



Wastewater and sewage management plan in Montenegro

Montenegro hosts a natural environment of unique beauty and abundant biodiversity. Still though, during the last decades it has undergone degradation, especially in respect to its aquatic environment, arising thus the need for integrated environmental protection. Lack of strategic planning regarding treatment and disposal of municipal and industrial waste and wastewater have increased the environmental burden, along with the absence of adequate and sufficient infrastructure for the environmental protection.

In March 2001, the government of Montenegro announced a series of actions in an effort to confront environmental degradation. These actions aimed at the development of a long-term strategy for the incorporation of environment in all sectoral development policies. In the frame of these actions, the elaboration of a strategic master plan for sewage networks and wastewater treatment plants was deemed necessary.

With the exception of the country's capital, Podgorica, no other urban complex has a wastewater treatment plant in operation today, whereas sewage networks in large urban areas are in general insufficient. The lack of a master plan for wastewater treatment is a significant drawback for the implementation of a nationwide environmental protection policy. The government of Montenegro, with the financial support of the European Agency for Reconstruction (EAR), assigned the elaboration of a strategic sewage and wastewater master plan for the northern and central provinces of the country to the consortium of SAFEGE, TEBODIN and LDK Consultants, following an international tender process.

This strategic master plan aims to provide an effective frame for the diminishment of health hazards and the mitigation of the environmental degradation, originating from the absence of wastewater treatment.

The master plan facilitates the sewage network for the northern and central Montenegro municipalities, including 14 of the largest urban complexes. Furthermore, it anticipates treatment plants for urban and industrial wastewater in cities and towns, along with a decentralised management process for smaller settlements.

In a time horizon of 25 years ahead, the plan sets out an effective sewage network in urban centres combined with the development of main and decentralised wastewater treatment and disposal facilities. Budgeting of required works is included in the plan, while the elaboration of a complete database with all research output data provides competent local authorities with an important management tool.

The main project elements include the following:

- Development of a Geographical Information System (GIS), including recording of the existing sewage network and wastewater treatment plants;



- Evaluation of the impact on public health and the environment from the disposal of wastewater into natural receptors;
- Comparison of the national legislative framework for wastewater management with the European Union standards and possible improvement suggestions;
- Industry registry and impact assessment of its wastewater disposal, along with suggestions on effluent treatment;
- Determination of areas with polluted aquifers originating from sewage;
- Design of the main sewage pipe networks, as well as the wastewater treatment plants for the areas included in the project;
- Elaboration of a project implementation plan, along with a funding scheme for all suggested proposals;
- Development of a financing model, which will examine the reimbursement of the wastewater treatment costs under the implementation of the “polluter pays” principle.

Publicity and environmental awareness through public consultation are an important part of the project, aiming at the public acceptance and further development of similar environmental protection actions.