PROMISING RESILIENCE PRACTICES





Construction of Water Catchments to Harvest Run-off

The first water catchment was constructed in 1998 at Dorra plain. Since then, it has been replicated to other parts of the country. Thereare currently 32 water catchments - three in Ali Sabieh District, six in Dikhil District, 21 in Tadjourah District and three in Obock District

Introduction

Djibouti lies on the Bab-El-Mandeb strait in the Red Sea. It is a small country situated in the Horn of Africa and has a total surface area of about 23,000 km² of which about 5,000 km² is covered by territorial waters and lakes. Out of the current population of approximately one million, 20 percent are pastoralists and agroa-pastoralists. Djibouti is predominantly arid and semi-arid, with a cumulative annual rainfall of approximately 150 mm. Water is as precious as it is scarce. Ecological constraints such as an inherently erratic rainfall pattern; rains that often fall as heavy showers and are lost as run-off; and high levels of potential evapo-transpiration rates which quickly reduce available moisture and water, limit production systems and livelihoods.

Djibouti has been negatively affected by drought and its consequences on vulnerable rural and urban communities. Precipitation levels have dropped to approximately half of the normal quantity, and underground water tables have been drawn down. The scarce rains allow a temporary regeneration of water aquifers, but are clearly insufficient to properly replenish these sources. Many cisterns and shallow wells dry up during the dry season, which lasts from April to September.

Drought consequences are enormous. Many herders and rural dwellers have lost their sources of livelihood, and families have seen their incomes drastically reduced. As a result, they have been forced to abandon their homelands and seek refuge in urban centres. Almost 120,000 pastoralists are affected by the drought. Since the country does not have a permanent source of surface water such as rivers or fresh water lakes, it must rely on deep underground water tables, fed by rainwater infiltration. In addition to underground water, pastoral communities mobilise surface water during the dry season by constructing water catchments around the seasonal grazing areas.

	INTERVENTION AREA Water resources development and management
\bigcirc	LOCATION Ali Sabieh, Dikhil, Obock and Tadjoura Districts of Djibouti
	STAKEHOLDERS AND PARTNERS Local communities, water management committees, department of major works
	BENEFICIARIES 500 families (2,500 people)

Methodological Approach

It is only when there is a large amount of rain that water flows from the surrounding hills towards the Grand Bara desert, and this whole area becomes flooded temporarily with shallow water depth. This water basin sometimes remains flooded for several months. In Oroukia, in the Dikhil region of Djibouti, water catchment is helping to make water available for use over a longer period of time. Water is retained using a dam (composed of a dike and a spillway) or a basin dug near the watercourse, in which the water can be drained. The process taken to establish the dam is as follows:

- 1. Awareness is created among communities, after which the site is identified. This is followed by assessment of the potential environmental and social impacts.
- 2. The implementation of the works, including their supervision and control, is done in three phases:
 - •Phase 1 deep excavation with a bulldozer: The excavated earth is about 26,000 m³. The dimensions are 80 m at the base diameter and 120 m at the surface with a depth of 6 m.
 - Phase 2 development of the water footprint: A masonry structure reinforced with concrete and gabion is developed to among others, channel water to the bottom of the reservoir.
 - Phase 3 construction of the contour dike to prevent evaporation of water: This is done using a bulldozer, a grader and a compactor. The task employs twenty workers for a period of two months.
- 3. To ensure proper management of the water catchment, communities organise themselves through establishment of a management committee. This committee is in charge of management and protection of the water catchment, while the Department of Big Works is in charge of maintenance.

Results

This practice enables communities to capture and store runoff from wadis, thus enabling them to have access to the water retained in the catchment for a longer period. The water is used for domestic consumption, livestock and agricultural production by around 500 families (2,500 people).

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Whereas there is no statistical evidence recorded as yet, beneficiary populations from Ali-Sabieh district have provided anecdotal evidence of the impact of water availability during the dry periods.

These include increased vegetation and improved grazing areas, reduced livestock mortality, and reduced distance to water sources, particularly for women who previously travelled long distances to fetch water for their households. That time is now dedicated to other activities.

Constraints

- A water catchment can last for about 20 years if constructed with great rigor. However, the consequences of the breakage of a bouli at the level of a gully are sometimes disastrous.
- Sedimentation by fine elements (clays and silts coming from watersheds that are often vulnerable to drought and water erosion) can cause a water catchment to lose its depth by half (3 m) due to siltation and it must be excavated occasionally.
- An integrated and participatory approach to water management by the local communities, though necessary for equitable and sustainable benefits, requires strong community governance structures. This is still a challenge.
- Water structures constructed during a project cycle (water catchments, underground reservoirs, deep wells etc.) require regular and proper maintenance and the communities require external support, which is not always guaranteed.
- It has been observed that the area around the water catchment became greener at the beginning, but because of pressure from more livestock coming into the area in search of water, the vegetation cover around it became less.

Sustainability

- Sustainability strategies need to be introduced at the identification stage of all project appraisals. For infrastructure projects, this includes agreeing a management strategy and funding for regular maintenance. Any undertaking by the community must be reinforced by local government offices. These decentralized institutions should take responsibility of following up activities after project completion.
- A policy was recently introduced that the community participates in the maintenance of the water infrastructure by making a monetary contribution once every season to a fund that is managed by local elders, and is used to pay for maintenance

Replicability and upscaling

The first water catchment was constructed in 1998 at Dorra plain. Since then, it has been replicated in other parts of the country. There are currently 32 water catchments - three in Ali Sabieh District, six in Dikhil District, 21 in Tadjourah District and three in Obock District.

A 20,000 m³ water catchment costs around DJF 20 million (approximately US \$ 112,000). It is recommended that this practice be replicated in other parts of the country. To successfully replicate, the sites should be located near seasonal grazing areas. The beneficiary communities should then protect the sites to prevent animals from going into the water catchments.

Additional information

•Technical reports from the Department of Major Works

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