Water and Sanitation Focused on Sanitation
Contribution by the Slovak Republic

Description of an initiative:

Arrangement of agglomerations, selection and definition of assessment criteria for defining priorities of public sewerage development in Slovakia by 2010 and 2015

Participating organizations: Ministry of the Environment of the Slovak Republic, Water Research Institute in Bratislava, Slovak Water Management Enterprise, water joint-stock companies, communities and cities, private sector

Innovation of this activity is mainly in its complex view on the environment not only as far as in arrangement of agglomerations but also in definition of priorities related to the sewerage networks and waste water treatment plant constructions.

The strategy for development of public sewerage system is based on application of sustainable development principles. This means it is necessary to ensure decrease of discrepancies between the quantity and quality of water consumed and quantity and quality of waters discharged into recipient. The values of discharged pollution must be met as required by the Council Directive 91/271/EEC on Communal Waste Water Treatment.

This conceptual development of the public sewerage system is a crucial and inevitable part of the integrated approach to the protection and rational use of waters, conservation of eco-systems and ensurance of ecological stability.

Main orientation of the initiative:

Our initiative is aimed at working out a flexible strategic approach that will help us to meet Slovak Republic commitments towards the EU on time, i.e. by 2015.

In 2002, 84 % of population were connected to the public water supply networks while 55,34% were connected to the public sewerage. The number of inhabitants living in houses connected to sewerage system with wastewater treatment plant represented 2 712 858 people. Out of the total amount of 2 891 communities in Slovakia, the public sewerage is completely or partially built up in 503 communities and 384 communal waste water treatment plants are registered. In 2002, there were 488, 1 mil. cubic meters of waste water discharged into the water courses through public sewerage system out of which 468, 7 mil. cubic meters were treated at communal waste water treatment plants.

The main principles of public sewerage development draw from the provisions of the Slovak and European legislation and they were included in the draft sewerage agglomerations of Slovakia and in the priority list of constructions and reconstructions of the public sewerage in agglomerations.

Due to the geographical – demographic character of the Slovak territory, creation of sewerage agglomerations is very often made by linking several administrative communities in one agglomeration having a common waste water treatment plant. These agglomerations could be divided in the two following types:

- agglomeration consisting of several communities of comparable size that were drained (that have no sewerage) to the lowest located community in which waste water treatment plant was built or proposed to be built,

- agglomeration in which satellite communities will be drained to a bigger city having its own waste water treatment plant.

The work on the draft of the sewerage agglomerations has taken into account the following principles:

- lower investment costs for construction of the sewerage connection among the communities than those for construction of the waste water treatment plant for the given community (regional conditions and construction prices were taken in regard),
- common sewerage of several communities within 10 years with lower total costs (investment and operation costs)
- increase in protection of significant drinking water resources (surface and ground ones) along with mineral and curative waters
- hydrological or hydrogeological conditions are not appropriate for discharging treated waters (due to the small volume of water or nonexistence of recipient)
- a gravity sewerage system has preferably been applied
- minimalisation of needs to pump the waste water

In selected cases (small capacity of facility that cannot be extended or reconstructed) a radical change in the hitherto methods of waste water treatment may occur and on the other hand, facilities that are accomplished or under the construction are respected although their localisation is not the most convenient, however, it cannot be designated as being clearly inconvenient, either.

The requirement for developing public sewerage represents the reconstruction and upgrade of public sewerage system in 11 agglomerations over 100 000 PE and approximately in 80 agglomerations over 10 000 PE by the year 2010. By 2015, it is necessary to ensure a required level of sewerage and treatment waste waters together from about 400 agglomerations (i.e. additional 309 agglomerations in size category from 2000 to 10 000 PE). However, the first phase (by 2010), regards mainly reconstruction, extension or upgrading of waste water treatment plants or reconstruction and extension of the sewer system. The building-up of new sewerage will be of a great importance in the following period running from 2010 to 2015.

Criteria of the public sewerage development

Considering the international commitments, economic and technical possibilities, it is necessary to deal with all agglomerations with over 10 000 PE by the year 2010 while the agglomerations exceeding 2 000 PE will be dealt with by 2015.

The criteria of multilateral analysis are based on priorities of the public sewerage development. The analysis itself resulted in priority list related to the construction or reconstruction of the public sewerage.

In case of the given agglomerations, every criterion has been assessed separately. The sum total of assessing particular criteria gives a total number of points for the given agglomeration and, consequently, it was used to determine a priority list.

The decisive analysis criteria whose score reflect their significance and points determining a degree of priority within individual criteria are the following ones:

- pollution source size (agglomeration) - this criterion implies score 4 and 5 degrees of priority. This criterion implies the highest score because the time horizons to meet the

Directive 91/271/EEC in relation to the size categories of agglomerations are crucial to develop the public sewerage.

- achievement of the required effluent standards – score 3 and 5 degrees of priority – more points are reached by agglomerations that need to remove nutrients (N and P) from the state when they are currently exposed to nitrification or they are permanently overloaded especially by mass. The same degree of priority is given to the sewerage systems that do not ensure waste water treatment and to agglomerations with no sewerage that require to treat the waste waters also by nitrification or nutrients removal. The lowest degree of priority within this criterion is represented by sewerage system whose parameters meet the prospective requirements or in case of which the required level of waste water treatment is conditioned by relatively low investments.

- ratio of population connected to public sewerage in agglomeration – score 2 and 5 degrees of priority – emphasis is given on development of the existing sewerage systems with relatively small ratio of population connected to public sewerage (i.e. 20-60 % of inhabitants). On the contrary, the agglomerations with a high ratio of population connected to public sewerage represent no problem.

- location of agglomeration – score 1 and 2 degrees of priority. This criterion means complex characteristics. It has been applied in prioritizing the agglomerations situated in areas with a higher eutrophication potential, in water protected areas or the agglomerations able to have an impact on water supply resources, upstream of water withdrawal profile, on sources of drinking water in alluvium of rivers and on other hand, a lower degree of priority is represented by agglomerations influencing the other surface flows.

Financial sources, viability – the given strategy of the public sewerage development will be respected by all centrally directed economic impulses such as allocation from the state budget or financial subvention from European Union or other international sources. At the same time, the flow of own investments will be directed in a suitable way, too, including the other public or commercial sources. In addition, application of negative stimulation (e.g. penalties) must be in accordance with the strategy of public sewerage development and it must support in maximum the subjects having an appropriate waste water treatment or making real steps towards efficient treatment of waste water.

Applicability of this initiative:

The above-mentioned way of drafting the agglomerations and setting the priority list with respect to construction of public sewerage can be applied in those countries that are transposing and implementing the European Union legislation, namely the Directive 91/271/EEC. The Slovak experts involved in this activity are willing to offer their consultations and professional assistance in this matter, if needed.

The implementation of the given methodology has proved that optimum solutions or the so-called win-win solutions can be reached by linking the ecological, technical and economic requirements.