

CHINA
EUROPE
Water Platform

对恢复标准的政策预期
Policy Expectation towards
Restoration Standards

By Prof. Li Jianhua



A brief to water ecological restoration

河流湿地退化形势严峻 Severe Situation of Aquatic Ecological Degradation

“71% wetland has been seriously threatened by human activities in China...”(Cheng et. al 2014)

经济效益

Economic Benefits

During the 11th five-year plan period, China completed over 400 billion RMB of investment in fixed assets of the ecological protection and environmental governance industry, and the compound annual growth rate reached 38%. During the 12th five-year plan period, the total investment reached over 800 billion yuan, nearly twice that of the 11th five-year plan period, and the total compound growth rate was over 20%. During the 13th five-year plan, for 2016 alone, the amount of fixed asset investment completed by the ecological protection and environmental governance industry reached 314.6 billion, with a 40% increase.

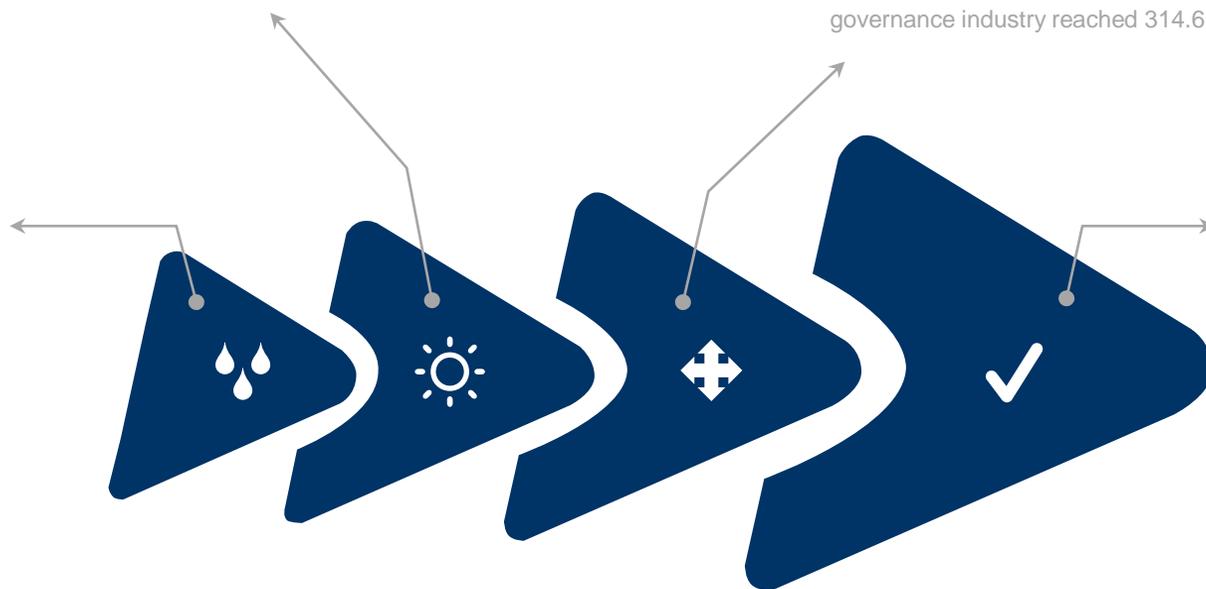
水生态修复重要性 Significance of water ecological restoration

- Biodiversity conservation
- Water security
- Ecosystem approach to Disaster Risk Reduction

环境和社会效益

Environmental and Social Benefits

- Ecological civilization construction
- The UN Sustainable goals
- Mitigating water crisis
- Mitigating ecological crisis
- Confronting with climate change and its impacts



Restoration policies in China

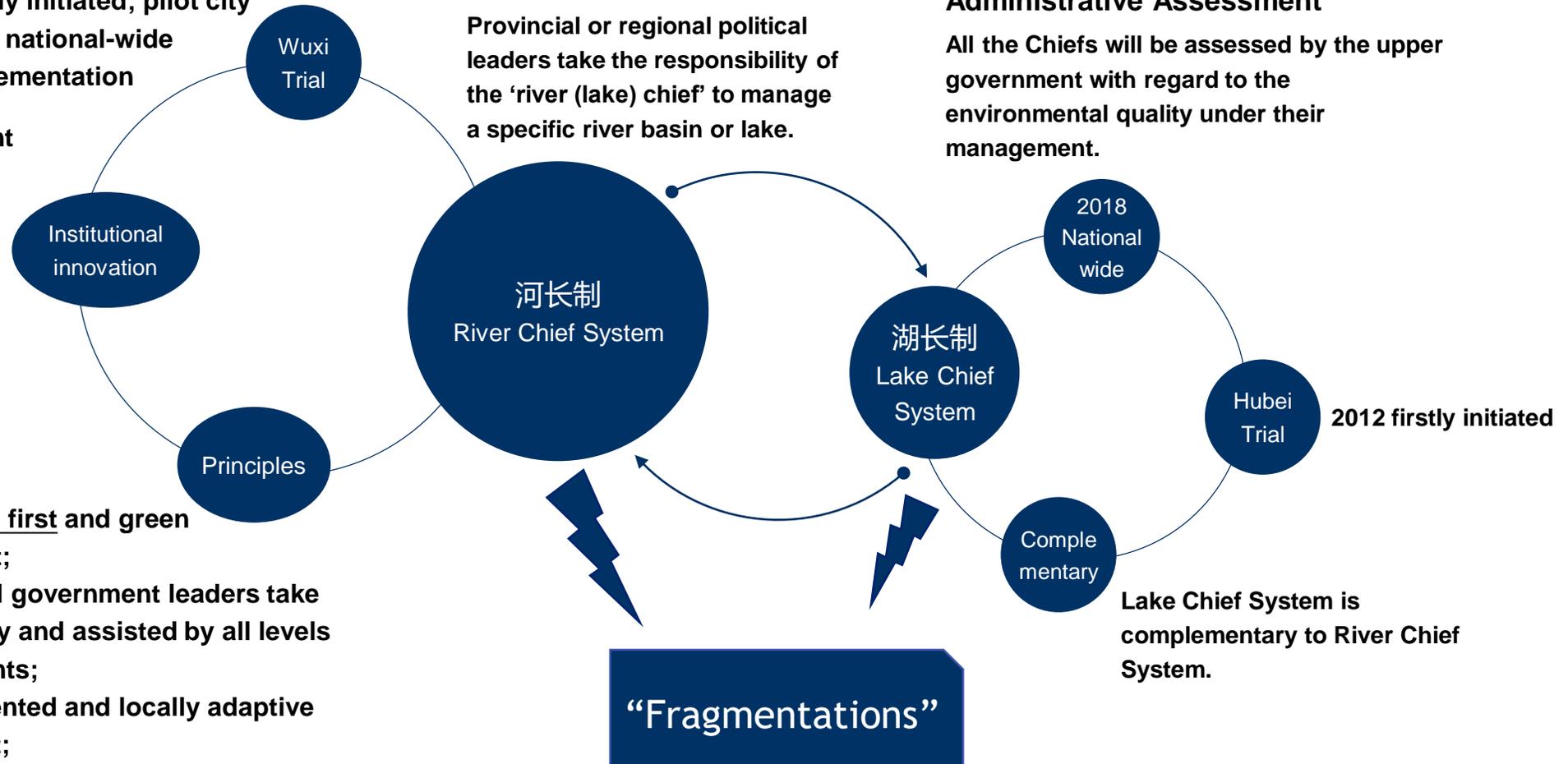


River Chief System

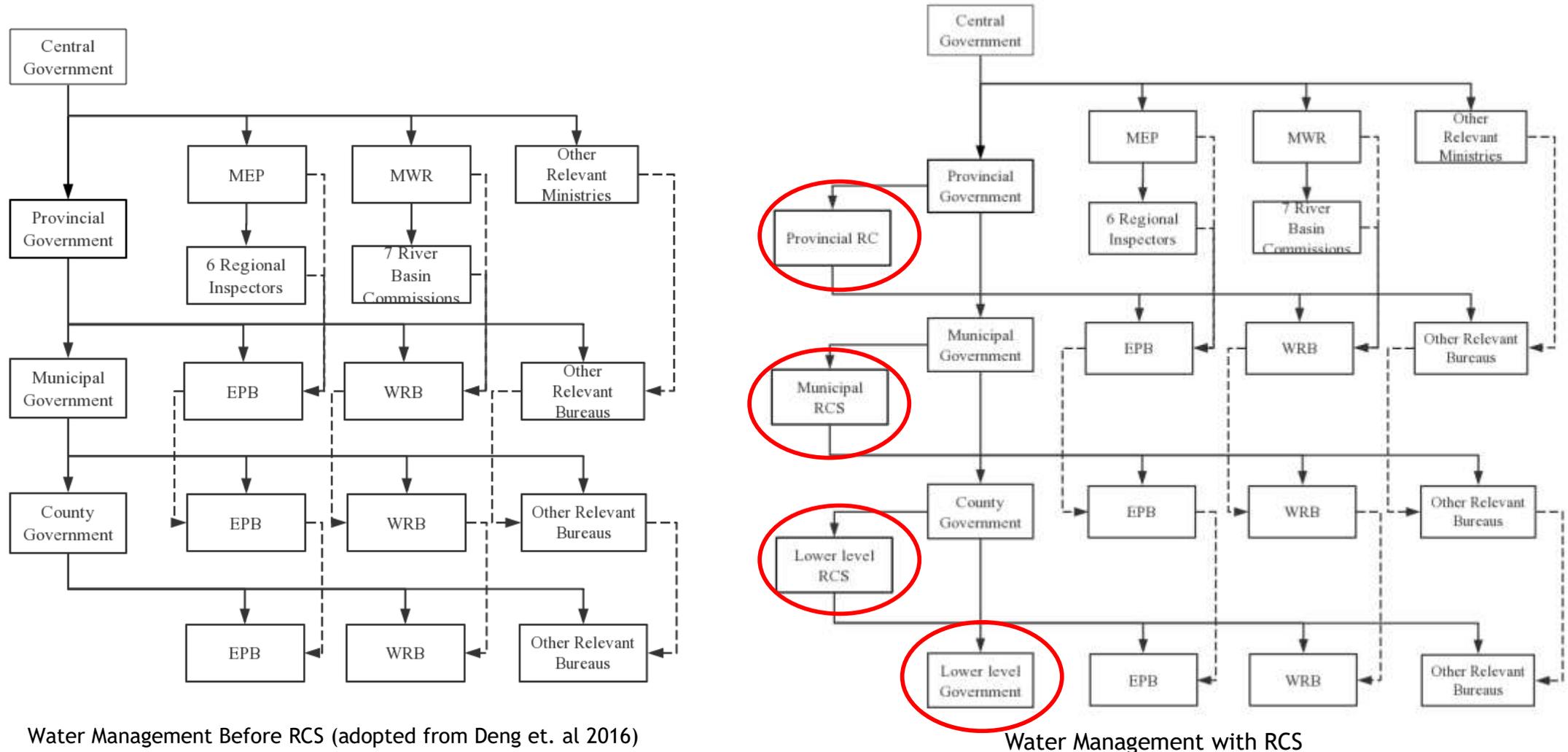
- 2007 blue algae bloom in Taihu region
- Firstly initiated; pilot city
- 2016 national-wide implementation

- Integrated River Basin Management (IRBM)
- Four-level administration system covering the levels of provinces, cities, counties and townships
- Above the county level, the River Chief office shall be set up, in accordance with the specific local situations

1. Environment first and green development;
2. The CPC and government leaders take responsibility and assisted by all levels of departments;
3. Problem-oriented and locally adaptive management;
4. Enforcing supervision and assessment.



Water management under RCS initiative



Water Management Before RCS (adopted from Deng et. al 2016)

Water Management with RCS

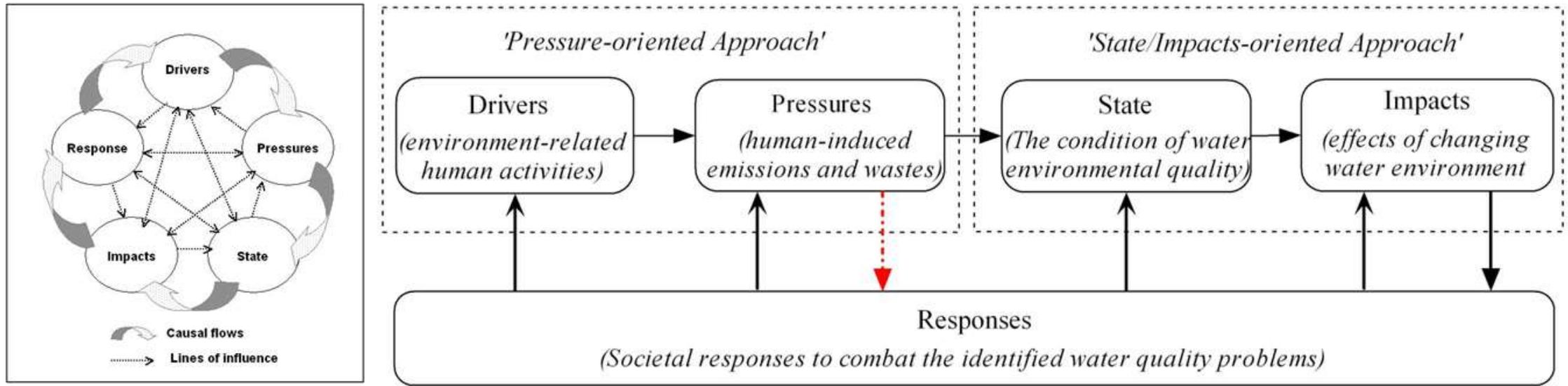
Standards for ecologically successful river restoration



(Source: Palmer et al. 2005)

- **Policies** have been turning from **hard engineering solutions** to **ecologically based restoration activities** in order to improve degraded water ecology.
- A criteria matrix for measuring success:
 1. the design of an ecological river restoration project should be based on a specified guiding image of a more dynamic, healthy river that could exist at the site.
 2. the river's ecological condition must be measurably improved.
 3. the river system must be more self-sustaining and resilient to external perturbations so that only minimal follow-up maintenance is needed.
 4. during the construction phase, no lasting harm should be inflicted on the ecosystem.
 5. both pre- and post-assessment must be completed and data made publicly available.

A DPSIR Framework to forecast Ecological River Restoration standards



(Source: Song et al. 2012)

- Without monitoring anthropogenic pressures on the water environment, it is difficult to set realistic river restoration targets in relation to water quality.
- Therefore a systematic approach is needed to exam the connection within socio-economic drivers and observed water quality-related impacts on river ecosystems.
- Through using a DPSIR framework, especially focusing on PIR, to analysis the pressure and impacts, policy responses are estimated.

A DPSIR Framework to forecast Ecological River Restoration standards (Cont')

Pressures

- Excess discharge
- Habitat encroachment
- Some hydraulic engineering projects
- Eco-flow deficit

Impact

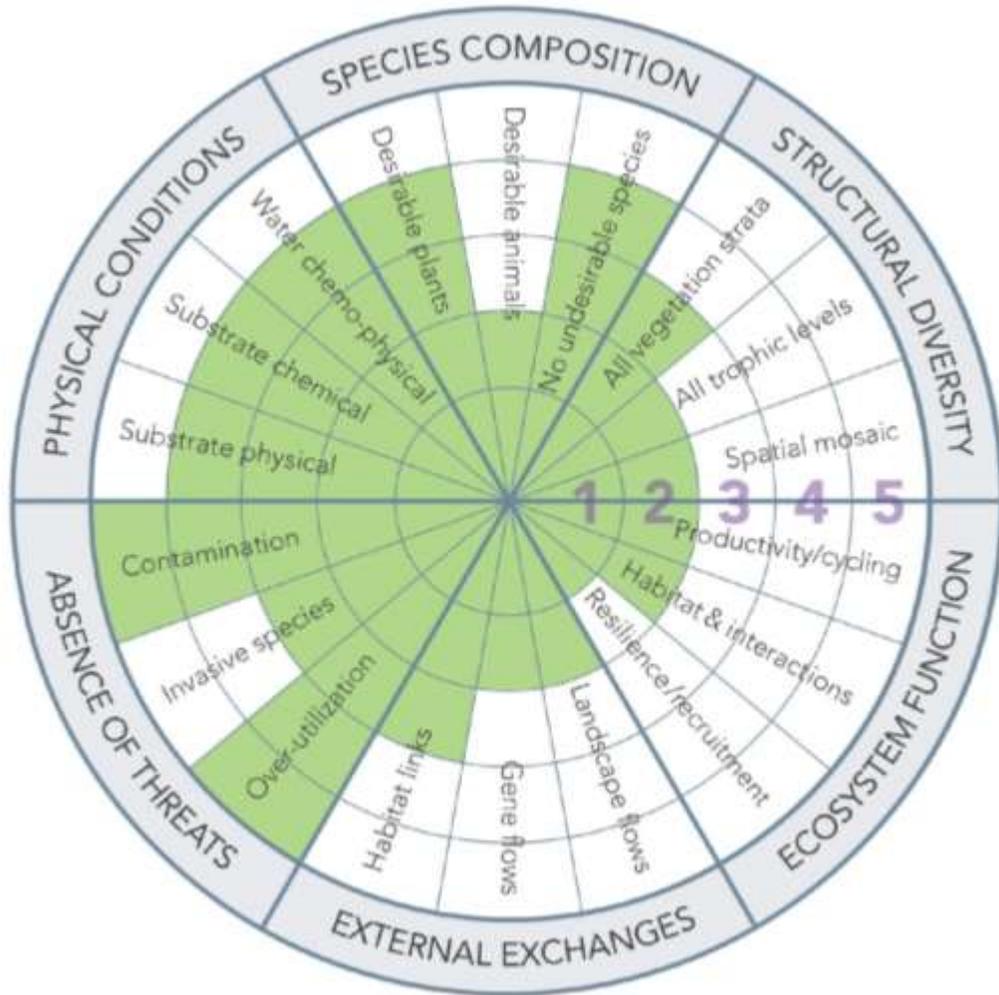
- Dual stress of water quantity and quality
- Aquatic biodiversity loss
- Water ecological degradation
- Function loss → eco-services loss

Policy Response

- ✓ Water and Soil Conservation Law (2010)
- ✓ National Water Ecological Civilization Pilot directive (2013)
- ✓ Ten-point Water Plan (2015)
- ✓ Water Pollution Prevention and Control Law (2017)

- ✓ The IRBM scheme: RCS system (2016)
- ✓ Opinions on the construction of long-term mechanisms for ecological compensation and protection in the Yangtze River Basin (2018)
- ✓ Opinions on strengthening aquatic biological conservation in the Yangtze River Basin (2018)

Ecological River Restoration standards



Source: SER 2018

RESTORATIVE CONTINUUM



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- Major focuses were given to *Absence of Threats & Physical Conditions*
- Since 2018, more attention were given to *Species Compensation*
- However, lack of policy proposals on *Ecosystem Function, Structural Diversity & External Exchanges*
- Present policies highlights the initial 3 stages on Restorative Continuum

Policy expectation to Restoration standards

- Given the overall ecological restoration situation is at the initial stage, establishing strict restoration standards are not practical
- Attention should be given to the enforcing compliance and refining standards based on existing policies.
- Detailing the criteria matrix and technology standards to facilitate implementation and assessment
- Through policy making, habitat conservation should be listed as a major objective so as to protect biodiversity and ecological functions of rivers and other wetlands
- Enhancing stakeholder engagement in order to involve indigenous knowledge into standard-making

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中欧水平台环境修复项目问卷调研 CEWP Restoration projects inquiry



<https://pt.surveymonkey.com/r/8XYGB36>

In the context of China Europe Water Platform, the University of Évora, the China Institute of Water Resources and Hydro-power Research and Tongji University are promoting an on-line inquiry to make an evaluation of restoration projects developed in Europe and China, with the objective of contributing to increase restoration standards. By answering to this questionnaire, you will be contributing to a policy study that wishes to give support to European and Chinese policy makers on the most appropriate restoration standards to use when developing this type of project. The inquiry is targeted to restoration projects implemented in freshwater ecosystems.