



Enabling Green and Blue Infrastructure Potential in Complex Social-Ecological Regions (ENABLE)



Most cities around the world are interlaced with green and blue infrastructure (GBI) and benefit from the wide range of ecosystem services it provides. In an increasingly urbanized world, GBI has the potential to tackle multiple environmental and social challenges, such as human wellbeing, social inequality, biodiversity loss and climate change impacts such as flooding. However, the successful design and implementation of GBI requires careful consideration of a number of key aspects, including people's perceptions of the benefits of GBI, barriers to the equitable distribution of benefits and strategies for making the flow of benefits resilient. The ENABLE project adopts a transdisciplinary approach to investigate the role GBI can play in tackling the social-ecological challenges facing cities, taking into account how these key aspects interact and influence the performance of green or blue solutions.

The ENABLE project brings together a diverse, multi-disciplinary group of partners from North, South, West and Central Europe and North America to investigate how to unlock the full potential of GBI.

It will test possible GBI solutions to urban challenges in the metropolitan regions of Halle, Barcelona, Łódź, Stockholm and Oslo, while also exchanging with the city of New York.

The ENABLE approach

ENABLE adopts a unique systems approach to addressing complex social-ecological challenges. It aims to develop and test new methods and tools to leverage the potential of GBI interventions in neighbourhoods and across metropolitan regions while adopting a social and environmental justice perspective and taking into account the perceptions of local stakeholders.

ENABLE has three core objectives:

- 1** To advance knowledge of how to implement GBI in order to unlock its full potential
- 2** To create an assessment framework and develop new analytical tools and approaches for evaluating performance and resilience of GBI
- 3** To identify and mainstream GBI solutions in European urban areas

Together with local actors in the case study cities (e.g. municipal political representatives, urban planning departments, citizens, civil society organisations, local businesses, parks and green space managers, land owners, urban developers) ENABLE will examine three key questions related to GBI:



How and under what conditions are the benefits provided by GBI most appreciated by people?



How accessible are GBI benefits, and how are they distributed among urban residents?



How can the continuation of GBI benefit-flows be secured in the long-term?

Urbanisation is a process of change, and hence any solution to promote the flow of GBI benefits needs to be resilient over time. ENABLE will create continuous exchange across disciplines to develop knowledge on the systemic linkages and the contextual factors, such as local drivers of change and governance arrangements, that determine the impact of GBI solutions in the case study cities. The project will organize capacity building workshops, webinars and multi-stakeholder meetings to create opportunities for learning and to foster collaboration within and between the case study cities and other cities across Europe. This will support more effective urban planning and decision-making, design and implementation of GBI, and ultimately contribute to a more sustainable urban future.

The project will adopt the definition of GBI provided by the European Commission:

“Green infrastructure is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation. This network of green (land) and blue (water) spaces can improve environmental conditions and therefore citizens' health and quality of life. It also supports a green economy, creates job opportunities and enhances biodiversity.”

<http://ec.europa.eu/environment/nature/ecosystems/>

ENABLE case study cities

By working in six cities, ENABLE will address a range of issues across different urban settings. It will develop guidance tailored to specific local conditions, as well as recommendations for the enhancement of multifunctional GBI across regions. A particular focus within the case studies will be to explore citizen perceptions and the need for social equity and co-creation processes for designing and developing locally attuned and resilient GBI.

New York

New York is a delta city located on the Eastern seaboard of the United States at the mouth of the Hudson River and home to 8.5 million people with 26 million living in the greater metropolitan region. Green infrastructure has become a central part of sustainability and climate resilience planning, especially since 2010 when the Green Infrastructure Plan was launched to help support storm water absorption and reduce unwanted combined sewage overflow. More recently, since the damage caused by Hurricane Sandy in 2012, NY has made further investments in GBI as nature-based solutions for building climate resilience.

Role of GBI for climate adaptation; resilience of urban ecosystems; unequal access to ecosystem services

Oslo

Oslo is a city of 630 000 inhabitants and currently one of Europe's fastest growing capital cities. Policies such as Oslo's municipal plan to 2030, the Marka Act and a newly developed Strategy for Green Roofs outline plans for urban densification and development, and introduce measures to tackle a number of social and environmental challenges facing the city. Mapping, indicator and assessment tools for ecosystem services are needed to support the effective implementation of these policies.

Accounting for ecosystem services of city trees; understanding ecosystem services in urban densification; enabling decision-support tools for urban planning

Stockholm

Stockholm is a rapidly growing city (1.5 million inhabitants) facing a number of challenges related to housing shortages, social segregation, and mounting pressure on natural spaces. At the regional level, land-use planning is decentralised and there are limited incentives for the 26 municipalities that make up Stockholm county to coordinate and cooperate. This poses a major challenge to the effective use of GBI and the capacity to handle complex sustainability issues such as water safety and climate change.

Urban densification; pressure on natural spaces; equitable and continued access to GBI

Barcelona

The Barcelona Metropolitan Area is home to approximately 3 million inhabitants, making it one of the most densely populated urban areas in Europe. It has a compact urban core and several sprawling areas, yet also retains important patches of agricultural land and Mediterranean ecosystems. Key challenges include enhancing air quality and more equitable access to ecosystem services from GBI, taking into account diverse societal demands across municipalities, scales and administrative sectors.

Air pollution; high pressure on GBI; unequal access to ecosystem services

Halle

Halle, a small-medium sized town (240,000 inhabitants) located in eastern Germany, has experienced a period of urban renewal and population growth in recent years. This spike in urban development has resulted in a number of challenges such as the sealing of once open green spaces, increased air pollution and urban heat islands, a growing number of health problems (e.g. asthma, obesity) and the marginalisation of low-income communities.

Air pollution; heat islands; health problems; social marginalization

Łódź

Łódź is the third largest city in Poland with 700,000 inhabitants. It is a shrinking city facing several unresolved environmental and socio-economic problems. Key challenges include bringing visibility to the ecosystem services provided by the city's ecosystems (e.g. its 'invisible rivers'), establishing a foundation for implementing a Blue-Green Network based on a private-public partnership, enhancing natural capital and social equity, and including GBI solutions in the city's revitalisation plans.

Environmental justice; limited visibility of ecosystem services; integration of GBI in urban revival initiatives

Project partners and contact information



Subcontractors



Self-funded partners



Name and contact details of coordinator:

Erik Andersson, Associate Professor, Stockholm Resilience Centre,
Stockholm University, tel. +46 701 917 185, e-mail: erik.andersson@su.se

Project Duration: January 2017 - December 2019

This research was funded through the 2015-2016 BiodivERsA COFUND call for research proposals, with the following national funders:

The Swedish Research Council for Environment, Agricultural Sciences, and Spatial Planning
Swedish Environmental Protection Agency
German aeronautics and space research centre, Germany
National Science Centre, Poland
The Research Council of Norway
Spanish Ministry of Economy and Competitiveness

