

## **STRATEGIC RIVER MANAGEMENT FOR CONSIDERATIONS IN THE POWER AND WATER MANAGEMENT SECTOR IN STYRIA/AUSTRIA**

### **La gestion stratégique des rivières pour des raisons de pouvoir, et la gestion de l'eau dans les secteurs de Styrie/Autriche**

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#### **RÉSUMÉ**

Entre 1995 et 2015, des projets ambitieux de restauration de rivières ont été lancés recouvrant de grands fleuves tels que Enns et Mur en Styrie (Autriche). Ces projets ont été subventionnés par des programmes de financement UE, Interegg II-IIIa et ETZ SI-AT.

Après 2015, les programmes financés par l'UE concernant les mesures pour les rivières de Styrie sont remis en question en raison des contradictions entre la restauration de rivières à grande échelle et la promotion de l'utilisation de l'énergie provenant de sources renouvelables. Une croissance supplémentaire du secteur des énergies renouvelables constitue un objectif politique défini dans l'UE, concernant principalement l'expansion de l'hydroélectricité en Autriche. Ce développement peut contrecarrer les objectifs d'amélioration des rivières, tels qu'indiqués dans les habitats et la directive UE - cadre sur l'eau.

Afin de surmonter le conflit entre l'expansion de l'hydroélectricité et la protection de la nature, ou les activités de loisirs / tourisme, des plans de gestion ont été établis. Ces plans s'alignent dans un processus consensuel entre les fournisseurs d'énergie et les experts dans le domaine des rivières. L'objectif principal repose sur une désignation de la rivière à usage spécifique. Ainsi le développement de l'hydroélectricité est évité dans les sections sensibles à l'environnement, alors que dans d'autres sections, l'utilisation de l'énergie hydroélectrique demeure possible sous certaines conditions. En Styrie, la classification des tronçons de rivière permet de se conformer aux objectifs énergétiques obligatoires pour l'expansion de l'hydroélectricité comme une source d'énergie renouvelable ; en même temps maintenir / améliorer l'état écologique et la création d'opportunités pour améliorer les habitats fluviaux.

#### **ABSTRACT**

Between 1995 and 2015 large-scale river restoration projects have been initiated along the big rivers Enns and Mur in Styria, Austria. These projects were co-financed by the EU-funding programs LIFE, Interegg II-IIIa and ETZ SI-AT.

After 2015 EU-funded programs regarding measures along the Styrian rivers were questioned due to the contradictions between large-scale river restoration and the promotion of the use of energy from renewable sources. Further growth of the renewable energy sector is a defined political goal in the EU, which in Austria primarily means hydropower expansion. This development may contradict the goal of a significant improvement of the rivers as set in the Habitats and Water Framework Directive.

To overcome the conflict between hydropower expansion and nature protection or recreation/tourism, management plans were established. These plans were aligned in a consensual process between energy providers and river experts. The core objective is the designation of river stretches for specific use. Thereby hydropower development is avoided in environmentally sensitive sections, while in other sections hydropower use is possible under certain preconditions. The classification of river stretches laid the foundations for Styria to comply with the mandatory energy targets for the expansion of hydropower as a renewable energy source, while maintaining/improving the ecological status and creating opportunities to improve river habitats.

#### **KEYWORDS**

River management, Hydropower expansion, River restoration, Implementation of EU directives

# 1 STRATEGIC RIVER MANAGEMENT FOR CONSIDERATIONS IN THE POWER AND WATER MANAGEMENT SECTOR IN STYRIA/AUSTRIA

## 1.1 Introduction

Austrian water courses and especially rivers with high energy use potentials are exposed to increased pressure due to hydropower expansion plans. Therefore it is necessary to discuss, and consolidate the future use of the water resources with all stakeholders. The Styrian water department was the first in all Austrian provinces to address the challenge of balancing various user interests and diverging targets of EU directives. This resulted in the development of a new planning instrument, specific river basin management plans including determinations for the future use of river stretches.

### 1.1.1 Successful river restoration

In contrast to other alpine river catchment areas, sections along the Styrian rivers are still in a good ecological state and offer free-flowing zones. Between 1995 and 2015 large-scale river restoration projects have been initiated along the big rivers in Styria. These projects were co-financed by the EU-funding programs LIFE, Interreg II-IIIa and ETZ SI-AT.

According to the objectives of the Habitats Directive and the EU Water Framework Directive, considerable efforts have been taken along the Upper Mur (~ 90km river stretch), the border stretch of Mur (~ 32 km) and the River Enns (~ 50 km). The general objective of all the projects is the restoration, improvement and long-term protection of the characteristic river landscape of the rivers.

In 2014 those efforts along the river Mur were even awarded the IRF European Riverprize. The prize celebrates successful approaches that have overcome the challenges to river restoration, ecosystem health, water quality and climate change within the social and political context.

## 1.2 Managing contradictory public aims

After 2015 EU-funded programs regarding measures along the Styrian rivers are questioned due to the contradictions between large-scale river restoration and the promotion of the use of energy from renewable sources. Further growth of the renewable energy sector is a defined political goal in the EU for reaching the imposed energy and climate goals, which in Austria primarily means hydropower expansion.

Hydropower expansion may contradict the goal of a significant improvement of the rivers as set in the Habitats and Water Framework Directive. To reconcile the conflicting interests in the use of water bodies, especially on regional level, the presently available instruments, as the National River Basin Management Plan and the Austrian Water Act, have been insufficient. Therefore it was necessary to overcome the conflict between hydropower expansion and nature protection or recreation/tourism, by elaborating new approaches.

To reach a broad consensus between the stakeholders' interests and to balance use and protection of the rivers, the Styrian state and the main energy service companies initiated a new planning instrument, the river basin management plans.

The core objective of these plans is to define framework conditions under which the future development of hydropower plants is possible without contradicting the targets of EU-directives (EU Water Framework Directive, the EU Floods Directive and the Renewable Energy Directive) or harming existing protected area regulations.

### 1.2.1 Classification of river stretches

In a first step definitions for the classification of river sections were developed in close coordination between the project participants. The following classifications for river sections were agreed on:

**Ecological priority zones:** These are environmentally sensitive water bodies worthy of protection, where no hydropower developments shall take place. Priority stretches are designated where ecological measures for conservation or improvement of river-bound habitats have been implemented.

**Trade-off zones:** This definition applies to stretches of rivers of high ecological value as well as good hydropower potentials. No exclusion criteria are set, but very specific framework conditions are defined for any hydropower development within these river sections; it is of substantial importance that no ecological deterioration is caused. Alterations are only permissible within a so called "state class", but no deterioration to an inferior state class shall arise through the planned developments. Each

hydropower plant development therefore has to be in line with these framework conditions and environmental compatibility has to be attested.

**Zones of no particular designation:** River sections that do not have any specific ecological sensitivity or hydropower potential remain without designation. In many cases these sections are already used for the generation of electricity.

In a second step, criteria for the designation of the aforementioned river sections have been defined and agreed upon amongst the project participants and stakeholders.

In this process hydropower potentials have been juxtaposed with ecological goals that considered potentially affected protected species and areas, their ecological state as well as water management aspects. Also legally binding nature conservation aspects as well as requirements deriving from EU-directives were considered. All identified criteria for designating stretches of the rivers were made spatially visible and evaluated. By overlaying the considered aspects a cartographic synopsis was produced and consensual decisions could be reached for all river sections.

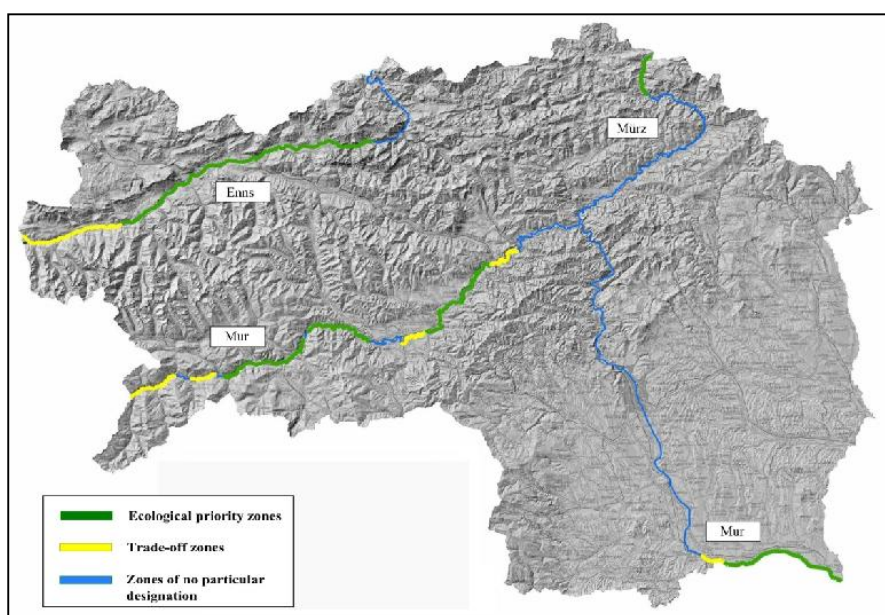


Figure 1: Final result of the process to designate stretches along the major Styrian rivers

### 1.2.2 Proposals for measures

Apart from the aforementioned designations, measures for river stretches in a poor ecological status were defined. Special focus was given to the concept of “stepping stones” with its up- and downstream effects. Stepping stones bridge hardly restorable stretches and therewith provide an efficient and cost-saving concept for mitigation-measures. The measures focus mainly on biological qualities as the primary criteria of the ecological status assessment.

### 1.3 Conclusion

The management plans essentially contribute to the resolution of conflicting public interests by encouraging the interaction between all stakeholders. The classification of river stretches laid the foundations for Styria to comply with the mandatory energy targets for the expansion of hydropower as a renewable energy source, while maintaining/improving the ecological status and creating opportunities to improve river habitats. The management plans and the related designations are to become legally binding for ten years in form of a regional programme.

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