

Implementation of Investment Projects in Arkhangelsk Region (as by example of Arkhangelsk Municipal Unitary Enterprise “Water and Waste Water Treatment Plant”)

1. Enterprise Description

Being one of the most socially significant entities in Arkhangelsk, the Municipal Unitary Enterprise “Water and Waste Water Treatment Plant” (WWTP) has to provide both citizens and legal entities with high-quality water and discharge services – the services meeting all the standards and requirements.

Today, WWTP is operating a large-scale water supply and discharge system covering all the city districts, including remote insular areas.

The condition of existing equipment, water and sewerage networks is described as extremely poor. The reason is high wearout and age: the majority of networks and water/sewage facilities are obsolete. Water supply and discharge pipelines are, for example, 25-30 years old, with certain sections’ wear varying between 40 and 100 percent. The on-site facilities serviced by WWTP are 100% worn-out, too, and need complete replacement. The water pump stations, due to age, have low efficiency and are extremely worn out. Most of the sewer pump stations were constructed before 1987 according to morally obsolete projects, have low pumping capacity and the minimum of process automation instrumentation.

In addition, now that the enterprise also has to service the abandoned networks and local treatment facilities left from bankrupt companies (located in remote and insular areas), the situation has been aggravated even more. The majority of these networks and facilities were transferred into municipal property in a very poor technical condition, with no funding allocated for repairing communication lines, buildings and treatment facilities in place.

As a result, a lot of accidents take place at water supply and sewerage facilities. Due to extensive water leakages from waterlines and large scope of operations needed to eliminate the ever occurring emergencies, WWTP is sustaining losses. The use of obsolete and low-efficient equipment also entails major expenses when producing and transporting drinking water and removing waters.

The capital overhaul, currently in progress, of existing water supply and sewerage facilities will hardly make a difference, since all the sections need complete reconstruction and replacement of equipment.

The analysis has proved that the current status will be getting worse, unless drastic measures are taken to exhaustively streamline networks and equipment.

The enterprise aims to start cutting its costs through reorganization and reconstruction of its water supply and discharge systems. And here it has gained the support of municipal and regional authorities of Arkhangelsk.

2. *Investment Program Description*

One of the tools used in reaching the above goal was Investment Program “Enhancing the Municipal Services Systems in Arkhangelsk”.

The project is funded by the European Bank of Reconstruction and Development (346 mln RUR credited) and “Northern Dimension” Partnership (8 mln EURO grant). The obtained funding was used to streamline and reconstruct the water supply and sewerage facilities in Arkhangelsk. Although it accounts for only 1/20 of the total investment needed, the project has given a good start in implementing the solutions to an improved water supply and discharge.

The above Program includes most urgent activities of vital importance:

- ✚ taken the extreme wear-out of the waterlines, the decision has been taken to construct a circular water pipeline which will ensure non-stop supply in case of emergency on older mainlines;
- ✚ to eliminate the danger of liquid chlorine used in disinfecting drinking water, and, consequently, its effect on people’s health in case of emergency, we have planned to reconstruct the disinfection system on the city’s central treatment facilities. The reconstruction is expected to further replace the dangerous chlorine with safer sodium hypochlorite;
- ✚ to ensure improved reliability and equipment automation, reconstruction is to cover the main water and sewer pump stations;
- ✚ to enhance the efficiency of network accident eliminating crews, we decided to purchase leak detection equipment and specialized automotive machinery.

As a result, the Investment Program lists the following items in need of improvement and entailing cost-efficiency:

- ✚ circular waterline construction;
- ✚ SCADA system installation at municipal water supply facilities;
- ✚ sewage pump station reconstruction;
- ✚ purchase and installation of disinfection systems at the central treatment facilities;
- ✚ purchase of cable tele-inspection system equipment;
- ✚ purchase of leak detection equipment;
- ✚ purchase of 2 excavators and 2 vacuum trucks.

The first two items, namely the “circular waterline construction” and “SCADA system installation at municipal water supply facilities” are funded by bank credit, others – by the grant issued by “Northern Dimension”.

Apart from investment targets, the grant is also used to pay for the services of international consultants (COWI). Consultancy by COWI was agreed with EBRD. The consultants’ functions consist in assisting WWTP in developing engineering and design

solutions, tender documentation and settling the issues relating to pre-contract services and construction works.

The project is originated by

✚ - **Municipal Unitary Enterprise “Water and Waste Water Treatment Plant”** owned by municipal entity “Arkhangelsk City”.

The project titled “Reconstruction of Municipal Water Supply and Discharge Services in Arkhangelsk” is implemented jointly with

✚ - **European Bank of Reconstruction and Development** (346 million RUR project credit);

✚ - **“Northern Dimension” Environmental Partnership** (8.2 mln EURO grant);

✚ - **Government of Arkhangelsk Region** (investment project guarantor);

✚ - **Arkhangelsk City Hall** (investment project support).

The following contract documents were signed in the framework of the project:

✚ Credit Agreement between MUE “WWTP” and EBRR dd. 9 December 2003, amended 31 October 2005 and 15 September 2006;

✚ Agreement on Gratis Technical Assistance between EBRD (acting as Executive Agency) and MUE “WWTP” dd. 11 February 2005, amended 30 October 2007;

✚ Indemnity Contract between Arkhangelsk Region (as guarantor) and EBRD dd. 31 October 2005;

✚ Project Support Contract between municipal entity “Arkhangelsk City”, MUE “WWTP” and EBRD, dd. 9 December 2003.

As provided by the Credit Agreement, the amount of main debt (credit of 346 mln RUR) is to be repaid in 40 equal installments starting from 1 December 2009.

All Program components (funded by the credit and grant issued) are implemented by way of tenders. For each of them, the WWTP’s specialists, assisted by the international experts, develop tender documentation, with calls for tenders (specifying the term) being published in the media.

The due term completed, MUE “WWTP” sets up the tender board (whose members include в WWTP specialists, representatives of Arkhangelsk City Hall and Regional Administration). The tender board opens the envelope with submitted proposals and makes a report on proposals assessment, later followed by naming the winner.

The assessment report is to be agreed with Supervisory Committee and European Bank of Reconstruction and Development. If the Bank and Supervisory Committee

approve the board-named winner, the latter will be made a contract with, in the form also to be agreed with EBRD.

3. *Projected Effect*

The enterprise expects the Investment Program to result in the

- ✚ enhanced quality of services provided to consumers; safe and uninterrupted water supply for municipality;
- ✚ economic effect, i.e. cost efficiency achieved by the enterprise due to high-performing equipment, downsized service personnel, decreased cost of emergency elimination and equipment maintenance;
- ✚ environmental effect, meaning the possibility of operative control over the state of sewage and water line networks, which, in turn, will reduce the threat of flooding the adjacent area and enhance the overall system reliability. In addition, sodium hypochlorite, to be used instead of liquid chlorine, will ensure safer production and prevent from anthropogenic risk posing danger to people's health.

4. *Works Completion Report*

MUE "WWTP" has by now used 187.3 mln RUR of the grant issued by "Northern Dimension" Environmental Partnership. With this money, which accounts for 55% of the sum total, the enterprise purchased tele-inspection and leak detection equipment, 2 vacuum trucks and paid for the services provided by COWI's technical consultants. This money was also used to partly cover the contracted works for the 'reconstruction of sewage pump stations' and the 'reconstruction of disinfection systems operated by WWTP at its treatment facilities.

As to EBRD credit, 86 mln RUR have been used by now. This amount has partly covered the works under 'circular waterline construction' and 'SCADA system installation' contracts.

At this stage, all the items on Investment Program, relating to the purchase of equipment and specialized machinery, have been fulfilled. The acquired equipment and machinery are being widely applied in WWTP's everyday operations. One can safely say they were a good value for money: the equipment is in demand and significantly facilitates the employee's duties to provide quality water supply and discharge services.

The next item of Investment Program currently in focus is facilities reconstruction and equipment assembly. Now that the design work is completed, equipment is purchased and installation is in progress, the WWTP's specialists are being trained to operate the new equipment. One can safely say that all activities provided in Investment Program are going to be completed in the coming year.