REPUBLIC OF YEMEN
NATIONAL FOUNDATION FOR WATERSHED MANAGEMENT (WAM)

WGP -AS
Water Governance Program for Arab States

Manakha Fog Harvesting Pilot Project

Sana'a Governorate - Yemen

Why Fog Harvest?

The fog carries more than imagined. For instance; it contains hundreds of liters of water that is very pure and can be drunk especially in foggy highland areas like Manakha, Socotra, Hawf, ErafLahj, Al-TurbahTaiz, Raimah, SummarahIbb, MilhanMehwetand other similar areas.

The National Foundation for Watershed Management – in partnership/ support with UNDP's Water Governance Program for Arab States – partnered with CSOs in Manakha like Al-Nama Development Association for Coffee Producers

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The Water Crisis between Mission Impossible and Solutions!

Most parts of the country suffer an acute shortage of drinking and irrigation water with Yemen being one of the 10 moste water poor nations in the world. The water crisis causes difficulties for urban and rural areas alike. The most impacted from this are women, girls and children, who bare the big burden of bringing water from springs and wells that dry up in the winter time

The scarcity of water in Yemen represents one of the top challenges facing its citizens and one of the main reasons behind expanding poverty and internal migration, which leads to the deterioration of farming lands, deforestation and is a serious threat to food security. It also has a serious effect on the services of the ecological system

To What Extent Can Fog Harvesting Contribute to Solving Drinking Water Issues in Manakha?

Five units to harvest fog were installed in various parts of Al-AWE' Mountain. The average harvest water in a month for a unit was 350 liters with the topmost harvesting 400 liters and the least below 100 liters in the month between Oct, 15 and Nov, 15, 2013.

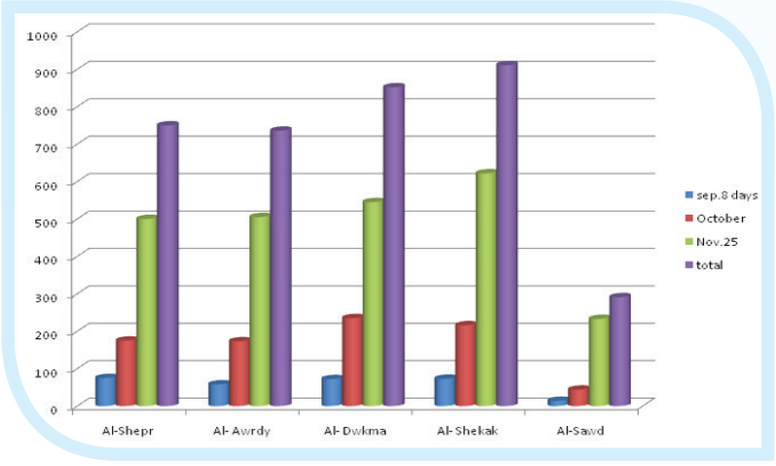
The Result: A 6 sq meters fog harvest unit can cover the needs of a family of five members if the consumption of a single person is 3 liters. It is a clean source and can resolve the scarcity issue.

Principles for Launching Fog Harvesting Initiatives:

- It is recommended that a small pilot is launched, monitored and assessed ahead of the installation to test the efficiency of harvesting in the specific area.
- It is preferred that collection areas are the consumption sites or close to them.
- As the system depends on the continuity of fog and stops if weather changes; it is essential that backup options are made available to substitute the fog water and assure there is water.

TARGET AREAS:

Area	Location	Unit Size
Al-aWEEI Mountain	Addukmih	6 m^2
	Ashuquq	6 m^2
	Ashiber	6 m^2
	Al-Urdhi	6 m^2
Al- ssa'ud Mt	Al- ssa'ud	6 m^2



Local Ownership and Scale-Up

Owing to key advantageous characteristics of fog harvesting models including their easy construction, installation and maintenance on-site, besides the immense potential for scaling-up, locals begun replicating the idea using cheap and practical methods. The locals have even become more engaged and have tried other ways to increase the efficiency of fog harvester units through, introducing some new design elements such as drilling of tanks for collecting the condensed water instead of the use of plastic tanks which used to be parts of the demonstration system. Replicating the model using locally-sourced materials and skills, the initiative has gained strong community buy-in because local communities have owned it. As such, this initiative has demonstrated a cost-effective method to support an increased replication of the intervention that promotes greater potentiality for scaling-up.

THE ROLE OF LOCAL COMMUNITIES

Since the locals are the beneficiaries; a real partnership between WAM and AL-Nama' Development Association for Coffee Producers and Al-ddae' Al-Fatemi Foundation in Haraz reflected in a partnership agreement for implementing the project. The two CSOs have played a major role in the design, planning and implementation of the experiment and most importantly building the capacity of local communities to understand the system, which have already created a feeling of ownership and collective responsibility for the project seen as potential for successful water solutions that require local cooperation and interaction.

Education and Awareness

The WAM foundation team launched a training during the unit installation and after that for some individuals. Adding to that awareness about preserving water and keeping the units well as well as observing and taking the harvest amount readings were done. Various citizens were trained on how to install the units and part of it was done practically during the project work.

Several workshops were held and attended by various stakeholders like universities, research centers and the Agricultural Research Authority.

Early Signs of Impact:

One old lady says we were pessimistic of fog, we were staying in our homes, we did not bring water, but we did not know that God has given us the fog to quench our thirst.

Another lady who do not find the money for making fog unit has sold her sheep in order to construct fog unit. She says all the good is coming from the sky, thank Allah.

THE ACHIEVED OUTCOMES

The primary results obtained from Al-Awee Mt (the Western slopes in specific) indicate the existence of fog that brings considerable amounts of water due to the area being open at the Tihama plains. Western parts of Manakhah are full of fog. Readings collected indicated that amounts differ from a day to another as the fog does with the highest reading of 40 liters per day on a 24 hours period of ongoing fog. Fog usually comes from 3:00 pm and may continue until early morning hours and the season is during winter when water becomes short in supply with springs drying out and harsh drought looms.

Ambitions under Study

The locals in Al-AWEE Mt of Al-Magharibah Al-Awlia are looking forward to the sooner rather than later invention of their own models that can be put in place to collect water. They are eager to find available funding for such fog harvesting techniques so that a network of them is installed as part of a multi-village project with a high productivity that compensate for the shortage in water supplies.

Suggestions

- Regular maintenance of the units.
- Continued education and guidance in the area about harvest in the cheapest in easiest ways.
- Assist others who adopt the idea by providing further info
- Extending the experiment longer and analyzing results before publishing the final reports
- Looking for funds to expand implementation in the area in a productive way