P12 / Questioning the turn of water-related risk policies towards nature

Topic : SUSTAINABLE DEVELOPMENT, ENVIRONMENT AND POLICY

Chair : Joana GUERRIN (INRAE, Strasbourg, France)

Second Chair : Sara Fernandez (INRAE)

Third Chair : Anna Serra-Llobet (University of California, Berkeley)

GENERAL OBJECTIVES, RESEARCH QUESTIONS AND SCIENTIFIC RELEVANCE

In many countries, flood or drought risks have traditionally been managed with structural works, such as levees (dikes) or dams. However, from the late 1990s onwards, the negative impacts of hydraulic infrastructures on aquatic ecosystems and the false sense of security associated to these structures were publicized and brought to the political agenda in different countries. This situation led to substantial changes in water-related risk policy goals and instruments (Guerrin and Bouleau 2014). In Europe this process culminated with the 2000 EU Water Framework Directive (WFD) and the 2007 EU Floods Directive that entails the willingness to value and preserve floodplains according not only to economic justifications but also to ecological goals.

In a context of an increasing politization of environmental hazards and changes, international institutions and scientists have recently developed a new concept: “Nature-based Solutions (NbS)”, which promises to strengthen this environmental turn by simultaneously reducing water related-risk, conserving biodiversity, and adapting to climate change (Cohen-Shacham et al. 2016, p. 5). NbS embeds measures such as river restoration, the conversion from impervious to pervious surfaces, or the use of green roofs.

While global or international organizations have widely embraced the concept of NbS, some scholars also point its fuzziness and its Eurocentric focus (Bridgewater et al. 2018, Escobedo et al. 2019). A growing literature aims at developing and operationalizing the concept worldwide (Eggermont et al. 2015, Keesstra et al. 2018, Nesshöver et al. 2017, among others). National governments and the EU are now investing in NbS projects and actions, with the NbS label, are also starting to be implemented in very different local settings (EC 2015, p. 5, Keesstra et al. 2018). Not much is known about the dynamics and characteristics of such “territorialization” process apart from scattered case studies. Yet, scholars have pointed out the importance of national/local settings in how policy mechanisms such as the WFD are being implemented nationally (Liefferink et al. 2011). This is why putting in perspective different regions or countries, with their specific institutional, geographic and socio-political characteristics, and the manner they adopt, adapt and reframe such concepts and territorialize them appears to be particularly relevant. The actors implementing NbS usually have different and often conflicting goals, values, representations, sources of legitimacy and power. To assess whether, in practice, NbS keeps their promises to reconciliate risk protection with environmental stakes, we thus need to go beyond an evaluation of their “efficiency” or their “innovative nature”.

This panel will specifically address the territorialization of NbS by exploring the following topics:

1. Do nature-based solutions illustrate a new framing of water-related risks problems? What are the constructions of the problems these new solutions are supposed to tackle?

2. What are the governance and the socio-political effects of NbS implementation in practice? Has the concept of NbS, within water-related risks policies, enabled more participative and decentralized making of public policies?

3. To what extent the capacity of NbS in reconciliating risk protection with environmental concerns depend on State characteristics and policy-making traditions?

CALL FOR PAPERS

This panel is focusing on the environmental turn of water-related risk policies, illustrated by the development of “Nature-based Solutions (NbS)”. NbS is a concept developed by international institutions and scientists aiming at strengthening this environmental turn by simultaneously reducing water related-risk, conserving biodiversity, and adapting to climate change (Cohen-Shacham et al. 2016, p. 5). NbS embeds measures such as river restoration, the conversion from impervious to pervious surfaces, or the use of green roofs.

A growing literature aims at developing and operationalizing NbS concept worldwide. However, to assess

whether, in practice, NbS keeps their promises to reconciliate risk protection with environmental stakes, we need to go beyond an evaluation of its “efficiency” or its “innovative nature”. Moreover, critical social science studies are underdeveloped regarding NbS, apart from scattered case studies analysis. The aim of the panel is to gather policy analysis scholars developing research on the way NbS are territorialized in practice, at multiple scales and in different policy-contexts. This panel will specifically address the territorialization of NbS by exploring the following topics:

1. Do nature-based solutions illustrate a new framing of water-related risks problems? What are the constructions of the problems these new solutions are supposed to tackle?

2. What are the governance and the socio-political effects of NbS implementation in practice? Has the concept of NbS, within water-related risks policies, enabled more participative and decentralized making of public policies?

3. To what extent the capacity of NbS in reconciliating risk protection with environmental concerns depend on State characteristics and policy-making traditions?

We welcome proposals from varied national contexts, deploying theoretically-informed analysis based on original empirical research. In addition to the objective of the paper presented, proposals will have to clarify time and space research contexts and focus on one of the three axes.

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Session 1 Implementing NbS in French policies: promises and limits - PM

Tuesday, July 6th 16:30 to 18:30 (006)

(Virtual) Implementation of NbS in the French context : from synergies to inegalities ?

Mathilde GRALEPOIS (University of Tours)

The paradigm shift from traditional “grey” responses to floods towards non-structural solutions has become a well-accepted fact (Gralepois et al. 2016). In Europe, Nature-based Solutions (NbS) progressively appear as a new response towards disaster risk reduction (Vojinovic, 2020). NbS are defined by International Union for Conservation of Nature as actions to protect, sustainably manage and restore natural or modified ecosystems, which address societal challenges (e.g. climate change, food and water security or natural disasters) effectively and adaptively, while simultaneously providing human well-being and biodiversity benefits (Cohen-Shacham et al., 2016).

In the French context, this paradigm shift is taking place while the competences of local authorities increase in the field of river and flood management. Even though the State administration keeps major responsibilities (Fournier, Larrue, Schellenberger, 2017), municipalities and inter-municipal institutions launch innovative projects to better integrate the flood issue in their planning policies (Gralepois, 2008, 2012).

In connection with the axes 2 and 3, we question to what extent the increasing competences of local authorities in the definition and implementation of flood risk management policies may facilitate : 1) the building of synergies between flood risk management objectives and other policy targets identified in the NbS concept (nature conservation, societal objectives, climate adaptation) ; 2) the balance of power between local authorities and the State responsibilities ; and 3) citizen involvement in the definition of such integrative projects.

This presentation is based on the first developments of the JPI Climate SOLARIS project (2021-2024). SOLARIS project’s main hypothesis is that social and spatial inequalities exist and threaten the implementation of climate change adaptation policies (among them adaptation policies to extreme hydrological events) and the equitable involvement of affected citizens. Several potential social injustices may occur in face of climate change and policies implemented to assist adaptation: i) injustice in the levels of risk experienced and how these will be impacted by climate changes ii) injustice related to the level of contribution to tackling risk and implementing climate adaptation iii) differences in the level of ability to impact decision-making, and iv) injustice in the capacity to respond and adapt.

In this presentation, we illustrate our analysis with examples of innovative urban projects building synergies between the flood risk and various social and environmental issues on the Loire river Basin.

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(Virtual) The Conservatoire du littoral experimentation on NbS : from a national public policy to a concrete territorial implementation

Myriam Cécile Anne Hilbert (Université Paris 1 Panthéon-Sorbonne)

The Nature based Solutions (NbS) studied in this research are related to coastal risk management in regard with Climate change effects such as sea level rise, coastal soil salinization and increased frequency and strength of storms. In response to these current threats, in France, the Conservatoire du littoral (CdL) is exploring new ways of flexible coastal management, including NbS such as schorre re-creation as buffer zones, dune barrier reinforcement and mangrove swamps preservation. These are part of a European Life project on Climate change adaptation ("adapto"), which is currently implemented in 10 different coastal and riverside sites of France.

The CdL is a French public land acquisition institution. Its main goals are to acquire and protect coastal environments while welcoming visitors to its sites (Chenat, Konitz, Garreta, 2004). As a public institution, it must implement international and national Climate Change Adaptation Strategies, such as the French National Strategy for Integrated Coastline Management (NSICM). Which raises the question of implementing a national policy to the local level (Miossec, 2016).

As a landowner, the CdL can work more freely than if the lands in question were privately owned: "Land is an essential and inevitable ingredient for the implementation of NBS to mitigate and adapt to water-related risks" (Hartmann et al. 2019). And although the CdL does not have the regulatory competence for the protection of people against the risks of flooding and submersion, as a public landowner, it nevertheless participates in discussions on natural coastal areas adaptation with local actors in charge of risk management.

My proposal answers the second axe of the Call: "What are the governance and the socio-political effects of NbS implementation in practice? Has the concept of NbS, within water-related risks policies, enabled more participative and decentralized making of public policies?"

Its main goal is to deliver the results of the sites' users understanding or assent regarding these NbS, presented and experimented in the framework of the adapto project. 10 perception surveys have been conducted on the coastal sites of the adapto project between June and October 2020.

I will present the surveys carried out on these sites and their results: it seems that the general trend is towards confidence in NbS. A focus will be made on two different sites: The Orne Estuary (the Channel coasts), and the Vieux Salins d'Hyères (Mediterranean coasts).

How does the CdL reconcile a national conservatory policy with territorial and local specificities? Starting with its own services and partners, especially its sites' managers which do not always agree with the adaptation strategy advocated by the CdL.

Furthermore, we can interrogate the ambiguous reception given to the CdL's actions, a public actor working both at the national and territorial levels, its land control by ownership being both feared by local actors (tensions on agricultural lands, prohibition of certain uses and practices, modification of the environment, from fresh water to salt water) and sought after (blocking urbanisation, coastal development enhancing nature and the environment).

Nature Based Solutions from practitioners' perspective: a paradigm shift. The example of bioengineering techniques for riverbank protection in urban context

Clémence MOREAU (CNRS)

Soil bioengineering are construction techniques based on living vegetation, frequently used for riverbank stabilization, flood protection and erosion control (Bonin et al. 2013; Rey 2018). Compared with civil engineering, they offer many advantages such as cost reduction, limited impact on environment and production of ecosystem services (Evette and Frossard 2009). Such techniques are typical of Nature Based Solutions (NbS), as they promise to reduce water related-risk, conserve biodiversity, and cope with climate change (Cohen-Schacham et al. 2016).

The NbS concept has quickly found success in the academic field and on political agendas (Cousins 2021). However, a knowledge gap still exists on the issues of NbS implementation and the so called “territorialization" process.

In this paper, we explore the practitioners’ perspective, by exploring the following question: “to what extend NbS requires a shift in management paradigm?” Our conceptual framework is based on the concept of management paradigm (Halbe, Adamowski, and Pahl-Wostl 2015; El-Zein and Hedemann 2016).

We focus on soil bioengineering techniques for riverbank protection in urban context, with several case studies from the Rhone Alpes basin (France). We interviewed 17 practitioners, with qualitative methods (Olivier de Sardan 2004).

Our results reveal that switching from civil engineering to soil bioengineering is not only a technical change, but also requires a paradigm shift. First, soil bioengineering techniques lead to redefine the performance of engineering structures, by including an ecological and social dimensions. Second, bioengineering techniques question the risk acceptance to natural hazards. At last, bioengineering requires a posture change, with new soft skills (humility and daring) and a new collective organization (collective feedback). Finally, such techniques implies a shift from a “predict and control” paradigm to an “adaptive management” paradigm.

Our contribution addresses both the question of operationalizing NbS in urban areas and the role of management paradigm in every-day engineering practices.

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Session 2A contested turn towards nature in urban contexts - AM

Wednesday, July 7th 10:00 to 12:00 (006)

(Virtual) Eco-DRR gets political - contests over green cities

Jeroen Warner (Wageningen University)

Major cities around the world are greening their spaces to better deal with future flood and drought risk, and make their cities more attractive for habitation and investment. However, local responses to such interventions rarely seem to meet with broad-based enthusiasm; rather, such interventions have become politicised and even resisted. One ready and reassuring line of reasoning is that people normally resist change and nuisance from construction works in their backyards - it gets worse before it gets better -but will come round to it once a beautiful amenity is in place, unless poor implementation sparks discontent.

But conflict over green interventions tends to run deeper than that, and touch on both process and outcome legitimacy.

Process: Green interventions are often planned and implemented top-down by an in-group ('epistocracy') convinced of the obvious superiority of green interventions. Those excluded may not even be aware that the intervention is coming to their area.

Outcome: Benefits and costs often accrue to different urban stakeholder groups. Direct and indirect impacts such as induced migration (displacement) and crowding out by gentrification are among the most visibly resented issues. But there may also be resentment over 'middle class hobbies' and the perception of imposed views of natural values. Poorer areas may be treated as unsustainable and expendable, leading to evictions or neglect of livelihood consequences.

Cases from South Africa (Durban), Bangladesh (Dhaka), the Netherlands and the UK may illustrate standoffs over Eco-DRR and nature-based solutions in urban water-related risk management, and suggestions are made for improved practice.

Can “Nature-based Solutions” concept (NBS) help reduce inequalities in flood risk management policies? The case of La Bouillie, Blois (France)

Jérôme Cardinal (Université François Rabelais de Tours)

Since the beginning of the 21st century, “Making space for water” constitutes a major paradigm shift in flood risk management (FRM) policies, moving away from a structural approach. However, it also proves to be challenging to implement in many cases as it leads to major changes in land use and allocation (Warner et van Buuren 2011).

In this context, our presentation questions whether the operationalisation of this transformation through the NBS concept can help reduce inequalities produced by FRM policies. It is linked to the second axe of the panel.

In order to illustrate, we focus on the case study of “La Bouillie” in Blois (France), on the Loire River. During the first part of the 20th century, “La Bouillie” district expanded, first informally, behind a spillway and within a discharge channel created in the 18th century. Since 2003 and the establishment of a Deferred Development Zone (Zone d’Aménagement Différé), housing and economic activities in "la Bouillie" have progressively been delocated in order to re-establish the flood retention area and improve protection level in neighbouring estates. In “La Bouillie”, the risk has firstly been approached through a technical lens in a

top-down approach, carried mainly by the State administration. This technocratic approach reinforced local conflicts (Doussin 2009). It also fed the social vulnerability of some inhabitants, mainly among the elderly, from the working class and strongly rooted in the area.

It is only in a second phase that new propositions about the future of the project have emerged. Several non-permanent uses have been proposed, in line with nature-based solutions (NBS): planners ambition to address flood risk issue and build synergies between agricultural, recreative and contemplative uses. Additional supporting measures have also been put in place towards the most vulnerable inhabitants. .

NBSs appropriation by local inhabitants is fostered by participation modules. However, this transformation may not prevent the persistence or creation of forms of inequalities: unequal access to environmental amenities created by these new uses, to the deliberative arenas shaping the future of the are, etc. This case-study links NBS and theories of environmental Justice (Agyeman et Evans 2004) and analyses transformations in terms of distributional and procedural Justice.

This research is carried out within a PhD about socio-spatial inequalities induced by climate change adaptation policies in a context of flood risk management, and contributes to the JPI Climate SOLARIS project (Solidarity in Climate change adaptation policies : towards more socio-spatial justice in the face of multiple risks, SOLSTICE Call (2021-2024)).

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Grey solutions versus NbS: which infrastructures to prevent pollution in urban water bathing sites?

Gabrielle Bouleau (INRAE)

City development along rivers in Europe has gone hand in hand with structural works to reduce water-related risks, such as levees (dikes) or dams for floods, and the burial of polluted rivers and sewerage networks, which have become invisible. Today this legacy is being challenged by the environmental turn of water-related risk policies towards more nature-based solutions and the aspirations of city dwellers for greener landscapes and a greater access to blue spaces. This environmental turn affects the framing of water-related risk prevention policies. Grey infrastructures, costly in investment and operation, whose design has been thought out on a sectoral basis to combat a single risk (flooding, pollution or drought) are no longer given priority. Environmentalists recast them as danger in the fate of climate change and biodiversity loss. Instead, nature-based solutions (NbS) would meet several objectives, would be cheaper and more robust in the face of global change. We call this debate the dualism of grey infrastructures versus NbS, which tends to disqualify the former for the benefit of the latter.

The development of bathing sites projects in urban rivers is becoming very popular in several major European cities. The promoters of this outdoor activity argue that city dwellers practicing river bathing would be more likely to reconnect with the natural environment, to get to know it better and take better care of it. Such projects would also fulfil the claims for the right to the city and to nature in cities. Yet European regulation mainly addresses river bathing through the faecal contamination risk. In order to comply with the 2006 EU bathing directive, municipalities must enhance sewage treatment performances to avoid contaminated discharge upstream of bathing sites.

We study the policy choices made in two cities, Paris in Berlin, regarding the prevention of pollution for bathing sites in urban water. We observe that Berlin public authorities consider NbS to reach the bathing directive objectives. In Paris, along with the political commitment of organizing the fluvial and nautical events of the 2024 Olympic Games on the Seine River, water managers took decisions in favour of more grey

infrastructures. Based on press coverage, in situ observations and semi-structured interviews in both capitals, we explain what the drivers for such choices were. We account for material differences in structural legacies as well as the strategic use of the rhetoric of urgency and the reference to the Olympic commitments in order to impose grey investments instead of NbS.

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Session 3Institutionnalizing the turn towards nature: policy changes or path dependency? PM

Thursday, July 8th 16:30 to 18:30 (006)

“Sustainable safety” for the Rhône plain in Switzerland? Political ecology of an apparent “nature-based solution”

Alexis Metzger (University of Lausanne)

Characterized by significant urbanization since the 1960s, the Rhone plain in the Valais seems to have become more vulnerable to floods. After the great 2000 floods, the canton of Valais in Switzerland has started an impressive reconfiguration of the River Rhône (Utz et al., 2017). This so-called “third correction” has one main official objective: to render the entire Rhone plain safe against floods.

In this presentation, however, we attempt to show that this announced objective in embedded in a larger project of the transformation of the landscape that includes making “space for the river” (Warner et al., 2012) and nature-based solutions for flood risk mitigation (Bark et al., 2021) as part of a larger environmentalist agenda with the goal of a richer fauna and flora diversity. Then, we will discuss why this ambition of a “sustainable safety” is top-down and restricts future alternatives for the territory. This analysis is inspired by critical environmental geography and political geography that have shown how seemingly ecological decisions imply political issues that are not primarily related to the environment (Acharya, 2015; Blanc and Fauvelle-Aymar, 2020).

This presentation is based on three main datasets: 25 interviews with various stakeholders in the Valais; a survey, including mental maps, conducted with 30 teenagers living near the Rhône; and a discursive analysis of the main document entitled “safety for the future” (a part of which is entitled “sustainable safety”) produced by the Office cantonal de la construction du Rhône, promoting and in charge of the third correction.

We will show how the discourses about flood prevention and security annihilate other visions of the territory for the future. The safety argument has been emphasized whereas the project implies other environmental, social, economic and political issues. This discursive and material transformation implies many other issues that have not been discussed with the inhabitants, like new spaces for industries, urbanization and nature. This NbS imposes a vision of what is good for flood security and for nature as if it was obvious. Multiple ontologies of water are also denied (Yates et al., 2017). Cultural barriers could be overcome in order to conceive the river not only as a resource (for agriculture or leisure activities) or a hazard (floods and drought) but also as a mix of liquid and solid materiality, source of well-being. On a political level, the third correction can also be understood as “space-making” (Malatesta, 2013) or a “meso-political” project aiming at governing people through a transformation of the landscape (Taylan, 2018). Is fixing materiality of water and land, by banning the possibility of floods, a way of promoting development, economic growth and even “green capitalism” with new activities and kinds of agriculture?

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Nature Based Solutions or Green Infrastructures? The case of the Maresme region

Andrea Noblega (Universitat Autònoma de Barcelona)

The combined effects of a high-risk fluvial environment and rapid urbanization are evidenced in the Maresme region (north of Barcelona) which has undergone numerous flooding episodes in the past and is expected to experience even more of such episodes in the future, such as last year's Gloria's storm, possibly exacerbated by climate change. One question is whether recurrent floods have fostered new directions of urbanism and the redesign of basic infrastructures away from traditional hydraulic solutions (floodwalls, levees, stream diversions, etc.) towards a major presence of Nature Based Solutions (NBS). Worldwide, NBS is an umbrella concept including other concepts such as green infrastructure (GI) and is used in diverse fields, such as hydro-meteorological risk reduction and flood management by focusing on projects that promote transitions from risk to resource in urban drainage. Until recently, in Spain and Catalonia the reference concept for these purposes was GI, through initiatives such as the Green Infrastructure plan of Catalonia. However, more recently the term NBS started gaining presence through reports from the Barcelona City Council NBS in the municipal scope and the Spanish Ministry for Ecological Transition and Demographic Challenges (MITECO) NBS for Water Management in Spain. This suggests that distinct governance levels (national, regional and local) conceptualize and implement differently these concepts. The study addresses these differences by 1) Revising existing policies and plans of the Maresme region in order to recognize which term is being used and how. 2) Understanding why they are being used differently and 3) examining whether these projects incorporate new alternatives or simply contribute to path dependency in stormwater management. This will be evaluated through an extensive literature review as well as interviews with the actors involved in stormwater management and policy making in municipalities that have incorporated GI or NBS projects, such as Tordera and Pineda de Mar.

(Virtual) The role of territorial decentralization and governance in the formation of NbS public policies: Payments for Water Ecosystem Services in Colombia

Leszly Torres (Universidad Pedagógica y Tecnológica de Colombia)

Diego Zamudio Arenas (Universidad Pedagógica y Tecnológica de Colombia)

Albaluz Ramos Franco (Universidad Pedagógica y Tecnológica de Colombia)

Pedro Sanchez (Universidad Pedagógica y Tecnológica de Colombia)

The formation of public policies to reduce the risks associated with water resources in Colombia, has evolved towards a Nature-based Solutions (NbS) approach; an example of this is the creation of payments for water ecosystem services (PWS) programs, which are defined as the economic incentive recognized for preservation and restoration actions in strategic areas and ecosystems for water supply, through the conclusion of voluntary agreements. The PWS are the reliable expression of a NbS, since they seek to prioritize investment in the ecosystemic health of the basin, instead of reinforcing infrastructure that ends up being useless in the face of extreme climatic events; in order to guarantee the quality and quantity of water that human populations require for their social cohesion.

The consolidation and expansion of democracy requires that the formation of public policies should not be State monopoly, but rather a process in which several institutional and non-institutional actors interact, in a scenario of cooperation between the State and Society; a proof of this is the voluntary nature of the PWS, which allows an environment in which citizens have an influence on decision-making regarding land use. On the other hand, territorial decentralization plays a fundamental role in these programs, as it is the mechanism that allows promoting the autonomy of territorial entities, acting as the main implementers of the policy in the different ecosystem contexts of Colombia. Finally, the way in which the PWS have been proposed in the country shows an open system of participation of various sectors, such as academia, the

private sector and even ethnic communities, showing characteristics of a governance model of its own regarding water management and its origin in natural processes.

Thus, the researchers have posed the central research question: What has been the role of territorial decentralization and governance in the formation of public policies related to Payments for Water Ecosystem Services in Colombia? To this end, a review of the theoretical frameworks of territorial decentralization, governance, NbS and PWS in the Colombian context is proposed, examining which have been the expressions of public policies on PWS in the national regulations; to finally identify the levels of governance and territorial decentralization in the formation of such policies. The above, through a methodology of documentary review and quantitative and qualitative analysis of the data; it should be noted that this research is ongoing.