



## BOOK OF ABSTRACT

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### I. **SESSION DESCRIPTION PROPOSAL**

**ID: T14c**

**Title of session:**

Bottlenecks and opportunities for applying ecosystem services in spatial planning

**Hosts:**

	<b>Title</b>	<b>Name</b>	<b>Organisation</b>	<b>E-mail</b>
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### Abstract:

The application of ecosystem services in planning and management has made substantial progress in the last years. After a phase of conceptual debate, we increasingly see practical case studies and applications from across Europe and beyond. We argue that these practical case study experiences provide a fertile ground and excellent opportunities for inter- and transdisciplinary exchange on approaches used and experiences made.

Recent experiences show how new indicators, tools and concepts are needed in planning to attain sustainability targets. For example, environmental planning may assume ecosystem service mapping as an ordinary practice for the decision-making process, while traditional urban planning procedures may be integrated with an approach based on ecosystem service assessment.

Building upon a similar approach in other ESP working groups, the aim of this session is to identify recurring bottlenecks in the application of ecosystem services in spatial planning, and to explore possible solutions for overcoming these challenges in practice. More specifically, we warmly invite contributions that address one or more of the following questions:

#### Institutional bottlenecks:

- Which challenges are presented in different institutional settings of spatial planning, and how can they be addressed?

#### Bottlenecks for ES planning tools:

- Which specific bottlenecks exist to make ES assessment (i.e. inventory and valuation) relevant for planning purposes, and how can those be solved?
- How can the integration of indigenous and local knowledge (ILK, as proposed by IPBES) be realized in ecosystem services studies for planning?
- How can multidimensional valuation of ecosystem services be realized in planning, given substantial resource constraints?
- How can we appropriately communicate the often complex and uncertain information yielded from ecosystem services assessments in planning?



#### Outcome bottlenecks:

- Which evidence has been found concerning the outcomes of applications of ecosystem services in planning?
- How do planning agencies and involved stakeholders deal with situations when ecosystem services desired by different stakeholders cannot be delivered at the same time (trade-offs)?

#### Impact bottlenecks:

- What are typical impacts of ecosystem services information, and how can we enhance its impact in planning and decision-making processes?

We welcome submissions addressing the above and other related questions on challenges and opportunities for applying ecosystem services in spatial planning and management, especially at local (e.g. community) to regional and county levels, and from scientific, policy and practice perspectives (or in combination). We are interested in conceptual pieces, case studies, as well as good practices and critical studies.

#### Goals and objectives of the session:

To stimulate a transdisciplinary debate on the application of ecosystem services in spatial planning and management. To share experiences of scientists and practitioners involved in ES assessments to support spatial planning and management. To facilitate and enhance exchange and collaboration within the TWG 14 on the application of ecosystem services in planning.

We are particularly interested in case studies that bridge gaps between theory and practice. Suitable concepts applied in the contributions may include, among others, green and blue infrastructure, nature-based solutions, urban growth boundaries, and net environmental benefit analysis.

#### Planned output / Deliverables:

Likely outputs of the session include a joint discussion paper or the compilation of a special issue in an appropriate journal, depending on the motivations and interests of the participants.

#### Related to ESP Working Group/National Network:

[Thematic Working Groups: T14 – Application of ES in Planning & Management](#)



## II. SESSION PROGRAM (T14c)

**Date of session:** Thursday, 18 October 2018

**Time of session:** 8:45 – 16:00

### Timetable speakers

Time	First name	Surname	Organization	Title of presentation
8:45–9:00	Christian	Albert	Leibniz Universität Hannover (DE)	Introduction to session T14c: rationale, objectives, and overview.
9:00–9:15	Jiska	van Dijk	NINA (NO)	Consistent valuation in a confusing world – the pros and cons of the Analytical Hierarchical Approach in individual and deliberative value assessments.
9:15–9:30	Francis	Turkelboom	INBO (BE)	Where is the art work? Territorial-based planning in a sectorial-carved up landscape.
9:30–9:45	Chiara	Cortinovis	University of Trento (IT)	How to integrate ecosystem service knowledge in urban planning? Insights from a planning process in Trento (Italy).
9:45–10:00	Kinga	Krauze	European Regional Centre for Ecohydrology (PL)	The challenges of ecosystem service-based city management in the city under the multiple social-ecological transitions. The City of Lodz (Poland) case study.
10:00–10:15				Q&A and discussion
11:30–11:45	Lisa	Sousa	University of Aveiro (PT)	Ecosystem services integration in the environmental planning





Time	First name	Surname	Organization	Title of presentation
				process.
11:45–12:00	Nuketlpek	Cetin	Gebze Technical University (TR)	Critical suggestions for ES-based spatial planning practices in metropolitan water supplies of Istanbul.
12:00–12:15	Christian	Albert	Leibniz Universität Hannover (DE)	Applying ecosystem services in GeoDesign for river landscape futures: experiences and insights from the Lahn case study.
12:15–12:30	Erica	Honeck	University of Geneva (CH)	Bottlenecks and opportunities in implementing green infrastructures from ecosystem services, biodiversity and connectivity in Geneva, Switzerland.
12:30–13:00				Q&A and discussion
14:30–14:45	Marcin	Spyra	Martin-Luther University Halle-Wittenberg (DE)	The ecosystem services concept – a new Esperanto to facilitate participatory planning processes?
14:45–15:00	Alice	Labadini	Eurac Research (IT)	Ecosystems Services maps for transnational planning of mountain regions: a stakeholder perspective.
15:00–16:00				Q&A and discussion, take home messages, and follow-up



### III. ABSTRACTS

*The abstracts appear in alphabetic order based on the last name of the first author. The first author is the presenting author unless indicated otherwise.*

#### 1. Type of submission: **Abstract**

T. Thematic Working Group sessions: T1 4c Bottlenecks and opportunities for applying ecosystem services in spatial planning

#### **Applying ecosystem services in GeoDesign for river landscape futures: experiences and insights from the Lahn case study**

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The anthropogenic alteration of many river landscapes in Europe has resulted in substantial changes in their capacity to provide diverse ecosystem services. Numerous planning and design initiatives are currently underway to develop new strategies for restoration and enhancement of river landscapes as blue-green-infrastructures and opportunity spaces to harness nature-based solutions. A common bottleneck is to involve stakeholders in the planning process. Geodesign, understood as the creation and rapid evaluation of landscape futures in a participatory setting, could arguably well support such planning efforts. This contribution presents the results and impacts of an innovative geodesign approach to plan for ecosystem services applied in workshop series around alternative futures for the Lahn river landscape, Germany. Our approach involved the participatory creation of plausible scenario storylines for landscape development until 2050, the translation of these stories into spatial alternative futures, and the rapid assessment of likely impacts on selected ecosystem services indicators. The technology applied included large scale touch tables and adapted GIS-models. The impacts of the geodesign application were evaluated using observations, surveys, and a focus group discussion. Our results highlight challenges and opportunities resulting from the application of geodesign in landscape planning for ecosystem services. For example, we found that using such technology provides substantial added value for informed discussions among stakeholders, and spurred the design of new innovative spatial strategies for the future river development that take up nature-based solutions and likely enhance ecosystem services delivery.



**Keywords:** landscape planning, geodesign, participation

2. *Type of submission: Abstract*

T. Thematic Working Group sessions: T1 4c Bottlenecks and opportunities for applying ecosystem services in spatial planning

**Critical suggestions for ES-based spatial planning practices in metropolitan water supplies of Istanbul**

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A large body of knowledge derived from the interlinkages between changing population dynamics, unsustainable consumption patterns and the significance of ecosystem services (ES) has revealed the necessity of 'eco-innovative' methods, 'nature-based' solutions and 'ES-oriented' approaches to be considered in current spatial planning practices. Although, ecosystems provide diverse provisioning, regulating, and cultural services which ensure direct and indirect benefits to sustain human well-being, major land conversions, climate variability, biological invasions and other environmental degradations caused by anthropogenic activities are the prominent drivers of ES changes which can be managed by spatial planning tools. As spatial planning has a key role in land policy, land management and decision-making processes, it determines the possible changes in land use and land cover (LULC) while influencing the ES provided. Nevertheless, adaptive and integrated practices of ES are still lacking in today's spatial planning and decision-making process especially in developing countries such as Turkey due to some institutional constraints, complexities in the authorization of land management and the perceptions of decision makers. The impacts of this trend can easily be found in urban watersheds which are highly vulnerable for the current dynamics of urban growth-driven LULC changes. From this point of view, this study aims to discuss hierarchical and multi-scale structure of spatial planning system in Turkey from an 'urban watershed management' perspective and it focuses on Omerli and Buyukcekmece Watersheds in Istanbul which have been experiencing the impacts of urban growth and losing their ecological values day by day. In this context, spatial development process of both watersheds will be analysed in detail by discussing the social





and economic dynamics of land conversions, current management practices and tangible outcomes of spatial planning decisions within legal and administrative frameworks. Critical points will be highlighted and possible recommendations will be developed for a better integration of ES approach in watershed management by pointing out the existing bottlenecks and opportunities to achieve sustainable management of urban watersheds in Istanbul which are the suppliers of essential ES bundles to metropolitan inhabitants.

**Keywords:** ES-based spatial planning, urban watershed management, spatial planning tools, Istanbul

3. *Type of submission: Abstract*

T. Thematic Working Group sessions: T1 4c Bottlenecks and opportunities for applying ecosystem services in spatial planning

**How to integrate ecosystem service knowledge in urban planning? Insights from a planning process in Trento (Italy)**

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The presentation provides insights on the integration of ecosystem service knowledge in urban planning, moving from a real-life experience in the city of Trento (Italy). Here, the drafting of the new urban plan, started in 2017 and still ongoing, has been the occasion to test how information about ecosystem services can be included in planning processes and tools at the city scale. The inclusion of ecosystem service knowledge is a main result of the efforts carried out in the previous years to establish a science-policy interface. The MAES process, originally initiated as a scientific endeavour, had progressively evolved to include key staff from the local administration and other experts, thus building a network of interested people with a common understanding of the topic. Within the planning process, two main tasks have been assigned to ecosystem service knowledge. First, to contribute to identify the most important areas (hotspots) for ecosystem service provision to be included among the “structural elements” of the plan, along with other more traditionally-recognized information such as protected areas, areas subject to hydrological risk, etc. Second, to support the design and assessment of planning actions by considering their expected impacts on both the supply and the demand of ecosystem services. An illustrative application of the approach was carried out to compare different greening interventions in





brownfield sites based on the expected benefits for the surrounding residents. Other tests are being done to formally integrate the results of ecosystem service assessments in implementation tools such as performance-based approaches and compensation schemes for future interventions. The case study allows reflecting on the potential roles of ecosystem service knowledge to support urban planning processes, as well as on opportunities for and barriers to integration, particularly highlighting what worked well in building an effective dialogue at the science-policy interface.

**Keywords:** urban planning, science-policy interface, ES hotspots, performance-based approaches, compensation schemes

4. *Type of submission:* **Abstract**

T. **Thematic Working Group sessions:** T1 4c **Bottlenecks and opportunities for applying ecosystem services in spatial planning**

**Bottlenecks and opportunities in implementing green infrastructures from ecosystem services, biodiversity and connectivity in Geneva, Switzerland**

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In February 2018, the canton of Geneva – Switzerland has established a roadmap to implement the national and state laws on biodiversity conservation. Action plans in Geneva's Biodiversity Strategy for 2030 resulted from a large consultation of multiple stakeholders, and aims at reconciling economic development and the preservation of local biodiversity. Main tasks include establishing action plans to facilitate knowledge diffusion, preserve existing natural habitats, and raise public awareness on biodiversity and Nature's contribution to human well-being. By 2040, the country strives to have a functional green infrastructure network of connected habitats to protect biodiversity and ecosystem services. Through a collaboration between cantonal services in charge of biodiversity, the Conservatory and Botanical Gardens of Geneva, the University of Geneva and the Swiss University of Applied Sciences and Arts, the canton has been developing a strategic framework to balance multiple conservation objectives within green infrastructures. Our



approach is based on spatial prioritization, modeling and GIS tools to integrate four main pillars – species diversity, ecosystem services, landscape structure and connectivity, starting from natural habitat polygons to administrative parcels. This would support policy-makers to identify the highest priority areas to optimize the conservation of crucial habitats and multifunctional landscapes, while minimizing implementation costs and negative costs for other competing interests. In Switzerland, farmers obtain direct compensation payments for saving at least 7% of their agricultural land for “Biodiversity Promotion Surfaces”. This represents an opportunity to resolve bottlenecks to mainstreaming green infrastructures in decision making by finding synergies with other stakeholders, mainly from the agricultural and landscape planning sectors, while complementing the 17% of protected areas targeted by the CBD national engagement. Our presentation gives an overview of the ongoing project and discusses encountered challenges regarding stakeholder engagement, implementation, transboundary issues and data availability.

**Keywords:** green infrastructure, spatial conservation prioritization, Geneva – Switzerland

5. *Type of submission:* **Abstract**

T. **Thematic Working Group sessions:** [T1 4c Bottlenecks and opportunities for applying ecosystem services in spatial planning](#)

**The challenges of ecosystem service-based city management in the city under the multiple social-ecological transitions. The City of Lodz (Poland) case study.**

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Since the beginning of the 1990s, cities in Central and Eastern Europe have been experiencing a socio-economic transition from a centrally-planned to a market economy, and a management shift from entirely top-down to participatory one. The transition brought economic growth and consumption into the focus of city planning and management, while the environmental component, despite increased awareness of individuals or dedicated groups and increasing expectations for improving well-being in general, has become the secondary issue. In this new context, building city's sustainability on ecosystem services and blue-green infrastructure became a challenge of reconciliation of conflicting priorities under numerous constraints. The study explores the situation of the post-industrial cities in the



region, using the City of Lodz – the third largest city of Poland – as a case. The City is broadly recognized for its human capital, technologies and innovation, and visionary thinking about blue–green future (e.g. The City Vision 2038: Lodz uses water wisely, blue–green network for ecosystem service transfer ). Its authorities, encouraged by researchers and NGOs, adopted an integrated development strategy and a set of accompanying sectoral policies, which opened the way to green growth. It has also been one of the first places in the world applying nature–based solutions far before they entered international policies. The societal recognition and support for NBS is rapidly growing. However the study reveals fourfold challenges creating a bottleneck to application of ecosystem services in planning, those are: 1. rigidity of governance structure and institutional legacies, combined with deficiency of regulations and law enforcement, 2. deficit of shared responsibility, sense of place and ownership, 3. absence of ecosystem service assessment in spatial and temporal planning, 4. citizens’ passiveness as an effect of both post–communistic legacies and deficiencies of civil society.

**Keywords:** socio–economic transition, nature–based solutions, planning bottlenecks, post–communistic social, institutional and ecological legacies

6. *Type of submission:* **Abstract**

[T. Thematic Working Group sessions: T14c Bottlenecks and opportunities for applying ecosystem services in spatial planning](#)

**Ecosystems Services maps for transnational planning of mountain regions: a stakeholder perspective.**

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In the European Alps, the intersection of different socio–political boundaries draws a spatial mosaic in which management practices and values attributed to ecosystems and their services differ significantly across borders. This brings about a need for a transnational approach to the study and mapping of ecosystem services (ES), and for a common framework for the application of ES knowledge in spatial planning, able to transcend administrative limits. In the context of the Interreg Alpine Space project AlpES, we mapped





the spatial distribution of key ecosystem services throughout the Alpine arch and performed interviews with more than 60 stakeholders at local and regional level of governance, to capture their viewpoint on the potential application of ES indicator maps for planning objectives at different scales. We asked stakeholders targeted questions on (1) the ES considered in our study, (2) the indicators used to represent them and (3) the potential applicability of ES maps in their work. The selected ES and the respective indicators were appraised as potentially useful by respondents from all sectors and spatial levels. In particular, a great interest in the possibility to analyse dependencies between ES supply and demand and assess ES flow revealed the interest of stakeholders to use ES maps for the evaluation of ES relationships and use values at all scales. However, the municipal resolution of our maps was often considered too coarse for direct application in regional spatial planning by stakeholders, and, while they deemed the presented ES maps useful for the definition of transnational planning strategies, actual implementation possibilities were seen as unclear. Based on these results, we explore the limits and possibilities of embedding the use of ES maps in planning in transnational contexts, and identify the definition of transnational planning frameworks and cross-sectorial flexibility as key challenges future research should focus on.

**Keywords:** Ecosystem Services, transnational mapping, spatial planning, stakeholder involvement, European Alps

7. *Type of submission:* **Abstract**

[T. Thematic Working Group sessions: T14c Bottlenecks and opportunities for applying ecosystem services in spatial planning](#)

## **Ecosystem services integration in the environmental planning process**

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Effective integration of ecosystem services (ES) into spatial planning and decision-making processes has been advocated as an opportunity to improve current practices and to promote sustainable development. However, the actual uptake of ES is still challenging, in part due to the complexity of ES studies, data scarcity, and ES compartmentalization, limited time for programmes' elaboration, among others. This research proposes a way of





overcoming some of these constraints and integrating ES-related information throughout the environmental planning process. It uses the Ria de Aveiro coastal region (Portugal) as case study, and the framework of Estuary Management Plans as a starting point for the gradual incorporation of ES in the design of local strategies. To achieve the main goal – and considering the importance of bridging the science–policy–society spheres – a variety of methodological approaches (e.g. geoprocessing tools, stakeholders’ engagement methods, and strategic planning tools) and multiple layers of information regarding the provision of ES, pressures, alternative futures and stakeholders’ preferences and concerns, were used. The results reinforce the importance of adopting a multidisciplinary and inclusive approach, based on existing and available data. Additionally, this study demonstrates how the integration of ES knowledge helps to innovate and strengthen the process of environmental planning and management towards sustainability, territorial and social cohesion, responding to current societal challenges and contributing to human well-being. Principles such as comprehensive, adaptive, inclusive, and integrative were established as key for guiding ecosystem services integration into spatial planning process.

**Keywords:** Ecosystem services, Social–ecological systems, Ria de Aveiro coastal lagoon, Spatial planning

8. *Type of submission:* **Abstract**

T. **Thematic Working Group sessions:** T14c **Bottlenecks and opportunities for applying ecosystem services in spatial planning**

### **The ecosystem services concept – a new Esperanto to facilitate participatory planning processes?**

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Empirical case studies carried out thus far in different contexts suggest that the ES concept can serve well as a boundary object to facilitate participatory planning and implementation for sustainable landscape development. This study explores the potential of the ES concept to serve as such a boundary object (“new Esperanto”) to facilitate the integration of different actor perceptions and objectives into coupled planning goals. We analyzed eleven case studies in order to explore how the ES concept has been operationalized in supporting participatory planning processes and to identify guidance from successful applications. We characterized the case studies according to contextual and methodological criteria. Each case study was assessed by a standardized balanced score card method in order to detect success or failure criteria in using the ES concept in participatory planning. We compared the case study criteria with the results of the balanced score card method. We identified several positive effects of applying the ES concept in the case studies, including the facilitation of knowledge sharing and consideration of local experiences, the support for creating a shared vision, and the raised awareness among local actors concerning their roles as ES suppliers or beneficiaries. One of the main risks identified concerning the use of the ES concept in participatory planning was the overemphasis of specific goods or services. We have outlined a road-map to deal with this and other problems and have provided a holistic approach to the participatory planning process by using the ES concept.

**Keywords:** Ecosystem services; Participatory planning; Landscape sustainability; Landscape planning; Planning actors

9. *Type of submission:* **Abstract**

**T. Thematic Working Group sessions:** [T14c Bottlenecks and opportunities for applying ecosystem services in spatial planning](#)

**Where is the art work? Territorial-based planning in a sectorial-carved up landscape.**

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Integrated territorial-based planning is a principle which is often praised as a lofty goal in Flemish policy papers, but in reality this is often superseded by sectorial priorities. In order to better understand how spatial planning unfolds in rural areas, we selected a municipality where a lot of sectorial planning is taking place. The municipality of Voeren region has a typical undulating bocage landscape with a mix of forests, pastures, traditional orchards, picturesque villages, cultural heritage and a rich biodiversity. The municipality goal is to maintain the 'typical cultural landscape of Voeren', due to the many ecosystem services it is providing to the community and the many tourists who visit the place. Nevertheless there are strong indications that this unique landscape is under threat, due to low international milk prices and complex and fragmented government regulations. Via a multi-stakeholder consultation, two major strategies were identified to turn the tide: 1) creation of added value for the grass-based milk, and 2) adaptation towards a territorial-based and coherent governance. For the second strategy, several workshops were organized with farmers, local experts, and civil servants at local and regional levels. Within the administrations that are active in Voeren, we observed that there is a growing willingness to cooperate. However, this willingness cannot materialize in concerted action, as there is insufficient institutional space and capacity to consistently align policy processes at the landscape level. To achieve a more integrated planning that can support the preservation of the typical Voeren landscape and the associated agricultural activities, 10 intervention themes at different governance scales were formulated, which include: increase policy coherence, area-oriented planning, managing cross-border impacts, effective participation, recognition of farmers as landscape managers, sharing burdens and benefits of tourism, administrative simplification, reorganize inspections, reduce fragmentation of agricultural land, and compensation for game damage.

**Keywords:** Spatial planning, territorial-based planning, stakeholder participation, cultural landscapes, grass-based dairy farming



*10. Type of submission: Abstract*

T. Thematic Working Group sessions: T14c Bottlenecks and opportunities for applying ecosystem services in spatial planning

**Consistent valuation in a confusing world – the pros and cons of the Analytical Hierarchical Approach in individual and deliberative value assessments.**

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The complexity in land use planning issues and its multiplicity of scales, criteria and actors involved in these processes requires a holistic approach that captures the variety in stakeholder interests. Reaching consensus across interests ensures democratic and cost-effective decision-making processes. We developed the Consensus-based Siting (ConSite) tool suite for siting onshore wind-power plants and routing high-voltage power lines, for which a relative clear approach was included by looking at a geographical component (i.e. what is possible site specific), a financial component (i.e. what are the actual costs) and a biodiversity component (e.g. number of bird nests, number of roe deer). For our new challenge, using ConSite for siting and optimal management of sustainable multi-functional green infrastructures, the ecosystem services concept was added. It proved that especially the consistency of giving values to the different criteria is quite a challenge especially when it comes to overlapping ecosystem services and trade-offs between the services. Applying first the individually based value assessment followed by a deliberative approach revealed that the consistency of assessing the values to different criteria increased although people may be more confident in their individual value assessment done in the first place.

**Keywords:** Analytical Hierarchical Approach, Deliberative process, Spatial Multi-Criteria Decision Tool