



European strategic research and innovation agenda for water



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Policies, Innovation
And Network for enhancing
Opportunities for China-Europe
water cooperation

中欧水源合作机会增进政策, 创新和联网

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PIANO WP4 - Policy uptake and SRIA

PIANO WP 4 is focused on these objectives:

1. Promotion of **knowledge exchange and policy dialogue** to build an enabling environment for the uptake of technological water innovations with a great potential for implementation, further replication and market uptake in China (Task 1, 2, 3)
2. Consolidation of a **shared strategic research and innovation agenda** between Europe and China in the water sector (Task 4)

Task 1 Knowledge exchange on water innovation systems

Task 2 Policy synthesis report

Task 3 Policy recommendations and policy dialogues

Task 4 Elaboration of a Shared Strategic Research and Innovation Agenda



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International Agendas analysed for the elaboration of the PIANO SRIA:

1. **WssTp** European Technological Platform on Water
2. **Water JPI** Strategic Research and Innovation Agenda 2.0 Section V - EIP Partnership on Water
3. **Acqueau** Strategic Research Agenda
4. European Commission: **Blueprint** to Safeguard Europe's Water Resources
5. **ASEM (Asia-Europe meeting)** documents on water
6. China's water resources management challenge: **The three red lines**

National Agendas:

1. **Connect-EU Water Group** 'Strategic Research Agenda 2012' (Spain)
2. **International Strategy for Finland's Water Sector** (Finland)
3. **Italian strategic research agenda:** National strategy on adaptation to the climate change





The comparative analysis of existing research and innovation agendas aimed to analyze and compare water research and innovation needs, topics and actions listed within each document

For each agenda, an organized list of RDI needs was framed by **Water Innovation drivers (water challenges)** and by **Key water domains**:

Main water drivers (Water Challenges)	Water Domain 1 (Agricultural water management)	Water Domain 2 (Urban / rural water management)	...
1 - Water scarcity	RDI needs 1.1 (related to water scarcity)	RDI needs 1.2 (related to water scarcity)	...
	RDI needs 2.1 (related to water scarcity)	RDI needs 2.2 (related to water scarcity)	...

2 - Water pollution	RDI needs 3.1 (related to water pollution)	RDI needs 3.2 (related to water pollution)	...
	RDI needs 4.1 (related to water pollution)	RDI needs 4.2 (related to water pollution)	...
3- Extreme events	RDI needs 5.1 (related to extreme events)	RDI needs 5.2 (related to extreme events)	...
Water infrastructures





Following the comparative analysis of the most important water-related European strategic research and innovation agendas (**WssTp** , **WaterJPI**, **EIP-Water Implementation Plan**, **Acqueau** etc.), some important topics for each challenge and domain were identified:

Main water drivers (Water Challenges)	1 – Agricultural water management	2 - Municipal water management	...
1 - Water scarcity	Irrigation technologies: Decision Support Systems	Water saving technologies (taps, WCs, infrastructures, water reuse)	...
	Water reuse: new technologies (e.g. cascading systems); Safe reuse of treated wastewater reuse	Efficient Use of Water (EUW); metering technologies	...
	Water reuse in irrigated agriculture (promoting social acceptance, assessing costs and barriers)	Recovery energy and raw material technologies from sludge and wastewater (energy and nutrient recovery technologies)	...

2 - Water pollution	Nutrients and pesticide technologies management	Microbiological Risk Assessment and management tools	...
	Water pollution reduction technologies	Sensors and monitoring technologies (microbiological-chemicals contamination)	...
	Reducing soil and water pollution: Water-related soil degradation technologies (salinity, erosion, degradation, clogging, oxidation)	Emerging pollutants : Separation technologies and extraction technologies to harvest resources from wastewater and reused water	...
...

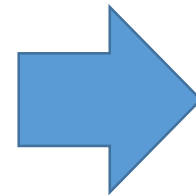




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Domains

- Agricultural water challenges
- Municipal water management
- Industrial water
- River basin management
- Water for energy



Challenges

- Water scarcity
- Water pollution
- Extreme events
- Ecosystem degradation
- Water infrastructures





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Domain 1 - Agricultural Water management:

- **Challenge 1 – Water Scarcity:** Implementation of water-saving policies and technologies - water recovery and recycling - development of more efficient systems for abstracting underground water resources - precision irrigation technologies.
- **Challenge 2 – Water pollution:** nutrients and pesticide reduction through adequate management - technologies for pollution remediation - treatment, precision irrigation and energy recovery technologies - water-related soil degradation technologies against salinity, erosion, clogging and oxidation
- **Challenge 3 – Extreme events (droughts and floods):** Monitoring and extreme events management - forecasting and early warning systems





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Domain 2 - Municipal Water Management

- **Challenge 1 – Water Scarcity:** Water saving technologies and wastewater reuse – water reuse infrastructures – desalination technologies and rainwater harvesting technologies – recovery energy and raw material technologies
- **Challenge 2 – Water pollution:** Risk assessment and management tools – monitoring and removing technologies
- **Challenge 3 – Extreme events (droughts and floods):** Stormwater management and systems for flood and drought assessment – nature based solutions – DSS (Decision Support Systems) -





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Domain 2 - Municipal Water Management

- **Challenge 4 – Ecosystem degradation:** methods to determine environmental flow needs, which could cause ecosystem degradation.
- **Challenge 5 – Water infrastructures:** Wastewater collection improvement - Methods-technologies for identification (monitoring) and remediation of corrosion – Monitoring and management technologies.



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Domain 3 – Industrial Water Management

- **Challenge 1 – Water scarcity:** technologies for closing the cycle gap - recovery energy and raw material technologies from sludge and wastewater - technologies and system to reduce water scarcity
- **Challenge 2 – Water pollution:** monitoring and treatment technologies against water pollution - monitoring water quality and advance water treatment technologies - advance water treatment technologies (Membrane technologies; Advanced, biological, treatment, solid separation)



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Domain 4 - River basin management and flood control

- **Challenge 1 – Water scarcity:** monitoring and management technologies – optimization of water uses and water saving management – aquifer management and DSS
- **Challenge 2 – Water pollution:** new technologies for contaminated areas remediation – early warning system and data integration – water pollution monitoring parameters
- **Challenge 3 – Extreme events (droughts and floods):** new remote sensor technologies as Doppler radar and wireless sensor – risk based decision making and planning tools hydrological and meteorological models – forecasting monitoring system





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Domain 4 - River basin management and flood control

- **Challenge 4 – Ecosystem degradation:** new water management scheme - new technologies and research on restoration methodologies of aquatic system



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Domain 5 – Water for energy

- **Challenge 1 – Water scarcity:** industrial water reuse improvement – hydropower plants improvement – new technologies



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Steps towards an implementation plan of the PIANO SRIA

IMPLEMENTATION PLAN



- Focuses on the development of the PIANO project
- Identifies priority items to be implemented
- Plans joint activities
- Identifies specific goals and objectives



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Implementation plan of the PIANO SRIA

- The SRIA should be assimilated in the CEWP and implemented through common actions
- Trans-disciplinary research and development of innovative solutions are needed and must be adapted to the realities of the region and easily transferable across it.
- Activities will be planned in synergy and complementarity with many initiatives such as JPI Water and JPI Facce, WssTP, EIP, programme actions etc.





Implementation plan of the PIANO SRIA

In the specific, the implementation should be realised following nine steps:

1. Make water a formal component of future EU-China RIA agenda
2. Better exploit existing RIA infrastructure
3. Better align and utilize existing EU-China RIA infrastructure to build on water challenges/ opportunities
4. Improve connections between EU member states and Chinese RIA infrastructure





Implementation plan

5. Align multiple components of the EU water innovation support system with Chinese counterparts
6. Enact a process for regular, annual dialogue between MWR, MOST, MEP, with Acqueau, Water-JPI, WSSTP, EUREKA, EIP-Water, etc.
7. Discuss joint actions to overcome potential policy barriers to innovation development and uptake
8. Provide strategic support to overcome common market barriers
9. Align visions with the Global SD Goals, and consider future collaborations on global water innovation challenges





The PIANO project

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Thank you for your kind attention!



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