

Economic and legal aspects of drinking water supply in Russia

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Abstract Russia is a state possessing enormous water resources—more than 30 000 m³ of water per capita per year. However, at present about 70% of rivers and lakes have lost their suitability as drinking-water sources. Nationwide, 50% of the population use poor quality water. The new national water management policy aims at meeting the demands of the population and industry for standard quality water obtained with minimum impact on the environment. Conceptual principles of population drinking water supply policy and strategies for solving drinking water supply problems by means of economic and legal mechanisms, are presented in this paper. The strategies are based on long- and short-term goals. The goals can be achieved by developing and refining regulations, introducing economic stimulus measures, instituting technological and sanitary measures to prevent further pollution of water-supply sources, implementing more effective water-treatment technology, and improving the condition of water-supply networks. The condition for effective solution of the drinking water supply problem is stable investment in the Population Drinking Water Supply Programme. The economic mechanism of the Programme realization, dealt with in the paper, suggests a new pricing policy by means of which the cost of drinking water would enable water supply companies to perform a step-by-step transfer to self-finance.

INTRODUCTION

The solution of the problem of water supply in Russia is extremely challenging. Although Russia is one of the richest countries with respect to water reserves, 70% of its water bodies have lost their importance as drinking water sources. On average, 28% of the samples studied, which were taken from surface and groundwaters, do not meet chemical sanitary-chemical norms and 11.2% fail to meet microbiological standards.

The records of the Russian Hydrometeorology Service indicate an historical increase in water-resources pollution. First of all, the pollution results from low efficiency of waste treatment and from the fact that almost 50% of pollutants are delivered from diffuse agricultural sources and surface run-off from urban areas. The quality of groundwater used for water supply generally meets standards, although groundwater pollution has been increasing. In 49 settlements, groundwater is being polluted due to the activities of industry, agriculture, and municipalities. The

contaminants include petroleum products, phenols, detergents and heavy metals. The main reasons for this pollution are violations of economic activities in the zones of sanitary protection.

The drinking water supplied to about 5% of the population, especially in steppe areas, is highly mineralized artesian water which is very hard and contains high concentrations of chlorides and sulphates, but is not treated to a desired quality. A large portion of the population drinks untreated water from underground sources with high (5 to 10 times national norms) iron concentrations. Use of such water causes allergies and various diseases. About one-third of the population is supplied with water from non-centralized sources. There have been increases in water losses as the water is transmitted from source to water users. Great amounts of water abstracted are lost due to out-of-date production technologies and leaks in water-supply pipelines. In municipal water conduits that are worn out and lack proper lock devices, more than 20% of water is lost on average, and in a number of cities this figure is as high as 40%. All over Russia, municipalities are going to lose 0.25 m^3 of water. According to Russian researchers' data, urban water losses resulting from wastefulness are as high as 25 l day^{-1} per capita. Losses due to out-of-date facilities account for 35 l day^{-1} , losses due to imperfections in water supply systems in buildings are 15 l day^{-1} , and losses caused by poor maintenance of hygiene equipment are as much as 50 l day^{-1} .

GOALS AND TASKS OF WATER SUPPLY NATIONAL POLICY

The goals of the national policy are to completely meet the demands of the population by means of a safe, reliable water supply system and to implement an economic mechanism to guarantee reliable drinking water supply.

The main principles of the drinking water supply policy are:

- water resources and water bodies used as water supply sources are national property;
- national guarantees of primary drinking water supply to meet the demands of life, and health protection;
- special legal status for drinking water supply sources and regulations in sanitary protection zones that include water use limitations up to the complete exclusion of economic activities;
- national control and regulation of drinking water supply;
- flexible pricing of water supply;
- primary use of groundwater as a source of drinking water supply;
- economic stimulation for rational water use by the population and industry and protection of water sources from pollution;
- enforcement of national standards;
- Government support to all sectors of the national economy (public, private, etc.)
- budget investments supporting the manufacturing of water equipment, pipes, accessories, reagents, materials and devices; and
- openness in solving the problem of population water supply, fixed tariffs for drinking water, and free information on water quality in distribution systems.

LEGAL ASPECTS OF WATER SUPPLY

Improvement of drinking water supply legislation has the goals of:

- guaranteeing the human right to have a clean, healthy, favourable environment, regulating industrial relations, and protecting the human right to obtaining drinking water;
- identifying responsibilities of local authorities and municipalities for drinking water supply;
- protecting the public right to get drinking water and also true information on its quality, and to participate in the planning of measures to be taken; and
- protecting the human right to be compensated for the damage caused by using poor quality water.

In Russia, the federal law on drinking water is being developed for the first time and will serve to formalize and develop the main articles of the Russian Federation (RF) Water Code and RF law on environmental protection related to drinking water supply.

Major items to be included in the law are:

- proprietary right in drinking water supply systems;
- legal relationship rights of constituents in the sphere of industrial-drinking water supply;
- rights and duties of water users and suppliers;
- protection of water users' and water suppliers' rights and accountability for violations; and
- drinking water treatment and usage, protection of drinking water supply networks, and economic regulation.

Strategic goals to develop a free market mechanism for industrial-drinking water supply are to be reached by using the following tools:

- water use and supply payments on the basis of a pricing policy, to guarantee a step-by-step transition of drinking water supply companies to self-financing;
- economic stimulation and insurance in drinking water supply and improvement of water supply service quality;
- increased number of companies with various property types and small businesses in water supply.

Under the national water management policy there should be significant changes in legal and regulatory documents on drinking water supply. The existing system of national norms is based on the concept of maximum permissible concentration. The major indicators differ greatly from European standards and need to be revised to make the values of indicators consistent with WHO recommendations. The indicators include a number of highly toxic inorganic and organic substances.

PROGRAMME ON RUSSIAN POPULATION DRINKING WATER SUPPLY

The goals and tasks of supplying people with water, once fixed in the legislation, are translated into concrete measures initially by the Federal Target Programme which is a starting point for improving the water supply and the means of implementing the whole Programme.

The Programme is being developed to make progress in the provision of a water supply of desired quantities, the rational use of drinking water sources, the introduction of updated means and devices to abstract and treat water, the improvement of industrial-drinking water supply systems, and, as a result of these, improvement of the public health and the socio-ecological environment of the country. To solve the problem more effectively, the Programme provides for a number of interrelated processes and measures for all the regions of the country, such as: legislation and regulation; rational use; technical improvement of the condition of water supply systems; development of new technologies and devices for drinking water supply networks; rehabilitation and rational use of industrial-drinking water supply sources; organization, management, and monitoring of industrial-drinking water supply; and ecological education and awareness.

ECONOMIC ASPECTS

Financing the implementation of drinking water supply programmes depends on the level—federal, regional, or municipal—and is performed on the basis of self-financing, credits, and budget financing of various levels. The Programme expenses include research and other studies, capital investment, materials and technical devices, repair and maintenance of facilities, personnel training and refresher courses, salaries, and management. The main source of research financing and capital investment for the construction and reconstruction of centralized water supply networks is still public funding.

The implementation of regional and municipal programmes provides for various shares of industrial water users according to their shares of drinking water from networks they use. Public money to finance programmes is collected by means of raising loans and issuing municipal bonds to be repaid by profits within 10 to 15 years. To use and correlate the two sources of investments it is necessary to evaluate a region from both an economic and ecological points of view. Preliminary examinations are required before starting work.

The most important direction of pricing policy for drinking water supply is to create conditions to guarantee self-financing of companies engaged in drinking water supply for the public. This main condition is self-financing of the Programme. It is necessary to guarantee step-by-step transition to water tariffs to cover all the expenses of treatment plants.