EKLIPSE
Knowledge & Learning Mechanism
on Biodiversity & Ecosystem Services

Brief

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An innovative and ambitious science policy to unleash the potential of nature-based solutions through social innovation approaches

A science policy brief highlighting key research needs to best support and promote nature-based solutions through social innovations in response to current societal issues

Background

The project "Establishing a European Knowledge and Learning Mechanism to Improve the Policy-Science-Society Interface on Biodiversity and Ecosystem Services (EKLIPSE), the European Platform for Biodiversity Research Strategy (EPBRS) and the BiodivERsA ERA-Net jointly organised a foresight workshop in Brussels on 6-7th December 2016 on 'Social innovation and nature-based solutions: What research is needed to face future societal challenges and emerging issues?

The aim of this participatory workshop was to explore how nature-based solutions (NBS) can be a response to, or a catalyst for, social innovation to address emerging issues in relation to human well-being and health, governance strategies, land planning and management, and restoration.

This brief summarizes the output of the workshop discussions relevant to scientists, funding bodies and policy makers.

More information is available at: **http://www.eklipse-mechanism.eu/first_foresight_workshop**

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Definitions and discussion:

Although much work has been done by the European Commission and others (EC 2015, Eggermont *et al.* 2015, Cohen-Shacham *et al.* 2016) to clarify the definition of NBS, some confusion remains in its framing especially regarding the importance of taking into consideration economic, social and environmental benefits. Here are the current main definitions of NBS:

Participatory workshop. Photo - EKLIPSE

IUCN definition **Actions**	**European Commission definition** **Solutions**
to protect, sustainably manage and restore	inspired and supported by
natural or modified ecosystems	nature
that address societal challenges	designed to address various societal challenges
effectively and adaptively	which are cost-effective
simultaneously providing human well-being and biodiversity benefits	simultaneously provide environmental, social and economic benefits, and help build resilience

There is common ground between definitions: promoting sustainability and increased role of natural, self-sustained processes relying on biodiversity are inherent to NBS. They constitute actions seen as positive for a wide range of stakeholders, as they bring about benefits at the environmental, economic and social level. A solution inspired by nature but that would not bring any benefit for nature would not qualify as an NBS (e.g. biomimicry).

Regarding social innovation, the definition used is the one of the TEPSIE project (http://tepsie.eu):

"Social innovations are new solutions (products, services, models, markets, processes etc.) that simultaneously meet a social need (more effectively than existing solutions) and lead to new or improved capabilities and relationships and better use of assets and resources. In other words, social innovations are both good for society and enhance society's capacity to act" (Caulier-Grice *et al.*, 2012).

Social innovation was particularly difficult to include in discussions on NBS as the proposed social innovation definition is related to modifying relationships, especially in institutions. In addition, it is still a challenge to have strong representation of social sciences and humanities in workshops discussing NBS.

What are the main issues for which NBS and social innovation could contribute?

Across the main themes that were considered (human well-being and health, governance strategies, land planning and management, and restoration) several issues are cross-cutting such as increased pollution, overexploitation of natural resources as a consequence of urban intensification, human population increase and a disconnect between people and nature. In addition, NBS and social innovation could also play a key role in issues related to the loss of social cohesion and the challenge of migration and immigration.

What could NBS and social innovation contribute to society?

A major change in the way our cities are managed seems necessary with a more systemic approach connecting and developing more green and blue spaces in concertation with local communities, and the use of participatory processes to best fit a wide array of needs and uses. For example: urban gardening and farming could create more social interactions and cohesion, promote local production and become educational and leisure areas. In this context, it is key to work in an integrated way when looking at NBS and social innovation initiatives so that NBS can support social innovation and vice versa. It also relates to integrating new economic, social, educational and nature-based approaches.

Examples of joint NBS and social innovation initiatives:

- education and capacity building (e.g. Society-nature-environment courses in school curricula - bringing nature to children in all school activities)
- bottom-up, participatory and new governance approaches including in government authorities (e.g. Urban labs to encourage co-development and ownership)
- new economic approaches (e.g. Involvement of businesses for developing green spaces that may foster social purposes)
- integrated use of green spaces for both environmental and social purposes.

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An innovative and ambitious science policy to support NBS and social innovation

If NBS and social innovation initiatives are to be further developed, there is an urgent need for research on assessing effectiveness of NBS especially in terms of co-benefits (environmental, social and economic). This should include research on criteria for measuring effectiveness especially on the long-term (sustainability of NBS), but also trade-offs and synergies between impacts and benefits.

As a second major priority, future research should focus on holistic/ systemic and transdisciplinary processes to be both used and catalysed by NBS in land, water, city planning and management.

In this context, NBS is one of the core themes of the BiodivERsA Strategic Research and Innovation Agenda, paving the way to support middle-size, pan-European projects on NBS engaging a range of stakeholders.

In addition, both demonstration projects and more theoretical/classical research are required. Funding should also promote more experimental research (e.g. Pilot studies) resulting in the development of indicators and best practices on how to evaluate the effectiveness of NBS through social innovation approaches.

Some detailed research needs identified during the workshop are presented here and highlight the importance of exploring further how to transform legal, psychological, social and economic contexts for NBS.

Research is needed as a priority on:

- Assessing the effectiveness of NBS to bring social co-benefits (such as social cohesion)
  - What are the conditions/requirements?
  - How can the involvement of people in NBS be fostered to ensure social co-benefits?
  - How can regulations support the social co-benefits of NBS?
  - Under what circumstances could social entrepreneurship deliver social co-benefits of NBS?
- Assessing multiple values (monetary and non-monetary) of green infrastructure development and investments especially in multi-functionality contexts
- Developing trans-disciplinary approaches to help overcome institutional barriers within governments (avoiding sector-thinking)
- Ensuring that technological development does not run ahead of social innovation
- Assessing the effective use of citizen science to measure change in green infrastructure and effectiveness of NBS
- Better understanding the perception and acceptance of NBS in local populations: what factors and processes can help raise awareness?

Specific research is needed in the following areas:

Urban areas:

- Understanding how to achieve systemic change in urban planning to embody NBS
- Identifying success factors of local governance of green space
- Understanding linkages between biodiversity and NBS in urban areas to ensure co-benefits for biodiversity while promoting economic and social development
- Designing (or re-thinking) green and blue spaces to include different and multiple needs (physical / mental / physiological / environmental) from different communities

Flood management:

- Developing holistic systematic approaches and innovative governance for integrated watershed management from upstream to downstream with engagement of local actors throughout the process

Lifestyle and food production:

- Exploring funding models to support active lifestyles and de-acceleration in green spaces (e.g. from health organizations: social security / insurance companies, etc.)
- Understanding social barriers to consumption of more ecological food items (sea weeds / insects, etc.)
- Identify economic and social case for developing managed aquaculture (to increase food production)

Key points

There is a high potential for NBS to address environmental and social challenges such as loss of social cohesion, health, social inequity, loss of connection between people and nature, and inadequate governance models. Proposed NBS for example relating to multiple-purpose green and blue spaces in cities could be seen as multi-functional tools to reach many concurring benefits including educational, psychological, social and economic needs.

NBS and social innovation initiatives should be further developed through research on:

1. Assessing the effectiveness of NBS especially in terms of co-benefits: environmental, social and economic, including research on criteria for measuring effectiveness, trade-offs and synergies between impacts and benefits.
2. Holistic/systemic and trans-disciplinary processes to be both used and catalysed by NBS in land, water, city planning and management.

However, there are also limitations for NBS development and implementation and these are not always understood in the same way especially as an NBS should also increase the benefit for the environment and not just ensure it is "doing no harm". Several articles have compiled information on NBS added value and limits and EKLIPSE has published an impact evaluation framework for NBS in relation to climate resilience in cities (Raymond *et al.* 2017).

Finally, NBS are not very well known as a concept by the wider public although many NGOs and other stakeholders may already be working on similar approaches under different names, e.g. green infrastructures, greening cities, ecosystem-based approaches, etc. Such initiatives would need more political and economic backing if they are to be used more widely, and bring effective opportunities.

Key references

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