

?More MDGs per drop?

Multiple-use water services

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Top-down approach water programmes assume people use water for a single purpose. A ?multiple-use water services? approach can unleash massive productive capacity in



People use water for many purposes, including drinking, cooking, washing, farming and small-scale enterprise. This is especially true for people in rural and peri-urban areas whose livelihoods depend on diverse, agriculture-based activities that require water.

But the mandates of government water departments and the top-down approaches of many international water programmes often assume people use water for one purpose, and sometimes prohibit people from using water for anything else. The domestic sector focuses only on meeting people?s basic water needs for drinking, cooking, personal hygiene, sanitation and other domestic uses. The productive water sectors focus on watering plants and supplying water to animals for food security and income. They tend to think large-scale and ignore that the homestead is often the preferred site for small-scale production. This single-use approach of the water sector fails to match people?s multiple water needs.

Reality check

Everywhere, people use systems designed for a single use ? as either a ?domestic? system or a ?productive? system ? for multiple purposes. Cattle drink from irrigation canals and people bathe in irrigation water. Water from domestic pipes is used for homestead cultivation, livestock watering and small-scale enterprises. These uses provide vital livelihood benefits. However, they may damage canals or deprive users of the same piped system of their basic domestic needs.

The distinction made between 'domestic' and 'irrigation' water does not fully match the reality on the ground. Taking into account these realities has various advantages. Planning for how people actually use water can help prevent damage and deregulation to systems. Building on people's own needs and practices increases the likelihood that systems will become more sustainable. Last but not least, livelihood benefits of investments in water services are higher. Multiple-use water services not only contribute to achieving access to safe water for domestic uses and sanitation, but directly and indirectly contribute to all the MDGs, provided they are well targeted at the poor. This provides 'more MDGs per drop'.

It does not take much to understand multiple-use water services and consider all uses from a livelihoods perspective. According to Johnny Hernández of Honduras' national water utility Sanaa, 'multiple-use service is all about changing perspectives. Once you would see someone irrigating tomatoes and you would think he is wasting water. Now you would say he is making a good and economic use of water'.

This article focuses on two forms of multiple-use water services: homestead-scale multiple-use water services and community-scale multiple-use water services.

Homestead-scale multiple-use water services

Homestead-scale multiple-use water services have perhaps the most potential to contribute to achieving all MDGs. The domestic sector often uses a 'water services ladder', which relates water uses with service level: the access to safe water that is sufficiently near to homesteads. This ladder assumes that up to 100 litres per capita per day (lpcd) is used for domestic purposes.

But the reality is different, particularly in rural and peri-urban areas, as was found in the action research by the CGIAR Challenge Program on Water and Food (CPWF). This study found that, wherever water is reliably available and sufficiently near to the homestead, people use it for domestic and productive purposes. A 'multiple-use water ladder' better reflects reality. The table shows which domestic and productive water needs are met at different service levels.

Multiple-use water ladder

Service level	Volume (litres per capita per day)	Distance to homestead/time roundtrip	Water needs met

High-level MUS	>100	At homestead	All domestic needs; combination of livestock, garden, trees, <i>and</i> small enterprise
Intermediate MUS	50-100	<150 m; < 5 min	All domestic needs; livestock, garden, trees, <i>or</i> small enterprise
Basic MUS	20-50	<500; < 15 min	Most domestic needs; some livestock, small garden, <i>or</i> trees
Basic Domestic	< 20	>500; > 15 min	Very few domestic needs; basic livestock

For each step on the multiple-use water ladder, 5 lpcd should be safe for drinking. With point-of-use treatment technologies (filtration, chemicals) one can safeguard the quality of such quantities of water, even if the larger quantities of water are not of potable quality.

Benefits offset higher costs

The far-reaching policy implications of the multiple-use water ladder are that service levels for homestead-scale water uses should be double or triple the quantities that are usually considered when setting targets in largely unserved areas in sub-Saharan Africa or South Asia. These higher service levels allow for productive as well as domestic uses. Thus, multiple-use water services

that ensure 50-100 lpcd (intermediate-level MUS) or more (high-level MUS) allow households to use water for significant productive activities. Of course, it is more expensive to provide water for more than just basic domestic needs. However, calculations have shown that the income gained makes quick repayment of the hardware and software investment costs possible. Net income is usually sufficient to repay within six months to three years. Also, there are innovative ways to use more sources of water, such as harvested rooftop water, which is stored for drinking purposes, while homestead ponds, irrigation canals or piped systems for domestic uses are used for purposes that do not require such high water quality. Such water can also be used for productive purposes.

Who pays for the investments is a different question, and is not specific to multiple-use services. In both the domestic and productive sectors, most or all capital investments in infrastructure tend to be subsidised, while operational costs should be borne by the users. This can also be agencies? preference in delivering multiple-use services. As water needs for productive uses tend to vary according to the size of the farm or enterprise in which water is used, diversity in access to water tends to grow under multiple-use water services. Offering more choice in service levels to individual community members can address this. Subsidies would be targeted to the poor for intermediate-level MUS, while wealthier people who want more water should get this on a full cost-recovery basis. Subsidisation remains essential to reach the poor.

Pro-poor and gender equitable

Homestead-scale MUS is particularly pro-poor and gender equitable. The land surrounding homesteads is often all that is available to resource-poor farmers. Youth-headed households, the elderly or sick often lack the capacity to produce elsewhere. Women tend to have a stronger say over the use of produce at and around homesteads than at distant fields. These food security and income benefits add to the well-known importance of domestic water uses for health of the family and the alleviation of the burdens of especially women and girls. Women can use the time freed up for productive activities, family care, or leisure, and their daughters can attend school. Moreover, use and re-use of water, soils and organic matter at homesteads significantly enhance productivity. In sum, provided that services effectively reach the poor, homestead-scale multiple-use water services ensure ?most MDG per drop?.

Community-scale multiple-use water services

Although homestead-scale multiple-use water services are likely to be communities? first choice, particularly for women, water is also used to irrigate crops or trees at distant fields. Further, people use water by directly accessing open water bodies such as streams, lakes, village reservoirs or irrigation canals, also if it is ?illegal?. Open water is used for livestock watering, fisheries, laundry, enterprises and so on. Community-scale multiple-use water services moves up to this higher scale of the level of one or more hamlets, communities or even a sub-basin. It considers all sources, water uses, and sites of use in a holistic manner within the spatial lay-out of communities? land- and waterscapes.

This is also the scale at which communities themselves have historically developed and managed their multiple water resources. Many water projects tend to ignore communities' existing water arrangements. They focus on a single end-use and also on one single site of use. All too often, projects create another layer of infrastructure, without building on existing infrastructure and institutional arrangements and on people's ideas and priorities. The project conditions and time pressure to 'deliver' often render a participatory process impossible, even though this often affects the sustainability of the support provided. In 'community-scale multiple-use water services' the planning and design of water infrastructure is done in a participatory way.

Local government

Local government is pivotal for delivering both homestead-scale and community-scale multiple-use water services for many reasons. These reasons include its permanent presence; knowledge of local needs; networking with community leaders for mobilisation, ensuring inclusiveness, own contributions, and conflict resolution; its ability to call upon technical expertise from line agencies where needed (such as dam safety); coordination of donor and government funds allocation; synergies in monitoring of various development initiatives; shared use of expensive building equipment; and timely maintenance and repair of infrastructure to ensure sustainability. Empowering local government, while ensuring accountability to communities is, therefore, an important step to realise multiple-use water services.

References

- Houmoller, O., Kruger, T. (2008)
[Livelihood and IWRM](#)
. Paper presented at International Conference on Integrated Water Resources Management (IWRM). 10-12 March.
- Howard G. and Bartram, J. (2003)
Domestic water quantity, service level and health. Informal paper WHO/SDE/WSH/03.02, Water Engineering and Development Centre (WEDC), Loughborough University, UK, and Water, Sanitation and Health Programme, World Health Organization (WHO), Geneva, Switzerland.
- Renwick M. (2007)
[Multiple-use water services for the poor: assessing the state of knowledge](#). Winrock International, IRC Water and Sanitation Centre, International Water Management Institute. Arlington Winrock International.
- Van Koppen, B. et al. (2009)
[Climbing the water ladder](#). IRC International Water and Sanitation Center, International Water Management Institute and Challenge Program on Water and Food.