New eco-technologies to improve wastewater facilities in small, rural communities, Ziemelsuseja river - LV

1. Policy Objective & Theme

- SUSTAINABLE USE OF RESOURCES: Preserving coastal environment (its functioning and integrity) to share space
- SUSTAINABLE ECONOMIC GROWTH: Developing Europe's regional seas sustainably

2. Key Approaches

- Participation
- Technical

3. Experiences that can be exchanged

The development and implementation of a management system for wastewater improvement and the mechanism of public participation and involvement in the decision-making process can be used, without essential changes, in local municipalities in other Central and East European countries.

4. Overview of the case

To combat deteriorating water conditions and fulfil the terms of the Water Framework Directive, a management plan for a polluted river basin was drawn up and innovative, eco-technologies used to improve water quality. Emphasis was placed on working with the local communities.

5. Context and Objectives

a) Context

The Ziemelsuseja river is 52 km long and the area of its basin is 491 km2. A feasibility study conducted between 2000-2001 concluded that the low standard of the drinking water and the pollution of the river were due to obsolete municipal waste water treatment (WWT) facilities. The poor quality of the drinking water was furthermore caused by the natural characteristics of the water (extensive level of iron), worn-out water supply systems and poor protection measures at the water extraction sources. In order to fulfil the terms of the Water Framework Directive and achieve good quality standards for surface and underground waters according to the ecological and chemical parameters, by the year 2015, it was necessary to develop co-operation between different levels of governance and administrative territories. Likewise it was important to ensure active public participation in the planning and decision-taking process.

b) Objectives

The “ZIEMELSUSEJA” initiative focussed on solving water sector problems in a number of small rural municipalities located along the Ziemelsuseja river. It aimed to: (a) create a new river basin management system in Latvia that integrates local, regional and national interests and decrease the pollution in the Ziemelsuseja River basin and the Baltic Sea: (b) create mechanisms and tools for public involvement while preparing the river basin management plan and preparing a set of indicators and procedures for river basin quality monitoring to be implemented by local inhabitants and school children: and (c) demonstrate alternative possibilities for improving wastewater treatment facilities in small rural municipalities by the help of pilots based on resource economy and the use of eco-technologies.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

Jekabpils Region Council is a public authority overseeing the Jekabpils region and responsible for the elaboration and implementation of the river basin management plan.

b) ICZM tools

The focus was on solving water sector problems in a number of small rural municipalities that are located in the Ziemelsuseja River basin territory which covers 39% of the total population in the rural area of the district. Essential problems identified were bad quality drinking water and inappropriate wastewater treatment facilities. The problems concerning water quality arise, and solutions are usually found, at the municipality level. For the first time in Latvia, a unified operator feasibility study was carried out about the possibilities to create an inter-municipal enterprise in Jekabpils district that performs water sector services. A new decision-making institution was created in November 2003, the public organization “Suseja”, whose task was to co-ordinate the implementation of the Ziemelsuseja River Basin management plan, to take decisions that regard more than one administrative territory and to perform integrated monitoring of river quality and development processes. In this case, new eco-engineering techniques were tested which had a double effect; the materials and energy resources saved and the extension of the operational period in comparison with conventional systems. In Sala municipality, a 2-level biological pond and wetland system was created; in Kalna municipality, a new type of gravel filter planted with reeds was created; in Leimani municipality, a 2-level system of biological ponds was created. Reconstruction of the existing systems was carried out in Zasa, Dunava and Asare municipalities simultaneously installing new energy-effective air pumps. These changes led to an improvement of the quality of drinking water for 16% of the population with respect to turbidity and the concentrations of ammonium and iron. These parameters did not meet the standards of Water Framework Directive water quality before the project implementation. The improvements in the wastewater treatment systems affected 1507 inhabitants or 58% of the total population in the villages of the river basin. The amount of wastewater has also been reduced in the territory from 233 m3 in 2002 to 173 m3 in 2004 due to a decrease of population and to water saving measures.

Pragmatically, there has been:

the creation of a set of indicators and procedures for monitoring river basin quality and development, including a set of indicators to be monitored by the public; and

the demonstration,, by pilot projects, of alternative possibilities to reconstruct wastewater and drinking water systems for small size (up to 2,000 inhabitants) local communities.

- a decrease in the pollution load in the Ziemelsuseja river basin which means decreased pollution into the Baltic Sea.
- a strengthening in the local capacity for implementing EU water legislation;
- the creation of an innovative system of river basin management appropriate for Latvian conditions and which enables co−operation on local, regional and national levels (respectively the Ziemelsuseja river, the Daugava river and the Baltic Sea basin;
- the devising of a scheme which ensures extensive public participation in the design and development of the river basin management plan which allows public groups to consider themselves as the “masters of the plan”;
- the creation of a set of indicators and procedures for monitoring river basin quality and development, including a set of indicators to be monitored by the public; and
- the demonstration,, by pilot projects, of alternative possibilities to reconstruct wastewater and drinking water systems for small size (up to 2,000 inhabitants) local communities.

7. Cost and resources

The total budget was €1,042,825 with a Life contribution of € 508,412.

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

The initiative achieved its main objectives. Stakeholder groups were extensively involved in the design of the river basin management process. These included representatives from seven target groups: local intelligence (teachers, librarians), the deputies of the local municipal council, school pupils, municipal specialists and public services specialists, employees of the state environment board, and local entrepreneurs. The knowledge and skills of local decision-makers, specialists/technical operators and managers have been improved via different training courses, seminars and experience exchange visits.

9. Success and Fail factors

The use of energy-effective technical means and mechanisms - pumps for wastewater treatment facilities and drinking water stations that consume less electricity and heat isolation for buildings; the use of eco-engineering principles - minimised the amount of construction materials. Additionally, these facilities have a longer life-time in comparison to conventional technologies. At the same time, the new technologies are more effective and reduce pollution load with nitrate and phosphorus. Public involvement in the project activities has increased citizens' awareness about water sector problems thus eliminating possible pollution caused by adverse household practises.

10. Unforeseen outcomes

The increased capacity of local specialists and an improved planning process will allow financial savings enabling greater investments in the future for the water sector.

11. Prepared by

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12. Verified by

It has not been possible to verify this case.

13. Sources

- Elaborating of new comprehensive Ziemelsuseja River Basin Management System based on ecosystem approach and wide stakeholders involvement into decision-making process at local level (undated) Layman's report. LIFE 02 ENV/LV/000481

Life02-481 Laymans report (806.18 KB)