

OHMI Estarreja: an ecosystem highly anthropized where contamination is the unifying element towards interdisciplinarity

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Conceptual/functional framework of the OHM-DRIIHM and SES observation

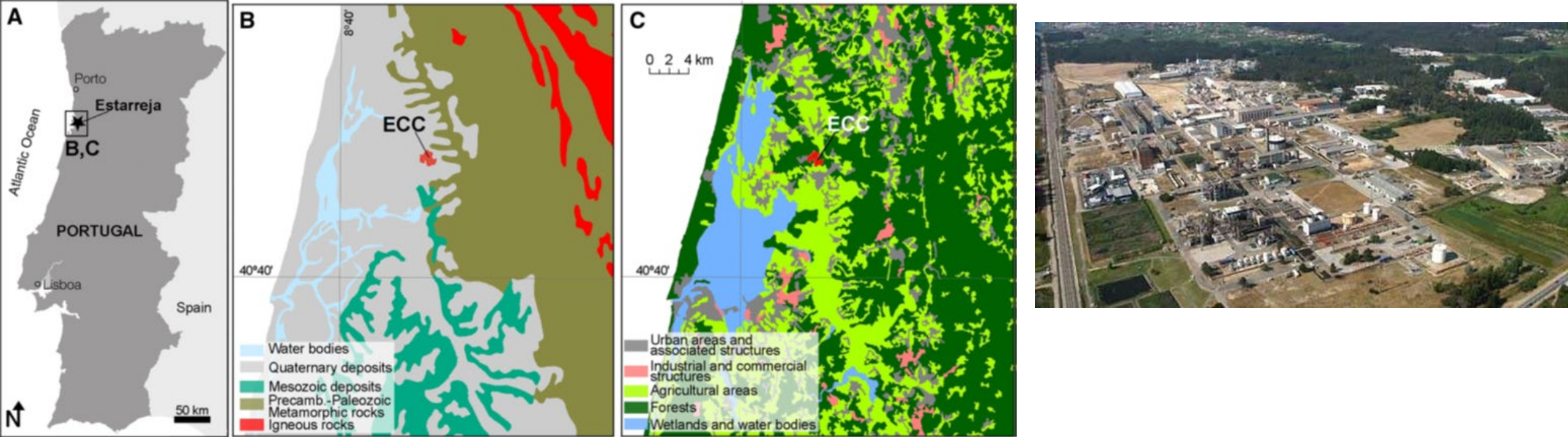


Figure 1: Location (A), geological (B) and land-use (C) maps of the studied area from Cabral-Pinto et al. (2018)



Lagune/ Ria

CQE
Complexo Químico

Estarreja



Estarreja – La gènese du projet OHM

Année 80/90

UA

PACOPAR

période 2009-2011

PICS

mars 2010 Création OHMi

Appel
D'Offres

1^{er} Temps

Connaissance des impacts - Evolution spatiale/temporelle de la contamination dans les environs du CCE

Année 2005/2007

2^{ème} Temps

Impact d'un environnement pollué sur la santé:
(a) grossesse et la croissance prénatale.
(b) analyse des métaux dans matériaux biologiques

Enquêtes + Étude anthropobiologique

3^{ème} Temps

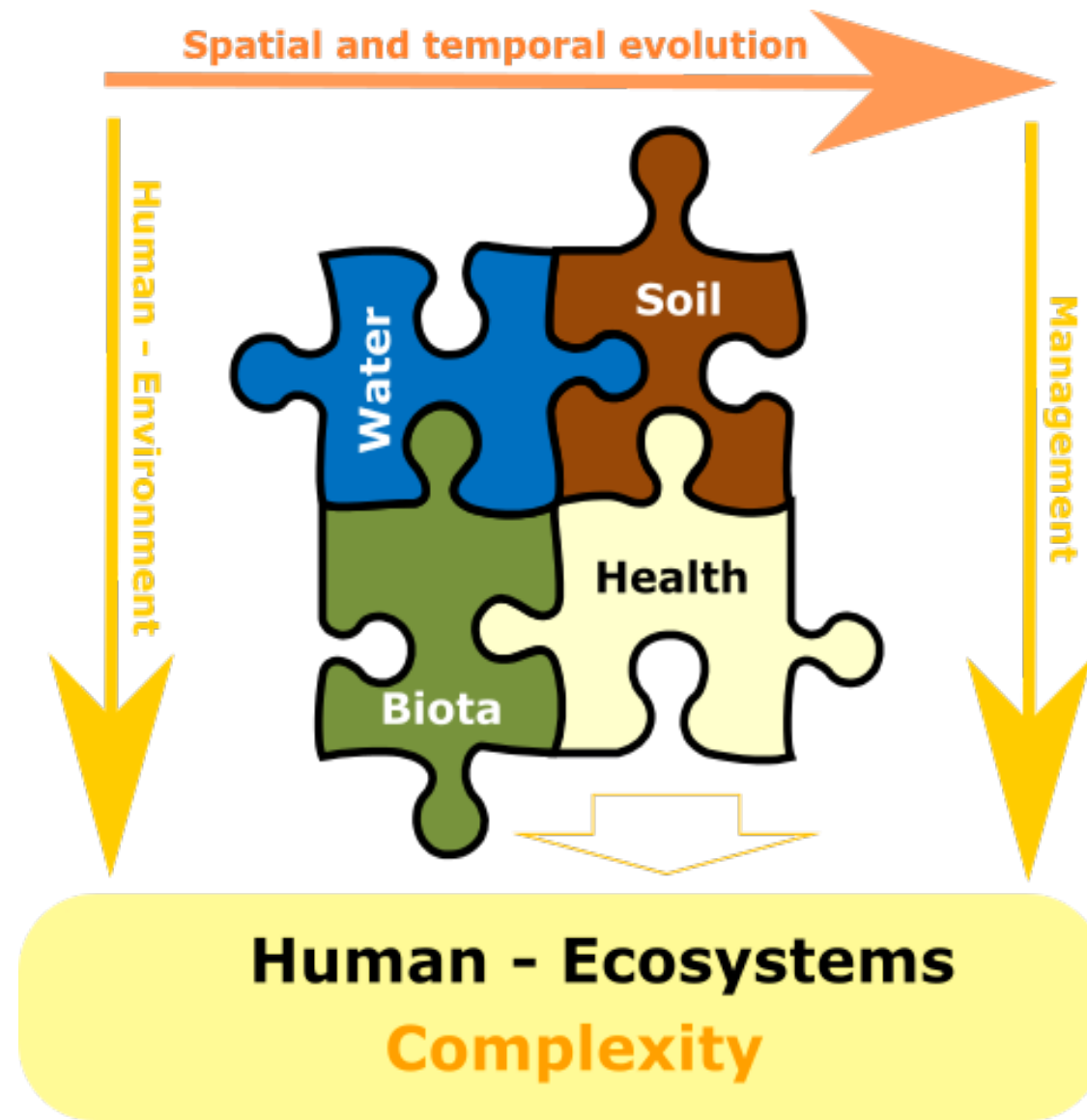
Étude des évolutions découlant des interventions de remédiation développées sur le territoire impliqué.

4^{ème} Temps

Étude de la relation homme-écosystèmes et ses équilibres

OHM-Estarreja project at the beginning (UA – Universidade de Aveiro; CCE – Chemical Complex of Estarreja; PACOPAR - Programa Voluntário de Atuação Responsável; PICS - Projet International de Coopération Scientifique).

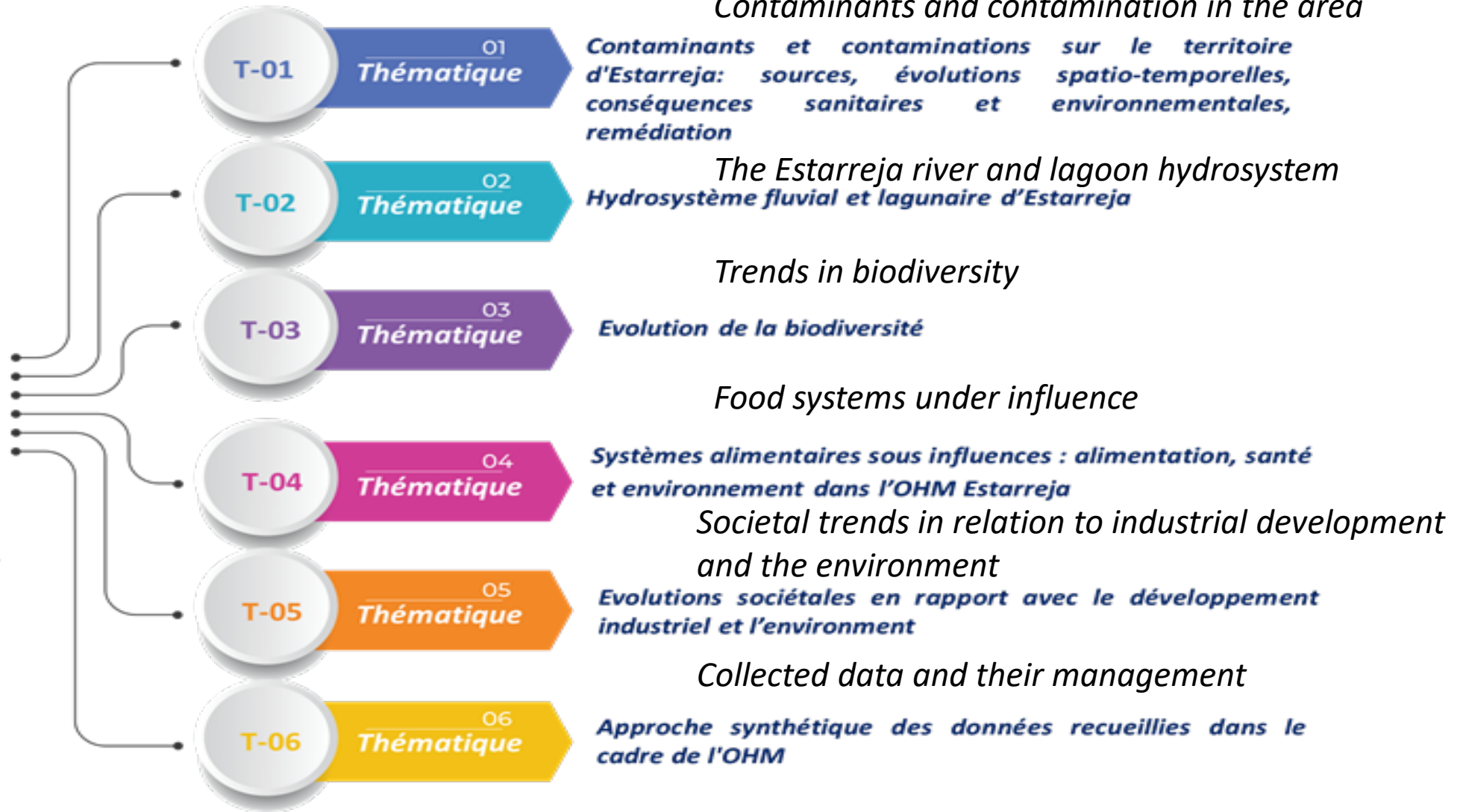
Essential approach to highlight the human-ecosystem relations.



Conceptual/functional framework of the OHM-DRIIHM and SES observation



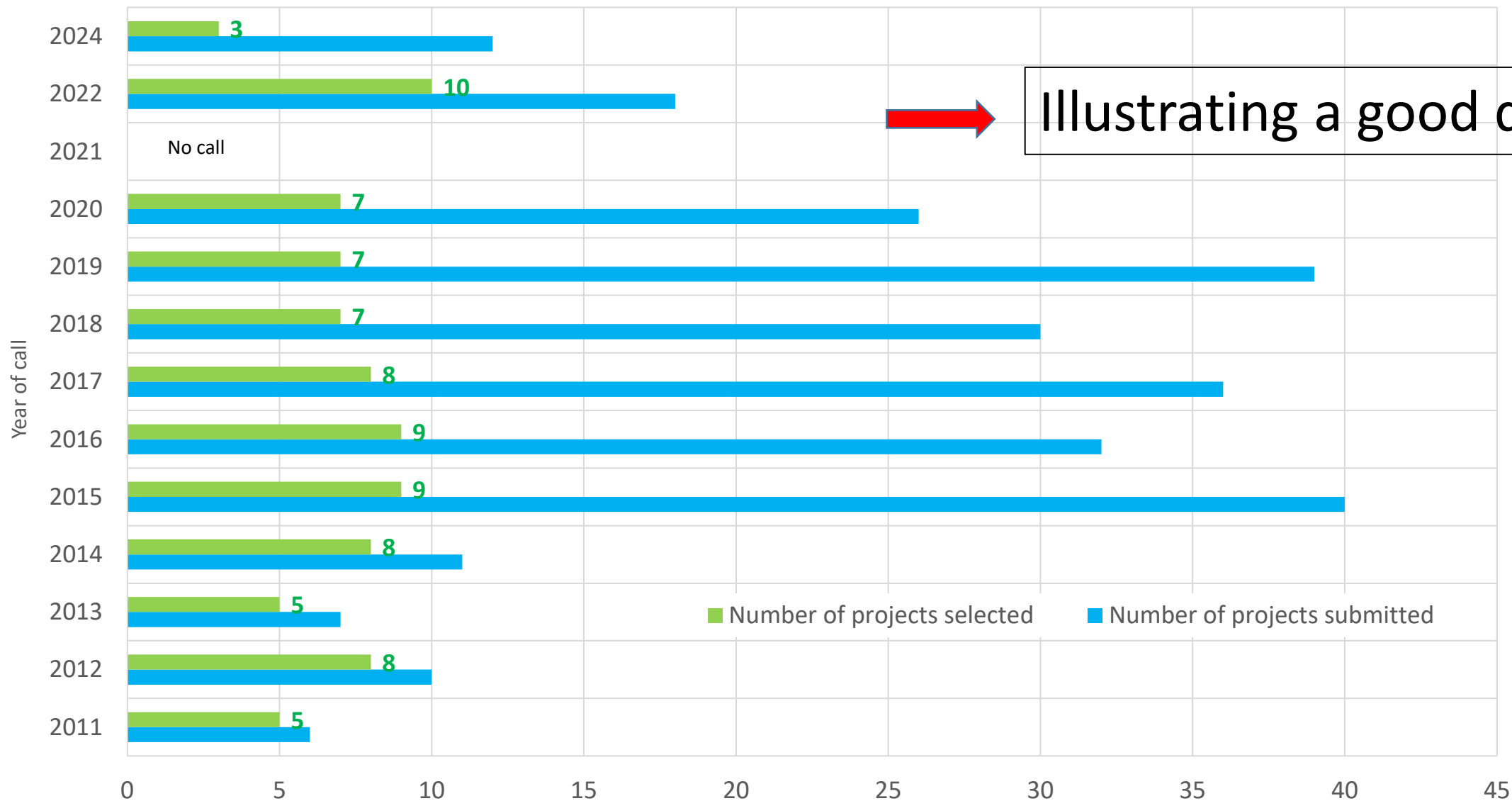
événement fondateur
founding event



OHMi Estarreja's main themes for the period 2016/2022

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Number of projects/year in OHMi Estarreja



Illustrating a good dynamic

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Graphic representation of the cloud of words contained in the titles of funded projects and their frequency (the bigger the most cited).



for the period 2011 to 2015
(Iramuteq©; n total word = 321)



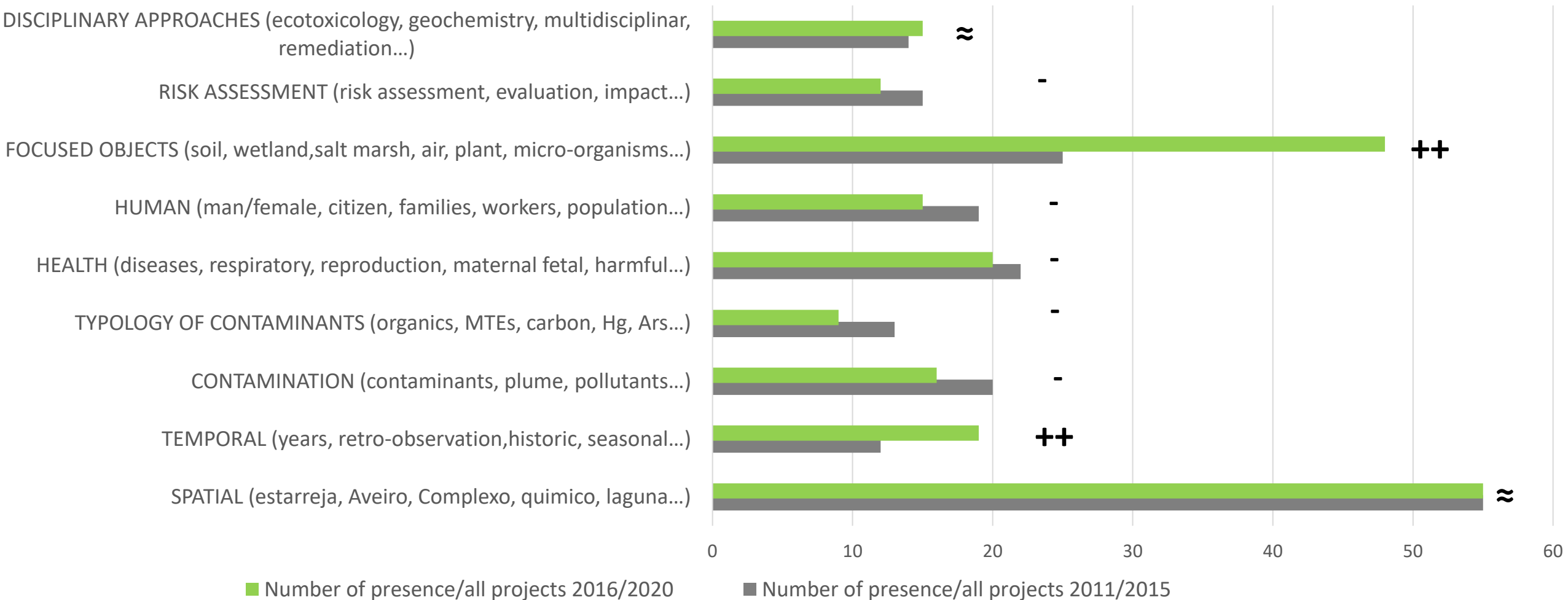
for the period 2016 to 2020
(Iramuteq©; n total word = 333)

Bedell et al., 2023

International Symposium of LabEx DRIIHM
Interactions - ANR-11-LABX-0010

June 5th-7th, 2024 – Montpellier (France)

Grouping of the words from the titles of funded projects by OHM Estarreja in different general thematics over two periods: 2011/2015 and 2016/2020



25 projects (321 words) In these 9 global thematics 198 /321 words

37 projects (333 words) In these 9 global thematics 209 /333 words

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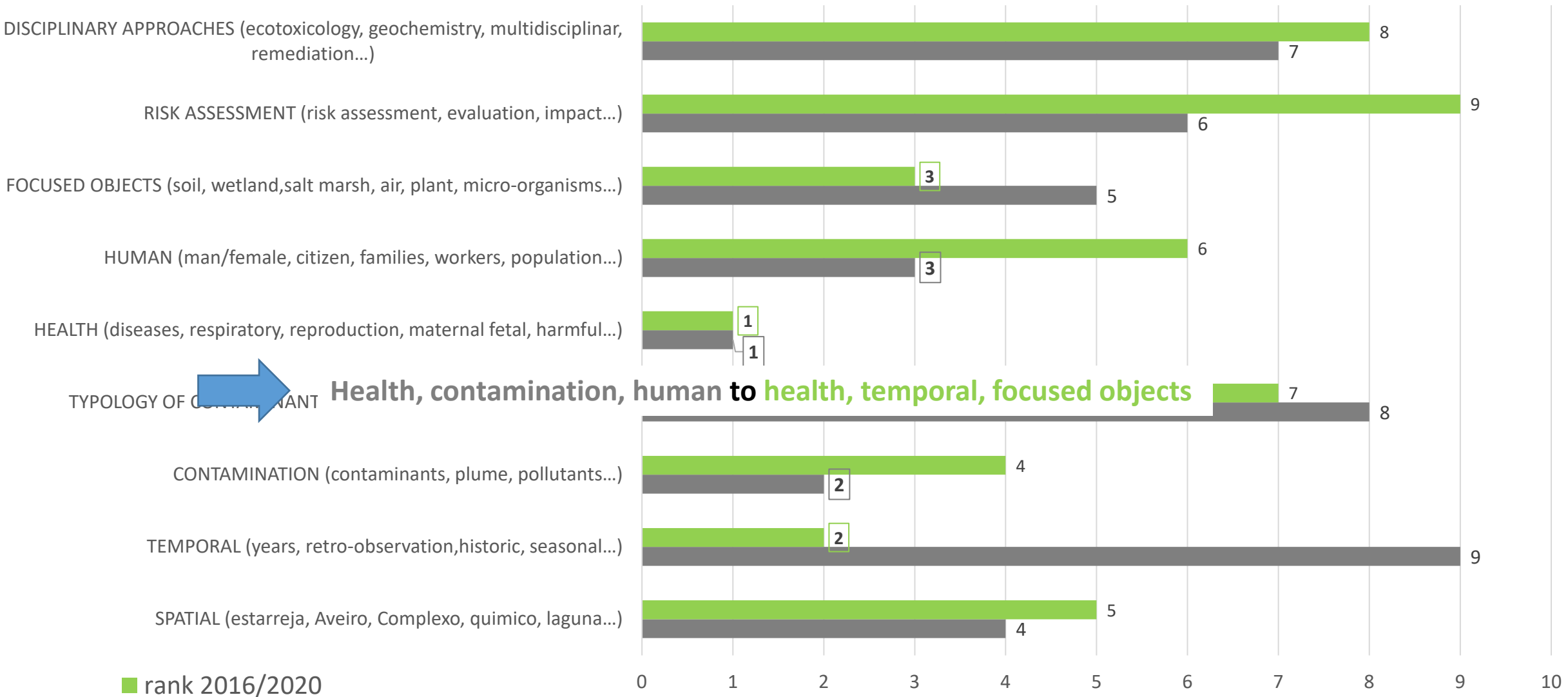
Bedell et al., 2023



International Symposium of LabEx DRIIHM
 Inter-Disciplinary Research Facility on Human-Environment Interactions - ANR-11-LABX-0010

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Top Rank of the thematic from the titles of funded projects by OHM Estarreja in different general thematics over two periods: 2011/2015 and 2016/2020



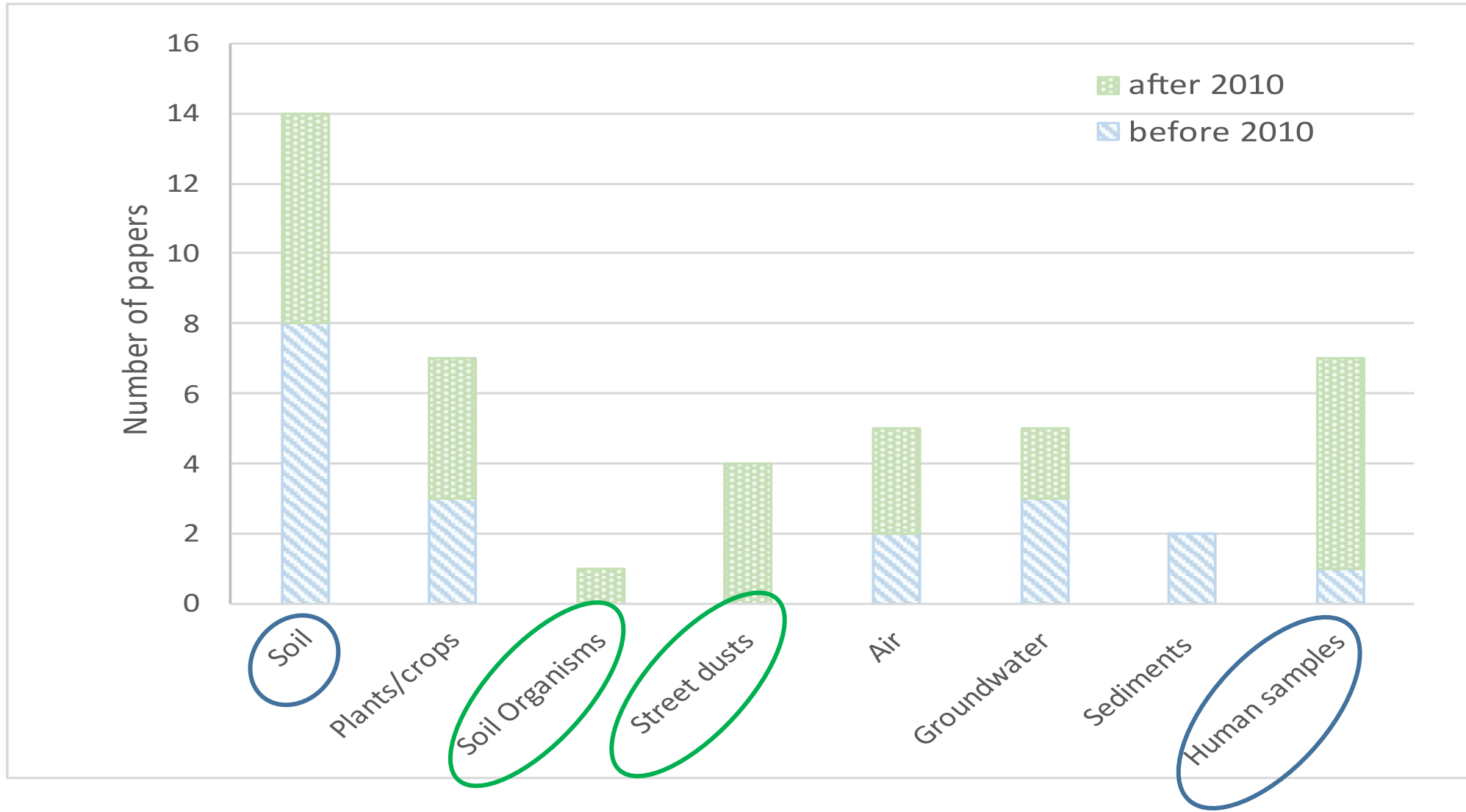
Bedell et al., 2023

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Number of papers published since 1989 for each matrix selected



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How can interdisciplinarity be illustrated ?

Year of call	Number of projects (OHM + R-OHM)	Interdisciplinarity displayed
2011	5	3
2012	8	3
2013	5	1
2014	8	2
2015	9	8
2016	9	7
2017	8 +1	6
2018	7 +1	5
2019	7	5
2020	7 +1	6
2022	10 +1	7
TOTAL	87	53

 **≈ 61 %**
of projects were interdisciplinarity

But also one criteria of choice !!!

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Overview of scientific, management and social partners involved in research between 2016 and 2022.



Diversity and interaction between a wide range of actors (university, hospital, school, industry, local authorities, etc.) resulting in interdisciplinarity.

Time to conclude...

- Projects are still very much focused on the site and its region,
- The “health” theme in the first place, and well linked to the founding element (the chemical complex and the contamination that resulted from it).
- Human element is always at the heart of the studies.
- Evolution and dynamism of thematic and approaches, but always in line with the founding element
- Multi *versus* interdisciplinary scientifically
- but also inter-actors well connected with society and populations

 interdisciplinarity was a key factor to address this complex issue of human-environment interactions

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Thank you for your attention

Bibliography

Jean-Philippe Bedell, Anne-Marie Guihard-Costa, Cristiana Paiva, Diogo Machado, Anabela Cachada, Carla Patinha, Nuno Durães, Ana Catarina Sousa, Anne-Gaëlle Beurier, Eduardo Ferreira da Silva (2023). OHM Estarreja: an anthropo-ecosystem where contamination is the unifying multidisciplinary element. *Comptes-Rendus de l'Académie des Sciences, géosciences* <https://doi.org/10.5802/crgeos.237>.

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Rapport OHMi Estarreja (2011-2015)

Rapport OHMi Estarreja (2016-2022)

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usine eau fait
caractéristiques comité

OHMI

université occupation thématiques habitants lagunaire zones impact
éléments géochimiques activités environnementaux ZB mode économique etc
Municipal publique effets scientifiques modes femmes niveau
cadre recherches PHE temps alimentaires Aveiro chimiques
normes consommation compte biologiques locale équipes lagune vie industriel
enfants populations développement chercheurs al concentrations produits entités
questionnements dont région territoire période agricoles Zn lieu production terrain
contaminants mer industrielle concentration axe sols données
crues polluants ESTARREJA élevées CQE écosystèmes toxiques
origine population tous commune ans constitue résultats santé taux
Hg projets présence tous commune activité chimique année analyses pollution âge sites
toutes usage Pb environnement souvent scientifique source recherche
environnement projet autre ZR agricole questions nombreux décennies risque ensemble déroulement
objet projet relation ZR agricole questions nombreux décennies analyse évolution
Portugal nombre facteurs risques communauté pluridisciplinaire autour travaux
mise industriels biodiversité potentiellement différents anthropique
création différentes espèces agriculture milieu rôle