

# Moroccan villagers harvest fog for water supply

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A Moroccan inspects fog fences in a hamlet on the outskirts of the southern coastal city of Sidi Ifni, on June 7, 2015

Green technology to turn fog into fresh water straight from the tap has put an end to exhausting daily treks to distant wells by village women in southwest Morocco.

Families in five highland Berber communities have begun to benefit

from "fog harvesting", a technique devised in Chile two decades ago and since taken up in countries from Peru to Namibia and South Africa.

On the summit of a mountain named Boutmezguida, which looms over the villages at 1,225 metres (4,019 feet), thick fog shrouds about 40 finely meshed panels designed to trap water and relay it to a network of pipes.

To have water running from a faucet at home is a "revolution" for inhabitants of the semi-arid mountains known as the Anti-Atlas, says Aissa Derhem, the chairman of an active regional association called Dar Si Hmad for Development, Education and Culture (DSH).

DSH prides itself on building "the world's largest fog-collection and distribution system" and helping locals in the Sidi Ifni region—Derhem's birthplace—to learn to operate it, after repeated droughts and scarce rain.

"Our rain here is the fog," Derhem adds.

Tiny droplets are caught on the mesh while fog wafts through panels. The harvesters mix all they catch with more water derived from drilling, then supply the villages on the lower slopes.

Derhem first heard about fog harvesting 20 years ago. A few years later on returning to Sidi Ifni, he realised that the local climate was similar to that of the Andes in South America.

DSH joined forces with Fog Quest, a Canadian charity whose volunteers work in a range of developing countries. North Africa's first pilot project became operational after almost a decade's work refining techniques.



A Moroccan woman uses water collected on fog fences to wash her hands in a hamlet on the outskirts of the southern coastal city of Sidi Ifni, on June 7, 2015

### **'An imitation of nature'**

The valves were opened at Sidi Ifni for the first time to mark World Water Day, March 22. Ever since, "92 households, or nearly 400 people," have enjoyed running water at home, says Mounir Abbar, the project's technical manager.

"Morocco has a lot of fog because of three phenomena: the presence of an anticyclone from the Azores (north Atlantic islands), a cold air current and a mountainous obstacle," Derhem says.

The mesh that traps water is "merely an imitation of nature," he adds,

pointing out how spiders have always caught minute droplets of water in their webs.

"This is ecological and enables us to look after the regional water table, which we have been emptying away," Derhem says.

The scheme will be extended to other villages and, in time, advocates hope, to other parts of the country.

In the village of Douar Id Achour, residents are proud of their new taps, for good reason. Women and children used to spend an average of four hours a day on a round trip to a well, even longer in dry summer.

"I filled two 20-litre (5.3-gallon) containers four times a day," says Massouda Boukhalfa, 47. "But even those 160 litres wasn't enough for us, because we have cattle as well."

## **'Ready for export'**





Aissa Derhem, the president of the "Dar Si Hamed for development, education and culture" association touches a fog fence in a hamlet on the outskirts of the southern coastal city of Sidi Ifni, on June 7, 2015

During droughts, water was carried in by tanker truck. "That took a fortnight and cost 150 dirhams (13.7 euros), \$15.6) for 5,000 litres on average," young resident Houcine Soussane recalls.

According to Dar Si Hmad, 7,000 litres of fog water cost three times less than before, even with a fee of 20 dirhams to each household for the right to a counter.

Villagers today have more time to collect the nutty fruit of argan trees and extract its prized and potentially lucrative oil, used in cooking, skin care and easing arthritis. Reputed as an anti-ageing product, argan oil has been taken up abroad as an ingredient in high-end cosmetics.

"Our women and daughters no longer wear themselves out. They go to school and are safe," 54 year-old villager Lahcen Hammou Ali sums up. "With the time saved, we can pay for water all year by producing a bottle of argan oil."



Thick fog is trapped by finely meshed panels and relayed to a network of pipes

DSH next wants to supply fog water to as many villages as possible in the area. It also plans to replace mesh in the panels with a new variety that can resist wind speeds of 120 kilometres per hour (75 mph).

The panels were perfected on Moroccan soil with help from the German charity Wasserstiftung, and successfully passed the testing phase.

"The nets are now ready for export to other towns in Morocco, in all the

mountainous regions and along the seafront," Derham says, hopeful they can be deployed in all highland areas where fogbanks are frequent.

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