

Some approaches to rehabilitation of urban water supply systems for improvement of their stability

E.A. Mesropyan

“JINJ” Limited Liability Company
38 Cholakyan Str., 0037, Yerevan, Armenia
info@jinjconsult.com

Despite the marked recent increase in the volume of investments in water sector, they are still insufficient for full rehabilitation and development of urban and rural water supply systems. In this context, application of mechanisms and methods for purposeful and effective use of investments assumes great importance.

Based on the analysis of international and country experience in rehabilitation of urban water supply systems of Armenia, a new approach to designing the rehabilitation and development of delivery and distribution systems for settlements is proposed.

The proposed approach is based on understanding that the reliability and sustainability of urban water supply systems is a chain of multiple-factor measures and depends on quality design and construction, efficient management, professional operation and, of course, on adequate attitudes of users (population).

The paper presents the technique of two-phase design of urban water supply systems, which was used in designing more than 20 urban settlements in Armenia. Moreover, it gives approaches to identify the actual layout of distribution network, technical conditions of its individual elements, and, on this basis, using hydraulic modeling, to define the way of effective rehabilitation and development of water delivery and distribution systems.

Application of the proposed approach ensures better design, as well as increased responsibility of design engineer both at the design stage and during construction and operation; allows operating organization to create and update dynamic database of urban water supply system. The development of database and the layout of distribution network and its elements (based on GIS maps of a settlement) will facilitate the implementation of Management Information System (MIS), which, ultimately, allows operators to increase management efficiency and sustainability of urban water systems.

References:

1. Water supply and Sanitation Systems Improvement in the Settlements of the Republic of Armenia - Component B. Management Improvement and Development/Contract WSSP-07/4-01/Special report № 1(updated). Management Information System of Armwatersewage CJSC – JINJ Ltd.,HGSN Ltd., 2010 – 40 p.
2. Water supply and Sanitation Systems Improvement in the Settlements of the Republic of Armenia - Component B. Management Improvement and Development/Contract WSSP-07/4-01/ Concept of Asset Management for AWSC – JINJ Ltd.,HGSN Ltd., 2010 – p. 28.
3. Pogosyan M.G. (2009) Estimation of water-conduits and water distribution systems, Yerevan, Limush, p. 402.