

The management of water resources at the national level is organised around two government Ministries: Ministry of Water Resources Development (MWRD) and Ministry of Local Government/Authorities (MOLG). The central role is played by MWRD while MOLG plays only an indirect role in water issues by virtue of its responsibility over Local Authorities. At the local level, the Local Authorities (LA), and the National Water Conservation and Pipeline and Corporation undertake water management.

Surface and Ground Water Management

There is widespread usage of water from multiple sources in Kenya. In all of the urban areas, the pattern of surface and groundwater exploitation is mainly by industries. However, several issues arise from the present regulatory enforcement, making the present institutional arrangement inappropriate:

- (i) Under the existing *a priori* appropriation doctrine, firms acquiring the permit also indirectly preclude the award of subsequent permits to other firms in the same location.
- (ii) Older and more influential firms, have benefited from permit allocation at the expense of younger and smaller ones; and
- (iii) Even though there are avenues for transfer of water rights to new usage, i.e. from industrial to agricultural or domestic, there are no channels for transfer of permits between users. These restrictions preclude sharing permit allocation or transfer of water services between adjacent industries.
- (iv) The regulatory enforcement approaches (i.e. licensing) for ground water access are very bureaucratic and tend to breed corruption.
- (v) Except for modest permit application charges imposed upon application, currently, there are no ground/water charges in Kenya.
- (vi) Monitoring and regulation of groundwater/ surface water quantities abstracted is very weak and nonexistent in most urban areas.

The Importance of Transferability of Water Rights

Transferable property rights in water have become a common prescription for improving efficiency in water allocation. Restrictions on transferability of water permits are restrictions on efficiency. The "prior appropriation doctrine" in Kenya needs to be re-examined. A competitive criterion for allocating permits to industrial firms annually could be adopted. A basic approach can be taken by the water authorities to grandfather existing property rights and allow firms to trade them with new applicants.

Regulation of Surface and Ground Water Usage

Experience with water management calls for "decentralising water management to the lowest appropriate administrative level". As a rule, national governments should not implement tasks that can be done more

efficiently or effectively at lower government levels, although they should ensure that these tasks are executed (subsidiarity principle).

Regulation of the water can best be done at the local level by the local water authorities. Devolution of this responsibility would also eliminate the existing role conflict in which the Ministry of Water Development is a regulator, operator and a policy maker in the water sector. The Ministry is incapacitated on the extent of the ground it can cover and the thoroughness with which information can be verified. Delays in the implementation of regulatory measures are considerable. At the same time, demand for captive water resources by industries has increased substantially (for domestic, livestock and irrigation). Additionally, access to the rivers has increased significantly due to settlement/ subdivision of riparian land, meaning that the number of commercial abstractors has grown substantially.

Since there are many industrial firms across the country, in over 100 local authorities, these local water authorities would be better placed to regulate all the water activities of the industries. Such an approach would have the added advantage of avoiding duplication of effort. Such restructuring can help address the rampant problem of excludability facing ground and surface water due to low enforcement of the ground and surface water regulations. Furthermore, the roles and responsibilities of the Ministry of Water Development can be trimmed down to allow it to handle policy, planning, monitoring and evaluation of water sector. It can then transfer its operator role to the local authorities in order to improve on the institutional efficiency in the water sector. There is also need to decentralize decision making to LA levels and empower water managers instead of attempting to create the same capacity at the Ministry level.

Water Pricing and Management Institutions

There are several problems with the existing mode of water service management within the urban areas. Three of these are pertinent to the appropriateness of water management institutions. First is on the enforcement structure for water tariffs i.e. the philosophy, pricing objectives, and water tariff enforceability etc as a tool for water demand management. Second is the pricing of surface and ground water abstractions, and third is on the sewer charges for the ground and surface water sources.

Enforcement Principles for Water Tariffs

There are several aspects of the pricing institution that make it inappropriate:

- (i) water pricing in the urban areas is not implemented with the express goal of ensuring water conservation, instead, the goal of water authorities is to raise revenue to support water service provision. All the local authorities place emphasis on revenue generation even though water service coverage remains low in all the urban areas. An appropriate pricing arrangement should be sen-

- sitive to conservation needs and elimination of profligate use.
- (ii) Where municipalities are the water service providers, their ability to influence water consumption through tariff structure is very low.

In all the urban areas, there is evidence that tariffs do not pose a credible constraint to water use decisions. This is because the extent of liability enforcement for water consumption is quite limited. The existing laws or by-laws do not make it sufficiently compelling for consumers to pay their water bills promptly.

Pricing or Charges for Surface and Ground Water

Apart from the permit application fee, Kenya has no pricing framework for groundwater and surface water abstractions. The existence of captive sources such as borehole and rivers has made water tariffs less effective as an instrument for public water management especially for industrial users. Most consumers (i.e. industries) appear to "mine" ground water resources when the public (piped) source gets more expensive. Some Local Authorities have maintained concessionary or negotiated tariff rates for major (mainly industries) users rates in order to pre-empt loss of water revenues. This is done through contractual arrangements between the industrial firms and water authorities that allow firms to continue consuming agreed amounts of water in return for a waiver of sewer charges. The above distortions are encountered because for most of the urban water authorities, the sourcing of ground or surface water by industries also represents foregone revenue since switching of water sources by some industrial consumers is feasible.

Sewer Charges on Surface and Ground Water Abstractions

Some of the Local Authorities see the need to impose a sewer charge on groundwater since the wastewater is discharged into municipality sewers, but the sewer charges are still defective and unenforceable. This is because for most consumers, the captive water is not metered, making it impossible to impose an appropriate sewer charge. Most major towns (Kisumu, Eldoret, Nairobi, Nakuru and Thika) do not impose any charge at all. The above incentive structure encourages consumption of ground and surface water by industries and renders tariff adjustment for consumers defective. Clearly, a better regulatory and charging mechanism is needed.

The main gap in institutional mechanisms that lead to profligate use of water resources in Kenya arises from the failure of the existing framework of over-arching management in water resource usage. Fragmentation of responsibilities between national and local authorities increases transaction costs in reconciling water policy objectives. A clear delineation of these responsibilities by according local authorities the autonomy to manage all waters within their jurisdiction should address the current anomalies. A clear policy objective to guide water resource use and tariff implementation is also needed. Priority should be placed on water conservation goals and usage rather than optimization of generation of water revenues.

Inquiries

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