Central Asia* (pp. 87-103). Heidelberg: Springer.
- Dukhovny, V. A., Mirzaev, N., & Sokolov, V. (2008). IWRM implementation: experiences with water sector reforms in Central Asia. In M. M. Rahaman & O. Varis (Eds.), *Central Asian waters: social, economic, environmental and governance puzzle* (pp. 19-31). Helsinki: Helsinki University of Technology.

- Dukhovny, V. A., & Schutter, J. d. (2011). *Water in Central Asia: past, present, future*. Boca Raton: CRC Press/Balkema.
- Dukhovny, V. A., Sokolov, V., & Ziganshina, D. (2014). Integrated water resources management in Central Asia: the challenges of managing large transboundary rivers *Global Water Partnership Technical Focus Papers*. Stockholm: Global Water Partnership.
- Dukhovnyi, V. A., & Schutter, J. d. (2011). *Water in Central Asia: past, present, future*. Boca Raton: CRC Press / Balkema.
- Durán, R., & Lobos, F. (1976). Algunas consideraciones sociales sobre la estrategia subregional de desarrollo. *Integración Latinoamericana*(5), 20-28.
- Easterling, W. E., & Polsky, C. (2004). Crossing the divide: linking global and local scales in human-environment systems. In E. S. Sheppard & R. B. McMaster (Eds.), *Scale and geographic inquiry: nature, society, and method*. Malden, MA: Blackwell.
- Easton, D. (1965). *A systems analysis of political life*. New York: Wiley.
- Egerer, H., & Fall, J. J. (2004). Constructing the Carpathians: the Carpathian Convention and the search for a spatial ideal. *Revue de Géographie Alpine*, 92(2), 98-106. doi:10.3406/rga.2004.2296
- Egli, H.-R., & Messerli, P. (2003). Zur geopolitischen und geoökologischen Interpretation der Alpen als Brücke. In F. Jeanneret, U. Wastl-Walter, U. Wiesmann, & M. Schwyn (Eds.), *Welt der Alpen, Gebirge der Welt: Ressourcen, Akteure, Perspektiven* (pp. 267-280). Bern: Haupt Verlag.
- Ekman, A. (2016). La Chine en Méditerranée: un nouvel activisme. *Politique étrangère, Hiver*(4), 84. doi:10.3917/pe.164.0073
- Elliott, L. (2012). ASEAN and environmental governance: strategies of regionalism in Southeast Asia. *Global Environmental Politics*, 12(3), 38-57. doi:10.1162/GLEP_a_00122
- Elliott, L., & Breslin, S. (Eds.). (2011). *Comparative environmental regionalism*. Abingdon: Routledge.
- Elman, C., & Elman, M. F. (1997). Lakatos and neorealism: a reply to Vasquez. *American political science review*, 91(4), 923-926.
- Enderlin, T. (2002). A compliance mechanism within the Alpine Convention. In T. Treves, L. Pineschi, & A. Fodella (Eds.), *International law and the protection of mountain areas* (pp. 159-163). Milano: Giuffrè.
- Enderlin, T., & Senn, M. (2002). Mise en oeuvre de la Convention alpine en Suisse. In T. Treves, L. Pineschi, & A. Fodella (Eds.), *International law and the protection of mountain areas* (pp. 135-142). Milano: Giuffrè.
- Epstein, G., Bennett, A., Gruby, R., Acton, L., & Nenadovic, M. (2014). Studying power with the social-ecological system framework. In M. J. Manfredi, J. J. Vaske, A. Rechkemmer, & E. A. Duke (Eds.), *Understanding society and natural resources: Forging new strands of integration across the social sciences* (pp. 111-135). Dordrecht: Springer.
- Epstein, G., Pittman, J., Alexander, S. M., Berdej, S., Dyck, T., Kreitmair, U., . . . Armitage, D. (2015). Institutional fit and the sustainability of social-ecological systems. *Current Opinion in Environmental Sustainability*, 14, 34-40. doi:10.1016/j.cosust.2015.03.005

- Esborraz, D. F. (2016). El modelo ecológico alternativo latinoamericano entre protección del derecho humano al medio ambiente y reconocimiento de los derechos de la naturaleza. *Revista Derecho del Estado*(36), 93-129.
- Etzioni, A. (1993). *The spirit of community: rights, responsibilities, and the communitarian agenda* (1 ed.). New York: Crown Publishers.
- European Communities. (1985). *The European Community and its regions: 10 years of community regional policy and of European Regional Development Fund (ERDF)*. Luxembourg: Office for Official Publications of the European Communities.
- Evans, H., Jacobson, R., & Putnam, R. D. (1993). *Double-edged diplomacy: international bargaining and domestic politics*. Berkeley, CA: University of California Press.
- Fall, J. J., & Egerer, H. (2004). Construire les Carpates: la Convention des Carpates et la recherche d'un idéal spatial. *Revue de Géographie Alpine*, 92(2), 87-97.
- Fawcett, L. (1995). Regionalism in historical perspective. In L. Fawcett & A. Hurrell (Eds.), *Regionalism in world politics: regional organization and international order* (pp. 9-36). Oxford: Oxford University Press.
- Fawcett, L., & Hurrell, A. (Eds.). (1995). *Regionalism in world politics: regional organization and international order*. Oxford: Oxford University Press.
- Ferris, E. G. (1981). The Andean Pact and the Amazon Treaty: reflections of changing Latin American relations. *Journal of Interamerican Studies and World Affairs*, 23(2), 147-175.
- Finnemore, M., & Sikkink, K. (1998). International norm dynamics and political change. *International Organization*, 52(4), 887-917. doi:10.1162/002081898550789
- Finot, I. (2001). Descentralización en América Latina: teoría y práctica *Serie gestión pública* (pp. 133). Santiago de Chile: CEPAL - ILPES.
- Fitzmaurice, M. (2006). Compliance with the 1992 Convention on the Protection of the Environment of the Baltic Sea Area (the "Helsinki Convention"). In U. Beyerlin, P.-T. Stoll, & R. Wolfrum (Eds.), *Ensuring compliance with multilateral environmental agreements: A dialogue between practitioners and academia* (pp. 115-132). Leiden: Martinus Nijhoff Publishers.
- Fitzmaurice, M. (2008). Public participation in the North American Agreement on Environmental Cooperation. *International and Comparative Law Quarterly*, 52(2), 333-368. doi:10.1093/iclq/52.2.333
- Fleischman, F. D., Ban, N. C., Evans, L. S., Epstein, G., Garcia-Lopez, G., & Villamayor-Tomas, S. (2014). Governing large-scale social-ecological systems: lessons from five cases. *International Journal of the Commons*, 8(2), 428-456. doi:10.18352/ijc.416
- Fleischman, F. D., Loken, B., Garcia-Lopez, G. A., & Villamayor-Tomas, S. (2014). Evaluating the utility of common-pool resource theory for understanding forest governance and outcomes in Indonesia between 1965 and 2012. *International Journal of the Commons*, 8(2), 304-336. doi:10.18352/ijc.409
- Fligstein, N., & McAdam, D. (2012). *A theory of fields*. Oxford: Oxford University Press.
- Foster, C. H. W., & Meyer, W. B. (2000). The Harvard Environmental Regionalism Project *BCSIA Discussion Paper*. Cambridge, MA: Harvard University, Kennedy School of Government, Environment and Natural Resources Program.

- Foucault, M. (2004a). *Naissance de la biopolitique: cours au Collège de France (1978-1979)*. Paris: Gallimard.
- Foucault, M. (2004b). *Sécurité, territoire, population: cours au Collège de France (1977-1978)*. Paris: Seuil.
- Foucher, M. (1991). *Fronts et frontières: un tour du monde géopolitique*. Paris: Fayard.
- Fourny-Kober, M.-C., & Crivelli, R. (2003). Cette montagne que l'on partage: frontière et montagne dans les coopérations transfrontalières de régions alpines. *Revue de Géographie Alpine*, 91(3), 57-70.
- Fourny, M.-C. (2013). La frontière comme espace liminal. *Revue de Géographie Alpine*, 101(2), [12]. doi:10.4000/rga.2115
- Francis, G. (1986). Great Lakes governance and the ecosystem approach: where next? *Alternatives*, 13(3), 61-70.
- Francis, G. (1989, 1989). *Binational cooperation for Great Lakes water quality: a framework for the groundwater connection*. Paper presented at the Symposium on prevention of groundwater contamination in the Great Lakes region.
- Francis, G., & Lerner, S. (1997). NGOs and Great Lakes biodiversity conservation. In S. D. VanDeever & A. Brooks (Eds.), *Saving the seas: Values, scientists, and international governance* (pp. 381-398). College Park, MD: Maryland Sea Grant College.
- Frank, J. (2007). *Decentralization in Ecuador: actors, institutions, and incentives*. Baden-Baden: Nomos.
- Frantzi, S., Carter, N. T., & Lovett, J. C. (2009). Exploring discourses on international environmental regime effectiveness with Q methodology: a case study of the Mediterranean Action Plan. *Journal of Environmental Management*, 90(1), 177-186. doi:10.1016/j.jenvman.2007.08.013
- Freedman, E., & Neuzil, M. (Eds.). (2018). *Biodiversity, conservation and environmental management in the Great Lakes basin*. Abingdon: Routledge.
- Frenkel, S. W. (1994). Old theories in new places? Environmental determinism and bioregionalism. *The Professional Geographer*, 46(3), 289-295.
- Fukuyama, F. (1992). *The end of history and the last man*. New York: Free Press.
- Fuller, K., & Shear, H. (1995). *The Great Lakes: an environmental atlas and resource book* (3 ed.). Chicago and Toronto: US Environmental Protection Agency and Government of Canada.
- Galaz, V., Olsson, P., Hahn, T., Folke, C., & Svedin, U. (2008). The problem of fit among biophysical systems, environmental and resource regimes, and broader governance systems: insights and emerging challenges. In O. R. Young, L. A. King, & H. Schroeder (Eds.), *Institutions and environmental change: principal findings, applications, and research frontiers* (pp. 147-186). Cambridge, MA: MIT Press.
- Gamble, A. (2007). Regional blocs, world order and the new medievalism. In M. Telò (Ed.), *European Union and new regionalism: regional actors and global governance in a post-hegemonic era* (2 ed., pp. 21-36). Aldershot: Ashgate.
- Gameren, V. v. (2014). L'adaptation de la gestion forestière privée au changement climatique: le cas wallon. *Sud-Ouest européen*, 37, 63-75.

- Gänzle, S., & Kern, K. (2016). The European Union strategy for the Baltic Sea region. In S. Gänzle & K. Kern (Eds.), *A 'macro-regional' Europe in the making: theoretical approaches and empirical evidence* (pp. 123-144). London: Palgrave Macmillan.
- Gänzle, S., & Mirtl, J. (2017). Experimentalist governance in a multi-level environment: the EU's macro-regional strategies for the Baltic Sea and Danube Regions. In J. Trondal (Ed.), *The rise of common political order: institutions, public administration and transnational space* (pp. 154-175). Cheltenham: Elgar.
- Gänzle, S., & Müntel, G. (2011). Europeanization 'beyond' Europe? EU impact on domestic policies in the Russian enclave of Kaliningrad. *Journal of Baltic Studies*, 42(1), 57-79. doi:10.1080/01629778.2011.538513
- Garreau, J. (1981). *The nine nations of North America*. Boston, MA: Houghton Mifflin.
- Gehring, T., & Oberthür, S. (2008). Global change: analyzing scale and scaling in environmental governance. In O. R. Young, L. A. King, & H. Schroeder (Eds.), *Institutions and environmental change: principal findings, applications, and research frontiers* (pp. 225-232). Cambridge, MA: MIT Press.
- Gemmill, B., & Bamidelu-Izu, A. (2002). The role of NGOs and civil society in global environmental governance. In D. C. Esty & M. H. Ivanova (Eds.), *Global environmental governance: options and opportunities*. New Haven, CT: Yale School of Forestry and Environmental Studies.
- Gerbaux, F. (2004). Les groupes de pression et la défense des zones de montagne européenne. *Revue de Géographie Alpine*, 92(2), 17-26.
- Giacalone de Romero, R. (2008). Negociaciones entre la Comunidad Andina y la Unión Europea en el marco del inter-regionalismo. In R. Giacalone de Romero (Ed.), *La integracion sudamericana: un complejo proceso inconcluso* (pp. 125-144). Mérida: Universidad de Los Andes, Facultad de Ciencias Económicas y Sociales.
- Giacalone, R. (2010, 17 February). *The future of regionalism from the perspective of the Andean Community*. Paper presented at the International Studies Association annual conference, New Orleans.
- Giannakourou, G. (2005). Transforming spatial planning policy in Mediterranean countries: Europeanization and domestic change. *European Planning Studies*, 13(2), 319-331. doi:10.1080/0365431042000321857
- Gilek, M., Karlsson, M., Linke, S., & Smolarz, K. (Eds.). (2016). *Environmental governance of the Baltic Sea*. Cham: Springer.
- Gilek, M., & Kern, K. (2015). *Governing Europe's marine environment: europeanization of regional seas or regionalization of EU policies?* Farnham: Ashgate.
- Glantz, M. H. (1999). *Creeping environmental problems and sustainable development in the Aral Sea basin*. Cambridge: Cambridge University Press.
- Glaser, M., & Glaeser, B. (2014). Towards a framework for cross-scale and multi-level analysis of coastal and marine social-ecological systems dynamics. *Regional Environmental Change*, 14(6), 2039-2052. doi:10.1007/s10113-014-0637-5
- Gorz, A. (1975). *Ecologie et politique*. Paris: Galilée.
- Gorz, A. (1977). *Ecologie et liberté*. Paris: Editions Galilée.

- Götz, A. (2004). The Alpine Convention as an example of the role of non-governmental organizations (NGOs) in the adoption of an international agreement. In T. Treves, L. Pineschi, & A. Fodella (Eds.), *Sustainable development of mountain areas* (pp. 233-242). Milano: Giuffrè.
- Götz, A. (2008). Architecture, fonctionnement et dysfonctionnements du système conventionnel. In CIPRA France (Ed.), *La Convention alpine: un nouveau droit pour la montagne?* (pp. 10-17). Grenoble: CIPRA France.
- Gourevitch, P. (1978). The second image reversed: the international sources of domestic politics. *International Organization*, 32(4), 881-912.
- Graaf, T. v. d. (2013). Fragmentation in global energy governance: explaining the creation of IRENA. *Global Environmental Politics*, 13(3), 14-33. doi:10.1162/GLEP_a_00181
- Granit, J., Jägerskog, A., Lindström, A., Björklund, G., Bullock, A., Löfgren, R., . . . Pettigrew, S. (2012). Regional options for addressing the water, energy and food nexus in Central Asia and the Aral Sea Basin. *International Journal of Water Resources Development*, 28(3), 419-432. doi:10.1080/07900627.2012.684307
- Grav, J. W. (2009). Baltic Sea NGO Forum 2009. *Balticness, Spring*, 10-11.
- Grönholm, S. (2018). A tangled web: Baltic Sea region governance through networks. *Marine Policy*, 98, 201-210.
- Guichonnet, P., & Raffestin, C. (1974). *Géographie des frontières*. Paris: PUF.
- Gulbrandsen, L. H. (2010). *Transnational environmental governance: the emergence and effects of the certification of forests and fisheries*. Cheltenham: Edward Elgar.
- Gumuchian, H. (1995). Quelle place pour la recherche dans un système d'information des Alpes ? *Revue de Géographie Alpine*, 83(2), 67-74.
- Haas, E. B. (1964). *Beyond the nation state: functionalism and international organization*. Stanford, CA: Stanford University Press.
- Haas, E. B. (1970). The study of regional integration: reflections on the joy and anguish of pretheorizing. *International Organization*, 24(4), 606-646.
- Haas, E. B., & Haas, P. M. (2003). How we learned to escape physics envy and to love pluralism and complexity. In F. P. Harvey & M. Brecher (Eds.), *Critical perspectives in international studies*. Ann Arbor, MI: University of Michigan Press.
- Haas, P. M. (1990). *Saving the Mediterranean: the politics of international environmental cooperation*. New York: Columbia University Press.
- Haas, P. M. (1992). Introduction: epistemic communities and international policy coordination. *International Organization*, 46(1), 1-35. doi:10.1017/S0020818300001442
- Haas, P. M. (1993). Protecting the Baltic and North Sea. In P. M. Haas, R. O. Keohane, & M. A. Levy (Eds.), *Institutions for the Earth* (pp. 132-181). Cambridge, MA: MIT Press.
- Haas, P. M. (2008). Epistemic communities. In D. Bodansky, J. Brunnée, & E. Hey (Eds.), *The Oxford handbook of International Environmental Law* (pp. 792-806). Oxford: Oxford University Press.
- Haas, P. M. (2016). Regional environmental governance. In T. A. Börzel & T. Risse (Eds.), *The Oxford handbook of comparative regionalism* (pp. 430-456). Oxford: Oxford University Press.

- Haas, P. M., Keohane, R. O., & Levy, M. A. (Eds.). (1993). *Institutions for the earth: sources of effective international environmental protection*. Cambridge, MA: MIT Press.
- Habermas, J. (1987). *Théorie de l'agir communicationnel*. Paris: Fayard.
- Hain, B. (2004). Pour une documentation des changements dans l'espace de vie alpin: système d'indicateurs et concept pour un rapport d'évaluation de l'état des Alpes (pp., 221 p. n aegato 121 p.). Berlin: Convention Alpine, Groupe de travail objectifs environnementaux et indicateurs.
- Hall, N. D. (2006). Toward a new horizontal federalism: interstate water management in the Great Lakes region. *University of Colorado Law Review*(2), 405-456.
- Hand, J. P. (2007). Protecting the world's largest body of fresh water: the often overlooked role of Indian tribes' co-management of the Great Lakes. *Natural Resources Journal*, 47(4), 815-847.
- Hardin, G. (1968). The tragedy of the commons. *Science*, 162(3859), 1243-1248. doi:10.1126/science.162.3859.1243
- Hedden-Dunkhorst, B., Kretschmar, M., & Kohler, Y. (Eds.). (2007). *Establishing an Alpine ecological network: inaugural meeting of the Ecological Network Platform under the Alpine Convention*. München: Bundesamt für Naturschutz.
- Heggarty, P. (2007). Enigmas en el origen de las lenguas andinas: aplicando nuevas tecnicas a las incognitas por resolver. *Revista Andina*(40), 9-80.
- Hendriksen, A., Jouanneau, C., Koss, R., & Raakjaer, J. (2014). Fishing for opinions: stakeholder views on MSFD implementation in European Seas. *Marine Policy*, 50, 353-363. doi:10.1016/j.marpol.2014.03.009
- Henrikson, A. K. (1995). The growth of regional organizations and the role of the United Nations. In L. Fawcett & A. Hurrell (Eds.), *Regionalism in world politics: regional organization and international order* (pp. 122-168). Oxford: Oxford University Press.
- Hermanson, A.-S. (2008). Environmental concerns within the Baltic Sea Region: a Nordic-Baltic comparison. In M. Joas, D. Jahn, & K. Kern (Eds.), *Governing a common sea: environmental policies in the Baltic Sea Region* (1 ed., pp. 61-81). London: Earthscan.
- Hettne, B., Inotai, A., & Sunkel, O. (Eds.). (1999). *Globalism and the new regionalism*. New York: St. Martin's Press.
- Hildering, A., Keessen, A. M., & van Rijswijk, H. F. M. W. (2009). Tackling pollution of the Mediterranean Sea from land-based sources by an integrated ecosystem approach and the use of the combined international and European legal regimes. *Utrecht Law Review*, 5(1), 80-100.
- Hill, J. P. (1989). The Great Lakes quasi compact: an emerging paradigm for regional governance of U.S. water resources. *Detroit College of Law Review*(1), 1-24.
- Hinkel, J., Cox, M. E., Schlüter, M., Binder, C. R., & Falk, T. (2015). A diagnostic procedure for applying the social-ecological systems framework in diverse cases. *Ecology and Society*, 20(1). doi:10.5751/ES-07023-200132
- Hochstetler, K. (2010). Regional environmental governance in South America. In L. Elliott (Ed.), *Comparative regional government*.

- Hochstetler, K. (2011). Regional environmental governance in South America. In L. Elliott & S. Breslin (Eds.), *Comparative environmental regionalism* (pp. 136-146). London: Routledge.
- Holzinger, K., Knill, C., & Sommerer, T. (2008). Environmental policy convergence: the impact of international harmonization, transnational communication, and regulatory competition. *International Organization*, 62(4).
- Hooghe, L., & Marks, G. (2003). Unraveling the central state, but how? Types of multi-level governance. *American political science review*, 97(2), 233-243. doi:10.1017.S0003055403000649
- Horsmann, S. (2008). Afghanistan and transboundary water management on the Amu Darya: a political history. In M. Rahaman & O. Varis (Eds.), *Central Asian waters: social, economic, environmental and governance puzzle* (pp. 63-74). Helsinki: Helsinki University of Technology.
- Houpert, A., & Botrel, Y. (2015). Rapport d'information fait au nom de la commission des finances sur l'enquête de la Cour des comptes relative aux soutiens à la filière forêt-bois (pp. 321).
- Hurrell, A. (1995). Regionalism in theoretical perspective. In L. Fawcett & A. Hurrell (Eds.), *Regionalism in world politics: regional organization and international order* (pp. 37-73). Oxford: Oxford University Press.
- Hurrell, A. (2007). One World? Many worlds? The place of regions in the study of international society. *International Affairs*, 83, 127-146.
- Ivanova, M. (2009). UNEP as anchor organization for the global environment. In F. Biermann, B. Siebenhüner, & A. Schreyögg (Eds.), *International organizations in global environmental governance* (pp. 151-174). Abingdon: Routledge.
- Janusz-Pawletta, B., & Gubaidullina, M. (2015). Transboundary water management in Central Asia. *Cahiers d'Asie centrale*(25), 195-215.
- Jasanoff, S. (1990). *The fifth branch: science advisers as policymakers*. Cambridge, MA: Harvard University Press.
- Jasanoff, S. (1997). Compelling knowledge in public decisions. In L. A. Brooks & S. D. VanDeever (Eds.), *Saving the seas: Values, scientists, and international governance* (pp. 229-252). College Park: University of Maryland.
- Jasanoff, S., & Wynne, B. (1998). Science and decisionmaking. In S. Rayner & E. L. Malone (Eds.), *Human choice and climate change: the societal framework* (Vol. 1, pp. 1-87). Columbus, OH: Battelle Press.
- Jashenko, R., Kosaki, T., Pachikin, N., Ishida, N., & Aronov, B. (Eds.). (1998). *Sustainable use of natural resources of Central Asia: environmental problems of the Aral Sea and surrounding areas*. Almaty: Tethys.
- Jaulin, T. (2016). Migrations en Méditerranée: la crise de l'asile. *Politique étrangère, Hiver*(4), 34. doi:10.3917/pe.164.0025
- Jervis, R. (1976). *Perception and misperception in international politics*. Princeton, NJ: Princeton University Press.
- Jervis, R. (1997). *System effects: complexity in political and social life*. Princeton, NJ: Princeton University Press.

- Jetoo, S. (2018a). Barriers to effective eutrophication governance: a comparison of the Baltic Sea and North American Great Lakes. *Water*, 10(4), 400.
- Jetoo, S. (2018b). Experimentalist governance to foster cooperation in the Baltic Sea region: a focus on the Turku process. *Sustainability*, 10(8), 2685.
- Jetoo, S. (2018c). Multi-level governance innovations of the Baltic Sea and the North American Great Lakes: new actors and their roles in building adaptive capacity for eutrophication governance. *Marine Policy*, 98, 237-245. doi:10.1016/j.marpol.2018.09.020
- Jetoo, S., Grover, V. I., & Krantzberg, G. (2015). The Toledo drinking water advisory: suggested application of the water safety planning approach. *Sustainability*, 7(8), 9787-9808.
- Jetoo, S., & Joas, M. (2018). Governance of transboundary water commissions comparison of operationalizing the ecosystem approach in the North American Great Lakes and the Baltic Sea. In V. I. Grover & G. Krantzberg (Eds.), *Lake governance* (pp. 111-129). Boca Raton, FL: CRC Press.
- Jetoo, S., & Krantzberg, G. (2016). Adaptive capacity for eutrophication governance of the Laurentian Great Lakes. *Electronic Green Journal*, 1(39).
- Jetoo, S., Thorn, A., Friedman, K., Gosman, S., & Krantzberg, G. (2015). Governance and geopolitics as drivers of change in the Great Lakes–St. Lawrence basin. *Journal of Great Lakes Research*, 41, 108-118. doi:10.1016/j.jglr.2014.11.011
- Joas, M., Jahn, D., & Kern, K. (Eds.). (2012). *Governing a common sea: environmental policies in the Baltic Sea region* (2 ed.). London: Earthscan.
- Joffé, G. H. (2007). The EU and the Mediterranean: open regionalism or peripheral dependence? In M. Telò (Ed.), *European Union and new regionalism: regional actors and global governance in a post-hegemonic era* (2 ed., pp. 255-275). Aldershot, England: Ashgate.
- Jones Luong, P., & Weinthal, E. (2010). *Oil is not a curse: ownership structure and institutions in Soviet successor states*. Cambridge: Cambridge University Press.
- Josse, C., Cuesta, F., Navarro, G., Barrena, V., Cabrera, E., Chacón-Moreno, E., . . . Tovar, A. (2009). *Ecosistemas de los Andes del norte y centro: Bolivia, Colombia, Ecuador, Perú y Venezuela*. Lima: Secretaría General de la Comunidad Andina - Programa Regional ECOBONA- Intercooperation - CONDESAN-Proyecto Páramo Andino - Programa BioAndes - EcoCiencia - NatureServe - IAvH - LTA-UNALM - ICAE-ULA - CDC-UNALM - RUMBOL.
- Jouanneau, C., & Raakjær, J. (2014). ‘The Hare and the Tortoise’: lessons from Baltic Sea and Mediterranean Sea governance. *Marine Policy*, 50, 331-338. doi:10.1016/j.marpol.2014.03.006
- Jozan, R. (2012). *Les débordements de la mer d'Aral: une sociologie de la guerre de l'eau*. Paris: Presses universitaires de France.
- Juma, C. (2000). The perils of centralizing global environmental governance. *Environment*, 42(9), 44-45.
- Kane, K. (2017). The Great Lakes-St. Lawrence River Basin Agreement: what happens in the Great Lakes won't stay in the Great Lakes. *Michigan State International Law Review*, 25(2), 429-453.
- Kanie, N. (2007). Governance with multilateral environmental agreements: a healthy or ill-equipped fragmentation? In L. Swart & E. Perry Siegal (Eds.), *Global environmental governance: perspectives on the current debate* (pp. 67-86). New York: Center for UN Reform Education.

- Kanie, N., & Biermann, F. (Eds.). (2017). *Governance through goals: new strategies for global sustainability*. Cambridge, MA: MIT Press.
- Kaplan, M. A. (1957). *System and process in international politics*. New York: John Wiley & Sons.
- Kapos, V., Rhind, J., Edwards, M., Ravilious, C., & Price, M. F. (2000). Developing a map of the world's mountain forests. In M. F. Price & N. Butt (Eds.), *Forests in sustainable mountain development: a state-of-knowledge report for 2000* (pp. 4-9). Wallingford: CAB.
- Karkkainen, B. C. (2006). Managing transboundary aquatic ecosystems: lessons from the Great Lakes. *Pacific McGeorge Global Business & Development Law Journal*, 19(1), 209-240.
- Karkkainen, B. C. (2018). The Great Lakes water resources compact and agreement: a model for transboundary governance at subnational scales. *Sea Grant Law & Policy Journal*(3), 37-56.
- Karlsson-Vinkhuyzen, S. I., & Vihma, A. (2009). Comparing the legitimacy and effectiveness of global hard and soft law: an analytical framework. *Regulation & Governance*, 3(4), 400-420.
- Karpouzoglou, T., Dewulf, A., & Clark, J. (2016). Advancing adaptive governance of social-ecological systems through theoretical multiplicity. *Environmental Science & Policy*, 57, 1-9. doi:10.1016/j.envsci.2015.11.011
- Katsanevakis, S., Levin, N., Coll, M., Giakoumi, S., Shkedi, D., Mackelworth, P., . . . Kark, S. (2015). Marine conservation challenges in an era of economic crisis and geopolitical instability: the case of the Mediterranean Sea. *Marine Policy*, 51, 31-39. doi:10.1016/j.marpol.2014.07.013
- Katz, C. (2006). *El rediseño de América Latina: ALCA, MERCOSUR y ALBA*. Buenos Aires: Ediciones Luxemburg.
- Keating, M. (1998). *The new regionalism in Western Europe: territorial restructuring and political change*. Cheltenham: Edward Elgar.
- Keating, M. (2004). *Regions and regionalism in Europe*. Cheltenham: Edward Elgar.
- Kelleher, G., Bleakley, C., & Wells, S. (Eds.). (1995). *A global representative system of marine protected areas: Antarctic, Arctic, Mediterranean, Northwest Atlantic, Northeast Atlantic and Baltic* (Vol. 1). Washington, DC: IBRD.
- Keohane, R. O. (1984). *After hegemony: cooperation and discord in the world political economy*. Princeton, NJ: Princeton University Press.
- Keohane, R. O. (1986). *Neorealism and its critics*. New York: Columbia University Press.
- Keohane, R. O., & Nye, J. S. (1977). *Power and interdependence: world politics in transition*. Boston: Little, Brown.
- Keohane, R. O., & Nye, J. S. (1998). Power and interdependence in the information age. *Foreign Affairs*, 77(81), 81-94.
- Kern, K. (2011). Governance for sustainable development in the Baltic Sea Region. *Journal of Baltic Studies*, 42(1), 21-35.
- Kern, K., & Löffelsend, T. (2008). Governance beyond the nation state: transnationalization and europeanization of the Baltic Sea Region. In M. Joas, D. Jahn, & K. Kern (Eds.), *Governing a common sea: environmental policies in the Baltic Sea Region* (1 ed., pp. 115-141). London: Earthscan.

- Khanna, P. (2016, 15 April). A new map for America. *The New York Times*. Retrieved from www.nytimes.com/2016/04/17/opinion/sunday/a-new-map-for-america.html
- Kim, F. (2014). *La diplomatie des sociétés civiles dans le bassin méditerranéen*. (PhD), Université de Paris-Sud, Orsay.
- King, D. S., & Le Galès, P. (Eds.). (2017). *Reconfiguring European states in crisis*. Oxford: Oxford University Press.
- Klare, M. T. (2001). *Resource wars: the new landscape of global conflict* (1st ed.). New York: Metropolitan Books.
- Klinke, A. (2012). Democratizing regional environmental governance: public deliberation and participation in transboundary ecoregions. *Global Environmental Politics*, 12(3), 79-99. doi:10.1162/GLEP_a_00124
- Kohler, T., & Maselli, D. (2009). Mountains and climate change: from understanding to action. Bern: University of Bern, Institute of Geography, Centre for Development and Environment.
- Kohler, Y., Scheurer, T., & Ullrich, A. (2009). Réseaux écologiques dans l'Arc alpin. *Revue de Géographie Alpine*, 97(1), 49-56.
- Köhn, J. (1998). An approach to Baltic Sea sustainability. *Ecological Economics*, 27(1), 13-28. doi:10.1016/S0921-8009(97)00099-2
- Kolar-Planinsic, V. (Ed.) (1998). *The Alpine Convention in Slovenia*. Ljubljana: Ministry of the Environment and Physical Planning.
- Koontz, T. M., Gupta, D., Mudliar, P., & Ranjan, P. (2015). Adaptive institutions in social-ecological systems governance: a synthesis framework. *Environmental Science & Policy*, 53, Part B, 139-151. doi:10.1016/j.envsci.2015.01.003
- Kostianoy, A. G., & Kosarev, A. N. (Eds.). (2010). *The Aral Sea environment*. Heidelberg: Springer.
- Kotkin, J. (2013, 23 September). A map of America's future: where growth will be over the next decade. *Forbes*. Retrieved from www.forbes.com/sites/joelkotkin/2013/09/04/a-map-of-americas-future-where-growth-will-be-over-the-next-decade/
- Kraan, M., Hendriksen, A., van Hoof, L., van Leeuwen, J., & Jouanneau, C. (2014). How to dance? The tango of stakeholder involvement in marine governance research. *Marine Policy*, 50, 347-352. doi:10.1016/j.marpol.2014.05.010
- Kramsch, O. T., & Hooper, B. (Eds.). (2004). *Cross-border governance in the European Union*. London: Routledge.
- Krantzberg, G. (2012). Renegotiation of the 1987 Great Lakes Water Quality Agreement: from confusion to promise. *Sustainability*, 4(6), 1239-1255.
- Krantzberg, G., & Manno, J. P. (2010). Renovation and innovation: it's time for the Great Lakes regime to respond. *Water Resources Management*, 24(15), 4273-4285. doi:10.1007/s11269-010-9658-0
- Krasner, S. D. (1982). Structural causes and regime consequences: regimes as intervening variables. *International Organization*, 36(2), 185-205. doi:10.1017/S0020818300018920
- Krasner, S. D. (Ed.) (1983). *International regimes*. Ithaca: Cornell.

- Kruse, T. (2005). La "Guerra del Agua" en Cochabamba, Bolivia: terrenos complejos, convergencias nuevas. In E. d. l. Garza Toledo (Ed.), *Sindicatos y nuevos movimientos sociales en América Latina* (pp. 121-161). Buenos Aires: CLACSO.
- Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.
- Kütting, G. (2000). Distinguishing between institutional and environmental effectiveness in international environmental agreements: the case of the Mediterranean Action Plan. *International Journal of Peace Studies*, 5(1), 15–33.
- Labaronne, D., & Ben-Abdelkader, F. (2008). Transition institutionnelle des pays méditerranéens et des pays d'Europe de l'Est: analyse comparative de l'évolution de leurs systèmes de gouvernance. *Revue d'économie politique*, 118(5), 776. doi:10.3917/redp.185.0743
- Lacirignola, C. (Ed.) (2015). *Terre et mer: ressources vitales pour la Méditerranée*. Paris: L'Harmattan.
- Lacoste, Y. (2006). *Géopolitique de la Méditerranée*. A. Colin.
- Lajarge, R., Pecqueur, B., Landel, P.-A., & Lardon, S. (2012). Ressources territoriales: gouvernance et politiques publiques *RessTerr: Rhône-Alpes et Auvergne*: Programme PSDR 3.
- Lakatos, I., & Musgrave, A. (1965, 1970). *Criticism and the growth of knowledge*. Paper presented at the International Colloquium in the Philosophy of Science, London.
- Laldjebaev, M. (2010). The water–energy puzzle in Central Asia: the Tajikistan perspective. *International Journal of Water Resources Development*, 26(1), 23-36. doi:10.1080/07900620903391812
- Landis, W. G. (Ed.) (2004). *Regional scale ecological risk assessment: using the relative risk model*. Boca Raton, FL: CRC Press.
- Lang, D., Wiek, A., Bergmann, M., Stauffacher, M., Martens, P., Moll, P., . . . Thomas, C. (2012). Transdisciplinary research in sustainability science: practice, principles, and challenges. *Sustainability Science*, 7(1), 25-43. doi:10.1007/s11625-011-0149-x
- Larmer, B. (2009, January). The real price of gold. *National Geographic*.
- Larsen, H. G. (2008). Scaling the Baltic Sea environment. *Geoforum*, 39(6), 2000-2008. doi:10.1016/j.geoforum.2008.07.002
- Larson, B., & Harris, O. (1995). *Ethnicity, markets, and migration in the Andes: at the crossroads of history and anthropology*. Durham, NC: Duke University Press.
- Lasserre, F. (2013). Continental bulk water transfers: chimera or real possibility? In E. S. Norman, A. Cohen, & K. Bakker (Eds.), *Water without borders? Canada, the United States, and shared waters* (pp. 88-118). Toronto: University of Toronto Press.
- Latorre, H. (1975). La integración física en el contexto del Pacto Andino. *Nueva Sociedad*(19-20), 39-55.
- Latour, B. (1999). *Politiques de la nature: comment faire entrer les sciences en démocratie*. Paris: Découverte.
- Latour, B. (2005). *Reassembling the social: an introduction to actor-network-theory*. Oxford: Oxford University Press.

- Lausche, B. (2008). *Weaving a web of environmental law*. Berlin: Erich Schmidt Verlag.
- Lavenex, S. (2004). EU external governance in 'wider Europe'. *Journal of European Public Policy*, 11(4), 680-700. doi:10.1080/1350176042000248098
- Lavorel, S. (1999). Ecological diversity and resilience of Mediterranean vegetation to disturbance. *Diversity and Distributions*, 5(1-2), 3-13. doi:10.1046/j.1472-4642.1999.00033.x
- Layzer, J. A. (2008). *Natural experiments: ecosystem-based management and the environment*. Cambridge, MA: MIT Press.
- Le Galès, P., & Vezinat, N. (Eds.). (2014). *L'État recomposé*. Paris: PUF.
- Lebel, L., Contreras, A., Pasong, S., & Garden, P. (2004). Nobody knows best: alternative perspectives on forest management and governance in Southeast Asia. *International Environmental Agreements*, 4(2), 111-127. doi:10.1023/B:INEA.0000040415.96194.b5
- Lefebvre, H. (1974). *La production de l'espace*. Paris: Anthropos.
- Relievel, J., Berresheim, H., Borrmann, S., Crutzen, P. J., Dentener, F. J., Fischer, H., . . . Ziereis, H. (2002). Global air pollution crossroads over the Mediterranean. *Science*, 298(5594), 794-799. doi:10.1126/science.1075457
- Lenton, T. M., Held, H., Kriegler, E., Hall, J. W., Lucht, W., Rahmstorf, S., & Schellnhuber, H. J. (2008). Tipping elements in the Earth's climate system. *Proceedings of the National Academy of Sciences*, 105(6), 1786-1793. doi:10.1073/pnas.0705414105
- Lerman, Z., & Sedik, D. (2017). Cooperatives in Kyrgyzstan: findings from a survey of cooperatives and users. In G. W. J. Hendrikse, G. Cliquet, T. Ehrmann, & J. Windsperger (Eds.), *Management and governance of networks: franchising, cooperatives, and strategic alliances* (pp. 233-249). Cham: Springer International Publishing.
- Létolle, R. (2008). *La mer d'Aral: entre désastre écologique et renaissance*. Paris: Harmattan.
- Levin, K., Cashore, B., Steven, B., & Auld, G. (2009). Playing it forward: path dependency, progressive incrementalism, and the "Super Wicked" problem of global climate change. *IOP Conference Series: Earth and Environmental Science*, 6(50), 502002. doi:10.1088/1755-1307/6/0/502002
- Lewis, C. M. (2002). *Argentina: a short history*. Oxford: Oneworld.
- Lewis, R. A. (1966). Early irrigation in West Turkestan. *Annals of the Association of American Geographers*, 56(3), 467-491.
- Libert, B. (2015). The UNECE Water Convention and the development of transboundary cooperation in the Chu-Talas, Kura, Drin and Dniester River basins. *Water International*, 40(1), 168-182. doi:10.1080/02508060.2014.990202
- Libert, B., & Lipponen, A. (2012). Challenges and opportunities for transboundary water cooperation in Central Asia: findings from UNECE's regional assessment and project work. *International Journal of Water Resources Development*, 28(3), 565-576. doi:10.1080/07900627.2012.684527
- Libert, B., Orolbaev, E., & Steklov, Y. (2008). Water and energy crisis in Central Asia. *China and Eurasia Forum Quarterly*, 6(3), 9-20.

- Libert, B., Trombitcaia, I., Enderlein, R., Vykhryst, S., & Steklov, Y. (2011). *Strengthening water management and transboundary water cooperation in Central Asia: the role of UNECE environmental conventions*. Geneva: UNECE.
- Linstone, H. A., & Turoff, M. (Eds.). (1975). *The Delphi method: techniques and applications*. Reading, MA: Addison-Wesley.
- Linton, J., & Hall, N. (2013). The Great Lakes: a model of transboundary cooperation. In E. S. Norman, A. Cohen, & K. Bakker (Eds.), *Water without borders? Canada, the United States, and shared waters* (pp. 221-244). Toronto: University of Toronto Press.
- Lipponen, A. (Ed.) (2011). *Second assessment of transboundary rivers, lakes and groundwaters*. Geneva: United Nations Economic Commission for Europe.
- Lipset, S. M., & Rokkan, S. (1967). *Party systems and voter alignments: cross-national perspectives*. New York: Free Press.
- Lleras Restrepo, C. (1992). Una vida al frente de la integración. *CAF Revista de Integración*, 11-14.
- Lotman, J. M., & Salvestroni, S. (1985). *La semiosfera: l'asimmetria e il dialogo nelle strutture pensanti*. Venezia: Marsilio.
- LRDP. (2003). Ex post evaluation of the INTERREG II community initiative (1994-99). London: LRDP.
- Macchiavelli, A. (2009). Le tourisme alpin. *Revue de Géographie Alpine*, 97(1), 84-95.
- Madramootoo, C. A., Dukhovny, V. A., Baker, R. S. P. E., & Fyles, I. H. (2011). *Water and food security in Central Asia*. Dordrecht: Springer, published in cooperation with NATO Public Diplomacy Division.
- Magin, C., & Chape, S. (2004). Review of the World Heritage Network: biogeography, habitats and biodiversity. Cambridge UNEP/WCMC & IUCN.
- Maguire, R. (2013). *Global forest governance: legal concepts and policy trends*. Cheltenham: Edward Elgar.
- Mahoney, J. (2000). Path dependence in historical sociology. *Theory and Society*, 29(4), 507-548. doi:10.1023/a:1007113830879
- Máiz, R. (2004a). El indigenismo político en América Latina. *Revista de Estudios Políticos*, 123, 128-174.
- Máiz, R. (2004b). La construcción política de identidades étnicas en América Latina. In S. Martí & A. Sanahuja (Eds.), *Las movilizaciones indigenistas en América Latina*. Salamanca: Universidad de Salamanca.
- Majtényi, B., & Tamburelli, G. (Eds.). (2009). *Sustainable development and transboundary cooperation in mountain regions: the Alpine and the Carpathian Conventions*. Budapest: L'Harmattan.
- Makarychev, A., & Sergunin, A. (2017). Russia's role in regional cooperation and the EU Strategy for the Baltic Sea Region (EUSBSR). *Journal of Baltic Studies*, 1-15. doi:10.1080/01629778.2017.1305186

- Makridis, C. (2013). A tale of two countries: markets and transboundary water governance between the United States and Mexico. *International Journal of Public Administration*, 36(9), 622-637. doi:10.1080/01900692.2013.777927
- Mancebo, F. (2001). Discontinuités, lisières et territoires: tentative de généralisation de la notion de frontière et de compréhension des dynamiques frontalières. *Sud-Ouest européen: revue géographique des Pyrénées et du Sud-Ouest*(10), 77-87.
- Mancebo, F. (2013). The pitfalls of sustainability policies: insights into plural sustainabilities. *Challenges in Sustainability*, 1(1), 29-40. doi:10.12924/cis2013.01010029
- Marcella, G., & Downes, R. (Eds.). (1999). *Security cooperation in the Western Hemisphere: resolving the Ecuador-Peru conflict*. Coral Gables, FL: North-South Center Press - University of Miami.
- Marciali, S. (2008). Convention alpine et Union européenne. In CIPRA France (Ed.), *La Convention alpine: un nouveau droit pour la montagne?* (pp. 38-51). Grenoble: CIPRA France.
- Mares, D. R. (2001). *Violent peace: militarised interstate bargaining in Latin America*. New York: Columbia University Press.
- Marichal, C. (Ed.) (2002). *México y las Conferencias Panamericanas 1889-1938: Antecedentes de la globalización*. México, DF: Colegio de México.
- Matley, I. M. (1970). The Golodnaya Steppe: a Russian irrigation venture in Central Asia. *Geographical Review*, 60(3), 328-346. doi:10.2307/214037
- Matson, P. A., Clark, W. C., & Andersson, K. (2016). *Pursuing sustainability: a guide to the science and practice*. Princeton, NJ: Princeton University Press.
- Matson, P. A., Clark, W. C., & Andersson, K. (2016). *Pursuing sustainability: a guide to the science and practice*. Princeton, NJ: Princeton University Press.
- Mauerhofer, V. (2019). Activities of environmental convention-secretariats: laws, functions and discretions. *Sustainability*, 11(11), 3116. doi:10.3390/su11113116
- Mayall, J. (1995). National identity and the revival of regionalism. In L. Fawcett & A. Hurrell (Eds.), *Regionalism in world politics: regional organization and international order* (pp. 169-198). Oxford: Oxford University Press.
- Mayntz, R. (2004). Governance im modernen Staat. In A. Benz (Ed.), *Governance: Regieren in komplexen Regelsystemen* (pp. 65-76). Wiesbaden: Verlag für Sozialwissenschaften.
- McCaffrey, S. C. (1996). The Harmon Doctrine one hundred years later: buried, not praised. *Natural Resources Journal*, 36, 725-767.
- McGinnis, M. D. (2011). Networks of Adjacent Action Situations in Polycentric Governance. *Policy Studies Journal*, 39(1), 51-78. doi:10.1111/j.1541-0072.2010.00396.x
- McGinnis, M. D., & Ostrom, E. (1996). Design principles for local and global commons. In O. R. Young (Ed.), *The international political economy and international institutions*. Cheltenham, UK: E. Elgar.
- McGinnis, M. D., & Ostrom, E. (2014). Social-ecological system framework: initial changes and continuing challenges. *Ecology and Society*, 19(2). doi:10.5751/ES-06387-190230

- McLaughlin, C., & Krantzberg, G. (2011). An appraisal of policy implementation deficits in the Great Lakes. *Journal of Great Lakes Research*, 37(2), 390-396. doi:10.1016/j.jglr.2011.03.014
- Meadows, D. H. (1972). *The limits to growth: a report for the Club of Rome's project on the predicament of mankind*. New York: Universe Books.
- Mediterra (Ed.) (2016). *Zéro gaspillage en Méditerranée: ressources naturelles, alimentation et connaissances*. Paris: Presses de Sciences Po.
- Mendez, M. (2013). *The legal effects of EU agreements*. Oxford: Oxford University Press.
- Mendoza, F. (2013). Los Andes: una oportunidad para el desarrollo sostenible e integración *Fortaleciendo la gestión participativa para el desarrollo sostenible de los Andes*. Rome: FAO and Mountain Partnership.
- Meneguzzi, C. (Ed.) (2008). *Europa e Mediterraneo: le sfide della cooperazione*. Padova: CLEUP.
- Meneguzzi Rostagni, C. (2000). *L'organizzazione internazionale tra politica di potenza e cooperazione*. Padova: CEDAM.
- Menga, F. (2015). Building a nation through a dam: the case of Rogun in Tajikistan. *Nationalities Papers*, 43(3), 479-494. doi:10.1080/00905992.2014.924489
- Menga, F. (2016). Reconceptualizing hegemony: the circle of hydro-hegemony. *Water Policy*, 18(2), 401-418. doi:10.2166/wp.2015.063
- Menga, F. (2017). *Power and water in Central Asia*. Abingdon: Routledge.
- Mereveille, N. (2010). *Logique procédurale et dispositifs de mesure: ethnographie d'une ONG de conservation et développement au Pérou*. (Doctorat), EHESS, Paris.
- Mesquita Moreira, M. (2008). Trade costs and the economic fundamentals of the Initiative for the Integration of Regional Infrastructure in South America (IIRSA). *Integration and Trade*, 28, 115-145.
- Messerli, B., & Ives, J. D. (Eds.). (1997). *Mountains of the world: a global priority*. New York: Parthenon Publishing Group.
- Métropoles d'Amérique latine. (2000): *Vol. 35. Cahiers des Amériques Latines*. Paris: IHEAL Editions.
- Michalak, A. M., Anderson, E. J., Beletsky, D., Boland, S., Bosch, N. S., Bridgeman, T. B., . . . Zagorski, M. A. (2013). Record-setting algal bloom in Lake Erie caused by agricultural and meteorological trends consistent with expected future conditions. *Proceedings of the National Academy of Sciences*, 110(16), 6448-6452. doi:10.1073/pnas.1216006110
- Milanés Reyes, L. M., Dávila Ladrón de Guevara, J. C., Rubio Peña, M. I., Jiménez Valencia, A., & Dávila Ladrón de Guevara, C. (2006). *Cerro Matoso S. A.: sostenibilidad de una empresa minera en un entorno turbulento (1970-2003)*. Bogotá: Universidad de los Andes, Facultad de Administración.
- Milani, C. R. S., & Keraghel, C. (2009). Développement durable, contestation et légitimité: la perspective des mouvements altermondialistes. *Cahiers des Amériques Latines*(54-55), 137-151.

- Miles, E. L., Underdal, A., Andresen, S., Wettestad, J., Birger Skjaereth, J., & Carlin, E. (Eds.). (2002). *Environmental regime effectiveness: confronting theory with evidence*. Cambridge, MA: MIT Press.
- Millennium Ecosystem Assessment. (2005). *Ecosystems and human well-being: synthesis*. Washington, DC: Island Press.
- Mirumachi, N. (2015). *Transboundary water politics in the developing world*. Abingdon: Routledge.
- Mitchell, R. B. (2002-2019). International Environmental Agreements (IEA) Database Project. <http://iea.uoregon.edu>
- Mitchell, R. B. (2003). International environmental agreements: a survey of their features, formation, and effects. *Annual Review of Environment and Resources*, 28(1), 429-461. doi:10.1146/annurev.energy.28.050302.105603
- Moerlins, J. E., Khankhasayev, M. K., Leitman, S. F., & Makhmudov, E. J. (Eds.). (2008). *Transboundary water resources: a foundation for regional stability in Central Asia*. Heidelberg: Springer.
- Molano, G. (2010). *Les relations entre la Communauté andine et l'Union européenne: le cas de la coopération contre le trafic illicite de stupéfiants*. (Doctorat), Université de Paris 1 - Panthéon-Sorbonne, Paris.
- Mollinga, P. P., Meinzen-Dick, R. S., & Merrey, D. J. (2007). Politics, plurality and problems: a strategic approach for reform of agricultural water resources management. *Development Policy Review*, 25(6), 699-719. doi:10.1111/j.1467-7679.2007.00393.x
- Montilla-López, N., Gutiérrez-Martín, C., & Gómez-Limón, J. (2016). Water banks: what have we learnt from the international experience? *Water*, 8(10), 466.
- Moore, A. (2008). Rethinking scale as a geographical category: from analysis to practice. *Progress in Human Geography*, 32(2), 203-225.
- Morseletto, P., Biermann, F., & Pattberg, P. (2017). Governing by targets: reductio ad unum and evolution of the two-degree climate target. *International Environmental Agreements: Politics, Law and Economics*, 17(5), 655-676. doi:10.1007/s10784-016-9336-7
- Moss, T., & Dobner, P. (2016). Between multiple transformations and systemic path dependencies. In R. F. Hüttl, O. Bens, C. Bismuth, & S. Hoehstetter (Eds.), *Society-water-technology: a critical appraisal of major water engineering projects* (pp. 101-111). Cham: Springer.
- Mosse, D., & Lewis, D. J. (Eds.). (2005). *The aid effect: giving and governing in international development*. London: Pluto.
- Mossone, P. (2016). *La tutela degli ecosistemi marini in relazione all'applicazione dei differenti regimi normativi vigenti*. (PhD), Università degli Studi di Sassari, Sassari.
- Motti, G. P. (1993). *Storia dell'alpinismo* (2 ed.). Torino: Vivalda.
- Mountain Agenda. (1998). *Mountains of the world: water towers for the 21st century*. Bern: Centre for Development and Environment, University of Berne.
- Mountain Partnership. (2014a). Mountains as the water towers of the world: a call for action on the Sustainable Development Goals (SDGs). Rome: FAO.

- Mountain Partnership. (2014b). Why mountains matter for forests and biodiversity: a call for action on the Sustainable Development Goals (SDGs). Rome: FAO.
- Mountain Partnership. (2017). Stepping up for mountains: Mountain Partnership Secretariat annual report 2016. Rome: FAO.
- Mujica Barreda, E. (2011). El páramo: ¿paisaje cultural? In G. Maldonado & B. De Bievre (Eds.), *Paramundi, 2do Congreso Mundial de Páramos: memorias*. Quito: CONDESAN y Ministerio del Ambiente del Ecuador.
- Muskal, M. (2014, 19 September). Poll: nearly one in four in America would favor secession. *Los Angeles Times*. Retrieved from www.latimes.com/nation/nationnow/la-na-nn-secession-poll-america-20140919-story.html
- Mussi, F. (2017). *Verso una disciplina internazionale dell'immigrazione via mare: il ruolo dell'Italia*. (PhD), Università degli Studi di Milano Bicocca, Milano.
- Nagendra, H., & Ostrom, E. (2014). Applying the social-ecological system framework to the diagnosis of urban lake commons in Bangalore, India. *Ecology and Society*, 19(2). doi:10.5751/ES-06582-190267
- Namo LLC. (2016). Tajikistan water public environmental expenditure review *Poverty-Environment Initiative Phase II*. Dushanbe: UNDP-UNEP.
- Nervi, P. (Ed.) (2011). *Le regole di Spinale e Manez, tra passato e presente, guardando al futuro: atti del convegno*. Ragoli: Comunità delle regole di Spinale e Manez.
- Netting, R. M. (1981). *Balancing on an Alp: ecological change and continuity in a Swiss mountain community*. Cambridge: Cambridge University Press.
- Neumann, R. P. (2009). Political ecology: theorizing scale. *Progress in Human Geography*, 33(3), 398-406. doi:10.1177/0309132508096353
- Neuse, S. M. (1983). TVA at age fifty: reflections and retrospect. *Public Administration Review*, 43(6), 491-499.
- Nixon, R., & Owusu, F. (2017). Choice, inclusion, and access to information: understanding female farmers' participation in Kyrgyzstan's Water-User Associations. *Sustainability*, 9(12), 2346.
- NORDREGIO. (2004). Zones de montagne en Europe: analyse des régions de montagne dans les états membres actuels, les nouveaux états membres et d'autres pays européens (pp. 271). Bruxelles: Commission européenne.
- Norman, E. S., & Bakker, K. (2013). Rise of the local? Delegation and devolution in transboundary water governance. In E. S. Norman, K. Bakker, & A. Cohen (Eds.), *Water without borders? Canada, the United States, and shared waters* (pp. 47-69). Toronto: University of Toronto Press.
- Norman, E. S., Cohen, A., & Bakker, K. (Eds.). (2013). *Water without borders? Canada, the United States, and shared waters*. Toronto: University of Toronto Press.
- Nye, J. S. (1971). *Peace in parts: integration and conflict in regional organization*. Boston: Little, Brown.
- Nye, J. S. (Ed.) (1968). *International regionalism (readings)*. Boston: Little Brown.

- O'Brien, R. (1992). *Global financial integration: the end of geography*. New York: Council on Foreign Relations Press.
- O'Neill, K. (2017). *The environment and international relations* (2 ed.). Cambridge: Cambridge University Press.
- O'Neill, K., Balsiger, J., & VanDeveer, S. D. (2004). Actors, norms and impact: recent international cooperation theory and the influence of the agent-structure debate. *Annual Review of Political Science*, 7(1), 149-175. doi:10.1146/annurev.polisci.7.090803.161821
- OECD. (1999). Environmentally sustainable transport, policy instruments for achieving EST: case study for the Alpine region, provided by Austria, France, Italy and Switzerland (E. P. C. W. P. o. P. P. a. C. W. G. o. Transport, Trans.) (pp. 282). Paris: OECD.
- OECD. (2007). *Baltic partnerships: integration, growth and local governance in the Baltic Sea Region*. Paris: OECD Publishing.
- Ohlsson, L. (1995). *Hydropolitics: conflicts over water as a development constraint*. Dhaka: University Press.
- Olsen, J. (2000). The perils of rootedness: on bioregionalism and right wing ecology in Germany. *Landscape*, 19(1-2), 73-83.
- Olson, D. M., & Dinerstein, E. (2002). The Global 200: priority ecoregions for global conservation. *Annals of the Missouri Botanical Garden*, 89(2), 199–224.
- Olson, D. M., Dinerstein, E., Wikramanayake, E. D., Burgess, N. D., Powell, G. V. N., Underwood, E. C., . . . Kassem, K. R. (2001). Terrestrial Ecoregions of the World: A New Map of Life on Earth A new global map of terrestrial ecoregions provides an innovative tool for conserving biodiversity. *BioScience*, 51(11), 933-938. doi:10.1641/0006-3568(2001)051[0933:TEOTWA]2.0.CO;2
- Olson, M. (1971). *The logic of collective action: public goods and the theory of groups*. Cambridge, MA: Harvard University Press.
- Onida, M. (2008a). La Convention alpine: projets réalisés et en cours de réalisation. In CIPRA France (Ed.), *La Convention alpine: un nouveau droit pour la montagne?* (pp. 18-25). Grenoble: CIPRA France.
- Onida, M. (2008b). A regional international treaty facing global challenges. *Environmental Policy and Law*, 39(4-5), 243-246.
- Onori, L. (2004). La protezione delle specie selvatiche (flora e fauna) nella Convenzione delle Alpi (pp. 557). Roma: APAT.
- Ostrom, E. (1990). *Governing the commons: the evolution of institutions for collective action*. Cambridge: Cambridge University Press.
- Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science*, 325(5939), 419-422. doi:10.1126/science.1172133
- Ostrom, E., & Cox, M. E. (2010). Moving beyond panaceas: a multi-tiered diagnostic approach for social-ecological analysis. *Environmental Conservation*, 37(4), 451-463. doi:10.1017/S0376892910000834

- Ostrom, E., Janssen, M. A., & Anderies, J. M. (2007). Going beyond panaceas. *Proceedings of the National Academy of Sciences*, 104(39), 15176-15178. doi:10.1073/pnas.0701886104
- Ostrom, E., & Nagendra, H. (2006). Insights on linking forests, trees, and people from the air, on the ground, and in the laboratory. *Proceedings of the National Academy of Sciences*, 103(51), 19224-19231. doi:10.1073/pnas.0607962103
- Paasi, A. (1996). Regions as social and cultural constructs: reflections on recent geographical debates. In M. Idvall & A. Salomonsson (Eds.), *Att skapa en region, om identitet och territorium* (pp. 90-107). Copenhagen: NordREFO.
- Palay, S. F. (2008). Muddy waters: Congressional consent and the Great Lakes-St. Lawrence River Basin Water Resources Compact. *Hastings Constitutional Law Quarterly*(4), 717-738.
- Palomo-Hierro, S., Gómez-Limón, J., & Riesgo, L. (2015). Water markets in Spain: performance and challenges. *Water*, 7(2), 652.
- Papadimitriou, C. H. (1985). Games against nature. *Journal of Computer and System Sciences*, 31(2), 288-301.
- Papanicolopulu, I. (2004). The Secretariat of the Alpine Convention. In T. Treves, L. Pineschi, & A. Fodella (Eds.), *Sustainable development of mountain areas* (pp. 215-232). Milano: Giuffrè.
- Papisca, A., & Mascia, M. (2004). *Le relazioni internazionali nell'era dell'interdipendenza e dei diritti umani* (3 ed.). Padova: CEDAM.
- Park, S. (2006). Theorizing norm diffusion within international organizations. *International Politics*, 43(3), 342-361.
- Peachey, E. J. (2004). The Aral Sea basin crisis and sustainable water resource management in Central Asia. *Journal of Public and International Affairs*, 15(1), 1-20.
- Pentland, R. (2013). Key challenges in Canada-US water governance. In E. S. Norman, A. Cohen, & K. Bakker (Eds.), *Water without borders? Canada, the United States, and shared waters* (pp. 119-136). Toronto: University of Toronto Press.
- Peraldi, M. (2016). Le « commerce migratoire » euroméditerranéen. *Politique étrangère, Hiver*(4), 46. doi:10.3917/pe.164.0035
- Petrash, L. (2007). Great Lakes, weak policy: the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreements and Compact and non-regulation of the water products industry. *University of Miami Inter-American Law Review*(1), 145-176.
- Phare, M.-A. S. (2013). Indigenous peoples and water: governing across borders. In E. S. Norman, A. Cohen, & K. Bakker (Eds.), *Water without borders? Canada, the United States, and shared waters* (pp. 27-46). Toronto: University of Toronto Press.
- Phelan, W. (2015). Enforcement and escape in the Andean Community: why the Andean Community of Nations is not a replica of the European Union. *JCMS: Journal of Common Market Studies*, 53(4), 840-856. doi:10.1111/jcms.12222
- Piattoni, S. (2010). *The theory of multi-level governance: conceptual, empirical, and normative challenges*. Oxford: Oxford University Press.
- Pierson, P. (2014). Increasing returns, path dependence, and the study of politics. *American political science review*, 94(2), 251-267. doi:10.2307/2586011

- Pinchemel, P., & Pinchemel, G. (1988). *La face de la terre: éléments de géographie*. Paris: A. Colin.
- Plan binacional de desarrollo de la región fronteriza Perú-Ecuador. Capítulo Perú. (2009). *Ecuador-Perú: 10 años de paz y desarrollo (1998-2008)*. Lima: Plan Binacional de Desarrollo.
- Plicancic, S. (2002). Implementation of the Alpine Convention in Slovenia. In T. Treves, L. Pineschi, & A. Fodella (Eds.), *International law and the protection of mountain areas* (pp. 123-134). Milano: Giuffré.
- Potapov, P., Hansen, M. C., Laestadius, L., Turubanova, S., Yaroshenko, A., Thies, C., . . . Esipova, E. (2017). The last frontiers of wilderness: Tracking loss of intact forest landscapes from 2000 to 2013. *Science Advances*, 3(1). doi:10.1126/sciadv.1600821
- Pouliot, V. (2016). *International pecking orders: the politics and practice of multilateral diplomacy*. Cambridge: Cambridge University Press.
- Poupeau, F. (2002). La guerre de l'eau (Bolivie, 1999-2001). *Agone*(26-27), 133-140.
- Pred, A. (1984). Place as historically contingent process: structuration and the time-geography of becoming places. *Annals of the Association of American Geographers*, 74(2), 279-297.
- Price, M. (1994). Ecopolitics and environmental nongovernmental organizations in Latin America. *Geographical Review*, 84(1), 42-59.
- Price, M. F. (1999). Towards cooperation across mountain frontiers: the Alpine Convention. *European Environment*, 9(3), 83-89.
- Price, M. F. (2000). The Alpine Convention: a model for other regions? *Mountain Research and Development*, 20(2), 192-194.
- Price, M. F., Lysenko, I., & Gloersen, E. (2004). La délimitation des montagnes européennes. *Revue de Géographie Alpine*, 92(2), 61-74.
- Prieur, M. (2014). Promesses et réalisations de la Charte de l'environnement. *Les Nouveaux Cahiers du Conseil constitutionnel*, 43(2), 5-24.
- Prys, M. (2010). Hegemony, detachment, domination: differences in regional powerhood. *International Studies Review*, 12(4), 479-504.
- Putnam, R. D. (1988). Diplomacy and domestic politics: the logic of two-level games. *International Organization*, 42(3), 427-460.
- Quindimil López, J. A. (2002). El fenómeno del mimetismo entre organizaciones internacionales. *Anuario da Faculdade de Dereito*, 6, 585-601.
- Quindimil López, J. A. (2006). *Instituciones y derecho de la Comunidad andina*. Valencia: Tirant lo Blanch.
- Raagmaa, G., & Stead, D. (Eds.). (2017). *Impacts of European territorial policies in the Baltic States*. London: Routledge.
- Raakjaer, J., Leeuwen, J. v., Tatenhove, J. v., & Hadjimichael, M. (2014). Ecosystem-based marine management in European regional seas calls for nested governance structures and coordination: a policy brief. *Marine Policy*, 50, 373-381. doi:10.1016/j.marpol.2014.03.007

- Rafal, S., & Jerzy, Z. (1988). Baltic Europe, Great Lakes America and ecosystem redevelopment. *Ambio*, 17(2), 99-105.
- Raffestin, C. (1986a). Ecogenèse territoriale et territorialité. In F. Auriac & R. Brunet (Eds.), *Espaces, jeux et enjeux* (pp. 175-185). Paris: Fayard - Fondation Diderot.
- Raffestin, C. (1986b). Eléments pour une théorie de la frontière. *Diogenes*, 34(134), 3-21.
- Raffestin, C. (1987). Pourquoi n'avons-nous pas lu Eric Dardel? *Cahiers de géographie du Québec*, 31(84), 471- 481.
- Ramírez, S. (2005). Las Zonas de Integración Fronteriza (ZIF): avances y retrocesos. *Aldea Mundo*, 9(18), 7-19.
- REC. (2007). Handbook on the Carpathian Convention. Szentendre: REC - EURAC.
- Regier, H. A. (1992). Ecosystem integrity in the Great Lakes Basin: an historical sketch of ideas and actions. *Journal of Aquatic Ecosystem Health*, 1(1), 25-37. doi:10.1007/bf00044406
- Reiterer, M. A., & Galle, E. (2002). Implementation of the Alpine Convention in Austria. In T. Treves, L. Pineschi, & A. Fodella (Eds.), *International law and the protection of mountain areas* (pp. 89-100). Milano: Giuffré.
- Reitze, A. W., Jr. (1968). Wastes, water, and wishful thinking: the battle of Lake Erie. *Case Western Reserve Law Review*, 20(1), 5-86.
- Revenga, C., Brunner, J., Henninger, N., Kassem, K. R., & Payne, R. (2000). *Pilot analysis of global ecosystems: freshwater systems*. Washington, DC: World Resources Institute.
- Risse-Kappen, T. (1994). Ideas do not fleet freely: transnational coalitions, domestic structures, and the end of the cold war. *International Organization*, 48(2), 185-214.
- Risse-Kappen, T., Ropp, S. C., & Sikkink, K. (1999). *The power of human rights: international norms and domestic change*. Cambridge: Cambridge University Press.
- Rist, S. (2013). *Die Anden: ein geographisches Porträt*. Berlin: Springer.
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin III, F. S., Lambin, E., . . . Schellnhuber, H. J. (2009). Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society*, 14(2).
- Roeland, S. (2016). *La gouvernance des systèmes socio-écologiques: le cadre d'Ostrom pour l'analyse des forêts wallonnes*. (Master), Université de Reims Champagne-Ardenne, Reims.
- Rossetti di Valdalbero, D., Schunz, S., & Liberatore, A. (2015). La recherche: fer-de-lance d'une coopération euro-méditerranéenne renouvelée. *Confluences Méditerranée*, 93(2), 168. doi:10.3917/come.093.0155
- Rubio, J. L. (2009). *Water scarcity, land degradation and desertification in the Mediterranean Region: environmental and security aspects*. Dordrecht: Springer.
- Rudaz, G. (2009). Recompositions territoriales et gouvernance des régions de montagne. *Revue de Géographie Alpine*, 97(2), 19-29.
- Ruffini, F. V., Streifeneder, T., & Eiselt, B. (2005). *Perimetro della Convenzione delle Alpi: comuni della Convenzione delle Alpi nell'Arco alpino italiano (bozza)*. Retrieved from Bolzano:

- Ruffini, F. V., Streifeneder, T., & Eiselt, B. (2006). Implementing an international mountain convention: an approach for the delimitation of the Carpathian Convention area. Bolzano: EURAC.
- Ruggie, J. G. (1993). Territoriality and beyond: problematizing modernity in international relations. *International Organization*, 47(1), 139-174.
- Ruiz-Dana, A. (2009). Peru and Ecuador: a case study of Latin American integration and conflict. In S. R. Khan (Ed.), *Regional trade integration and conflict resolution* (pp. 207-233). London: Routledge.
- Ruiz Caro, A. (2007). Impacto del TLC en la desigualdad y en los procesos de integración regional. In R. A. Dello Buono & M. A. Gandásegui Jr. (Eds.), *Un continente en la encrucijada: Nuestra América en transformación* (pp. 124-153). Panama: CELA / Universidad de Panama.
- Rushworth, W. D., & Smith, W. P. (1968). Mapping and Demarcation of the Argentine-Chile Frontier Case. *The Photogrammetric Record*, VI(32), 150-162.
- Sachs, I. (1997). *L'écodéveloppement: stratégies pour le XXIe siècle* (2 ed.). Paris: Syros.
- Sachs, I. (2004). *Desenvolvimento includente, sustentável, sustentado*. Rio de Janeiro: Garamond.
- Sachs, I. (2007a). *La troisième rive: à la recherche de l'écodéveloppement*. Paris: Bourin.
- Sachs, I. (2007b). *Rumo à ecossocioeconomia: teoria e prática do desenvolvimento*. São Paulo: Cortez.
- Salas Carreño, G. (2017). Mining and the living materiality of mountains in Andean societies. *Journal of Material Culture*, 22(2), 133-150. doi:10.1177/1359183516679439
- Salgado, G. (1975). La integración económica en países en desarrollo y la función de una planificación industrial conjunta. *Nueva Sociedad*(17), 3-27.
- Salsa, A. (2005). *Viaggio alle Alpi: alle origini del turismo alpino*. Torino: Museo nazionale della montagna.
- Salvemini, R. (2009). *Istituzioni e traffici nel Mediterraneo tra età antica e crescita moderna*. Napoli: Consiglio nazionale delle ricerche, Istituto di studi sulle società del Mediterraneo.
- Sanguin, A.-L. (2000). *Mare Nostrum: dynamiques et mutations géopolitiques de la Méditerranée*. Paris: L'Harmattan.
- Saravia, M., Devenish, C., De Bièvre, B., & Peralvo, M. (2013). CONDESAN: better knowledge, better decisions: supporting sustainable Andean mountains development. *Mountain Research and Development*, 33(3), 339-342. doi:10.1659/MRD-JOURNAL-D-13-00056.1
- Scarascia-Mugnozza, G., Oswald, H., Piussi, P., & Radoglou, K. (2000). Forests of the Mediterranean region: gaps in knowledge and research needs. *Forest Ecology and Management*, 132(1), 97-109. doi:10.1016/S0378-1127(00)00383-2
- Scharpf, F. W. (1999). *Governing in Europe: effective and democratic?* Oxford: Oxford University Press.
- Schelling, T. C. (1960). *The strategy of conflict*. Cambridge: Harvard University Press.
- Scheurer, T., & Sgard, A. (2008). La recherche sur les montagnes entre Alpes et monde: regards rétrospectifs. *Revue de Géographie Alpine*, 96(4), 15-25.

- Schleicher Tappeser, R. (2006). Le rôle des Alpes dans l'Europe de l'intégration: jalons pour un débat prospectif. *Revue de Géographie Alpine*, 94(2), 9-20.
- Schoolmeester, T., Saravia, M., Andresen, M., Postigo, J., Valverde, A., Jurek, M., . . . Giada, S. (2016). *Outlook on climate change adaptation in the Tropical Andes mountains*. Nairobi, Vienna and Lima: UNEP, GRIDArendal and CONDESAN.
- Schott, J. J. (2006). *Trade relations between Colombia and the United States*. Washington, DC: Institute for International Economics.
- Schroeck, N., & Karisny, S. (2012, 2012-2013). *Hydraulic fracturing and water management in the Great Lakes* Paper presented at the The law and policy of hydraulic fracturing: addressing the issues of the natural gas boom.
- Schultz, J. (2008). La guerra del agua en Cochabamba y sus secuelas. In J. Shultz & M. Draper (Eds.), *Desafiando la globalización: historias de la experiencia boliviana* (pp. 17-51). La Paz: Plural Editores.
- Schymik, C. (2013). The Baltic Sea region: who cooperates with whom, and why? In N. Bellini & U. Hilpert (Eds.), *Europe's changing geography: the impact of inter-regional networks* (pp. 67-80). London: Routledge.
- Scovazzi, T. (Ed.) (2001). *The protection of the environment in a context of regional economic integration: the case of the European Community, the MERCOSUR, and the NAFTA*. Milano: Giuffrè.
- Scozzari, A., & El Mansouri, B. (Eds.). (2011). *Water security in the Mediterranean region: an international evaluation of management, control and governance approaches*. Dordrecht: Springer.
- Sedjari, A. (Ed.) (2010). *Euro-Méditerranée: histoire d'un futur*. Paris: L'Harmattan.
- Segrelles Serrano, J. A. (2006). Los recientes procesos de integración regional en América del Sur: ALCA, ALBA y CSN. *Revista Aportes para la Integración Latinoamericana*, XII(14).
- Sehring, J. (2009). *The politics of water institutional reform in neopatrimonial states: a comparative analysis of Kyrgyzstan and Tajikistan*. Wiesbaden: VS.
- Selin, H. (2012). Global environmental governance and regional centers. *Global Environmental Politics*, 12(3), 18-37. doi:10.1162/GLEP_a_00121
- Selin, H., & VanDeveer, S. D. (2009). *Changing climates in North American politics: institutions, policymaking, and multilevel governance*. Cambridge, Mass.: MIT Press.
- Serafin, R., & Zaleski, J. (1997). Baltic Europe: environmental management in context. In A. L. Brooks & S. D. VanDeVeer (Eds.), *Saving the seas: Values, scientists, and international governance* (pp. 399-426). College Park, MD: Maryland Sea Grant.
- Serbin, A. (2007). Entre UNASUR y ALBA: ¿otra integración (ciudadana) es posible? *Anuario CEIPAZ*, 11, 183-207.
- Shelton, D. (2004). International agreements and the protection of mountain areas: overlappings and coordination. In T. Treves, L. Pineschi, & A. Fodella (Eds.), *Sustainable development of mountain areas* (pp. 73-94). Milano: Giuffrè.

- Shimizu, M. R., Regier, H. A., Kay, J. J., & Ulanowicz, R. E. (1997). Government organizations and Great Lakes rehabilitations. In S. D. VanDeever & A. Brooks (Eds.), *Saving the seas: Values, scientists, and international governance* (pp. 359-380). College Park, MD: Maryland Sea Grant College.
- Shlozberg, R., Dorling, R., & Spiro, P. (2014). Low water blues: an economic impact assessment of future low water levels in the Great Lakes and St. Lawrence River. Toronto, ON: Council of the Great Lakes Region.
- Singer, J. D. (1961). The levels of analysis problem in international relations. *World Politics*, 14(1), 77-92.
- Slack, K. (2009). Digging out from neoliberalism: responses to environmental (mis)governance of the mining sector in Latin America. In J. Burdick, P. Oxborn, & K. M. Roberts (Eds.), *Beyond neoliberalism in Latin America? Societies and politics at the crossroads* (1st ed., pp. 117-134). New York: Palgrave Macmillan.
- Smouts, M. C. (2001). *Forêts tropicales, jungle internationale: les revers de l'écopolitique*. Paris: Presses de Sciences Po.
- Snyder, J. L., & Jervis, R. (1993). *Coping with complexity in the international system*. Oxford: Westview Press.
- Söderbaum, F. (2016). Old, new, and comparative regionalism: the history and scholarly development of the field. In T. A. Börzel & T. Risse (Eds.), *The Oxford handbook of comparative regionalism* (pp. 16-38). Oxford: Oxford University Press.
- Söderström, S. (2017). *Regional environmental governance and avenues for the ecosystem approach to management in the Baltic Sea area*. Linköping: Linköping University Electronic Press.
- Solomon, S. (2010). *Water: the epic struggle for wealth, power, and civilization*. New York: Harper.
- Spencer, R. A., Kirton, J. J., & Nossal, K. R. (Eds.). (1981). *The International Joint Commission seventy years on*. Toronto: Centre for International Studies, University of Toronto.
- Sproule-Jones, M. (2002). Institutional experiments in the restoration of the North American Great Lakes environment. *Canadian Journal of Political Science*, 35(4), 835-857.
- Stefan, M. (2015). *Profili di integrazione giuridica negli sviluppi del processo di regionalizzazione euro-mediterraneo*. (PhD), Università degli Studi di Ferrara, Ferrara.
- Stern, P. C. (2011). Design principles for global commons: natural resources and emerging technologies. *International Journal of the Commons*, 5(2). doi:10.18352/ijc.305
- Stocchiero, A. (Ed.) (2009). *Mare nostrum: cooperazione e nuove politiche dell'Unione Europea nel Mediterraneo*. Roma: Carocci.
- Stocking, M. K. (2010). *To the wilderness: a memoir*. Newark: University of Delaware Press.
- Stucki, V., Wegerich, K., Rahaman, M. M., & Varis, O. (Eds.). (2016). *Water and security in Central Asia: solving a Rubik's cube*. Abingdon: Routledge.
- Suter II, G. W. (2016). *Ecological risk assessment* (2 ed.). Boca Raton, FL: CRC press.
- Tabak, F. (2008). *The waning of the Mediterranean, 1550-1870: a geohistorical approach*. Baltimore, MD: Johns Hopkins University Press.

- Taffet, J. F. (2007). *Foreign aid as foreign policy: the Alliance for Progress in Latin America*. New York: Routledge.
- Talbot, R. B. (1977). *The European Community's regional fund: a study in the politics of redistribution*. Oxford: Pergamon Press.
- Tallberg, J. (2006). *Leadership and negotiation in the European Union*. Cambridge: Cambridge University Press.
- Tangarife Torres, M. (2001). El sistema de solución de controversias en la Comunidad Andina: el papel de la Secretaría General de la Comunidad Andina. *Themis*(42), 115-129.
- Tappeiner, U. (Ed.) (2008). *Typology of the Alps based on social, economic and environmental aspects*. Bolzano: EURAC research.
- Tappeiner, U., Borsdorf, A., & Tasser, E. (2008). *Atlas des Alpes: société, économie, environnement*. Heidelberg: Spektrum Akademischer Verlag.
- Temby, O., & Stoett, P. (Eds.). (2017). *Towards continental environmental policy? North American transnational networks and governance*. Albany, NY: SUNY Press.
- Thayer, R. L. (2003). *LifePlace: bioregional thought and practice*. Berkeley, CA: University of California Press.
- Thiel, A., Adamseged, M. E., & Baake, C. (2015). Evaluating an instrument for institutional crafting: how Ostrom's social–ecological systems framework is applied. *Environmental Science & Policy*, 53, Part B, 152-164. doi:10.1016/j.envsci.2015.04.020
- Thomas, M. (2014). Domestic politics and non-compliance in the Andean Community. *The Latin Americanist*, 58(4), 27-58. doi:10.1111/tla.12040
- Thomson, R. (2008). The council presidency in the European Union: responsibility with power*. *JCMS: Journal of Common Market Studies*, 46(3), 593-617. doi:10.1111/j.1468-5965.2008.00793.x
- Thorpe, A., & Anrooy, R. v. (Eds.). (2009). *Inland fisheries livelihoods in Central Asia: policy interventions and opportunities*. Rome: FAO.
- Tilly, C. (1998). International communities: secure and otherwise. In E. Adler & M. Barnett (Eds.), *Security communities*. Cambridge: Cambridge University Press.
- Toche, E., Ledesma, W., & Foy, P. (1998). *Perú-Ecuador: entre la guerra y la paz*. Lima: DESCO - Centro de Estudios y Promoción del Desarrollo.
- Toptsidou, M., & Böhme, K. (2018). EUSBSR after 2020: governance remastered? (pp. 48). Tallinn: Ministry of Foreign Affairs of Estonia, INTERREG Baltic Sea Region and Spatial Foresight.
- Torero, A. (2005). *Idiomas de los Andes: lingüística e historia* (2 ed.). Lima: Editorial Horizonte.
- Torres, B. (1997). Transnational environmental NGOs: linkages and impact on policy. In G. J. MacDonald, D. Nielson, & M. Stern (Eds.), *Latin American environmental policy in international perspective* (pp. 156-181). Boulder, CO: Westview Press.
- Torricelli, G. P. (2003). Le réseau et la frontière: approche comparative des mobilités des espaces montagnards dans les Alpes occidentales et les Andes du sud. *Revue de Géographie Alpine*, 91(3), 83-100.

- Tournay, V. (2009). *Vie et mort des agencements sociaux: de l'origine des institutions*. Paris: Presses universitaires de France.
- Treves, T., Pineschi, L., & Fodella, A. (Eds.). (2002). *International law and the protection of mountain areas*. Milano: Giuffr .
- Treves, T., Pineschi, L., & Fodella, A. (Eds.). (2004). *Sustainable development of mountain areas*. Milano: Giuffr .
- Troiani, L., & Semplici, S. (Eds.). (2000). *Italia e Mediterraneo: le occasioni dello sviluppo*. Bologna: Il Mulino.
- Turner, B. L., Clark, W. C., Kates, R. W., Richards, J., Mathews, J. T., & Meyer, W. (Eds.). (1993). *The Earth as transformed by human action: global and regional changes in the biosphere over the past 300 years* (2 ed.). Cambridge: Cambridge University Press.
- Tynkkynen, N. (2017). The Baltic Sea environment and the European Union: analysis of governance barriers. *Marine Policy*, 81, 124-131.
- Tynkkynen, N. (2018). The "Russian issue" in transnational governance of the Baltic Sea environment: analysis of drivers and constraints of Russia's participation. *Marine Policy*, 98, 220-226.
- Udvardy, M. D. F. (1975). *A classification of the biogeographical provinces of the world*. Morges: IUCN.
- UE. Agence europ enne pour l'environnement. (2009). *Changement climatique r gional et adaptation: les Alpes face au changement des ressources en eau (r sum )*. Copenhagen: Agence europ enne pour l'environnement.
- UNEP-WCMC. (2016). *The State of Biodiversity in Latin America and the Caribbean: A mid-term review of progress towards the Aichi Biodiversity Targets*. Cambridge: UNEP-WCMC.
- UNEP. (2001). *International environmental governance: multilateral environmental agreements*. (UNEP/IGM/INF3_MEA_Add). Nairobi: United Nations Environment Programme Retrieved from www.unep.org/IEG/Meetings_docs/New_York_Meeting1/NY_18Apr01.asp.
- UNEP, GRID Arendal, & Zoi Environment Network. (2011). *Environment and security in the Amu Darya river basin* (pp. 100). Geneva: ENVSEC.
- UNEP, & REC Caucasus. (2009). *Sustainable development of mountain regions of the Caucasus: a case for intergovernmental cooperation*. Paper presented at the Meeting of the government-nominated experts for the protection and sustainable development of mountain regions of the Caucasus, Bolzano.
- UNEP. World Conservation Monitoring Centre. (2002). *Mountain watch: environmental change and sustainable development in mountains*. Cambridge: Swaingrove Imaging.
- United Nations. Economic Commission for Latin America and the Caribbean. (1988). *Gesti n para el desarrollo de cuencas de alta monta a en la zona andina*. Santiago de Chile: CEPAL.
- United States. Government Accountability Office. (1998). *International Joint Commission: U.S. activities and oversight*. (NSIAD-98-252R). Washington, DC: GAO.
- United States. National Resources Committee. (1935). *Regional factors in national planning and development*. New York: Da Capo Press.

- United States. National Resources Committee. (1974). *Regional factors in national planning and development*. New York: Da Capo Press.
- Untermaier, J. (2008). En guise de conclusion: Convention alpine et droit de l'environnement (une mise en perspective). In CIPRA France (Ed.), *La Convention alpine: un nouveau droit pour la montagne?* (pp. 138-147). Grenoble: CIPRA France.
- Valiante, M., Muldoon, P., & Botts, L. (1997). Ecosystem governance: lessons from the Great Lakes. In O. R. Young (Ed.), *Global governance: drawing insights from the environmental experience* (pp. 197-224). Cambridge, MA: MIT Press.
- Valman, M. (2013). Institutional stability and change in the Baltic Sea: 30 years of issues, crises and solutions. *Marine Policy*, 38, 54-64. doi:10.1016/j.marpol.2012.05.019
- Van Dyke, J. M., & Broder, S. P. (2014). Regional maritime cooperation in the South China Sea: COBSEA and PEMSEA. In Y. Song, P. K. Zou, & S. Wu (Eds.), *Major law and policy issues in the South China Sea: European and American perspectives* (pp. 17-24). Farnham: Ashgate.
- van Hoof, L., Hendriksen, A., & Bloomfield, H. J. (2014). Sometimes you cannot make it on your own: drivers and scenarios for regional cooperation in implementing the EU Marine Strategy Framework Directive. *Marine Policy*, 50, 339-346. doi:10.1016/j.marpol.2014.03.031
- van Leeuwen, J., Raakjaer, J., van Hoof, L., van Tatenhove, J., Long, R., & Ounanian, K. (2014). Implementing the Marine Strategy Framework Directive: a policy perspective on regulatory, institutional and stakeholder impediments to effective implementation. *Marine Policy*, 50, 325-330. doi:10.1016/j.marpol.2014.03.004
- van Leeuwen, J., Soma, K., & van Tatenhove, J. (2015). Marine governance in European seas: processes and structures of regionalization. *Ocean & Coastal Management*, 117, 1-3. doi:10.1016/j.ocecoaman.2015.11.008
- Vanags, A. (2011). Economic integration and cohesion in the Baltic Sea region: a critical perspective from the Baltic States. *Journal of Baltic Studies*, 42(1), 91-102. doi:10.1080/01629778.2011.540805
- VanDeever, S. D. (2004). Ordering environments: regions in European international environment cooperation. In S. Jasanoff & M. L. Martello (Eds.), *Earthly politics: local and global in environmental governance* (pp. 309-334). Cambridge, MA: MIT Press.
- VanDeever, S. D. (2003). Green fatigue. *Wilson Quarterly*, 27(4), 55-59.
- VanDeever, S. D. (2011). Networked Baltic environmental cooperation. *Journal of Baltic Studies*, 42(1), 37-55. doi:10.1080/01629778.2011.538516
- Varone, F., Nahrath, S., Aubin, D., & Gerber, J.-D. (2013). Functional regulatory spaces. *Policy Sciences*, 46(4), 311-333. doi:10.1007/s11077-013-9174-1
- Vasquez, J. A. (1997). The realist paradigm and degenerative versus progressive research. *American political science review*, 91(4), 899-912.
- Väyrynen, R. (2003). Regionalism: old and new. *International Studies Review*, 5, 25-51.
- Vedovato, G. (1997). La coopération transfrontalière, les Eurorégions et le Conseil de l'Europe. *Annuaire européen*, 43, 1-23.

- Viazzo, P. P. (1989). *Upland communities: environment, population and social structure in the Alps since the sixteenth century*. Cambridge: Cambridge University Press.
- Villeneuve, A., Castelein, A., & Mekouar, M. A. (2002). *Mountains and the law: emerging trends*. Rome: FAO.
- Wallerstein, I. M. (1974). *The modern world-system: capitalist agriculture and the origins of the European world-economy in the sixteenth century*. New York: Academic Press.
- Wallerstein, I. M. (1980). *The modern world-system: mercantilism and the consolidation of the European world-economy, 1600-1750*. New York: Academic Press.
- Wallis, D., & Arnold, S. (2011). Governing common seas: from a Baltic strategy to an Arctic policy. *Journal of Baltic Studies*, 42(1), 103-107. doi:10.1080/01629778.2011.538514
- Walt, S. (1985). Alliance formation and the balance of world power. *International Security*, 9, 3-41.
- Waltz, K. N. (1959). *Man, the state, and war*. New York: Columbia University Press.
- Waltz, K. N. (1979). *Theory of international politics*. Reading, MA: Addison-Wesley.
- Walzer, C., Kowalczyk, C., Alexander, J. M., Baur, B., Bogliani, G., Brun, J.-J., . . . Scheurer, T. (2013). The 50 most important questions relating to the maintenance and restoration of an ecological continuum in the European Alps. *PLoS ONE*, 8(1), e53139. doi:10.1371/journal.pone.0053139
- Warner, J., Mirumachi, N., Farnum, R. L., Grandi, M., Menga, F., & Zeitoun, M. (2017). Transboundary 'hydro-hegemony': 10 years later. *Wiley Interdisciplinary Reviews: Water*, 4(6), e1242.
- Watkins, K. (Ed.) (2006). *Beyond scarcity: power, poverty and the global water crisis*. New York: United Nations Development Programme.
- Waxman, C. I. (1969). *The end of ideology debate*. New York: Funk & Wagnalls.
- Wegerich, K. (2004). Coping with disintegration of a river-basin management system: multi-dimensional issues in Central Asia. *Water Policy*, 6(4), 335-344. doi:10.2166/wp.2004.0022
- Wegerich, K. (2008). Hydro-hegemony in the Amu Darya basin. *Water Policy*, 10(S2), 71-88. doi:10.2166/wp.2008.208
- Wegerich, K. (2015). Shifting to hydrological/hydrographic boundaries: a comparative assessment of national policy implementation in the Zerafshan and Ferghana Valleys. *International Journal of Water Resources Development*, 31(1), 88-105. doi:10.1080/07900627.2014.914892
- Weinthal, E. (2002). *State making and environmental cooperation: linking domestic and international politics in Central Asia*. Cambridge, MA: MIT Press.
- Weinthal, E., & Parag, Y. (2003). Two steps forward, one step backward: societal capacity and Israel's implementation of the Barcelona Convention and the Mediterranean Action Plan. *Global Environmental Politics*, 3(1), 51-71. doi:10.1162/152638003763336383
- Weller, P. (1990). *Fresh water seas: saving the Great Lakes*. Toronto: Between the Lines.
- Wendt, A. (1987). The agent-structure problem in international relations theory. *International Organization*, 41(3), 335-370.

- Wendt, A. (1992). Anarchy is what states make of it: the social construction of power. *International Organization*, 46(2), 391-425.
- Wendt, A. (1999). *Social theory of international politics*. Cambridge: Cambridge University Press.
- Wiek, A., & Lang, D. J. (2016). Transformational sustainability research methodology. In H. Heinrichs, P. Martens, G. Michelsen, & A. Wiek (Eds.), *Sustainability science: an introduction* (pp. 31-41). Dordrecht: Springer.
- Willetts, P. (Ed.) (1996). *The conscience of the world: the influence of non-governmental organisations in the UN system*. London: Hurst.
- Williams, J., Read, C., Norton, A., Dovers, S., Burgman, M., W., P., & Anderson, H. (2001). Biodiversity (Theme Report) *Australia State of the Environment Report 2001*. Canberra: CSIRO - Department of the Environment and Heritage.
- Wilson Rowe, E. (2018). *Arctic governance: power in cross-border cooperation*. Manchester: Manchester University Press.
- Wolf, A. T. (2007). Shared waters: conflict and cooperation. *Annual Review of Environment and Resources*, 32, 241-269.
- Wolmer, W. (2003). Transboundary conservation: the politics of ecological integrity in the Great Limpopo transfrontier park. *Journal of Southern African Studies*, 29(1), 261-278.
- World Commission on Environment and Development. (1987). *Our common future*. Oxford: Oxford University Press.
- Wouters, P., Dukhovny, V. A., & Allan, A. (Eds.). (2007). *Implementing integrated water resources management in Central Asia*. Dordrecht: Springer.
- WWF. (2000). About global ecoregions. Retrieved from www.panda.org/about_wwf/where_we_work/ecoregions/about/
- WWF. (2001). Alps ecoregion: final reconnaissance report. Bellinzona: WWF European Alpine Programme.
- Xenakis, D. K. (1999). From policy to regime: trends in Euro-Mediterranean governance. *Cambridge Review of International Affairs*, 13(1), 254-270. doi:10.1080/09557579908400289
- Young, O. R. (2002). *The institutional dimensions of environmental change: fit, interplay, and scale*. Cambridge, MA: MIT Press.
- Young, O. R., King, L. A., & Schroeder, H. (Eds.). (2008). *Institutions and environmental change: principal findings, applications, and research frontiers*. Cambridge, MA: MIT Press.
- Zanzi, L. (2004). *Le Alpi nella storia d'Europa: ambienti, popoli, situazioni e forme di civiltà del mondo "alpino" da passato a futuro*. Torino: CDA-Vivalda.
- Zeitoun, M., Cascão, A. E., Warner, J., Mirumachi, N., Matthews, N., Menga, F., & Farnum, R. (2017). Transboundary water interaction III: contest and compliance. *International Environmental Agreements: Politics, Law and Economics*, 17(2), 271-294. doi:10.1007/s10784-016-9325-x
- Zelli, F., & van Asselt, H. (2013). Introduction: the institutional fragmentation of global environmental governance: causes, consequences, and responses. *Global Environmental Politics*, 13(3), 1-13. doi:10.1162/GLEP_a_00180

- Zevi, A. (Ed.) (1975). *Europa Mediterraneo: quale cooperazione*. Bologna: Il Mulino.
- Zhiltsov, S. S., Zonn, I. S., Kostianoy, A. G., & Semenov, A. V. (Eds.). (2018). *Water resources in Central Asia* (Vol. 1). Cham: Springer.
- Zhou, X. (2014). *Gouvernance des eaux douces dans les territoires méditerranéens vers une norme commune*. (PhD), Université d'Aix-Marseille, Marseille.
- Ziganshina, D. (2014). *Promoting transboundary water security in the Aral Sea basin through international law*. Leiden: Brill Nijhoff.
- Ziganshina, D. (2016). Adaptability of the water allocation system in the Amudarya river basin to changing conditions: a review of legal and institutional framework *USAID-PEER Project "Transboundary Water Management Adaptation in the Amudarya Basin to Climate Change Uncertainties"*. Tashkent.
- Zimmerman, J. F. (2012). *Interstate water compacts : intergovernmental efforts to manage America's water supply*. Albany, NY: State University of New York Press.
- Zinzani, A., & Bichsel, C. (2018). IWRM and the politics of scale: rescaling water governance in Uzbekistan. *Water*, 10(3), 281. doi:10.3390/w10030281
- Zinzani, A., & Menga, F. (2017). The circle of hydro-hegemony between riparian states, development policies and borderlands: evidence from the Talas waterscape (Kyrgyzstan-Kazakhstan). *Geoforum*, 85, 112-121.
- Zoi Environment Network. (2013). *Visual atlas of cooperation: Afghanistan and Tajikistan environment and hydrology in the Upper Amu Darya Basin*. Geneva: Zoi Environment Network and UNECE.
- Zonn, I. S., Glantz, M. H., Kostianoy, A. G., & Kosarev, A. N. (Eds.). (2009). *The Aral Sea encyclopedia*. Berlin: Springer.
- Zonn, I. S., & Kostianoy, A. G. (Eds.). (2014). *The Turkmen Lake Altyn Asyr and water resources in Turkmenistan*. Berlin: Springer.
- Zou, K. (2015). Managing biodiversity conservation in the disputed maritime areas: the case of the South China Sea. *Journal of International Wildlife Law & Policy*, 18(2), 97-109. doi:10.1080/13880292.2015.1044810
- Zúñiga Quevedo, J. (2003). *La contribución de la Corporación Andina de Fomento al desarrollo de la Comunidad Andina de Naciones*. Madrid: Universidad Autónoma de Madrid.
- Академия наук СССР. Институты и антропологии им. Н. Н. Миклухо-Маклаа, & Академия наук СССР. Научно-исследовательский координирующий центр Арал (Eds.). (1991). *Аральский кризис: историко-географическая ретроспектива*. Москва: Академия наук СССР.
- Васильев, И. К., Трунова, Т. А., & Сафонов, В. Ф. (1984). Уточнение схемы комплексного использования и охраны водных ресурсов реки Амударьи (pp. 372). Ташкент: Министерство мелиорации и водного хозяйства СССР, Главсредазирсовхозстрой, Институт "Средазгипроводхлопок" имени А.А. Саркисова.