

MOBILIZING CIVIL SOCIETY IN RURAL COMMUNITIES FOR SUSTAINABLE WATER AND SANITATION SERVICES

Executive Agency:

Earth Forever Foundation

Funding Agency:

Bulgarian-Swiss Cooperation Programme, Thematic
Fund "Reform Fund Linked to Civil Society Participation"



SWISS-BULGARIAN COOPERATION PROGRAMME
ШВЕЙЦАРСКО-БЪЛГАРСКА ПРОГРАМА ЗА СЪТРУДНИЧЕСТВО



Earth Forever

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Europe (and Bulgaria in particular) faces the problem of increasing needs from clean water for various needs and constant decrease of the quality of water resources due to overuse and pollution.

One of the possible answers is the enforcement of stricter requirements for better treatment of wastewater and requirements for re-use of treated wastewater.

During the latest decades the classic sanitation approach has been loudly criticized. Experts all over the world raise the awareness of decision makers and the society about sustainable sanitation paradigm. This is a new holistic approach to sanitation systems that appeals for efficient and environmentally friendly sanitation solutions. These include collection and treatment of wastewater, control and other preventive measures to guarantee prevention of environmental pollution, dissemination of pathogens and protection of public health. Sustainable sanitation is based on the three pillars of sustainability: protection of environment, economic growth and social justice.

Among the sanitation methods applied in small settlements in Central and Eastern Europe (CEE), septic pits are dominating at the moment. Application of this technology leads to permanent pollution of water resources due to the fact that there is no treatment at all but just collection of wastewater.

The second most frequently used method of wastewater management in the small settlements in the region is biological treatment of wastewater using active biomass.

The enormous problem of conventional wastewater treatment plants in CEE is linked to the sludge treatment. This requires secure methods of treatment of sludge and minimization of sludge, disposal without compromising the environmental protection and public health.

Natural wastewater treatment systems are very widely used in US and Western Europe, but they are applied in a limited way in the countries of CEE. These systems are practically not applied in Bulgaria yet though there are several pilot project implemented by Earth Forever Foundation and Women in Europe for a Common Future – Germany.

In the countries from CEE region the most popular natural wastewater treatment technologies are constructed wetlands, sand-planted-reed filters, lagoons and systems of irrigation with treated wastewater.

In various smaller and larger settlements in Europe various types of sustainable sanitation has been applied. These systems include urine diversion, separation of grey and black water, dry toilets, composting and dehydrating toilets. These diverted wastewater streams, urine and feces are treated separately and safely re-used as fertilizers and substances improving the soil structure and fertility, for irrigation and production of heat, biogas, electricity.

Sustainable sanitation as a new sanitation paradigm aims at goals linked to environmental and water protection, wise economic usage of resources and social justice. Sustainable sanitation addressed with priority elimination of health risks and strict protection of public health.

Utilization of chemical fertilizers reduces the interest of many farmers to utilization of treated manure and humanure that in case of irresponsible management and treatment may become threat to environment and public health. In order to achieve sustainable sanitation in long run, it is necessary to reuse the nutrients from physiological waste in agriculture.

It is well known that non-treated or badly treated wastewater leads to degradation of environment via eutrophication, increased salinity, etc. These threads might be avoided by application of sustainable sanitation approach.

Compared to classical sanitation systems, sustainable sanitation systems better meet the challenges of annual fluctuations of burdens in the sanitation systems and require low investment and operation expenses. Though some might believe that the methods used in classical and sustainable sanitation systems differ significantly, it is not really true – one and the same physical, chemical and biological processes are used in both. It is important that any sustainable system is adapted to the specific local conditions to be effective and reliable all year round.

Few examples from real life:

- Dry urine diverting toilets for separate collection and treatment of urine and feces in village community centers in Bulgaria and village schools in Ukraine;
- Wastewater irrigation system for poplar trees in Hungary;
- Wastewater treatment in constructed wetlands in France, Slovakia, Greece, Check republic, etc.
- Sustainable sanitation systems and management of wastewater in Sweden, Norway, Germany, the Netherlands.

It is important to emphasize that EU legislation – leading to national legislations of EU member-states in the water and waste sectors, does not impose any specific sanitation technologies but demands high level of protection of environment and public health in any of the sanitation components connected to wastewater collection, transportation and treatment. EU poses strict restrictions to safe use of sludge from wastewater treatment facilities.

Sustainable sanitation systems are very promising. They are cost effective as they consume insignificant energy to operate and in many cases produce energy (biogas, heating, etc.) while the conventional systems lead to increased levels of CO₂ – one of the most widely spread greenhouse gases, that is responsible for the climate change. In the situation of climate change, it is also important that the sustainable sanitation systems can be used to regulate water flow and as water reservoirs. As a new biotope, these sanitation systems might be utilized by various living creatures.

The ration of population linked to centralized sanitation systems and wastewater treatment plants was used to measure the level of development of the countries. The percentage of the population linked to centralized sewage in CEE and specifically in Bulgaria is much lower compared to the developed countries in Western Europe. This is due to the fact that communist regimes in this part of the world put low priority to wastewater management as a whole. The percentage of connection to sewers vary from 30% for Romania to 80% for the Check Republic. The available statistical information does not always show the real scale of the problem: for example, relative large percentage of wastewater (40%) in Slovakia is only treated mechanically and the respective level of treatment is extremely low.

After the collapse of communism, the countries in CEE face many significant difficulties and the construction and reconstruction of the sanitation system is low. This is due to financial difficulties, problems with ownership of the water and sanitation infrastructure, etc. Overcoming all these difficulties, all countries (except Ukraine) put lots of efforts and investments to improve and enlarge their sanitation systems. EU is also offering various financial mechanisms to support the efforts of the individual countries by various financial mechanisms – PHARE, ISPA, Cohesion and Structural Funds, etc.).

In all CEE countries (with the exception of Bulgaria, Romania and Ukraine) almost all urban population and parts of rural population are connected to sewers. All CEE countries join a common goal – to connect 70 to 90% of their population to systems for collection, transportation and treatment of wastewater.



Up to now, Bulgarian government underestimate the needs of small settlements because they believe that the amount of wastewater created by small settlements is insignificant and they cannot jeopardize environmental and water resources protection.

Data from Germany nowadays shows the following: 93% of the population is connected to wastewater management facilities, the other 7% of the population creates 70 % from the organic pollutants that enter environment.

The percentage of the population living in rural areas of CEE, incl. in Bulgaria, is quite high. This fact confirms the need of responsible approach to the management of wastewater and organic waste for rural population in the region.

The natural systems of wastewater treatment are used in various ways by different countries of the CEE region. On one hand, there are countries with traditionally high expertise in such systems (Estonia, Check Republic, Hungary, Poland and Slovenia). On the other hand, there are countries without enough expertise in this area (Slovakia and Bulgaria). The natural wastewater treatment technologies generally used in the CEE region are constructed wetlands, sand-soil-reed filters, lagoons, irrigation systems for reuse of wastewater.

Estonia and Lithuania report positive results from the application of natural systems of wastewater treatment, especially vertical soil-reed filters show very high efficiency. These can operate effectively during severe winter conditions in these countries and show excellent results for treatment of nutrients and pathogens. On the other hand, from the 10 WWTPs (most of these constructed wetlands), only 3 operate, and all the others serve as a third step to the treatment process. The experience in Slovakia is considered negative and does not promote the enlargement of the utilization of these type of plants.

The natural wastewater treatments plants are barely used in CEE. The existing systems are usually over- or undersized due to the lack of technical capacity. In these countries national and international lobbies of conventional sanitation dominate and significantly influence the decision-makers. Environmental engineers, green NGOs and movements face the reluctance of decision-makers and “traditional” sanitation professionals to enforce national policies encouraging natural and sustainable sanitation.

During the recent years advanced European countries like Sweden, Norway, Germany and the Netherlands introduce sustainable sanitation systems. These new concepts are invented to meet the requirements of sustainable development, i.e. these are cost efficient sanitation technologies that are cost effective, respond to economic and social requirements, protect the environment and guarantee public health. These systems are based on the separation of various streams (grey water, urine, feces) which are stored, transported and treated separately and re-used as fertilizers, for irrigation, as energy source. These new sustainable sanitation technologies are not introduced in the CEE countries, though there are pilot projects implemented in a number of them by NGOs.