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Pricing Approaches In The Case Of Cross Border Water Supply

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Abstract

Cross – border water supply is defined as water delivery of drinking water between countries where the complexity of water supply management is increased mainly because of the doubled reality of administrative, legal, accounting and decision-making processes. The paper contributes to a debate about the problem faced by the water sector in general, namely that prices and tariffs are almost universally below the full-cost of supply. This means that inefficiencies exist and needs to be carefully examined based on proper allocation of variable and fixed costs of water abstraction. Analyzed water pricing of existing cross-border WSS clearly demonstrates a wide plethora of applied water pricing approaches mainly based on pure negotiation principles demonstrating different bargaining positions of partners. In order to overcome this situation applicable water pricing principles were analyzed. National guidelines and academic publications endorse two possible approaches: marginal cost approach and recovery of full cost approach. Paper presents the applicability of these approaches for cross-border water supply and provides a practical model for costs' allocation. The model is demonstrated on a real business case of Slovene water utility.

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1. Introduction

The sustainable use of water is one of the most important challenges of our time. Urban water supplies are under

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considerable pressure in a number of the world's major cities as a result of ageing infrastructure, declining investment, increased demand from population growth, and the migration of rural workers to cities. Between 2000 and 2030 it is expected that population will grow especially within the urban areas of less developed countries and OECD reports that water demand will increase by 55 percent globally by 2050 as almost 60 percent of the global population will be hosted by urban regions [1]. About 4 billion people will be living in water-stressed areas leading to almost unavoidable competition across different types of water users – particularly agriculture, energy and urban dwellers. Increasing supply of water, construction of new infrastructure to increase harvest and storage resources are one of most mentioned challenge to manage growth in water consumption. Governments have become reluctant to adopt this approach in the recent past because it requires debt funding of large capital investments, and suitably located sites have been given over to urban development. When the need to carry out new investment is unavoidable however, because of population growth, reduced inflows, or ageing infrastructure: it is likely to result in considerably higher marginal costs than the existing supply. If marginal costs increase, either the level of subsidization needs to increase, or long run prices and allocations will adjust so that the marginal benefit for different classes of users are equal. In 2015 the U.S. Environmental Protection Agency, for example, launched the Water Infrastructure and Resiliency Finance Center to help communities across the country improve their wastewater, drinking water and storm water systems, particularly through innovative financing and by building resilience to climate change. It has been estimated that more than \$600 billion is need over the next 20 year to maintain and improve drinking water infrastructure across US.

Sound governance of water resources, on the other hand, has wider implications. Managing water-related risks is not only managing hydrology, finance and infrastructure issues but also to assess the range of political, institutional and administrative rules, practices and processes through with decision making process takes place. Stakeholders should be aware of the problems and decision-makers should be accountable for water management. These issues gain on importance when we discuss cross border water supply (CBWS). Survey on 48 cities from OECD countries and emerging economies reports that significant progress has been achieved in urban water management but important challenges remain. More than 90 percent of the cities surveyed reported ageing or lacking infrastructure, which threatens universal coverage of drinking water and sanitation and diminishes the capacity to protect citizens against water-related disasters. Sub-national governments also report the lack of capacity as most important challenge for the future. 65 percent of surveyed cities emphasized the lack of staff and managerial competencies and unstable or insufficient revenues as the most important obstacles for effective implementation of water responsibilities [1]. The need for change is already recognized by many water utilities and their owners. Municipalities are more aware of the need for an economic return from water supply investment that represents the long run average costs. Obsolete water networks have negative consequences on water losses and increase environmental and operative costs of water treatment. As being reported water loss in surveyed cities reached 21 percent of total water on average in 2012 with high variation among different countries. In Mexican cities, for example, water losses amounted to more than 40 percent.

Paper presents several approaches in water pricing and deals with specificity of cross border water supply. Efficient management of water resources and envisaged environmental changes would emphasize common long term investment in cross border and cross regional water supply systems (WSS). Therefore there is a need for sound methodology for dividing costs of water to different users (in different regions/countries) and various generations. Case study on Slovene water utility is based on relevant accounting data and presents a procedure for "fair" price calculation. Applying market based mechanisms would promote conservation among users and establishes clear market driven pricing signals in one hand, and better long term investment decisions of government and private sectors on other hand.

2. Literature Review On Water Pricing

The provision of drinking water is characterized by the use of high value assets indicating high capital intensive sector with significant entry barriers leading to limited competition between the suppliers (natural monopoly). Besides high investment costs the infrastructure is characterized by low mobility since it's constructed for a specific purpose. The technology of water supply exhibits the scale and scope economies over a fairly wide range of output [2], [3]. In order to achieve maximum social efficiency and minimize dead weight losses the pricing should be at the level of long run marginal cost. Due to the fact that water utilities are usually a natural monopoly and therefore marginal costs are

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