Bridging EU water policy and scientific results

GLOBAQUA

Introduction

EU freshwater policy contains other elements, but the Water Framework Directive (WFD) is of over-arching importance. The Directive was adopted to replace traditional management practices, predicated upon the command and control paradigm that looked at pressures in isolation and reduced environmental systems to their constituent elements when setting specific water objectives. The Module ENVIRONMENTAL MANAGEMENT aims to deliver a better understanding of how current management practices and policies could be improved by identifying the main drawbacks and alternatives, and identifies opportunities and recommendations for improving policy making and implementation. It also aims to achieve an integrated representation of multiple stressors under water scarcity and their impacts on water ecosystems and society, moving from the case-study basins to the European scale.

Challenges

- Review the current EU water policy framework to make the connection between the occurrence and impact of multiple stressors under water scarcity and water policy implementation
- Review the WFD implementation and identify constrains for adoptive and sustainable water management
- Identify areas and policy needs where GLOBAQUA research could deliver benefits
- Deliver a solid assessment framework to systematically consider all relevant stressors and pressures in river basins, towards achieving the environmental objectives of the WFD
- Make the connection between different scientific disciplines, to feed the practice of river basin managers

Activities

1. Development of the conceptual assessment framework and online optimization tool
2. Development of a system of pan-European pressure indicators, including uncertainty and sensitivity assessment of the indicators
3. Application of the framework in 4 case-study basins and generalization to European scale
4. Assess how current EU water policy and management practices are dealing with complex multiple stressor situations and water scarcity
5. Evaluate the effectiveness of the current EU water policy implementation
6. Investigate the reasons that might have limited the effectiveness of the WFD
7. Elaboration of policy/regulatory oriented documents as recommendations for adaptive and sustainable water management policies based on the GLOBAQUA findings

Approach

An integrated assessment framework was established to identify the key pressures determining departures from the desired status of water bodies. Reduction targets will be identified for individual pressures after the incorporation of socioeconomic possibilities and willingness to commit, to facilitate the development of Programmes of Measures (PoMs). In addition, the reasons why the WFD was introduced were reviewed to establish the right benchmark for the policy analysis (Figure 4.1). Consecutively, the project assessed how effective the WFD implementation has been in addressing these, and the extent to which it has contributed to the limited delivery and the delays in water quality improvements. Outputs from the analysis were used to establish the policy needs where GLOBAQUA research could deliver benefits.

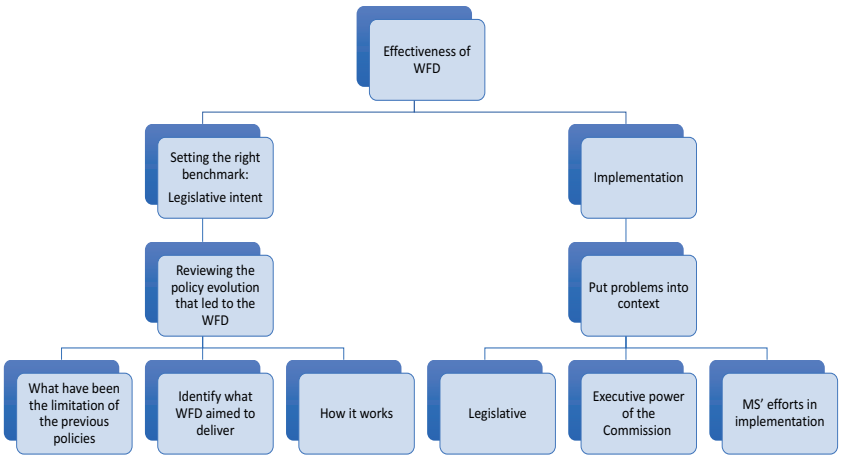

Figure 4.1 *The evaluation of the Water framework Directive's effectiveness in implementation*

GLOBAQUA has received funding from the European Community's 7th Framework Programme under Grant Agreement No. 603629

Scientific results

Findings from the policy analysis identified the deviation from the WFD's intent and methodological approach as a fundamental problem with its implementation (Figure 4.2). Misunderstandings with the definition and the role of ecological status in the WFD process were identified as a major barrier to the harmonized transposition of the Integrated River Basin Management (IRBM) paradigm.

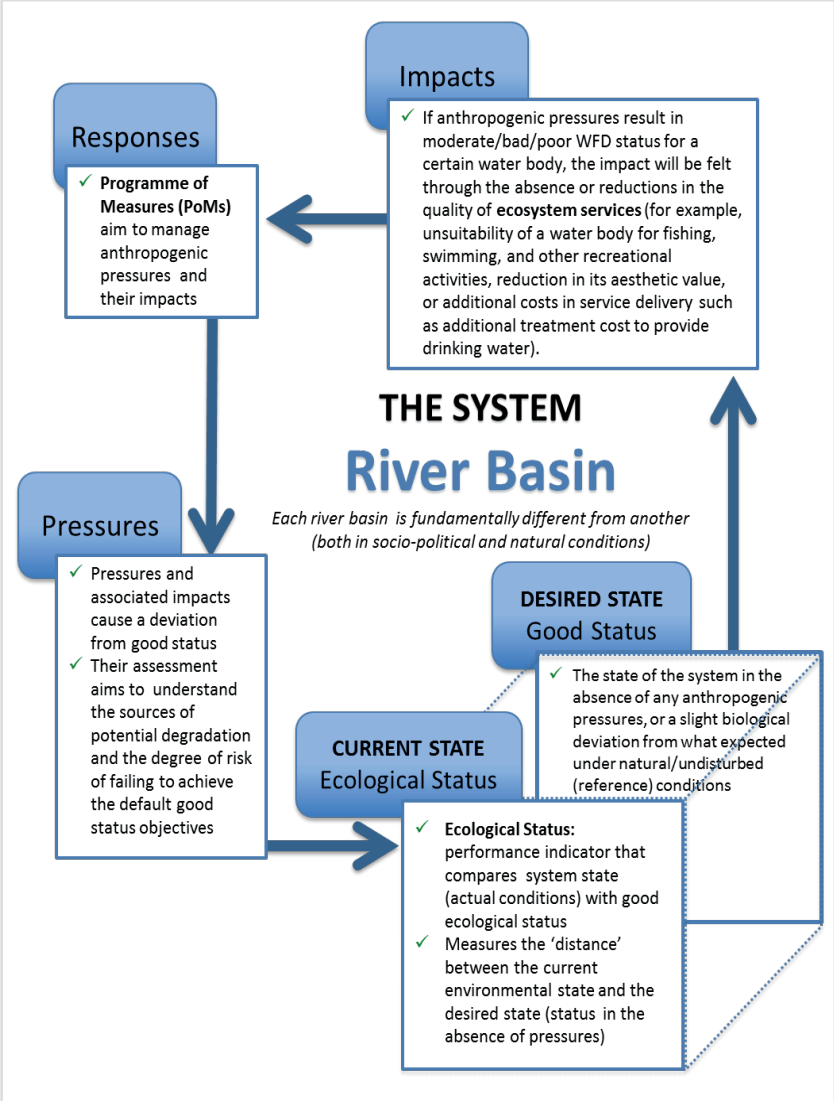

Figure 4.2 *The departure from the Water framework Directive's systemic intention and methodological approach*

References

Pistocchi A. *et al.* (2017) An integrated assessment framework for the analysis of multiple pressures in aquatic ecosystems and the appraisal of management options. Science of the Total Environment 575: 1477–1488

Vlachopoulou M. *et al.* (2014) The potential of using the Ecosystem Approach in the implementation of the EU Water Framework Directive. Science of the Total Environment 470–471:684–694

Voulvoulis N. *et al.* (2017) The EU Water Framework Directive: From great expectations to problems with implementation. Science of the Total Environment 575:358–366

Key outcomes

- Concept paper on the integrated framework and an upcoming web-based tool
- System of pressure indicators at EU scale, tested in the case-study basins
- The types of uncertainty that need to be taken into account in water policy were established and recommendations were provided for different adaptive management regimes
- Systems thinking in the implementation of the WFD was identified as a pre-requisite to delivering water quality improvements

Recommendations

- Enabling a paradigm shift through the harmonised transposition of the IRBM paradigm is the way to account for multiple pressures interactions and to address complexities bounded in water management
- Shifting from element compliance to system understanding
- Improving transparency, interdisciplinarity and stakeholder engagement in the decision-making process is key to address complexities and manage uncertainties
- More attention should be given to collaborative knowledge sharing and production between all actors involved
- Promote the integration of ecosystem services in the policy implementation process
- Organise a decision support system with the right balance of accounting for socioeconomic preferences and willingness to commit, and quantitative models to address questions of fact, while avoiding technocratic approaches
- Consider the multi-dimensionality of measures and the multiple benefits they may bring in