

#### **HOUSEHOLD DAMS (EARTH DAMS): A VIABLE SOLUTION TO WATER STORAGE NEEDS**

After decades of marginalization, the Maasai women of Kajiado Constituency in southern Kenya began to feel their only value was as a tourist attraction. People came to observe their traditional, nomadic lifestyle of cattle herding, considering it a quaint aspect of the country's rural landscape. All the while, the women were struggling to support their families through modest farming and the sale of their handmade traditional beaded jewelry. But this mindset is being transformed into a hopeful outlook thanks to the intervention of TechnoServe and their contributors, who are helping a group of hardworking women to see the potential of their dairy farming to provide a better life for themselves and their families. Over the past year, TechnoServe has supported the women of Maasai Women Dairy to formalize their business practices, treating their dairy farming as a profitable enterprise to generate income.



In the coming years, TechnoServe will continue its work with Maasai Women Dairy to expand upon the progress made to date. From the Dairy's current membership of 4,000 dairy farmers, 2,000 of whom are active, TechnoServe seeks to help the Dairy expand to 10,000 women through further outreach and engagement. In this second phase, TechnoServe will focus on communities in more arid areas, looking to reach the poorest of the poor. Project activity will be organized around the two overarching goals of improving dairy productivity and facilitating access to finance.

A significant portion of the Maasai Women Dairy habitat is in dry, parched regions where "water is king" just as it is in our American southwest. To buffer the Maasai Women Dairy against these long dry seasons and frequent droughts, household dams (also called earth dams) are often the most economic and effective solution.

The proposed effort to be funded by Manhattan Beach Community Church will focus on working with the Maasai Women Dairy to achieve the following results:

- Construct household dams for rainwater catchment within the dairy's grazing area; these dams will be used primarily to grow the agricultural crops used to feed the dairy's livestock
- Rehabilitate existing household dams
- Promote the acquisition, installation, and use of water storage tanks for domestic (human) use
- Train young men to build and maintain household dams and to install water storage tanks. Once trained, these men will be an enduring legacy of this project, benefiting future generations.

## OVERVIEW OF HOUSEHOLD DAMS

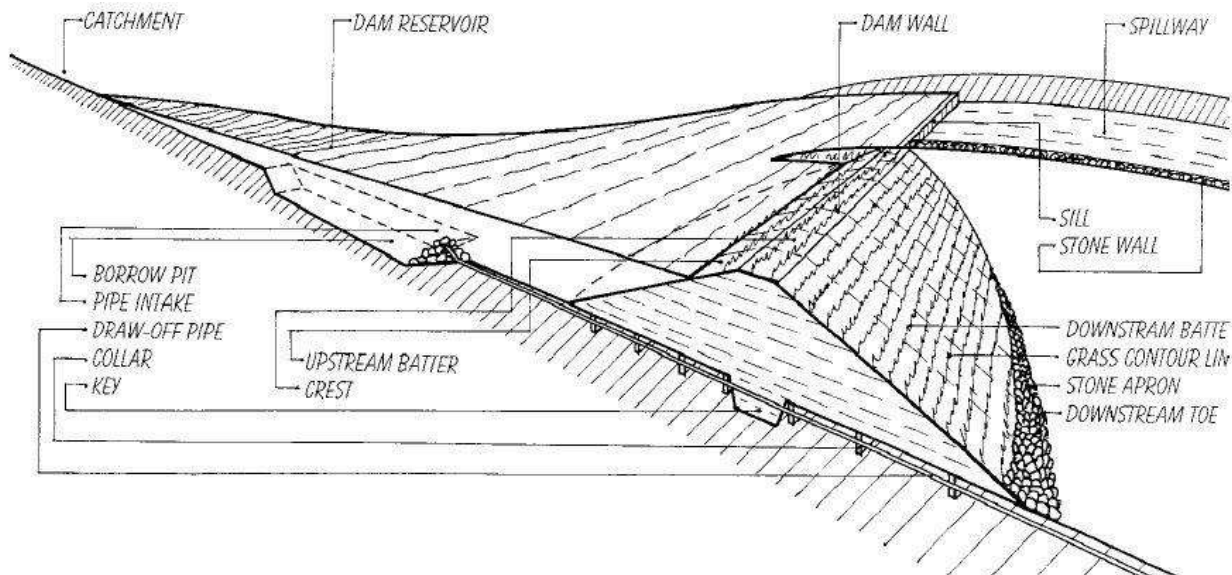
The choice of water collection methods is driven by local conditions such as climate, geology, topology, seismology, and soil type. It is also impacted by the quality of available materials and workmanship. The most frequent alternative to dams is personal storage tanks. However, since most Maasai family houses do not have metal roofs or other roofs suitable for rooftop rainwater collection and storage, such tanks are seldom possible.



Small versions of earth dams, often called ponds, have storage capacities up to about 10,000 cubic meters (350,000 cubic feet) and embankments up to a height of about five meters (16 feet). They can be built manually, or by using animal draught, a farm tractor, or a bulldozer.

The method of constructing dams (called dam reservoirs in the diagram below) consists typically of excavating a depression for the reservoir and depositing (and compacting) the excavated soil on the lower side of the reservoir to create an embankment, thus increasing the water storage capacity of the excavated reservoir. The optimal

location for the reservoir is the lowest point in the immediate locality, so that rainwater runoff will flow naturally (by gravity) toward the reservoir. Construction costs are very dependent on the site conditions.



[See ASAL Consultants' handbook "Water from Small Dams" at [www.WaterForAridLand.com](http://www.WaterForAridLand.com)]

## FEASIBILITY AND PLANNING

Before constructing a small earth dam, or any type of communal water source, it is vital to confirm that the project is viable. This involves determining not only the project's technical and economic viability, but also its environmental and social impacts.

Further, when considering the feasibility for any project, it is important to assess and confirm that the local community has the motivation, commitment, and capability to plan, implement, operate, and maintain it. The best projects are usually those that are identified and promoted by community groups and implemented by community members, thus instilling a greater sense of ownership and buy-in by the community. The community is then more likely to engage in the active on-going maintenance of the dam, reservoir, and catchment area, long after its initial construction.

An essential part of the planning process is determining the water requirements for each household in the community, including their livestock and any agricultural irrigation requirements. For human consumption, a better quality of drinking water is often available from sources such as water wells or rainwater storage tanks. In these cases, water from a dam or pond will be used only for livestock and agriculture. This will most likely be the case for many members of the Maasai Women Dairy.

### PROJECT PARTNER: ASAL CONSULTANTS LTD.

TechnoServe will team with ASAL Consultants Ltd., to train young men in the Maasai community to construct the household dams. ASAL Consultants is a privately-owned international consultancy firm, registered in Kenya in 1990 and promotes affordable water solutions in the country's arid and semi-arid lands. It offers practical and theoretical training to engineers, technicians, artisans, and communities for water supply systems based on rainwater harvesting.

ASAL Consultants has an extensive knowledge base of water harvesting techniques, including relatively inexpensive methods of water collection during the short erratic rainy season for use subsequently during the long dry season. (Refer to ASAL's website: [WaterForAridLand.com](http://WaterForAridLand.com)) During the initial feasibility phase, ASAL fully evaluates the alternatives before deciding upon a new dam. Being aware of the public health risks, ASAL uses a process that emphasizes the importance of maintaining water sanitation by protecting the catchment and reservoir areas from sources of contamination.

### SCOPE OF MBCC-FUNDED EFFORT

The \$15,000 contribution by MBCC will enable:

- Full training by acknowledged experts (ASAL Consultants) for 10 dam construction technical directors (called "artisans")
- Training by these artisans of at least 4,000 local farmers conducted in their local communities
- Subsequent construction or rehabilitation of at least 200 dams by the artisans and their trainees.

The best case goal is to train 10,000 farmers, and then to construct or rehabilitate 500 dams and install 100 storage tanks.

Our \$15,000 contribution will pay only for training of the artisans and training performed by them (\$23 for each class of 20 farmers). Any dam construction costs (labor, materials, etc.) will be paid for by the farmers or the local community. The duration of the project will be approximately 12 months.

**To request more information, please contact [mbcc.socialaction@gmail.com](mailto:mbcc.socialaction@gmail.com)**