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## Research Report

# Coordination and cooperation of water management, nature conservation and open space development in the Emscher restoration

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Briefing Paper 22/2020

## Coordination and Cooperation of Water Management, Nature Conservation and Open Space Development in the Emscher Restoration

### Summary

This paper constitutes one of six analyses of cross-sectoral challenges in water governance. These have been conducted as part of the STEER research project and results are published in separate analyses and position papers.

The Emscher River restoration project reveals wide-ranging usage conflicts associated with the long-term revitalisation of the water system for the development of the natural environment. The Emscher was converted into an open wastewater channel in the late 19th Century. With mining activity having ceased in the Ruhr region, it has been possible to discharge wastewater via subterranean sewers and improve the environmental quality of the water courses. This modification process requires coordination between sectors and local authorities, particularly the water, open space development and nature conservation sectors.

The completed governance analysis shows that coordination in the Emscher catchment area is already effective, be it between stakeholders at local, regional and national level (vertical), or between the different sectors (horizontal). Examples include forums for dialogue between local authorities, voluntary environmental monitoring during construction, financing options for green infrastructure projects

and a GIS (geographic information system)-based tool facilitating coordination between different public departments. The regional water board, the Emscher Genossenschaft (Emscher Cooperative), initiates many processes that combine water course modification with urban planning and landscape architecture.

There is room for improvement when it comes to involving citizens at an early stage and on a comprehensive basis in all planning and implementation processes in order to increase acceptance among stakeholders. Planning processes should also be characterised by a higher degree of flexibility. The following recommendations arise from the analysis:

- Coordination at regional level has proven to be a success factor. This involves regular dialogue between regional stakeholders.
- The cooperative principle, which involves the region's cities and companies as associates within the water board, is highly conducive to regional coordination.
- Working groups operating across sectors and local authorities have also emerged as a useful instrument.
- The concept of ecosystem services could also be useful for identifying usage conflicts at an early stage and finding viable solutions and/or compromises.

### **River development on catchment scale: The Emscher River restoration project**

A water system and its management do not stop at the riverbanks. The Emscher River and its tributaries are a superb example of the multifaceted interaction between a water system and the human settlements surrounding it. Formerly, industrialisation and urbanisation led to an entire river system being converted into a network of open wastewater channels. The river was avoided by the population of the Ruhr region and cut off from its urban environment. After the disappearance of mining activity, it has been possible to separate the wastewater from the water courses and discharge it underground. Wastewater from the Emscher's main course is now also discharged into the Emscher wastewater channel starting in the city of Dortmund. This is the main wastewater artery for the entire region, diverting the effluent into one of the Emschergenossenschaft's four newly constructed wastewater treatment plants. This satisfied the basic pre-condition for the current ecological enhancement of the water courses in the Emscher River basin. There has already been a notable increase in biodiversity in the restored rivers. In urban development terms, this gives rise to the blue backbone for a regional network of green infrastructure, adding far more value than just the basic environmental functions. The Emscher River restoration project has also contributed to the provision of more regulating ecosystem services, such as flood protection, habitats for flora and fauna, local temperature regulation, and cultural services, including the appearance of landscapes and recreational opportunities.

The growing importance of coordination can be seen in the New Emscher Valley. Usage conflicts between water management on the one hand and nature conservation or open space development on the other must be resolved in order to complete the restoration work. Cross-sectoral cooperation between stakeholders is essential in this regard. The water board Emschergenossenschaft is one of the key players. It is responsible for flood protection, discharge and treatment of wastewater, maintenance and development of the water bodies, and rainwater and groundwater management. Other stakeholders include local and regional authorities, environmental associations and research institutions (see Figure 1).

An analysis of coordination and cooperation in the Emscher River catchment area with a focus on the greater Dortmund area examined how the different interests and usage requirements of the water-management, nature conservation and open space development sectors and their stakeholders are integrated within a long-term process such as the Emscher River restoration project. The study uses the analytical framework developed by the STEER project for identifying complex coordination challenges faced by a governance and management system (see Pahl-Wostl et al. 2019). It is based on an analysis of scientific literature and legal texts, and on 20 interviews conducted with relevant stakeholders in the region.

### **Governance analysis**

The analysis shows that coordination in the Emscher catchment area is already effective, be it between stakeholders at local, regional and national level, or between the different sectors. The relevant stakeholders within the water governance system have clear roles and responsibilities. Most of the institutional gaps in relation to existing and new challenges in the environmental sector (e.g. climate change adaptation) have already been closed. New structures have been developed for coordination between different local authorities for various topic areas. These include 'Water in the cities of tomorrow' (a future initiative across local authorities) and a GIS-based tool for integrating the planning data of different agencies and coordinating planning processes.

#### **The Emschergenossenschaft's role as a regional water board**

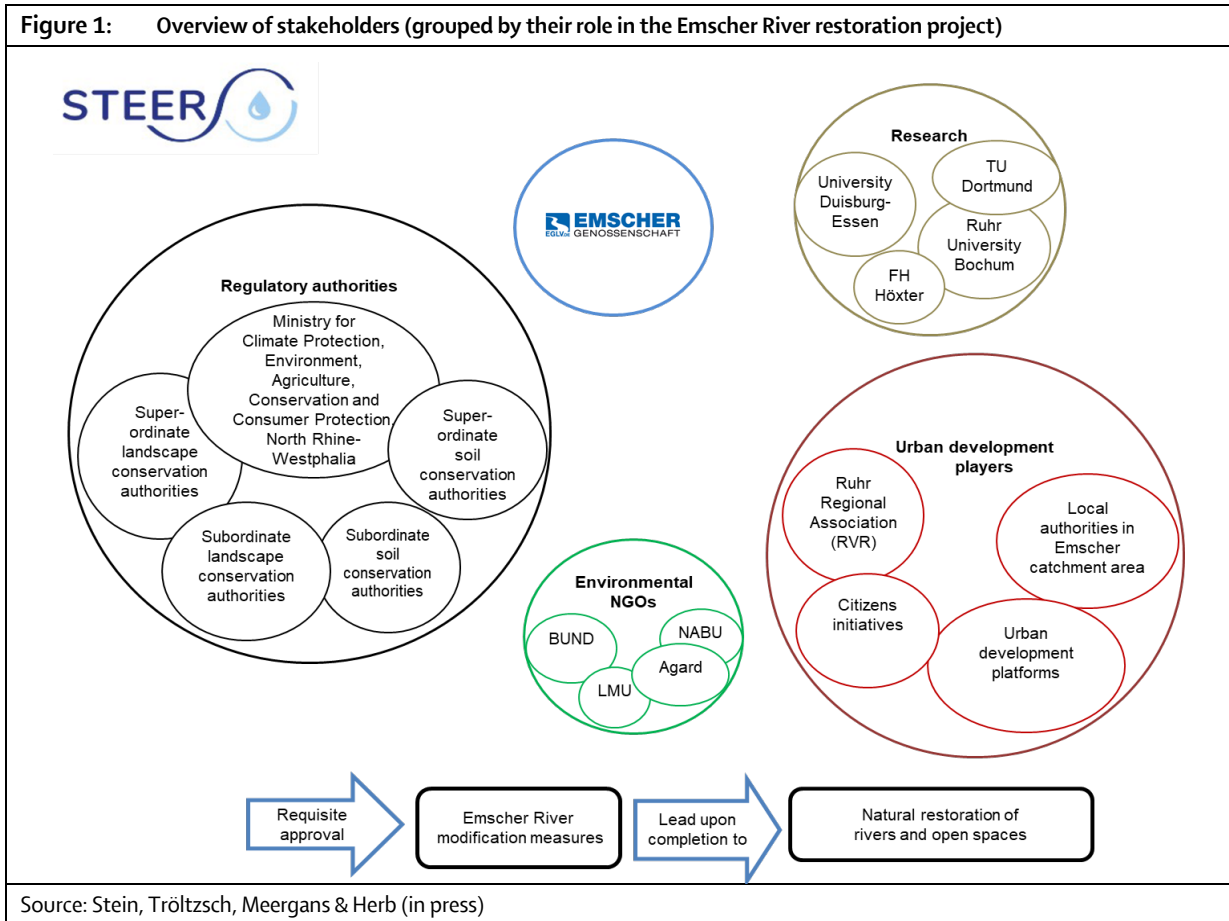
As a regional water board, the Emschergenossenschaft not only conducts the Emscher River restoration project, but also coordinates and facilitates a large number of further developments in this role. The Emschergenossenschaft initiates many processes that combine water course restoration with urban planning and landscape architecture. Take the Emscher Future master plan, for example. Published by the Emschergenossenschaft in 2006, it serves as framework for the restoration of the Emscher River. In addition to the ecological development, the plan also seeks to integrate the water courses into the urban and rural landscapes. The Emschergenossenschaft's focus on the river's entire catchment area has the advantage of facilitating coordination between all local authorities along the river's course in such processes. This regional governance system is also characterised by in-depth dialogue between the Emschergenossenschaft and other relevant stakeholders at local and regional level, such as environmental associations and civil society.

#### **Barely any incoherence between legislation and plans**

Incoherence and inconsistencies between political plans, programmes and legislation are few and far between. The various plans and strategies are based on the same overarching goals specified among other things in European and German regulations. Conflicts arise from differing interests in project implementation and/or regulatory enforcement. These conflicts include different responsibilities for building cycle paths, for the regulation of water levels and for the extent of vegetation in flood retention basins, for instance.

#### **Participation as an important element of the Emscher River restoration project**

During work to restore the Emscher River, existing plans were successfully adapted on the basis of discussions with stakeholder groups, including local residents.



However, the interviewed stakeholders pointed out that additional participation formats lead to further delays in planning processes that are already lengthy and so participation gets limited to statutory citizen's participation.

Working groups operating across sectors and local authorities, such as the future initiative 'Water in the cities of tomorrow', have proven to be effective instruments for making the Emscher River restoration project a participatory initiative. As well as helping to increase social acceptance, the groups have also lent new ideas and fresh impetus to the process. Involving relevant stakeholders at an early stage and on a comprehensive basis across administrative boundaries could also generate greater acceptance for major projects in other catchment areas.

However, individual cases have shown that there is still room for improvement when it comes to cooperation between sectors. While coordination instruments, such as bilateral working groups, are sometimes available in such cases, their effectiveness is constrained by limited authority of relevant decision-makers.

By contrast, a high degree of flexibility emerged in the processes for planning and implementing a test stretch for ecological enhancement. This sees stakeholders in the local authorities and the water sector coordinating with one another to implement a range of bank restoration options in order to identify the most suitable of those options.

Additionally, further potential has emerged for improvement in cross-sectoral issues, such as the resettlement of protected species during the restoration measures. Within the existing legal framework there is scope for greater flexibility.

**Analyse usage conflicts from an ecosystem services perspective**

The ecological enhancement of the Emscher River is allowing the region's inhabitants to once again use the water course, its banks and floodplains for recreational and environmental education purposes. The restored water courses and their environment also have a positive impact on the local climate and flood protection. There are a range of coordination instruments that can be used to avoid conflicts over the use of these different ecosystem services. These instruments allow regional and local authorities, the water board and other stakeholders to engage in dialogue and coordinate measures with one another, for example, by conducting environmental monitoring during construction or appointing expert committees joined by environmental associations.

One specific example of implementation is provided by the Phoenix-See (Lake Phoenix) in Dortmund. In order to enable Dortmund's residents to participate in recreational activities and at the same time to facilitate ecological enhancements in and around the lake, part of the shore has been designated for ecological development, with the rest

accessible to pedestrians. Through participatory initiatives, the Emschergenossenschaft has helped to provide ecosystem services. One such example is the EMSCHERKUNST initiative, which involves displaying works of art along the banks of the Emscher. As well as aiding the provision of cultural ecosystem services, this has helped to promote sustainable ways of thinking and acting.

### Areas for action and recommendations

(I) Regional coordination has proven to be a success factor within the catchment area. The process of planning and implementing strategies and measures is shaped by regional actors in regular contact with one another.

(II) The cooperative principle, which involves the region's local authorities and companies as associates within the water board, is conducive to regional coordination. The water board fulfils the role of a process facilitator or coordinator.

(III) Working groups operating across sectors and local authorities with a specific thematic focus and practical strategic objectives have proven to be a useful instrument. Experiences and ideas could be exchanged regarding new challenges, such as climate change. It is advisable in this context to employ a combination of smaller working groups (e.g. operating across local authorities and involving public sector stakeholders) and open dialogue forums with a larger number of stakeholders. This could also increase acceptance of novel measures.

(IV) The concept of ecosystem services could also be useful for identifying usage conflicts at an early stage and finding viable solutions. The need for coordination could be assessed based on demanded ecosystem services and the stakeholders identified from that demand could be involved in finding solutions.

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