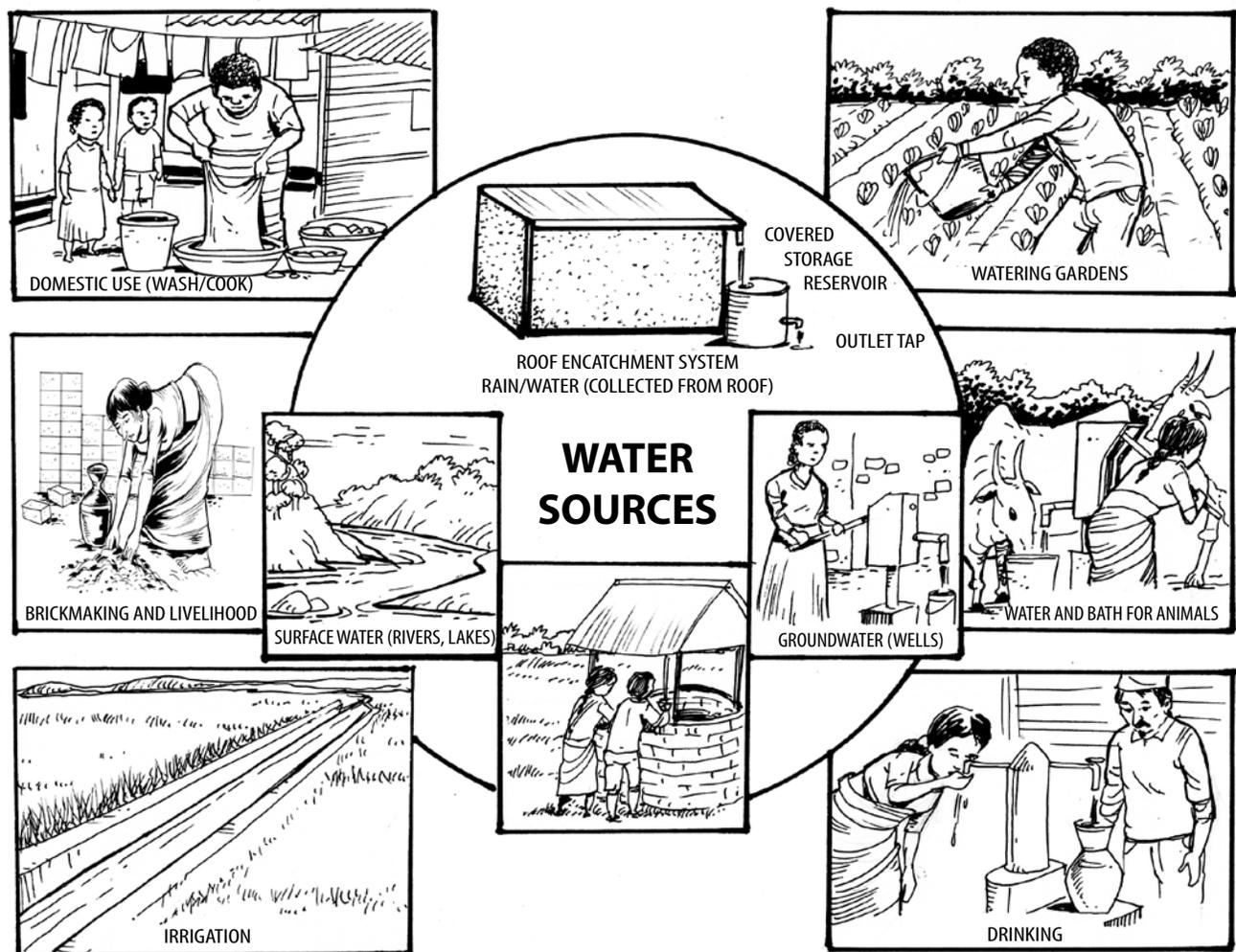


Five Principles for Multiple-Use Services at the Household and Community Levels



People, especially families in rural and peri-urban areas, have different uses for water. Aside from domestic and irrigation purposes, they need water for their farm animals, fishponds, home gardens, off-farm livelihood/enterprises, and for ceremonies. Multiple sources of water—groundwater, surface water, wetlands, springs and rain—are tapped to meet these different needs. Adoption of multiple-use water services (MUS) can improve access to water for more users in a more

sustainable manner. The approach recognizes that poor rural households use available public water infrastructure, which is often designed for single uses only, to meet all their water needs.

The services of the water sector and subsectors can be re-designed to provide for both the domestic and productive uses of water required at the homestead level. This is the experience suggested by the CGIAR Challenge Program on Water and

Food (CPWF) Multiple-Use Water Services (MUS) Project. For the domestic water use sector, this means expanding its service to include use of water for homestead-scale productive activities. For the productive use water subsector (the irrigation sector), this entails expansion of its services to include supply of water for domestic and other non-irrigation uses.

Conventional single-use systems

Planning and design of water services in rural and peri-urban areas are still not based on people's multiple needs because the water sector is organized for single-use systems. Public water services are sectoral and top-down. Water services are divided into domestic and productive sectors—e.g., irrigation, fisheries and aquaculture, and so on. Each sector adopts a “single-use planning approach” where infrastructure is designed for a particular use. Each sector also assumes that the other sectors take care of the other needs of their clients. This sectoral approach works in urban and industrialized settings but not in the case of poor rural communities. The poor use water for multiple purposes and access water from multiple sources.

Rural domestic water supply services normally provide 25 to 50 liters of clean water per capita for drinking, cooking and sanitation only. They seek to reach everybody. However, though limited, water from these supply services is also used for productive and income-generating purposes. If people can earn from using domestic water, then they may be better able to pay fees to recover costs of and sustain water system facilities designed for multiple use. On the other hand, projects on irrigation do not usually supply 100% of their coverage area and hardly target poor households.

They also tend to ignore productive activities around the home. This contributes to the further marginalization of women in poor households who depend on water for both domestic and productive activities around the home.

Adoption of multiple-use water supply services is therefore urgent. It addresses the multiple water use needs of the poor and contributes to the increase of health and wealth. This may improve their willingness and ability to pay for the use and sustained operation and maintenance of the multiple-use water supply systems.

A need for a multiple-use water services approach

The MUS approach cuts across national, community and household levels. Understanding how it works at household and community levels is the focus of this article. In particular, experiences with two MUS models are presented—homestead and community scales. Homestead-scale MUS promotes access to water at and around homesteads for domestic and productive purposes to improve the health, food security and income of families. Community-scale MUS is a holistic approach that takes the community as an entry point and considers and integrates all uses, users, sites of use, water resources,

The multiple-use water services (MUS) is an approach to water services where the design starts with recognizing and planning for people's multiple water needs. It is the sum of the institutions, services, resources, and infrastructure that allows communities to effectively and inclusively manage their water resources for domestic and productive uses. MUS is one particular form of integrated water resource management.

- Merrey et al. 2005

infrastructure and economies of scale in the design of water systems for multiple uses.

- ◆ inclusive institutions that involve the poor in planning and managing the system
- ◆ adequate financing

The five MUS principles

MUS applies for new construction and rehabilitation. For MUS to work, public service providers ensure that the following set of conditions or 'principles' is in place (Figure 1):

- ◆ water-related livelihoods as driver of services
- ◆ sustainable use of water resources
- ◆ use of appropriate technologies designed for multiple uses

1. **Water services should aim to achieve multi-faceted livelihood benefits from MUS.**
This is the driving principle in MUS. It emphasizes the need for and the planning of services based on a thorough understanding of the multiple roles of water in people's livelihoods, especially those of the poor men and women. Improved health, income, food for the family and freedom from domestic chores are some of the benefits derived from MUS.
2. **MUS always strive for sustainable water use.**
This refers to the efficient, equitable and sustainable development and management of

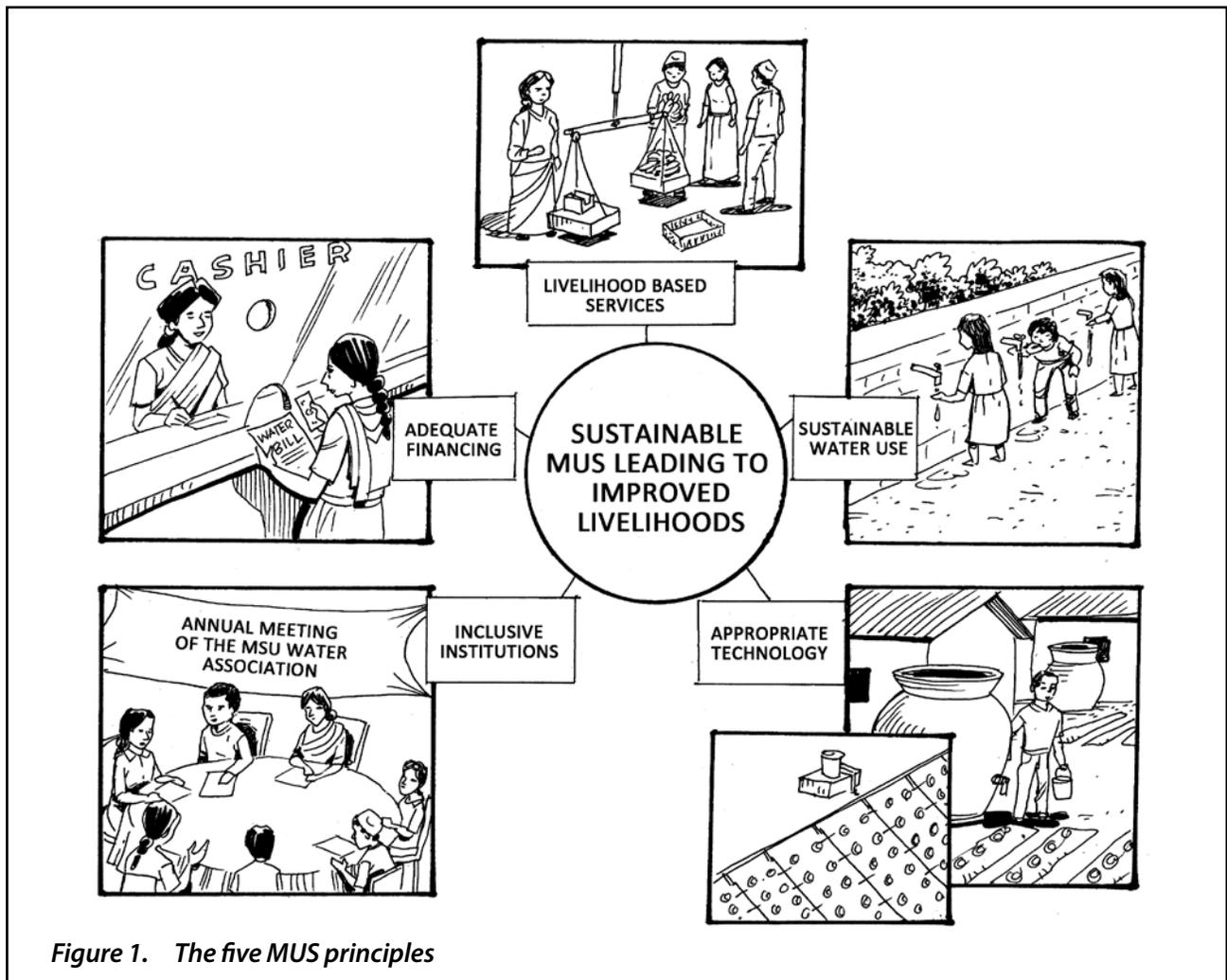


Figure 1. The five MUS principles

naturally available water resources, be it from rainfall, groundwater, surface lakes and streams, springs, wetlands or big and small reservoirs. This includes the use and re-use of water from multiple and conjunctive sources to meet multiple needs.

3. **Selection and use of technologies are based on people's needs and abilities.**

This considers technologies to tap, store, distribute, protect and treat water for multiple uses. Among others, this involves re-assembling existing technologies to allow for multiple uses and mitigate health risks, taking into consideration users' preferences and ability and willingness to pay for the services. This also improves women's access to technologies and breaks taboos against women's control over water technologies and resources.

4. **MUS go for informed decision making and transparent management by institutions that involve the poor.**

Under this principle, inclusive community-based water institutions are integrated and built on existing water arrangements to holistically govern conjunctive water resources. The unified water institutions may be one institution or different institutions with effective coordination mechanisms.

5. **MUS financing matches people's ability and willingness to pay.**

Adequate financing of MUS includes enhancing its cost recovery by making end users pay including the poor. The MUS should ensure improved access to the service that is not

too costly for the poor. Where appropriate, differential service levels and well-targeted subsidies are introduced.

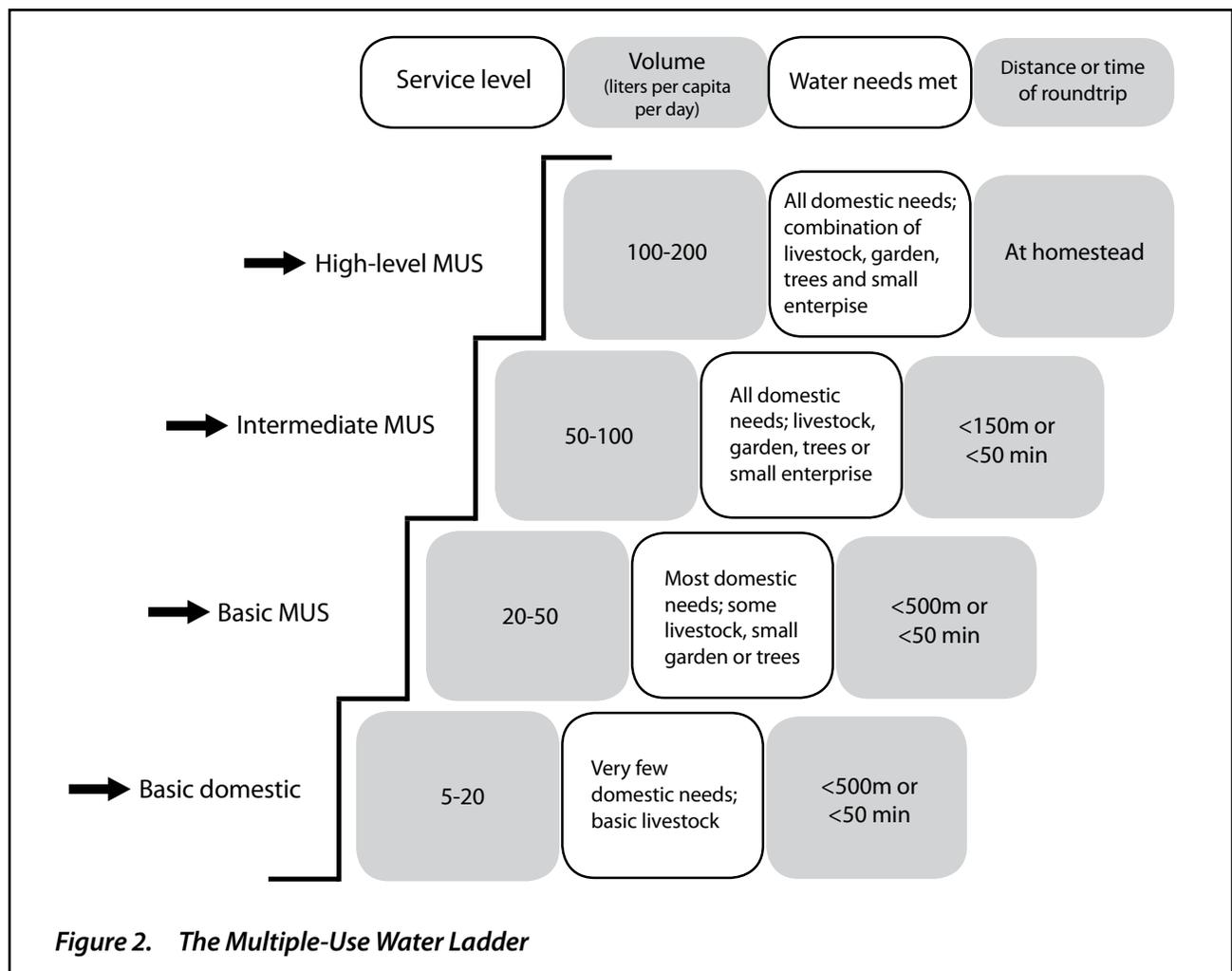
Types of MUS

Homestead-scale MUS. The link between the given level of water available and the uses and livelihoods that may be derived from it is described in the "multiple-use water ladder" (Figure 2). The ladder allows planners to analyze how different technology options can be used to provide a certain level of access. Studies recommend that the poor should be able to climb the water ladder—i.e., able to access 50 to 200 liters per capita per day. Of this, at least 3.5 liters should be safe for drinking and the rest for productive and other domestic uses. Research showed that homestead-scale MUS allow recovering investments within 3 years.

Community-scale MUS. This model takes the communities as the entry point for water services. Its design considers multiple water uses (domestic, irrigation for crops and trees, water for livestock, enterprises, and ceremonies) from multiple water sources (rain, surface water, wetlands and groundwater) at multiple sites (homestead, fields, open access). This is more efficient and sustainable than single-use water systems for at least four reasons:

1. More cost-effective infrastructure investments than single-use infrastructure: Small incremental investments generate substantive livelihood benefits. One multiple-use scheme is cheaper than two separate single-use ones.
2. Enhances water efficiency by combining the multiple water sources and re-use of water at different levels.
3. Improves water quality at the appropriate level, e.g., treatment for drinking water.

Women and the landless poor who only have access to homestead land for their productive activities will benefit the most from homestead-scale MUS.



- Empowers communities by building on local and existing water management arrangements that are intrinsically holistic and already adopted for multiple uses.
- A key livelihood issue is intra-community allocation of public support: Whose livelihoods are to be improved? Whose preferences are followed in selecting sites of use and uses? Are there options for differential service delivery so that those who can pay do pay?

Key findings

Regarding the five MUS principles, the following are some of the findings:

- Water is only one of the contributing factors to livelihoods. Education training and, support for marketing are others. However, water is a very important resource that is always taken up by a significant portion of the community.
- In planning for community-scale MUS, women, the poor and the sick are likely to prioritize homestead-scale MUS over field irrigation. Assessment tools such as Resource-Infrastructure-Demand-Access (RIDA) are important so that men and women recognize the importance of domestic water uses, besides productive uses.
- Technologies already exist to provide different levels of access to homestead-scale MUS.

Technologies such as homestead wells, boreholes and rainwater and run-off harvesting and storage can often easily provide at least 50-100 liters per capita per day requirement at the household level.

5. The technical design from a MUS perspective becomes more efficient at the community scale. Multiple sources can be combined and economies of scale become an advantage.
6. Promoting multiple uses by multiple users and participatory process do not necessarily add to institutional complexity in managing MUS. This is because people with multiple needs have multiple interests. Single-use approaches split up people's interests. Also, *de facto* multiple uses exist. MUS becomes manageable by making existing practices transparent.
7. Investment costs for homestead-scale MUS are slightly higher than conventional domestic services. However, the potential income from productive water uses, estimated at USD 100-500 per year, implies favorable benefit-cost ratios. Investments made to climb to intermediate MUS can often be repaid within 6-36 months.

Lessons learned

Important lessons from the implementation of MUS projects occurred at three levels – household, water systems and institutions. These are summarized below:

- ◆ **Productive use of water at the household level reduces poverty.** MUS cannot eliminate poverty per se. Productive use of water through MUS helps poor households diversify livelihoods, earn additional income, provide access to high-quality food and empower women.



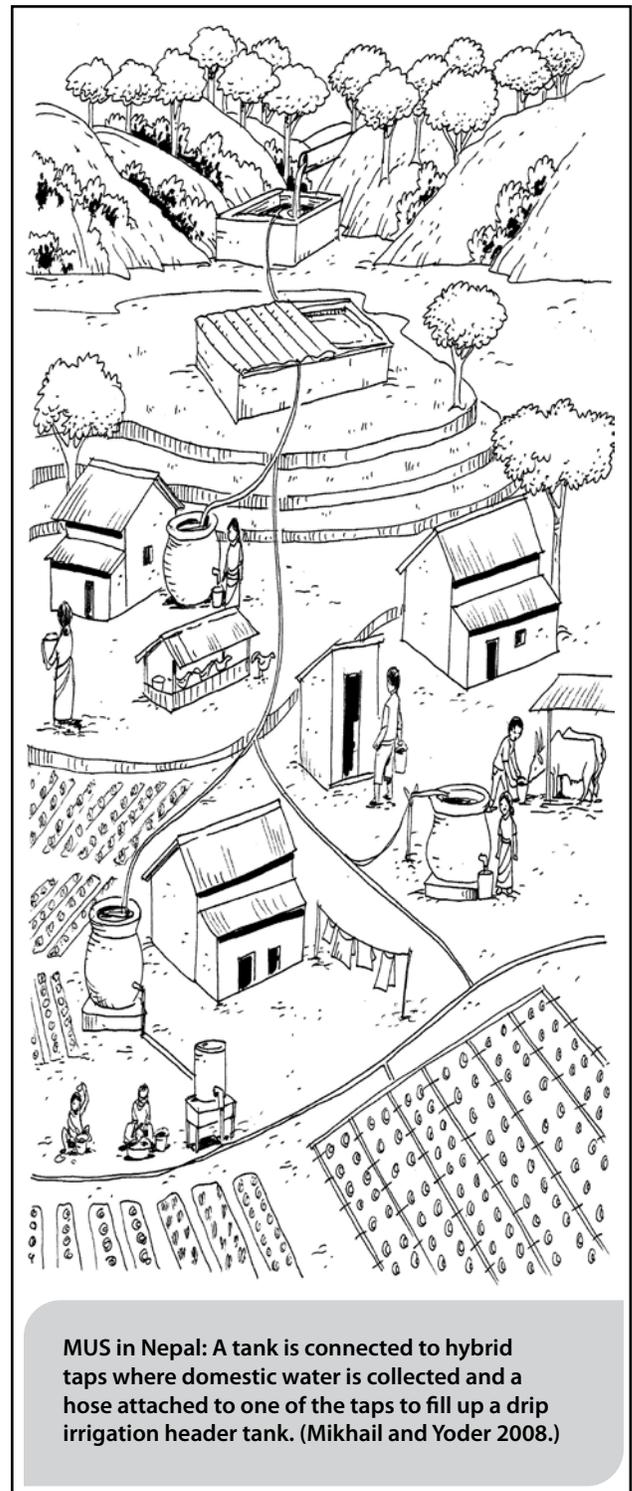
The CGIAR Challenge Program on Water and Food Multiple-Use Water Services (MUS) project study on over 7,000 households in eight countries showed that MUS brings various benefits, including contributions to:

- ◆ Meeting the basic needs for good health, food security and income.
- ◆ Adapting to the outside environment— i.e., greater resilience against shocks, extreme droughts and floods; fluctuations in food prices, market and employment opportunities.
- ◆ Improving household net income— Households in MUS on average earn USD100 to 500 per year higher than households with single-use water.
- ◆ Women's empowerment through reduction in time spent on domestic chores and increased livelihood opportunities/benefits.

Multiple-use water services in the interest of the poor stand for: water services planning and design that take people's multiple water needs as a starting point. The challenge is how to engender the changes required in the water sector to make such multiple-use services a reality.

- van Koppen et al. 2006.

- ◆ **People require more than their domestic water needs to be productive.** Productive use of domestic water happens even when people have less than 25 liters per capita per day. However, for productive uses to take place at a significant scale, at least 40-100 liters per capita per day are needed.
- ◆ **People need local solutions and multiple sources for multiple uses.** Within the water user groups, there is considerable initiative for self-help MUS where communities seek to meet multiple needs from multiple sources. However, the poor and other marginalized groups risk being excluded from this self-initiated search for support. Collaboration with user groups to specifically target the poor and the marginalized should thus be at the heart of MUS.
- ◆ **An integrated approach is essential to achieve significant impacts on poverty.** To work in an integrated manner across sectors does not mean that the provision of MUS cannot already start from within the sectoral agencies. Of 20 irrigation systems examined in a study, 18 were already considering multiple uses of water. Integration of players from outside the water sector, such as those in marketing or hygiene education, needs attention.
- ◆ **NGOs are MUS innovators even before CPWF-MUS.** NGOs are often area-specific and have limited reach. They may depart at some stage, leaving the systems without after-care. To overcome these weaknesses, NGOs must proactively collaborate with local governments on a range of issues—e.g., ensuring long-term support after project closure and scaling up of successful innovations like MUS at the district and higher aggregate levels.



MUS in Nepal: A tank is connected to hybrid taps where domestic water is collected and a hose attached to one of the taps to fill up a drip irrigation header tank. (Mikhail and Yoder 2008.)

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Mekelle University, Ethiopia
Mvuramanzi Trust, Zimbabwe
The Institute for Water and Sanitation Development, Zimbabwe

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Tags: PN28; Multiple Water Use

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