BOOK OF ABSTRACTS

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I. SESSION DESCRIPTION

ID: T18a

Mainstreaming ecosystem services approach and fostering transformative governance to enhance planning in socio-ecological systems

Hosts:

	Name	Organisation	E-mail
Host:	Nica Claudia Caló	Martin-Luther University Halle-Wittenberg (MLU)	nica.calo@geo.uni-halle.de
Co-host(s):	Nastasja Scholz Stefan Knauß	LUP - Luftbild Umwelt Planung GmbH MLU Halle-Wittenberg/ UFZ Leipzig	nastasja.scholz@lup-umwelt.de stefan.knauss@geo.uni-halle.de

Abstract:

Degradation of nature is an established issue, and today, governments throughout strive to restore it. A strong and equitable governance structure is essential to overcoming the many obstacles that must be addressed. A more comprehensive systemic reform that would allow for the required adjustments in all policy areas is being more and more discussed about. Over the years, the scientific community has placed a great deal of attention on the One Health and the ecosystem services as functional approaches to effectively and in essence reform our current economic system.

The purpose of the planned session is to facilitate a cross-sector, cross-disciplinary, and inter-disciplinary conversation regarding a more effective governance structure that would enable the incorporation of a socio-ecological perspective into the existing economic system.

The following questions will guide the discussion:

- What quantitative, qualitative, and interdisciplinary methods can help achieve a holistic understanding of the natural environment, taking into account the interdependence of different ecosystems and their role and services in supporting human well-being and sustainable governance?
- What tools can better help to assess the design and implementation of all policy sectors in order to enable the achievement of biodiversity conservation goals, in accordance with social needs?
- How do we address potential conflicts in worldviews, paradigms, policy goals and values?
- How do we ensure that we create the necessary conditions (i.e., policy, ecological, societal) for the delivery of ecosystem services?
- How to support stakeholders' involvement and conflict management, facilitating the governance process and local community awareness?
- What changes in our economic system would be needed to move towards a more balanced socio-ecological systems?
- How to ensure that the discussion can be really addressed at all levels of the socio-ecological system?
- What specific tools can be considered, besides the accounting system and the Gross Ecosystem Product (GEP)?
- What is the current state of environmental (biodiversity) mainstreaming in sector policies and policy designs?
- What is the role of sub-national policy makers and how sub-national policy making can contribute to the successful achievement of main biodiversity strategy goals?

Goals and objectives of the session:

The purpose of the planned session is to facilitate a cross-sector, cross-disciplinary, and inter-disciplinary conversation regarding a more effective governance structure that would enable the incorporation of a socio-ecological perspective into the existing economic system.

Planned output / Deliverables:

The overall format of the session will be a scientific discussion, with small groups of experts alternating to present some input towards the key questions put up by the co-hosts of the session. As the final result of the discussion, each expert group will gather more specific recommendations regarding the information or research that is required as well as the primary challenges, based on the best practices that have been presented. The ultimate expected output will be a preliminary mind map draft, which will serve as the starting point for drafting a joint

paper. The possibility to build up a new partnership to develop a joint project proposal in the framework of upcoming calls for proposals will be taken into consideration.

II. SESSION PROGRAM

Room: Expert Street 4

Date of session: 21st of November 2024

Time of session: 11:00-12:30

Timetable speakers

Time	First name	Surname	Organization	Title of presentation
11:00-11:05	Nica Claudia; Nastasja; Stefan	Caló; Scholz; Knauß	MLU; LUP; UFZ	Ecosystem services valorization for a better nature restoration governance in urban and peri-urban areas
11:05-11:15	Karsten	Grunewald	IOER	Ecosystem services and biodiversity in government and corporate accounting
11:15-11:25	Alessandro	Bosso	Art-ER	The assessment of ecosystem services as a tool to support governance, planning and policy making: the case of Emilia-Romagna region (Italy)
11:25-11:35	Franck	Binard	Saint Emilion Wine Council	Overview on the environmental policy in Saint-Emilion area to enhance environment and biodiversity
11:35-11:45	Silvia	Ronchi	DAStU Politecnico di Milano	Planning for environmental Equity: Insights from Italian case studies
11:45-11:55	Asef	Ayatollahi	National Biodiversity Future Center, Politecnico di Milano	Role of Ecosystem Services and Urban Biodiversity Variables in Co-creation and Co-monitoring Procedures for Social Impact Assessment
11:55-12:05	Gargi	Vats	Centre for Rural development and Technology - Hauz Khas India	Exploring Socio-Cultural and Socio-Ecological Change Dynamics in an Indigenous Community of India
12:05-12:30				Q&A / Short World Café

III.ABSTRACTS

The first author is the presenting author unless indicated otherwise.

1. Overview on the environmental policy in Saint-Emilion area to enhance environment and biodiversity

First authors(s): FRANCK BINARD
Other author(s): Nawel Aouadi
Affiliation: Franck Binard, Saint-Emilion Wine council
Contact: nawel.aouadi@vins-saint-emilion.com

Raising awareness on climate and environmental issues, coupled with societal pressure, have put the environment and biodiversity at the top of government agendas. In France, public environmental initiatives have been multiplied over the past twenty years. Recently, national programs have strongly supported the planting of hedges in agricultural areas, given the numerous benefits on biodiversity, landscapes, soil quality, water infiltration capacity, and as a solution for climate change.

In the Saint-Emillion region, listed as a World Heritage Site, the Wine Council of Saint-Emillion (CVSE) actively contributes to the promotion of the environment and biodiversity.

A key measure was the modification in 2023 of the requirements for the Saint-Emilion appellations to include environmental certification after an intensive work led by the Environment Commission of the CVSE, in collaboration with Institut National de l'Origine et de la Qualité (INAO).

To go further, 6 axes have been identified to improve soil quality, reduce pesticide use and develop nature-based solutions, diversify landscapes, preserve water resources and deal with climate change. The planting of hedges could be a solution to meet these challenges. The CVSE involves local stakeholders to support the preservation of existing hedges and the planting of new ones and works on the deployment of ecological corridors by carrying out an inventory and mapping of existing landscape features. The aim is to identify areas where planting hedges and trees would be necessary to enhance landscape and biodiversity and to model future plantations, taking into account the risks of frost and drought. Many studies are caring out to

evaluate and quantify the ecosystem services provided by this practice (e.g. carbon storage, biodiversity).

Despite these efforts, a number of technical, economic and sociological obstacles remain. The challenge is to show winegrowers that these plantations are not constraints but real opportunities. The aim is to remove all the obstacles, particularly operational ones (e.g. local plant production and sourcing, maintenance issues). These efforts must be coupled with the valorisation of environmental services via labels and certifications and proof of the benefits induced by these practices.

Keywords: public policies, local stakeholders, landscape feature, ecosystem services, Saint-Emilion

2. Role of Ecosystem Services and Urban Biodiversity Variables in Co-creation and Co-monitoring Procedures for Social Impact Assessment

First authors(s): Asef Ayatollahi
Other author(s): Luca Lazzarini
Affiliation: National Biodiversity Future Center PhD fellow, Laboratorio di Simulazione Urbana Fausto Curti, Department of Architecture and Urban Planning, Politecnico di Milano, Italy
Contact: asef.ayatollahi@polimi.it

Social impact assessment (SIA) of re-naturing measures in urban areas offers a holistic perspective on complex interactions and trade-offs between humans and nature. While traditionally, the conduction of SIA and evaluation is mainly short-term standardized and expert-oriented, new methodologies are more flexible and focused on community engagement and integration of social-ecological variables in urban areas with more long-term perspectives. Focusing on the aforementioned issues, in this contribution, we present a case of the participatory approach of SIA with the integration of ecosystem services (ES) and urban biodiversity (UB) variables in monitoring and evaluation procedures. This research is based on co-creation and co-monitoring activities conducted in the pre-intervention phase at the Mirabal Garden in Milan, Italy, to establish an urban living lab with the engagement of citizens, local institutional representatives, and other local experts. Within this framework, through a systematic review of ES and its benefits on society, a series of indicators, impacts, and benefits with their measurement methods have been extracted from the literature. After

contextualization for the case study, this collection was proposed to the local actors for selection and evaluation. In this procedure, citizens, with a selection of their preferred ES and benefits, identified their priorities and expectations for implementation and assessment in and around the Mirabal Garden area. Alongside inputs from workshops, this data, categorized in a repurposed social-ecological system framework, provided a sufficient basis for forming causal loop diagrams to better simulate pattern interactions between nature and society in the case study. Such simulations not only address the power dynamics between local actors, decision-makers, and biophysical environments but also, with the addition of monitoring inputs, generate ecosystem services for the local community in a long-term perspective.

Keywords: urban ecosystem service, co-creation, co-monitoring, social impact assessment, evaluation indicators

3. The assessment of ecosystem services as a tool to support governance, planning and policy making: the case of Emilia-Romagna region (Italy)

First authors(s): Alessandro Bosso
Other author(s): Irene Diti, Arianna Cecchi
Affiliation: ART-ER
Contact: alessandro.bosso@art-er.it

In recent years, in Emilia-Romagna have been developed several projects of assessment and mapping of ecosystem services in biophysical and monetary terms. ART-ER, the joint stock consortium that acts as regional development agency, carried out these projects, at different territorial scale, to support regional government, local authorities and companies decision making processes, on the base of natural capital value. The projects involved different sectors. Agriculture have been deeply analysed through Life projects SOIL4WINE, AGRESTIC and DRIVE, defining the contribute of sustainable agricultural practices (e.g. cover crops, green mulching and reduced tillage) to biodiversity conservation, climate change mitigation and adaptation, local development. Feasilibilty studies of Payments for Ecosystem Services to remunerate farmers have been built at site scale. Some examples of public and private mechanisms:

- reclamation fee reduction for sustainable farmers supporting soil erosion protection

- tourist tax income redistribution for sustainable farmers improving landscape quality

- bank incentive for sustainable farmers increasing groundwater storage

- voluntary carbon credits for farmers increasing carbon stock in soil

An innovative study on gross ecosystem product has been carried out in a rural area of Appenines and will support the offsetting and conservation policies defined by a territorial plan at provincial scale. The study lead to the economic quantification of the natural capital of the territory and gives relevant information to rethink relationships beetween mountain area and the city.

Finally, Arcadia Horizon project foresees a sperimentation about how Regional Authority can implement an adaptation strategy exploiting nature based solutions. In particolar the focus is on forests role and how a sustainable management can support ecosystem services able to reduce floods and landslides, protect biodiversity and increase the wood value chain. The approach is at catch basin scale and will support the integration of different regional policies (e.g. on water management, climate change, forestry).

Keywords: gross ecosystem product, payments for ecosystem services, natural capital, decision making, land management

4. Ecosystem services valorization for a better nature restoration governance in urban and peri-urban areas

First authors(s): Nica Claudia Caló
Affiliation: Martin-Luther University Halle-Wittenberg
Contact: nica.calo@geo.uni-halle.de

Nature degradation is a proven problem and its restoration is a goal for European countries. To reach it, many hurdles have to be overcome from the perspective of finding proper solutions and also in the stakeholders involvement and the management of different interests. An effective and fair governance process is therefore a key element. Better governance instruments to recognize the importance of ecosystem services in maintaining a healthy and sustainable environment by promoting their use in spatial planning, development and decision-making process is needed. A new partnership to discuss a new project idea to raise awareness about the benefits of ecosystem services, such as biodiversity conservation or water regulation, has

been developing. Through work with local communities, governments and stakeholders to identify areas where ecosystem services can be enhanced or restored, the project idea's approach is based on a holistic understanding of the natural environment taking into account the interdependence of different ecosystems and their role and services in supporting human well-being and sustainable governance, through quantitative, qualitative and interdisciplinary methods. The aim is to use innovative tools and techniques to assess the current state of ecosystems in urban and peri-urban areas, identify opportunities for restoration and develop strategies for their implementation in the form of policy instruments. These tools and data will support stakeholders' involvement and conflict management, facilitating the governance process and local community awareness. Ultimate goal is to create more livable cities that are resilient to environmental challenges such as climate change or biodiversity loss. By restoring ecosystem services in urban and peri-urban areas, biodiversity and air quality can be improved and enhanced, flooding risk reduced and other benefits that contribute to a healthier and more sustainable future for all provided.

5. Ecosystem services and biodiversity in government and corporate accounting

First authors(s): Karsten Grunewald
Other author(s): Roland Zieschank, Johannes Förster, Bernd Hansjürgens, Tobias M. Wildner
Affiliation: Leibniz Institute of Ecological Urban and Regional Development
Contact: k.grunewald@ioer.de

The contribution looks at the question of how biodiversity and ecosystem services can be incorporated into economic reporting at governmental and corporate level (target 14 and 15 in the Kunming Montreal Global Biodiversity Framework). We first provide an overview of information sources and data products for ecosystem accounts available at national level in Germany. The results of these accounting systems, which can be integrated into political and economic decision-making, should be easily understood by the general public and provide a basis for scientific analyses. As "flow" variables, information on ecosystem services contributes to societal well-being by improving decision-making processes, in particular by demanding and supporting a greater appreciation of nature, measurable via biodiversity and ecosystem service indicators.

A new paradigm is emerging both in companies globally and within European regulations, namely the explicit consideration of nature and its services as the basis for holistic corporate reporting, management and financing. As impacts on biodiversity and ecosystems as well as interdependencies between ecosystem services can be highly specific, depending on the sector, company activity and location, more detailed, sector-specific information will be needed in the future – ideally also from national accounting. Finally, we look at which institutions and actors can influence the field of action and discuss how the process of expanding economic reporting to include natural capital can be viewed as a "social innovation".

Keywords: Biodiversity, Corporate accounting, Ecosystem accounting, Ecosystem services, Sustainability reporting

6. Planning for environmental Equity: Insights from Italian case studies

First authors(s): Silvia Ronchi
Other author(s): Andrea De Toni, Marta Dell'Ovo, Daniel Edward Chamberlain, Enrico Caprio, Irene Regaiolo
Affiliation: DAStU Politecnico di Milano (Italy)
Contact: silvia.ronchi@polimi.it

The relationship between socio-economic status, urban forms and urban biodiversity, particularly regarding bird species richness, highlights the need for social equity in urban planning. In cities, wealthier areas often display higher biodiversity conditions, revealing a 'Luxury Effect' where affluent neighbourhoods have more access to and resources for managing green spaces and environmental initiatives.

This inequality demands targeted policies and planning strategies to improve biodiversity in lower-income urban areas, ensuring equitable distribution of Ecosystem Services (ES) and access to green spaces for improving human well-being and ecological health.

The rapid intensification of urbanization processes often leads to habitat loss, increased pollution, and greater demands on natural resources. The 'New Urban Agenda', adopted at Habitat III in 2016, emphasizes the urgent need for sustainable urban development that integrates biodiversity conservation and equitable access to green spaces.

Urban planning plays a crucial role in addressing these types of contemporary challenges as decisions made in a planning process can help create and protect urban green spaces by recognizing their collective value and ensuring that future urban development transformations have measures to ensure the maintenance of biodiversity.

Adopting a performance-based planning approach offers strategic tackles to enhancing biodiversity and ES in urban areas offering a more flexible and adaptive framework for urban development. By integrating green infrastructure and NBS, urban areas can improve their environmental performance, resilience, and adaptability to climate change reducing environmental inequalities and ensuring that all communities have access to the benefits of green spaces. Indeed, ES mapping and assessment provide knowledge on the performance of ES, particularly highlighting the influence of urban form on biodiversity enhancement and sustainability outcomes. Dense urban environments, characterized by high population density and compact built forms, often present challenges for biodiversity but also opportunities for innovative green and blue infrastructure. However, a paucity of literature explores in detail how urban forms and socio-economic factors influence urban biodiversity.

The research – developed under the Italian National Recovery and Resilience Plan and specifically for the project "National Biodiversity Future Center NBFC" – aims to verify the interaction of socio-economic factors, ES provision and urban biodiversity in some Italian cities to define and promote advanced urban planning techniques to create more sustainable and equitable cities. Some relevant key urban areas parks are selected as case studies, the first pilot area of investigation is the 'Parco del Valentino' in the city of Turin (North-west of Italy), aiming to explore possible existing correlations among multiple variables (i.e., socio-economic, biodiversity as bird species richness and ES).

Keywords: Environmental justice; Performance-based planning; Luxury effect

7. Exploring Socio-Cultural and Socio-Ecological Change Dynamics in an Indigenous Community of India

First authors(s): Gargi Vats

Other author(s): Ajay Saini

Affiliation: Centre for Rural development and Technology (CRDT), Indian Institute of Technology Delhi (IITD), Hauz Khas, New Delhi, Delhi, India - 110016

Contact: gargivats5@gmail.com

Sartang is a very lesser known and under researched indigenous community of West Kameng district, Arunachal Pradesh, North East India. Historically, they were hunter-gatherers and practiced a religion called Bon, which was present in the area before the spread of Buddhism. They always had a hunter gatherer kind of lifestyle that connected them with their environment or natural surroundings through their cultural and traditional beliefs, rituals and practices. They are now moving towards adopting new cultures and traditions. This in turn is bringing a socio cultural change in their society which in turn is also disrupting their socio-ecological systems and worldviews. Before this cultural extinction takes place, the community should be studied to capture its world views and sustainable practices, as it has remained historically neglected and highly under-researched. In order to examine the community, field work was conducted in four villages and their adjacent hamlets. Qualitative research methods, such as ethnography, semi-structured interviews, and participant observations, were employed. Additionally, secondary data was obtained by referring to archives. The study's findings suggest that Sartang's connection with nature is multifaceted, as they selectively hunt certain animals while refraining from hunting others based on certain beliefs. They also safeguard forests as they consider them sacred where they neither hunt nor fell trees or allow anyone else to do so. Therefore, this demonstrates that the community perceives nature not as a distinct entity, but rather as an integral part of themselves and vice versa. However, the current situation is undergoing a transformation due to the influx of other cultures such as Christianity and Buddhism, alongside the process of modernity. Ultimately, this is leading to the degradation of forests and socio-ecological systems, which is a direct consequence of the diminishing of ties with nature. This story depicts how indigenous populations worldwide are transforming.

Keywords: Arunachal Pradesh, Indigenous Community, Sartang, Socio-Ecological Systems, Transformation