

Capacity development model for water services

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ABOUT 1,200 MILLION people in developing countries have inadequate water services. The impact of waterborne diseases is huge, especially on children and the poor. Diarrheal diseases kill more than 3 million people annually and cause about 900 million cases of illness. The infrastructure of many developing countries is inadequate to support economic growth. Furthermore, water scarcity threatens development in many regions. In Kenya, the Government intends to provide almost 30 million people improved water services by the year 2010, i.e. water systems should be built for about 17 million new consumers. Financial difficulties and other persistent institutional deficiencies, such as poor revenue management, are threatening this ambitious programme. In addition, the mixture of formal rules—mainly the “bureaucratic deconcentrated” regime, poor transparency and accountability, and lack of proper incentive structures—and informal constraints, such as opportunistic codes of behaviour in the public sector, have facilitated the evolution of a “self-sustaining problematique” in water services provision and production. Nonviability of water services has negative impacts on economic development, poverty alleviation, health conditions and environmental sustainability.

The main objective of the study was to foster the provision and production of safe, sufficient and affordable drinking water services. Thus, a hypothetical future model was constructed to serve as a universally viable institutional instrument for capacity development of water services. The empirical data and model innovation were derived from the Kenyan context. The dynamic model was based on a core vision—an evolutionary hypothesis—of a system required to develop the capacity of water supplies. The comparison of the model with reality is aimed to provoke a debate about the institutional changes needed in the water sector to meet its objectives in the long-term, and about their implementation to foster the self-reliance of the economic infrastructure in Kenya.

The soft systems methodology originally developed by Checkland (1984) for tackling ill-structured problems in societal systems was used in this study. Mannermaa (1992) has modified this methodology into a direction more suitable for futures research. The analysis regarding the problem situation—nonviability of water systems and its causes in Kenya—was carried out based on the documentation review, and on the questionnaire on viability and the major problems encountered at the district level which is responsible for the development and operational management of water supplies. In addition, the performance of

public and community water supplies in Western Kenya was assessed.

A wide array of globally applied institutional and management options for drinking water services was also presented in this study in order to find the viable alternatives for Kenya.

Viable water systems

The American Water Works Association (AWWA 1995a) classified water systems into three categories according to their capacity—or organisational, technical, and economic ability—to provide safe, affordable drinking water over the long term: viable systems, gray-zone systems, and nonviable systems:

- Viable systems are self-sustaining systems that can reliably meet all present and future requirements in a dynamic, comprehensive manner that assures the continued delivery of safe water. A key tool for a viable system is a master plan that includes a facilities plan, a management plan, and a financial plan showing how the system meets, and will continue to meet, performance requirements.
- Gray-zone systems may or may not have the ability to meet the present and future requirements in a reliable manner. They cannot be classified as viable or nonviable because their lack of comprehensive water supply planning does not allow adequate assessment. Regulatory compliance is a primary measurement of performance, but alone is not a sufficient criterion for determining viability. Gray-zone systems with compliance problems may have the potential to overcome these problems as they implement a comprehensive approach to improved operations, management, and financing.
- Nonviable systems clearly do not have the ability to meet present or future needs without significant restructuring of their approach to providing water service. They present a danger to public health, and their limitations erode public confidence in public water supplies. Nonviable systems are the result of a variety of conditions: population settlement patterns, development constraints, demographic and economic changes, management limitations, inadequate maintenance and modernisation, and failure to recover the full cost of service.

The key factor that separates viable and nonviable water systems is the capability and commitment of a system to implement the changes indicated by a planning process on

its own. According to the white paper, the most fundamental measure of viability is a system's ability to bring in more money than it will spend to provide reliable water service, i.e. financial self-sufficiency. A water system plan is thus incomplete without a multi year capital and operating budget, which balances revenues and expenses based on a comprehensive needs assessment. Nonviability is not simply a problem of drinking water enforcement policy; it encompasses broader issues important to the health and well-being of the community—infrastructure, economic stability, rural development, and poverty (AWWA 1995a).

Findings

The questionnaire on the viability was sent to the District Water Engineers' Offices (Ministry of Land Reclamation, Regional and Water Development, presently Ministry of Water Resources). Figure 1 indicates that the majority of the ministry's water systems were gray-zone or nonviable systems.

The detailed analysis on the water sector in Kenya and on technical, economic and financial performance of five community and five ministry water supplies in Western Kenya (Hukka 1998) gave a complex of interacting, mutually amplifying problems or "problematique" as Lemma and Malaska (1989) called this kind of a problem situation.

Capacity development model

Lemma and Malaska (1989) pointed out that in the search for solutions, the concept of a problematique must be supplemented with the idea of a "resolutique." Problems tend to reinforce one another, but so do solutions.

According to AWWA (1995a), the most fundamental measure of viability is a system's ability to bring in more money than it will spend to provide reliable water service. The study showed that water supplies in Kenya did not

meet this condition. Therefore, as a resolutique" a conceptualised perception—a core vision—of a system is needed to foster viability and to prevent the formation of a nonviable water infrastructure. The key concepts of AWWA (1995a and 1995b) have been used in the formulation of the core vision:

"The capacity development model is a key feature in the institutional framework of professionally-manned organisations that provide and manage self-reliant and financially self-sustaining drinking water systems. The overall objectives of the capacity development system are the best possible contributions to: protection of public health, conservation of public resources, economic growth, poverty alleviation and environmental sustainability.

The purpose of capacity development is water systems that can reliably meet all present and future requirements and produce continuously safe, sufficient and affordable water over the long term. The results of the capacity development model are: a feasible and desirable institutional framework for water systems and improved management of water systems.

The activities of the capacity development model are: to enforce and monitor compliance; to manage assets and operations through performance measurement, benchmarking and viability assessment; to assess, provide, enforce, monitor and amend institutional framework including adequate incentive mechanisms to meet the customers' effective and genuine needs and expectations in a consistent manner; and to develop and manage water resources adequately."

The basic structure of "the future model" for the capacity development model based on the core vision is shown in Figure 2. This activity model consists of three sub-systems—a nonviable water system minimisation and restructuring system, a viability monitoring and assessment sys-

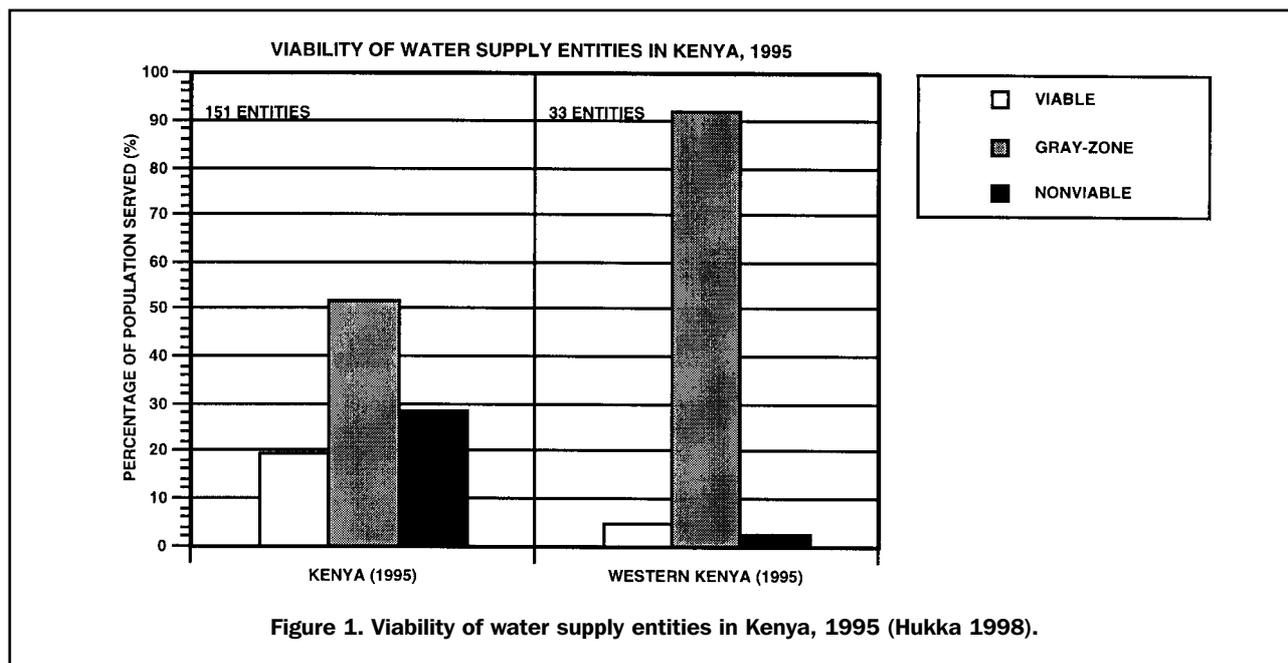


Figure 1. Viability of water supply entities in Kenya, 1995 (Hukka 1998).

tem, and a capacity development decision support system. These sub-systems are described in details: Hukka (1998).

The activities done in the nonviable water system minimisation and restructuring system are based on the information transformed in the monitoring and assessment system, and in the capacity development decision support system. Its fundamental task is to formulate viability initiatives and capacity development measures and to implement them.

The basic task of the viability monitoring and assessment system is to produce information on the water system's financial, technical, and operational ability to meet all present and future requirements in a manner that assures the production of safe, sufficient and affordable drinking water, and customer confidence and satisfaction.

The basic task of the decision support system is to organise the processing, analysing, and delivering of information that is necessary for decision making. The decision support system should also include performance auditing reports, results-oriented measures and indicators for operations and maintenance and financial management.

Concluding remarks

A capacity development model—a human activity system—was formulated on the basis of the perception and comparative analysis. The primary task of this innovative and universal model is to minimise the number of nonviable drinking water supplies. This capacity development model was recommended to be introduced as a minimum

groundbreaking agenda even before the initiation of more radical institutional reforms in Kenya.

The findings reveal that the improvement of billing and collection practices and water rates setting would make both public and community water supplies financially self-sustaining while enabling them to produce affordable water to the customers. Furthermore, based on experiences from all over the world, three-tiered polycentric governance was recommended for the water sector as a policy measure. The central government's role should be merely to promulgate the enabling institutional framework; the autonomous water basin's role should comprise policy enforcement and monitoring the performance of water systems, and the local authority or user group—the water undertaker—should manage the core competencies in actual production of services. The role of private entrepreneurs in the provision of auxiliary services should be strengthened. The donor community should support this institutional change by pursuing innovative management arrangements and focussing more on the formulation of and compliance with proper formal institutional framework. This approach should be strengthened with complementary research, education and training co-operation which would enhance sound management structures and practices—the good governance—in the water sector.

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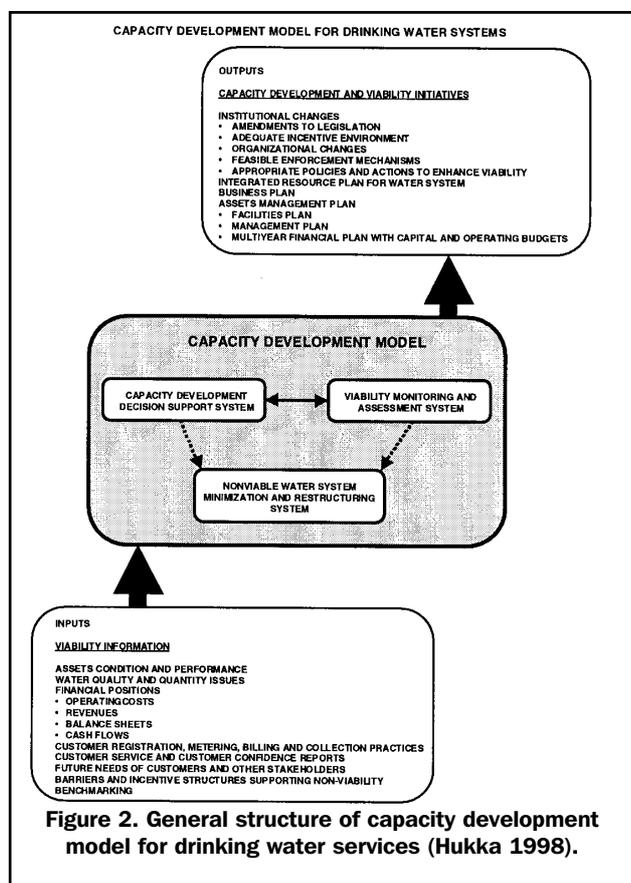


Figure 2. General structure of capacity development model for drinking water services (Hukka 1998).

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