

CHINA EUROPE Water Platform



CECoSC Lot 3 draft

Water & Urbanisation
prof Kong/Zevenbergen

21 April 2021

Co-funded by the
European Union and P.R. China



Shared urban water challenges

‘Yesterdays’ cities are facing problems with too much, too little and too dirty water

Transformation of the existing urban fabric is needed

Calls for an opportunity (pro-active) driven approach: renewal/maintenance cycles of buildings and infrastructure provide opportunities to intervene

Ecological civilization/European Green Deal: emphasis on Nature-Based Solutions

Transformation strategy: systems approach and long-term perspective

Past and current focus (top 3) EU funding programs

1. Nature Based Solutions (to protect, manage and restore water resources)
2. Sanitation (to address water quality issues)
3. Floods (to address increasing urban flood risks)

Overarching theme: **resilience**

CECoSC: what are the challenges & opportunities?

1. How to transform the existing city into ecologically, healthy cities? => **water is playing key role**
2. Our understanding of the complex & dynamic urban landscape is limited => **limits our ability to sustainably manage cities**
3. Recent advances in remote sensing, smart technologies and other information services offer huge potentials to support the transition to ecologically, healthy cities
4. China and Europa well suited to jointly address these challenges and seize opportunities

Cooperation needs and research gaps (Guimaraes, 9 November 2019) Idea 1

| | |
|---|--|
| Smart water approach | |
| Smart water approach includes the review of digital monitoring and management of sponge city elements and how it can be linked to urban water management. It is assumed to include co-benefits such as biodiversity, use of GIS to bridge between stakeholders including urban drainage and river management at catchment level. | |
| Link with MLP key area | Environment; Urbanization and City Development; Water and Mineral Resources |
| Link with Horizon Europe intervention area | Cluster 6: IA1-Environmental observations Cluster 5: IA1-Climate science and solutions Cluster 4: IA6-Next generation internet |

Cooperation needs and research gaps (Guimaraes, 9 November 2019) Idea 2

| | |
|---|---|
| Water saving | |
| Water saving includes a discussion on linking sponge cities to water supply, rainwater harvesting, wastewater reuse, controlling black & smelly water (Closing the loop) including water supply sourced from rainwater harvesting, greywater reusing, wastewater reusing, etc. | |
| Link with MLP key area | Environment; Urbanization and City Development; Water and Mineral Resources |
| Link with Horizon Europe intervention area | Cluster 6: IA1-Environmental observations Cluster 5: IA1-Climate science and solutions |

Cooperation needs and research gaps (Guimaraes, 9 November 2019) Idea 3

| | |
|---|---|
| Transition pathways or guidelines on sustainable urban water management | |
| Transition pathways or guidelines on sustainable urban water management revolves around the assessment of services and experiences on maintenance and operation, with a view to co-benefits, including alignment of sponge city sustainable development assessment tools. | |
| Link with MLP key area | Environment; Urbanization and City Development; Water and Mineral Resources |
| Link with Horizon Europe intervention area | Cluster 6: IA5-Food systems, IA7: Circular systems Cluster 5: IA4-Communities and Cities |

Cooperation needs and research gaps (Guimaraes, 9 November 2019) Idea 4

Advanced nature-based solutions for holistic urban water management

Advanced nature-based solutions for holistic urban water management is vital for the implementation of an improved urban water management. The idea of utilising less water, but service more people and nature through the use of water recycling, better technologies such as link storm and wastewater to water supply, is seen as a potential opportunity. The aim is to re-establish good urban ecological conditions for the sustainable support and conservation of biodiversity.

Link with MLP key area

Environment; Urbanization and City Development; Water and Mineral Resources

Link with Horizon Europe intervention area

Cluster 6: IA5-Food systems, IA7: Circular systems

Cluster 5: IA1-Climate science and solutions, IA4-Communities and Cities

Cooperation needs and research gaps (Guimaraes, 9 November 2019) Idea 5

Smart technologies and digital tools to support a transition towards nature-based urban water management

Smart technologies and digital tools to support a transition towards nature-based urban water management for the purpose of keeping track of urban water quantity and quality nature-based elements in urban operation, management and planning, and to provide documentation for co-benefits, an assortment of digital tools may prove useful, as well as GIS as a platform that can be approached by multiple professions. The goal put forward is the development of digital monitoring sensors, including sensors for monitoring co-benefits of nature-based urban water management elements.

Link with MLP key area

Environment; Urbanization and City Development; Water and Mineral Resources

Link with Horizon Europe intervention area

Cluster 6: IA1-Environmental observation

Cluster 5: IA1-Climate science and solutions

Cluster 4: IA2-Key digital technologies, IA6-Next generation internet

Cooperation needs and research gaps (Guimaraes, 9 November 2019) Idea 6

Assessment criteria for sustainable urban water management

Assessment criteria for sustainable urban water management aims to advance international collaboration on nature-based urban water management. This action is considered essential for the provision of synopses for national objectives, criteria and values to establish a common starting ground. The goal put forward under this topic is the establishment of a platform for alignment of urban water management objectives, criteria and values.

Link with MLP key area

Environment; Urbanization and City Development; Water and Mineral Resources

Link with Horizon Europe intervention area

Cluster 6: IA5-Food systems, IA7: Circular systems

Cluster 5: IA4-Communities and Cities

Cooperation needs and research gaps (Guimaraes, 9 November 2019) Idea 7

Study of the process of urbanization and its influences on water security mechanisms and regulations

China has studied the process of urbanization on several levels and its influences on water security mechanisms and regulations implemented with particular attention towards arid regions. Their research and knowledge in the field with the emphasis on arid regions, may be of benefit to a collaborative project on the subject. Bringing the EU and China knowledge on the topic to a joint project, where the EU has significant urbanization and its impact on water security experience and China has specific related knowledge and experience focused on arid regions may result in new and innovative approaches to water security mechanisms and regulations.

Link with MLP key area

Environment; Urbanization and City Development; Water and Mineral Resources

Link with Horizon Europe intervention area

Cluster 6: IA2-Biodiversity and natural capital

Cluster 5: IA1-Climate science and solutions, IA4-Communities and Cities

Proposed project for water and urbanization

| Features | Description |
|-------------------|---|
| Project type | RIA (Research and Innovation Action) |
| Financial envelop | EUR 12 - 15 million |
| Duration | 60 months |
| Aim | Transformation of existing cities into ecologically healthy and eco-friendly sites through the implementation of integrated urban planning and management, harnessing the benefits of ecological systems and nurturing them for the future generations. |
| Scope | <ul style="list-style-type: none"> Identify existing & new approaches to integrate remote sensing technology and spatial analysis tools to better monitor and manage water sustainability at different spatial scales; Define ways on how technologies, approaches and workflows can be applied as standard tools and methods to solve the water related issues in municipalities; and Use novel mapping and monitoring technologies for inclusion in the comprehensive urban planning and design framework that ponders all aspects of water quality and quantity management. |
| Impact | <p>Alignment of technologies, legislation and governance in the standardisation of approaches towards climate adaptation, environmental protection and restoration</p> <p>Enhancement social-economic standard of living.</p> <p>Diffusion of innovative approaches to urban water management such as blue-green infrastructure and hybrid grey-green build environment, and novel technologies like sensors are expected to facilitate technology exchange and form the ground for future dual innovation activities</p> |