

Water Management and Ecological Security

Priority Areas for Cooperation between EU and China



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KEY AREAS

01 Ecological flow
security

02 Biodiversity surveys

03 Technical standards
Monitoring and restoration

04 Compensation mechanisms
Payments for Ecosystem Services

05 Smart Water Development
Water-Food-Energy-Ecology

06 Ecological Monitoring

07 Technologies to address
Emerging Pollutants

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01

Ecological flow security in rivers with water shortage

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- Rapid analysis and evaluation of hydrological year type, study of water source conditions and identification of potential risks in river flow.
- Establishment of an operational ecological flow control plan in order to support river corridor restoration also taking in consideration groundwater over-extraction
- Study of hydrological response monitoring program in order to analyze and predict the viability of yearly water transfer implementation
- Development of management plan for ecological flow protection

Link with MLP key area	Environment; Water and Mineral Resources
Link with Horizon Europe intervention area	Cluster 6: IA1-Environmental observation, IA2-Biodiversity and natural capital

02

Biodiversity surveys and restoration

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- Improvement of knowledge on the history and present situation of the biodiversity in key watersheds (e.g. Yongding River, Rhine)
- Analysis of patterns of changes and the establishment of a rapid and complete basic databases of biodiversity
- Analysis of key issues that restrict the restoration of biodiversity according to the life history traits of animals and plants,
- Implementation of habitat restoration projects - carrying out technical research on solving restoration problems for habitat diversity creation, key species, species breeding and reintroduction.

Link with MLP key area	Environment; Water and Mineral Resources
Link with Horizon Europe intervention area	Cluster 6: IA1-Environmental observation, IA2-Biodiversity and natural capital

Technical standards for monitoring and assessment of the ecological restoration

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- Development of technical standards to determine water quality, quantity and ecological indicators. This analysis is meant to reveal whether the water bodies fully echo the characteristics of rivers and effects of ecological restoration implementation.
- Assessment of the level of success of ecological restoration of rivers and lakes
- Develop a targeted monitoring and assessment indicator system for adequate river restoration in order to establish technical standards for ecological monitoring and restoration

Link with MLP key area	Environment; Water and Mineral Resources
Link with Horizon Europe intervention area	Cluster 6: IA2-Biodiversity and natural capital

04

Water ecological compensation standard and policy

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- Improve policy making for the designation of ecological zones, including determining the applicable conditions and procedures for the implementation of water ecological compensation mechanisms or Payments for Ecosystem Services
- Development of ecological protection compensation standard system (Payment for Ecosystem Services mechanisms)
- Development of communication and coordination framework platform for the construction of smooth operational PES mechanisms and relevant policy suggestions
- Promote and apply the current successful management models in water-shortage basins to test their effects and gather familiarity with biodiversity survey and advanced restoration technology.
- Development of mutual collaborative efforts, exchanges of foreign technologies, development of river biodiversity database
- Development of ecological monitoring and assessment indicator systems, according to measures applied in the watersheds

Link with MLP key area	Environment; Water and Mineral Resources
Link with Horizon Europe intervention area	Cluster 6: IA1-Environmental observation

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- Development of knowledge and experience to demonstrate better integration of the Nexus into Ecological security and River Basin Management Planning (e.g. Yellow river, Rhine).
- Evaluation of Water-Food-Energy-Ecology status, including water supply and demand situation, water resources allocation and regulation.

Link with MLP key area	Environment; Agriculture; Energy; Water and Mineral Resources
Link with Horizon Europe intervention area	Cluster 6: IA3-Agriculture, forestry and rural areas, IA4-Emerging Enabling Technologies

06

Ecological status monitoring

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GAPS

- Projects such as EOMORES, which focuses on establishing new highly efficient commercial services for operational inland and coastal ecological water quality monitoring, can provide important implications for the future collaboration.
- China has a strong focus on ecological monitoring in general and related to specific river basin projects.
- **There seems to be an opportunity to collaborate in this field with a potential commercial application that would be in great demand in the EU and China.**

Link with MLP key area	Environment; Water and Mineral Resources
Link with Horizon Europe intervention area	Cluster 6: IA1-Environmental observation,
	IA2-Biodiversity and natural capital
	Cluster 4: IA4-Emerging Enabling Technologies

GAPS

- An opportunity to share knowledge, prototypes and practices from previous separate China and EU research related to technologies that address emerging pollutants. Both China and the EU have conducted RDI in this field and there does not seem to be a project that has taken advantage of the knowledge and capabilities developed through a collaborative effort.

Link with MLP key area	Environment; Water and Mineral Resources
Link with Horizon Europe intervention area	Cluster 6: IA1-Environmental observation, IA2-Biodiversity and natural capital Cluster 5: IA1-Climate science and solutions key digital technologies Cluster 1: IA2-Living and working in a health promoting environment Cluster 4: IA4-Emerging Enabling Technologies

Proposed future cooperation projects between EU and China : Water Management and Ecological Security

Features	Description
Project type	RIA
Financial envelop	EUR 5 to 7 million
Duration	48 to 60 months
Aim	<ul style="list-style-type: none"> ● Falttering degradation and destruction of water-related ecosystems by developing, testing, implementing and upscaling large watershed management projects through new innovative sensor and digital platforms; ● Incorporating natural, rural and urban areas in large testing and monitoring beds through implementation and scaling up at various geographical scales. ● improve the management level of ecological water supply and strengthen the protection and restoration of watershed biodiversity
Scope	<ul style="list-style-type: none"> ● In water shortage areas, Identify, develop, demonstrate and test innovative multi-beneficial solutions at the water source ● Address natural, rural and urban environments/contexts in the context of large European and Chinese transboundary/trans-jurisdiction rivers; ● Tackle the needs of the users, citizens, nature and biodiversity as well as the potential development and implementation of sustainable payments for ecosystem services; ● Development of business cases, first-hand policies and governance models which take advantage of new technologies and e-platforms; and ● Solicit opinions and suggestions from stakeholders from diverse sectors in the development Support Systems with the integration of new technologies such as large sets of sensors. ● Identification of ecological constraints and limiting factors for regional sustainable development based on river ecosystem health assessment. ● River restoration for establishing benthic and riparian habitats to support local biodiversity. ● Improvement of multipurpose regulation with considering flood control, water supply, navigation, pollution prevention, ecosystem integrity, and biodiversity conservation.
Impact	<ul style="list-style-type: none"> ● Establishment of technical standards for monitoring and assessment of ecological restoration such as new remote sensing technologies such as wireless sensors and development of restoration technologies; ● Development of large database parameters to gather as much information as possible from several regions and departments ● Formulate water ecological compensation policy mechanism and standards , contributing to transboundary and trans-provincial management of rivers ● Strengthen EU's role in international water issues and encourage EU to become a leading actor on water diplomacy. ● Optimize the utilization and management of water resources, and improve water-saving management technology ● Study the methods to determine the ecological flow in water shortage areas, seasonal rivers and mountain rivers, and put forward the guarantee scheme of ecological flow in water shortage areas ● Improve biodiversity restoration technologies and related assessment methods in different habitats

Thank you!



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