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The creation, in late 2015, of the UNESCO Global Geopark (UGG) label, as part of UNESCO's patrimonialization system, was the outcome of a long process of negotiation between the United Nations Education Science and Culture Organization (UNESCO), an epistemic community (the International Union of Geological Sciences, IUGS) and the NGO Global Geopark Network (GGN). Today UNESCO Global Geoparks are defined as "single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development". Considering the concept of geopark as a continuous dynamic construction, we propose in this article to look back at the inception and development of movement towards geoconservation, considered as a prelude leading to the proposed creation of the geopark model, and then to examine the process of the institutionalization of geoparks. Our survey of the records of the above institutions shows that this process may be broken down into three stages.

In the first stage (1996-2004), several scenarios for the integration of geoparks in existing programs–World Heritage, Man and the Biosphere (MAB) or the International Geological Correlation Program (IGCP) – were considered within UNESCO, and eventually rejected for reasons which we will examine. The second stage (2004-2010) witnessed the independent development and networking of geoparks in Europe and Asia. In the third stage (2011-2015), UNESCO, having eventually achieved its own Global Geopark Network (GGN) label, now strove towards a more equitable distribution of geoparks across the planet.

1 The origins of geoconservation

The origins of geoheritage conservation have been debated for a long time (Burek & Prosser, 2008). While Brocx & Semeniuk (2015, 36) suggest that the current development of geoconservation has been anticipated from ancient times by a number of polymath natural philosophers in various areas of the world, Erikstad (2008, 249)

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points out that the oldest case of geoconservation activity dates back to Duke Rudolf August's 1668 decree on the preservation of the Baumannshöle cave (Germany). It is worth noting that from the 19th century the United Kingdom (U.K.) had several sites preserved for their paleontological significance (Brocx & Semeniuk 2015, 36), including Wadsley Fossil Forest in Sheffield (1872) and Fossil Grove in Glasgow (1887).

Burek & Prosser (2008), while examining various developmental stages (see table 1), tend to ascribe the modern notion of geological heritage preservation to the inception of conservation audits, such as the Geological Conservation Review (GCR) which was introduced in the U.K. in 1977 as a nationwide program to assess geological heritage sites of particular significance for research, education and training as well as entertainment and aesthetic enjoyment (Wimbledon *et al.* 1995, in Brocx & Semeniuk, 2015, 43). The procedure chosen, designed in three stages (review and site selection; designation and legislation; conservation and management) is viewed as the basis for the systematic process of geoconservation (Brocx & Semeniuk, 2015, 43).

Table 1 Types of Geoconservation Activities, after Burek & Prosser (2008, 3)

Activity relating to geo-(morpho)logical features, processes, sites & specimens	Example of activity	Comments
Conservation audit	An assessment of what is important to keep and where it is, e.g. the GCR	Geoconservation as action to identify conservation priorities
Protection through legal/policy means	Conservation legislation or National Park/planning policy	Geoconservation as action to protect through law or practice
Management	Purchase of land or specimen, creation of reserve, securing of a site, enhancement of an exposure	Geoconservation as direct action to protect or manage
Awareness raising of importance of feature	Interpretation, books, media, lobbying of politicians, education, involvement of local community	Geoconservation as indirect action to build support for conservation
Development of a holistic approach to conservation showing the inter-dependence of all aspects of nature	Integrated landscape scale approaches, integrated biodiversity/geodiversity/ landscape/archaeology conservation	Geoconservation as part of a strategic, holistic and integrated approach to managing the natural environment

Although this British approach to geoconservation, with its focus on geological surveys, was largely disseminated in Europe and in the rest of the world, it was not the only approach in use at that time. In the U.S.A., for instance, the existence of large tracts of Government-owned territory – in contrast, as Thomas & Warren (2008) point out, with the British situation, where land is mostly under private ownership – has made it much easier, from the 1890s, for geological heritage to be protected through the creation of National Parks such as Arizona's Petrified Forest National Park.

1.1 The advent of ProGEO and the International Declaration of the Rights of the Memory of the Earth

In the 1970s, as a response to the emerging need to foster international contacts, European geoconservation scientists started organizing a regional network. In 1969, Dutch scientists formed a working group to survey sites of special significance in order to conduct research and educate others on the significance of earth science conservation. In 1988, the first European Working Group on Earth Science Conservation was created. In the early 1990s, this group – subsequently renamed ProGEO: The

European Association for the Conservation of the Geological Heritage[1] – convened in 1991 the first International Symposium on the Conservation of the Geological Heritage in Digne-les-Bains, France the first in a series of symposiums and conferences, organized in collaboration with various international or national institutions.

Table 2 Evolution of ProGEO's Focus Issues on Geological Heritage Conservation, 1991-2015

Year, Place	Title and theme of the event	Focus of the declaration[2]
1991, Digne-les-Bains	I International Symposium. Declaration of the Rights of the Memory of the Earth	Acknowledgement of geological heritage
1996, Rome	II International Symposium on the Conservation of our Geological Heritage/ World Heritage: Geotope Conservation World-wide, European and Italian Experiences	Geosites project; Inclusion with World Heritage sites
1999, Madrid	III International Symposium. Towards the Balanced Management and Conservation of the Geological Heritage in the New Millennium	Acknowledgement of geodiversity; Integration of geoconservation into nature conservation
2005, Braga, Portugal	IV International ProGEO Symposium	Geoheritage and Areas of Special Geological Interest of the Council of Europe. United Nations Decade of Education for Sustainable Development. Geoparks
2008, Rab, Croatia	V International ProGEO Symposium on Conservation of the Geological Heritage	
2010, Hagen, Germany	VI International ProGEO Symposium on Conservation of Geological Heritage. Geosites: Resources for the Public. Palaeontology and Conservation of Geosites	
2012, Bari, Italy	VII International ProGEO Symposium on Conservation of Geoheritage. Geoheritage: Protecting and Sharing	
2015, Reykjavík, Iceland	VIII International ProGEO Symposium on Conservation of Geoheritage: Geoconservation Strategies in a Changing World.	Intrinsic value of geodiversity and geoheritage; Implement IUCN resolutions concerning geodiversity and geoheritage
2018, Chęciny, Poland	IX International ProGEO Symposium on Conservation of Geoheritage: Geoheritage and Conservation: Modern Approaches and Applications – Towards the 2030 Agenda	Geoconservation measures

The Declaration of the Rights of the Memory of the Earth was published at the Digne-les-Bains symposium in 1991. Rather than providing a scientific definition, this seminal document on geological heritage chose to echo the Universal Declaration of Animal Rights (1978)[3], with reference to "the Memory of the Earth" in order to foster public interest on the appreciation and ultimate conservation of such heritage:

"Just as an old tree keeps all the records of its growth and life, the Earth retains memories of its past... A record inscribed both in its depths and on the surface, in the rocks and in the landscapes, a record which can be read and translated. […] The past of the Earth is no less important than that of human beings. Now it is time for us to learn to protect, and by doing so, to learn about the past of the Earth, to read this book written before our advent: that is our geological heritage."

[1]The new name was introduced at a convention in Mitwitz-Cologne, Germany, 1993.
[2]Declarations are documents issued at the end of symposium. For symposium of 1991, 1996, 2005, 2015 and 2018, declarations are retrievable on the "History" page of the website of ProGEO (www.progeo.ngo). Declaration of Madrid (1999) is published in the proceeding of symposium (Barettino, Wimbledon and Gallego, 2000). We did not find information about declarations of 2008, 2010 and 2012.
[3]Formally announced on October 10, 1978 at UNESCO Headquarters in Paris, and subsequently amended by the International League of Animal Rights in 1989 (published 1990).

According to Jones (2008, 274), this Declaration provided the philosophical cornerstone for the future Geopark program. Albeit amply quoted in various documents relating to the creation of geoparks, it allowed different interpretations, leading the various parties involved (researchers, managers, etc.) to specify its elements. Erikstad (2008, 253) points out that Frances's Haute-Provence National Geological Nature Reserve (a combined network of protected geotopes[4]), both by focussing on public awareness building and by contemplating a policy to foster geotourism, was largely influential on the development of ProGEO's projects and of geoparks.

While the Digne-les-Bains symposium marks the symbolic advent of projects to create geoparks, it was not until the 1993 Malvern Conference that a pragmatic approach was initiated through the Malvern Resolution, a concise document which includes a member list of the newly established Malvern International Task Force for Earth Heritage Conservation[5] and a brief action plan, clearly calling to "expedite the creation of an international organization for Earth science conservation which will, on formation, take over the functions of the task force"[6]. Indeed, in the wake of the 1992 Convention on Biological Diversity, discussions at the conference focused mainly on the proposed creation of a similar convention[7] dedicated to geoconservation (Erikstad, 2008).

1.2 UNESCO addressing geoheritage: GILGES and Geosites

Even as geologists were seeking to create some new structure for geoconservation, they were well aware of the existence of (or at least the legal framework for) one international program that could also provide for geological heritage, since UNESCO's World Heritage Convention of 1972explicitly included "natural monuments", "geological and physiographical formations" and "natural sites" within its definition of the natural heritage. However, when the nomination of the Lesbos Petrified Forest (Greece) was discussed in June 1988, the International Union for Conservation of Nature (IUCN), being the advisory body for evaluation of natural World Heritage sites, acknowledged their insufficient expertise in evaluating natural sites nominated under criterion (i) (the earth's evolutionary history) or criterion (ii) (ongoing geological processes). Therefore since1989, UNESCO, IUGS and IUCN had been working towards a projected Global Indicative List of Geological Sites (GILGES) (including fossil sites) in order to provide UNESCO with a list of geoheritage candidate sites which have the potential to meet World Heritage criteria (UNESCO SC-89/Conf. 004/Inf.4, 1989).

From 1995, IUGS, in conjunction with UNESCO, took over the GILGES project through the Global Geosites program, which was intended to solve certain malfunctions that had already been pointed out regarding the establishment of the GILGES lists (Gray 2004, 192). Certain criteria for world heritage sites were ill-suited for

[4]Geomorphological features of scientific significance to the history of the planet, geological heritage, major subterranean landscapes, world heritage etc., sometimes also endowed with cultural significance (Reynard & Pralong, 2004).

[5]The task force was made up of five geologists: P. Creaser (Australia), P. Jacobs (Belgium), G. Martini (France), A. Spiteri (Malta) et C. Stevens (U.K.).

[6]*The Malvern Resolution*, 1993. (http://eurogeologists.de/wordpress/wp-content/uploads/2015/03/Malvern-resolution-1993.pdf)

[7]Various designations were considered, including « lithosphere reserve » after the model of MAB's biosphere reserves.

geoheritage, notably as a result of the wide discrepancy in scale between extensive national parks and fossil sites that sometimes encompass a few hundred square yards only. More fundamental obstacles had also been pointed out, such as different appraisal criteria for the geological significance of individual sites according to representatives of various countries (Cleal *et al.*, 2001, in Gray, 2004, 192).

The emergence of this new program was also encouraged by the Malvern Conference's explicit appeal for a geological equivalent to MAB's Biosphere Reserve program: William A. P. Wimbledon, the founding head of the Geosites program and subsequently the executive secretary of ProGEO, emphasized the backwardness of geoconservation as compared to the implementation of the Convention on Biological Diversity: "Administrators, often biologists, preoccupied with biological interests, tend to overlook the conservation of geological sites and monuments, and it has to be admitted that geologists are not good at 'selling' geo(morpho)logy." (Wimbledon *et al.,* 2000, 69).

In the wake of GILGES, the main objective of the Geosites program was also to draw up a list of geological sites of global significance. In the course of this program, a database was drafted, which should serve not just for UNESCO programs, but also for national conservation projects (Wimbledon *et al.*, 2000, 69). Remarkably, according to certain authors, the Geosites program has sought to promote a "bottom-up" approach by encouraging geologists in various countries to contribute to the register (Gray, 2008, 193), so that the list was made up through scientific comparison of national inventories (Erikstad, 2008, 254). Cleal *et al.* (2001, 10, in Gray, 2008, 193) have pointed out that the aim "is not to search for token 'best sites': it is to identify natural networks of sites that represent geodiversity."

In 2003 when the Global Geosite program was given up for lack of financial support,[8] the project was taken over through GEOSEE as a joint UNESCO, IUGS and IGU (International Geographical Union) initiative with its permanent secretariat at the Chinese Academy of Geological Science in Beijing[9]. "The main reason for creating GEOSEE was that there was a myriad of poorly coordinated, concurrent activities demonstrating the value of geological heritage and the beauty of landscapes to the public, and that these lacked any direct linkage to international geoscientific bodies such as IUGS and IGU. This was felt as a serious omission for IUGS, in particular as these were fine examples of geoscientific outreach, which was high on the IUGS agenda. GEOSEE […] was seen as an umbrella organization to coordinate and insert geoscientific knowledge into such activities. Moreover, it claimed a role in geoscience education, culture, communication and sustainable development. Through GEOSEE, IUGS would (finally) have a strategic position in these activities." (IUGS EC56 Minutes 5.e.1)

Through its emphasis on "geoscience education, culture, communication and sustainable development", the GEOSEE initiative was consistent with the Geopark initiative, but it too was ultimately suspended as of 2006 as being "overreaching". IUGS, however, suggested that the initiative be relayed through the appointment of a "Communication Officer" with a view to "facilitating mutual communication between

[8]The project, however, was continued in Europe by ProGEO, and has contributed to the EU strategyon biological and landscape diversity, as well as the Council of Europe's 2000European Landscape Convention(Gray, 2004).

[9]While the same institution also harbours the GGN bureau as of 2004, it is unclear whether the same unit is in charge of GEOSEE and GGN activities within the Academy.

current activities, linking them with those in the scientific unions and contributing to their exposure to politicians", on the grounds that "these tasks are currently not sufficiently well addressed by the Global GeoParks Network" (IUGS EC56 Minutes 5.e.1, 2005).

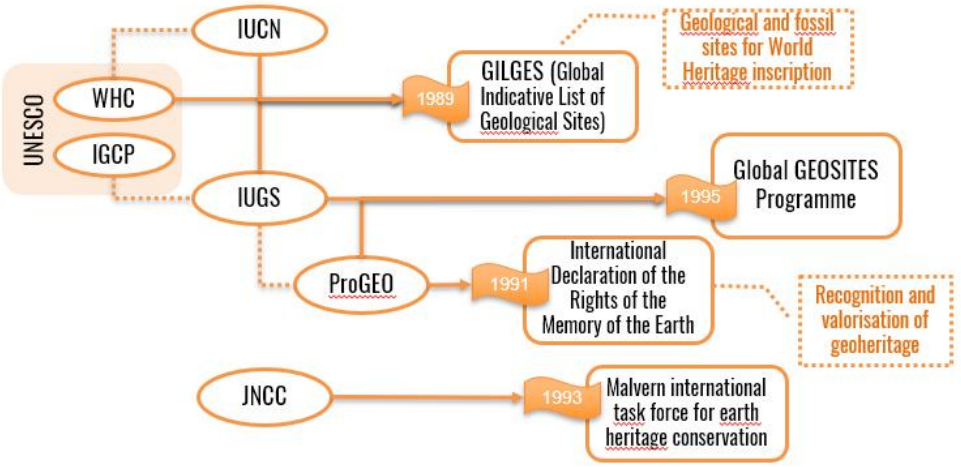

Figure 1 Preliminary stages in the emergence of the UNESCO Global Geopark (UGG) label.

2 The institutionalization of geoparks

Our scrutiny of the records of UNESCO, GGN and IUGS allows us to identify three major stages in the institutionalization of the Global Geoparks label.

2.1 1996-2004: The emergence of a development-oriented geoheritage initiative and early negotiations towards a UNESCO label

Around the late 1990s, the geopark concept was developed within UNESCO and international geological communities as a new model for geoconservation. This new initiative was primarily designed to promote geosites of national significance, and to foster economic development through the promotion of geotourism (Patzak & Eder & Eder, 1999, in Gray, 2004, 194).

Several authors (Zouros 2004, 165; Mc Keever & Zouros, 2005, 274; Zhao & Zhao 2003, 391) claim that the notion of geoparks emerged at the 30th International Geological Congress (Beijing, 1996). More specifically, Zhao Xun et Zhao Ting (2003, 391) indicate that the initiative was propounded in order to fill the gaps in the World Heritage program and bypass obstacles to the advancement of geoprotection, namely insufficient finance, insufficient recognition of IUGS's Global Geosites program, which seldom succeeded in obtaining the attention of member Governments, and at last the "strict protection" concept which deprived local populations of their rightful access to natural resources, leading to poor cooperation and sometimes even opposition, occasionally resulting in increased destruction of geosites.[10]

The inception of the EU's own Development of Geotourism in Europe project (1997) as part of the LEADER II (Liaison Entre Actions de Développement de l'Éco-

[10]Cases of destruction of geological heritage in the U.S.A. over 1991 to 1996 show an increase from 3571 to 4356. (Zhao & Zhao, 2003, p. 391)

nomie Rurale) program appeared as a direct response to the "euro-geoparks" initiative presented at the same 30th International Geological Congress in 1996. The double focus of the new concept on the patrimonialization of geosites and local development, notably through geotourism, was confirmed in the 2000 Charter of the European Geopark Network (EGN),[11] with an approach that included a methodology for rural development based on key factors such as shared operation, pyramidal territorial development, innovation and cooperation.[12]

Meanwhile, it appears that the process of institutionalization of the Geopark model within UNESCO remained a complicated affair. The organization's archives document several attempts to establish an official program dedicated to geological heritage, such as the International Geosite Reserves Program[13] and the Global Geosites/Geoparks Network[14].

In 1999, the Section on Earth Sciences and Geo-Hazards Risk Reduction (EGR) presented UNESCO with a new initiative under the name "UNESCO Geoparks Program", initially envisioned as a separate entity intended to complement the World Heritage Convention and the MAB program, in order to attract direct attention to geoconservation. The initial document "UNESCO Geoparks Program – a New Initiative to Promote a Global Network of Geoparks Safeguarding and Developing Selected Areas Having Significant Geological Features" (UNESCO 156 EX/11 Rev. 1999) defines the geopark concept as follows:

"As recommended by the expert meetings, a geopark will be a dedicated area enclosing features of special geological significance, rarity or beauty. These features need to be representative of the geological history of a particular area and the events and processes that formed it" (UNESCO, 156EX/11 Rev. 1999, 2).

Three concrete objectives are set out to launch the program within UNESCO: "the use of geological sites in educating the broad public at large and teaching in geological sciences and in environmental matters; their potential as a tool ensure sustainable development; and the conservation of the geological heritage for future generations" (UNESCO, 160 EX/10, 2000, 2).

This UNESCO Geoparks program initiative was subsequently examined, notably in a 2000 feasibility study conducted by Tony Weighell, a geoscience expert with the biodiversity and ecosystems department of the U.K.'s Joint Nature Conservation Committee (JNCC), in collaboration with the UNESCO secretariat, with contributions from a number of independent experts and in consultation with the scientific board of IGCP (UNESCO, 160 EX/10, 2000). In addition to the concern of UNESCO secretariat members that creating a new label might entail fragmentation of UNESCO programs and spawn confusion with existing labels or even devalue the latter (UNESCO, 2000, 30C, 54), it seems that JNCC's holistic, ecosystem-based approach to conservation may have weighed on the author's choice to reject the idea of a new program and

[11]All four founding member countries of EGN were already involved in the Development of Geotourism in Europe project, cf. http://ec.europa.eu/agriculture/rur/leader2/action_innovante_result.cfm?search=yes&selected_lang=en

[12]Cf. EU archive http://enrd.ec.europa.eu/enrd-static/general-info/faq/rd-regulation/fr/rd-regulation_fr.html#method

[13]The notion behind the concept of "geosite reserve" was to create a parallel to MAB's Biosphere Reserves (UNESCO, WHC-96/CONF.201/INF.10, 1996, 5).Various objectives were considered, including not only science, sustainable management of mineral resources, but also protection, education and the development of eco-tourism (UNESCO, Progress Report of IGCP, 1997, 15).

[14]Cf. UNESCO, 29 C/INF.36, 1998, 22.

turn instead to a more holistic approach:

"The feasibility study concludes that a 'holistic' approach (linking geology, biology, culture and economics) is not only consistent with effective conservation, but would also provide a more effective program. The feasibility study recommends that the geoparks initiative should not be pursued as a separate program" (UNESCO, 160 EX/10, 2000, 3).

Therefore, rather than launching a new Geopark program, UNESCO initially gave priority to integrating it in existing programs. A combination with the World Heritage program was initially set aside on the grounds that "while […] many sites of international, and ipso facto national, importance may not qualify for inscription on the World Heritage List, the same sites would certainly merit recognition using another mechanism." (ibid., 4)

The IGCP representatives, for their part, withheld any contribution to the Geoparks program initiative, other than technical expertise: "the business of IGCP is science, and this mandate should not be altered by the integration of a UNESCO Geoparks program into IGCP." (ibid.)

The study thus concluded that integrating geoparks in the MAB Program seemed the most appropriate option. Table 3 summarizes the gain resulting from this option.

Table 3 Criteria for Tentative Integration of the Geoparks Program in the MAB Program (UNESCO 160 EX/10, 2000, 5).

Creating an independent Geoparks program	Integrating the Geoparks program in the MAB program
Will need to build support.	Program already in operation.
Could be seen as diverting resources from other areas.	Strengthening MAB program, reinforcing and bringing together scientific effort.
Will focus attention exclusively on geology/ geomorphology but could isolate effort.	Will integrate biology and geology, in line with many national programs, although there remains the danger that geology/ geomorphology may be given insufficient emphasis in overall MAB program.
Will provide clear alternative to implementation of World Heritage Convention for geological sites, but may be regarded as "second class" program	Will provide an effective complement to World Heritage Convention through integration of biology and geology.
New Geoparks Evaluation Board to be established.	Evaluation could be based on an Advisory Committee enlarged by specialists for geological conservation.
Will require new funding.	Will utilize existing administrative structures and funding sources.
New management procedures and operational guidelines needed.	Build on established procedures.

The proposal to include geoparks and geosites as a label of excellence within the MAB program's network of Biosphere Reserves failed to obtain support from MAB on several points. Besides the concern over extra administrative work and costs, and the lack of geoscientific expertise among MAB national committees, MAB bureau experts were mostly reluctant on the grounds that the multiplication of labels might result in confusion and devaluation of the Biosphere Reserve label.

Some delegates were more specifically concerned with "the essential difference between geosites (small sites of geological, scientific importance) and geoparks (larger areas, considered as expressing a relationship between people and geology, and serving as a focus for economic development)" and suggested that only geosites should be included among biosphere reserves, but not geoparks. (UNESCO, 161 EX/9, 2001, 2)

As a result, while failing to formalize an official Geoparks program, UNESCO, since 2001, has offered its help to develop geoparks when specifically requested by stakeholders.

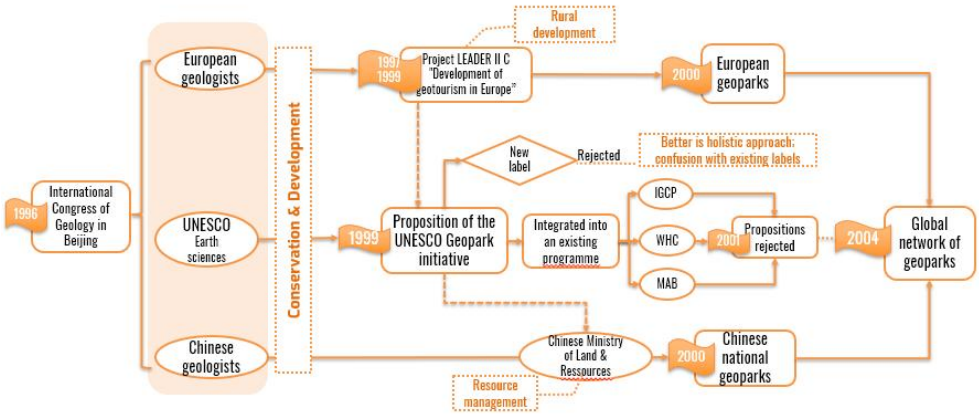

Figure 2 First stage in the emergence of the UNESCO Global Geopark label.

2.2 2004-2010: The independent development of geopark networks in Europe and Asia

Independently of UNESCO's thwarted attempts to provide a specific label, the first decade of the new century witnessed a rapid growth of geoparks (see Figure 3), both on global and regional scale, under the impulse of newly created regional networks such as the European Geopark Network (EGN, created in 2000) and China's own governmental network (Chinese geoparks would later be integrated in the Asia-Pacific Geoparks Network (APGN, created in 2009 after the European model).

In 2004, twelve European and eight Chinese geoparks assembled into a global network supported by UNESCO. Yet the operating mechanism and application procedure remained quite different for European or non-European candidates: for the latter, applications would be forwarded by each country's UNESCO board to the Division of Earth Sciences at the Paris headquarters of UNESCO, while the applications of European geoparks were submitted and evaluated directly by EGN, without going through national boards, pursuant to a 2001 agreement between EGN and UNESCO's Division of Earth Sciences and the 2004 Madonie Declaration.

Nevertheless, with no financial support from UNESCO, geoparks were made to rely on the political agenda of Governments and/or local authorities for the long-term financial support required under Global Geoparks Network (GGN)[15] Operational

[15]According to our examination of GGN archives, the present name of GGN did not appear until 2006. On the final version of "Guidelines and Criteria for National Geoparks seeking UNESCO's assistance" and the communication article published on the journal of IUGS *Episodes*, the network was referred only as "a global 'UNESCO Network of National Geoparks'" or "the International Network of National Geoparks under UNESCO" (Eder and Patzak 2004, 115). Two years later, the term and logo of "Global Geoparks Network" started to be used in the title of its Guidelines and communication article on *Episodes* (GGN 2006, 115), however its seemed to be an abridged term of the Global Network of National Geoparks.

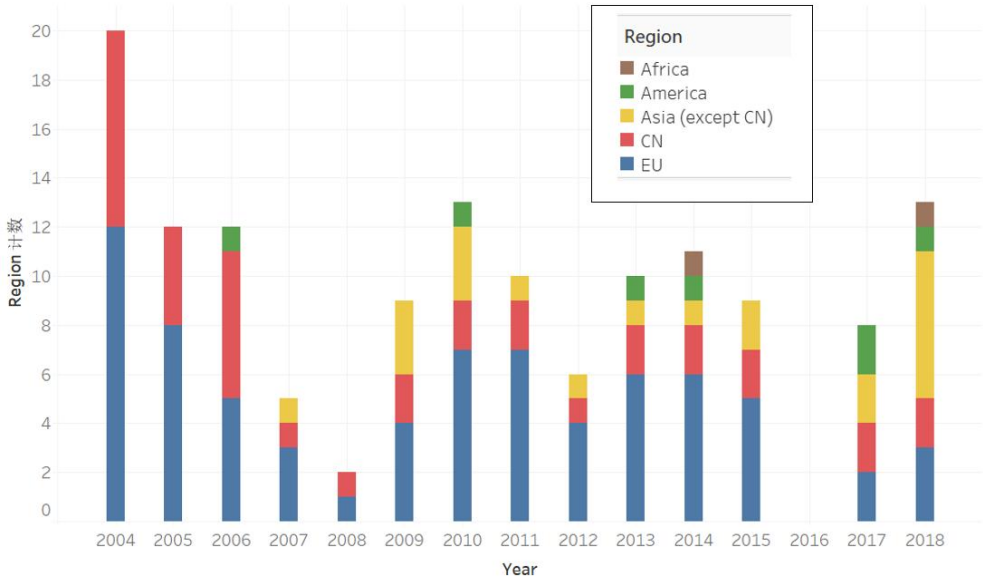

Figure 3 Yearly number of new GGN member by region. Data collected from globalgeoparksnetwork.org.

Guidelines (2006, 2008), as well as for funding all expenses connected with their evaluation as GGN candidates. Whether or not such financial, administrative and/or scientific constraints on new applicants have hampered the creation of geoparks in less affluent countries, nearly all GGN-labelled territories appear to be located in either Europe or China, i.e. the two founding areas of GGN, as shown in the map below.

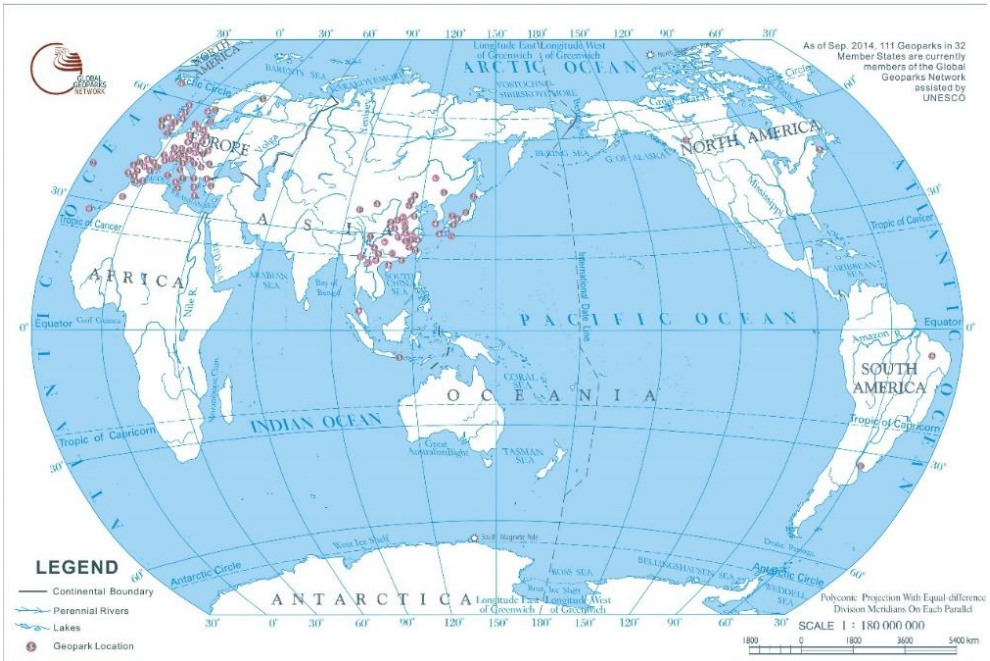

Figure 4 Distribution of GGN Members in 2012. Source: http://www.globalgeopark.org.

2.3 2011-2015: UNESCO strives towards a more equitable global distribution of geoparks

In the face of the unequal distribution of geoparks across the planet, and particularly following a 2011 request by Uruguay calling for concrete support to foster a more equitable distribution, the issue of providing the Geoparks program with an institutional foundation was back on the UNESCO agenda. In 2013, a Global Geopark working group[16] was set up to discuss four options regarding the official linkage between GGN and UNESCO:

(i) status quo,

(ii) an NGO, to be formally associated to UNESCO for particular projects via a Memorandum of Understanding,

(iii) an intergovernmental program,

(iv) an Initiative with a light administrative structure. (UNESCO, 2013, 192 EX/9).

The document summarizing the proceedings of the working group (UNESCO, 192 EX/9, 2013) shows consensus on two points: that the *ad hoc* relationship (option i) was less than optimal because of the minimal benefits for both UNESCO and the GGN; and that a Memorandum of Understanding with GGN as an NGO (option ii) was not viable because many geoparks were governmental.

As a result, the discussion focused on options (iii) and (iv), i.e. adjusting the administrative framework within UNESCO. The document highlights that the key issue in updating the Operational Guidelines was to "retain the light, bottom-up structure of the existing GGN, while giving Member States and UNESCO adequate oversight and control". It also points to differences voiced regarding the new administrative framework to be set up. Most delegates favored a light intervention of UNESCO, with minimal changes to the existing framework and extra costs, through the creation of an Advisory Board (class V) on similar lines as the Memory of the World program[17]. China accepted this proposal as a short-term objective, while suggesting that in the long term the Geoparks program be developed into an intergovernmental structure. But this alternative failed to gain support from most participants, showing the tension between two different approaches to management: China's, favoring centralized management as a way to provide the label with maximal recognition; and that of the other Member States and geoparks experts, who were wary of hindrances involved with the implementation of a burdensome administration.

GGN was finally established as an NGO under French law in 2014. Later that year, the Stonehammer Declaration, its initial manifestation, would mark a fundamental breakthrough in setting directions for the construction of global geoparks. Three themes were particularly outlined:

encouraging an equitable geographical development of Global Geoparks and thus supporting all efforts to expand Global Geoparks in those areas of the world that are

[16]The Working Group included the representatives of the Member States (Austria, Benin, Brazil, Canada, China, Comoros, Congo, Croatia, Czech Republic, Denmark, Djibouti, Germany, Greece, Ireland, Italy, Japan, Kenya, Libya, Malaysia, Monaco, Nicaragua, Nigeria, Paraguay, Portugal, Republic of Korea, Russia, Spain, Sudan, United Kingdom, United States, Uruguay, Zambia), of EGN (Czech Republic, Germany, Greece, Norway, Spain, United Kingdom) and of APGN (China, Japan, Malaysia), as well as of the UNESCO secretariat.

[17]There was no clear agreement amongst delegates on the best model for this class V administrative structure. While some feared that following that of the Memory of the World program might result in additional costs, Spain was concerned that it could prove too small for global geoparks; the U.K., however, advocated the model of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST).

currently under-represented in the GGN

providing geo-scientific knowledge as a substantial element for nature conservation, geoheritage protection, environmental education, including natural disasters and climate change, geotourism development and proper management in geoparks

highlighting respect for local traditions and desires as part of the new concept of geoparks[18], in keeping with the new theme of empowerment of local communities as one of the key ambitions of the International Geoscience and Geoparks Program (IGGP). (UNESCO, 2015, 196 Ex/5 Part I, 17)

The IGGP program was eventually approved in November 2015 at the 38th session of the UNESCO General Conference, establishing the new UNESCO Global Geopark (UGG) label to cover all existing geoparks (UNESCO, 38 C/92 Rev. Annex I).

Figure 5 Final stages of negotiations towards creating the UGG label.

GGN geoparks integrated UNESCO under "Main line of action 4: Fostering international science collaboration for earth systems, biodiversity, and disaster risk reduction", along with the MAB program. "The UNESCO-supported Global Geoparks Network promotes the establishment of sites of outstanding geological value which are the basis of local sustainable development." (UNESCO 37C/5, 2014, 95).

In addition to global geoparks embedding sustainable development issues, the 2014/2017 assessment of UNESCO programs has recognized them in yet another capacity as a means of peace-building, especially in Africa and Latin America, which is congruent with the original mandate of UNESCO (Brianso & Girault, 2014): "International collaboration to develop common pathways to manage the earth's resources is central to the mandate of UNESCO in science, and not only contributes to sustainable development but also to building a culture of peace and dialogue." (op. cit. 95). Accordingly, such performance indicators were set for UNESCO Global Geoparks as the "number of cross-border initiatives…supported by consultation and coordination within an appropriate cooperation and management framework" (op. cit., 146). As a result, the target for 2014/2017 called for creating at least 40 new global geoparks, including four cross-border geoparks, particularly in Africa and Latin America (UNESCO 37C/5, 2014, 96).The aim to create cross-border geoparks was also part of "Global Priority Africa" under "Flagship 1: Promoting a culture of peace and non-violence" and "Flagship 4: Fostering science for the sustainable management of

[18]Global Geoparks are defined as "territories with geological heritage of international significance that implement strategies for holistic heritage management, promotion and sustainable development that are innovative, integrated, and respectful of local traditions and desires." (Stonehammer Declaration, 2014, art.2)

Africa's natural resources and disaster risk reduction" (UNESCO 37C/5, 2014).

However, this reference to peace-building in relation to geoparks is no longer mentioned in the Program and Budget for 2018/2019 (UNESCO 39 C/5, 2017), although cross-border geoparks are still one of the performance indicators for the UGG program. On the other hand, two new themes are provided for in this new document:

The management of natural resources is reassessed as a key issue for UGGs, which will be of crucial help to "reinforce the capacity of Member States to achieve sustainable management of their natural resources, with special attention to regions

Table 5 Expected Results, Performance Indicators and Targets for UNESCO Global Geoparks over 2014/2017 and 2018/2019 According to UNESCO-approved Documents

Period	Expected result	Performance indicators	Target
2014/2017	Global cooperation in the ecological and geological sciences expanded	Development of the Global Geoparks Network and advancement of the Global Geoparks concept	At least 40 new Global Geoparks designated, four of them transnational, in particular in Africa and Latin America
	UNESCO network of internationally designated sites expanded to foster sustainable socio-economic development including cross-border sites which successfully manage shared water and/or ecosystem resources	Number of UNESCO designated Natural World Heritage and Biosphere Reserve sites and possible future geoparks that have taken steps towards sustainable development, particularly by formulating and implementing 'green' and 'blue' economic activities	At least 15 sites
	Cross-border cooperation frameworks, providing for agreed and appropriate management tools, established for the main hydrological basins in Africa and for the sustainable use of ecosystems shared by States. Special attention will be paid to establish joint initiatives among indigenous and scientific knowledge-holders to co-produce knowledge to meet the challenges of global climate change	Number of cross-border initiatives for biosphere reserves, world heritage sites and global geoparks supported by consultation and coordination within an appropriate cooperation and management framework	At least 2 cross-border initiatives at the consultation and coordination phase
2018/2019	Member States have strengthened management of both geological resources and geo-hazards risk to achieve related Sustainable Development Goals (SDGs) and targets	Number of Member States which have new UNESCO Global Geoparks	16 of which 2 in Africa
	Member States have developed UNESCO-designated sites as learning sites for inclusive and comprehensive approaches to environmental, economic and social aspects of sustainable development	Number of Member States which have effectively used UNESCO-designated sites as demonstration sites for sustainable development solutions including green and inclusive economies that respond to the needs of vulnerable groups and support gender equality	40 having UNESCO Global Geoparks, of which 3 in Africa and 2 SIDS
		Number of Member States which use biosphere reserves and/or UNESCO Global Geoparks as a comprehensive network of observatories for resilience to climate change and natural hazards, making use of citizen science	40 using UNESCO Global Geoparks of which 3 in Africa and 2 SIDS
		Number of Member States which have established cross-border sites	33 cross-border sites

where UGGs are few or non-existent, notably Africa, Latin America and the Caribbean, South Asia, South-East Asia and the Pacific, particularly in Small Insular Development States (SIDS)." As a result, the performance indicator for the program no longer rests with the number of newly-created sites and cross-border sites, but rather with how many Member States create new UGGs, with a target of 16 Member States, including 2 in Africa (op. cit.).

UNESCO designated sites (including World Heritage sites, biosphere reserves and Ramsar sites) are to become "education sites for an inclusive, global approach to environmental, economic and social aspects of sustainable development." Two new performance indicators for UGGs are set out to this end: (1) using geoparks as demonstration sites for sustainable development solutions, with an emphasis on promoting vulnerable groups and gender equality; (2) using geoparks as a comprehensive network of observatories for resilience to climate change and natural hazards, making use of citizen science (op. cit., 102). It is worth noting that SIDS and Africa are mentioned as priority areas.

Actually, this second stage in the institutionalization of geological heritage could be seen not only in the groundwork leading to IGGP, itself a move to realign global geoparks with UNESCO's threefold focus on education, science and culture, but has also been accompanied by increased attention from conservation communities. Since 2010, Patrick de Wever, a professor with the National Museum of Natural History in Paris and a member of the EU H2020GEOPARK program, has been coordinating a GeoHeritage task group within the International Union of Geological Sciences (IUGS), promoting geological heritage sites through surveys and legislation, while IUCN and the World Commission on Protected Areas (WCPA) have set up a Geoheritage Specialist Group to work on the conservation of geoheritage in protected areas.

3 Conclusion

We believe that the institutionalization of the Global Geopark program within UNESCO proceeded through three stages:

1990-2004: the advent of the Global Geopark initiative in the wake of the Geosite program – a first, yet inconclusive attempt to integrate geoparks in the UNESCO agenda.

2004-2010: gradual, independent development of global geoparks, with a heavy geographical bias towards Europe and China.

2010-2015: renewed attempt to formalize the Global Geoparks program to elicit better support from UNESCO.

This analysis of the institutionalization process tends to highlight the complexity of the advent of a UNESCO heritage label as a process of linkage and a mosaic of interrelated actions and events. In the background of the UNESCO label there looms a series of institutional actors[19] fashioning heritage policies: various departments of UNESCO's secretariat, IUGS as an epistemic community, GGN as a mixed-status NGO, as well as other regional (for Europe), national (for China) and territorial institutions. The complexity of their institutional practices exposes the system of relations and negotiations in which discourses and representations of various types of heritage

[19]The (francophone) concept of "fabric-acteurs" (heritage actors) is currently the focus of a research seminar in our PALOC research team. Cf. Suremain C., &Galipaud J.C. (2015)

(natural or cultural, tangible or intangible, biotic or abiotic, etc.) are propagated that, far from being uniform and consensual, convey widely different approaches and values regarding global nature management (Berliner and Bortolotto 2013).

The case of the UGG program invites us to reassess UNESCO's globalized and globalizing character, reconsidering its global/local and State/society dichotomies. Upon a close examination of the international patrimonialization policy reveals the "diversity and fluidity of form, function and malfunction" and of "the extent to which all states are internally divided and subject to penetration by conflicting and usually contradictory forces" (Bright and Harding 1984: 4). International heritage enhancement institutions cannot therefore be viewed as being disconnected from "local societies", since they are themselves "composed of bundles of social practices that are every bit as 'local' in their social situatedness and materiality as any others." (Durão and Seabra Lopes 2011). Ironically, while the process of institutionalization of geoparks, as effected through the UGG label, seems to induce global and/or local approaches, it actually implies the opposite, as we have shown (Du & Girault, in press) – i.e. that each UGG-label territory appears as a blended field of operation for negotiations and inter-scalar settlements between "fabric-acteurs" and heritage items.

List of Acronyms

Organisations

APGN	Asia-Pacific Geoparks Network
EGN	European Geoparks Network
GGN	Global Geoparks Network
IGU	International Geographical Union
IUCN	International Union for Conservation of Nature
IUGS	International Union of Geological Sciences
JNCC	Joint Nature Conservation Committee
ProGEO	European Association for the Conservation of the Geological Heritage
UNESCO	United Nations Educational, Scientific and Cultural Organization

Programs/Suborganisations

UNESCO	GILGES	Global Indicative List of Geological Sites
	IGCP	International Geosciences Program
	IGGP	International Geoscience and Geoparks Program
	MAB	Man and the Biosphere Program
	WHC	World Heritage Centre
EU	LEADER	Liaison Entre Actions de Développement de l'Économie Rurale

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