

## Multiple Use Water System (MUS) Factsheet

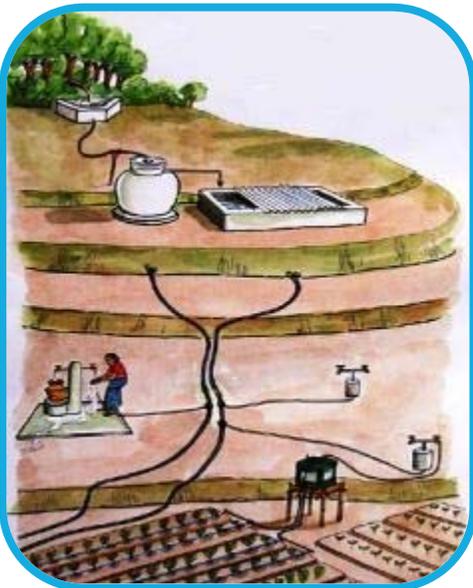
A multiple use water system (MUS) is an improved water resource management approach, which taps and stores water and distributes it to farm households in small communities to meet both domestic and productive needs. iDE Nepal has positioned MUS as a replacement for existing systems that are typically designed, managed and financed for a single use. iDE Nepal is considered an authority on MUS; its program is recognized by the IWMI<sup>1</sup> and the MUS Group as a leading application of the MUS approach.

### Why Multiple Use?

MUS is superior to conventional water systems which are designed for either agricultural or domestic needs, but not for both. Communities with single use designed systems rely on them for both uses anyways; however the inherent inefficiencies impact income. As a purpose built<sup>2</sup> solution, MUS is more efficient and it eliminates redundancies and costs for communities formerly served by older systems.

### Technologies and Configurations

Each MUS is purpose built and takes the particular community's needs, budget, water source and setting into account. It is built of several different locally sourced components. The simplest and most economical MUS configurations are gravity fed; they are appropriate when the community is located at an elevation below the spring water source. For settings where the community is located above the source, a powered-pump solution is required. Fossil fuel or grid-power are potential options but they are often unavailable, unreliable and cost-prohibitive for these typically remote communities. iDE has implemented a solar MUS solution which relies on solar panels to power the pump. The abundant sunlight for the majority of the year in Nepal has made this a great solution.



The preferred MUS configuration, whether powered or gravity fed, has two tanks. This configuration helps ensure an uninterrupted supply of drinking water. The domestic use tank is filled directly from the spring source, while the overflow, irrigation usage tank is filled with the excess from the domestic tank. The two-tank system allows users to monitor water levels more easily and ensures compliance with the official water resource strategy that prioritizes drinking water over other uses.

An important part of a MUS installation is the micro irrigation technology (MIT). MIT methods have many advantages over the traditional furrow or flood irrigation: they can significantly increase yields, improving water use efficiency, control weed growth through targeted watering, maintain field quality and reduce labor. The many benefits of MIT and MUS when combined serve to increase the income potential and land efficiency of smallholders.

growth through targeted watering, maintain field quality and reduce labor. The many benefits of MIT and MUS when combined serve to increase the income potential and land efficiency of smallholders.

### MUS Figures

-  **280** Total Systems Installed
-  **30** Districts with Installations
-  **60,000** People Served
-  **8** Solar powered MUS Systems
-  **115** USD Cost per HH
-  Under **12 Month** User Payback

<sup>1</sup>International Water Management Institute

<sup>2</sup>MUS by Design

---

## Community Impacts

- **Increased income** – High value crops (typically vegetables) are cultivated year round on a greater proportion of smallholders' land (irrigation allows for cultivation on previously unutilized areas). MUS system investment is normally recouped within a year.
- **Increased food security and improved nutrition** - A portion of the produced vegetables are consumed by the community which improves diets in terms of nutritional diversity and vitamin intake. Crucially, food security is also improved by the farmers' vegetable cultivation.
- **Empowerment of women and freeing time** by decreasing (or eliminating) the workload of carrying water, a task normally conducted by women. Women typically take ownership of the high value crop production and sale activities which gives them direct contact with the money and therefore greater decision making authority in both household and community capacities.
- **Improved health through better hygiene and sanitation** – An overall improved level of public health has been observed in some projects: specific improvements commonly include a reduction in open defecation and a corresponding rise in latrine use, increase in clothing and dish washing, more frequent bathing – especially of children, and cleaner drinking water.

---

## Sustainability and Community Ownership

System upkeep is another area where MUS has a noticeable improvement over conventional water systems. Each MUS community appoints a committee that is responsible for management, repair, and maintenance. These committees collect fees from users on a monthly basis to fund regular maintenance and repairs. The committees also often employ a paid caretaker responsible for consistent system operation. The income increases across the community provides for the funds. This sustainable arrangement, where the community takes ownership of their system stands in contrast to the more conventional systems, where it is common for systems to breakdown and remain unusable for long periods.

### Role of Commercial Pockets

The full benefits of the MUS hardware are only realized when smallholders are equipped with the external resources and infrastructure, as well as the knowledge ('the software') to be able to reap the benefits of and maintain their water systems. iDE strongly believes that a commercial pocket approach provides these crucial 'software' components. Farmers are organized into production groups and are linked to local and regional market planning committees (MPCs) and district APEX committees that manage collection centers where produce is aggregated and sold to competitive local, regional, and export markets. This network also serves as a medium of providing farm level services and technology.



Photo by Bimala R. Colavito

### MUS Institutionalization

The planning of water systems for rural communities in Nepal has historically fallen upon two separate government entities, one of which is responsible for domestic systems and one for irrigation systems. This institutional arrangement serves to limit the consideration and funding of MUS. iDE is working towards publicizing the merits and minimizing the political and institutional hurdles of MUS in order to get more systems built. iDE has developed institutional support through a high-level committee chaired by the Secretary of Agriculture and also includes support from the Department of Irrigation and other relevant agencies. Progress has been made: MUS was included in guidelines for local development block grants in 2008. Further in support of the goal of institutionalizing MUS, attention is being given to building the MUS capacity of government, NGOs and private sector partners through technology transfer.