

This Simple Indian Irrigation Tech Is Helping Farmers Hit Hardest By Climate Change & Drought

By [Suparna Dutt D'Cunha](#), Contributor. ⓘ I cover startups & enterprises in ... [Follow Author](#)

Sep 07, 2016, 08:21am EDT



India faced its worst water crisis in decades after two weak monsoons in 2014 and 2015. Over 330... [\[+\]](#)

Across much of India, farmers are struggling to adapt as their crops fail season after season as a result of increasingly unpredictable weather: floods and droughts. In June, like many people in the parched state of Maharashtra, Suraj Patil was hoping for the skies to open up and ease the state’s poorest rainy season in 40 years.

So when a few showers fell in mid-July in Latur, one of the hardest-hit areas, the 47-year-old ran outside to plant pulses and sweet potatoes, scattering seeds, and pushing vines into the moistened earth. For the last six months, Patil and his family of eight have relied on one meal a day, while many desperate farmers have killed themselves – more than 400 farmers committed suicide this year, and more than 2,000 in 2015. Now, after plentiful rains in the past two months, Patil hopes to have enough food to feed his family this year.

Over a quarter of India's population battled a second consecutive year of drought, and the most of the drought-hit states had ill-conceived irrigation. Two rainless years had depleted the major water reservoirs and dried up the rivers, causing a massive water shortage.

The crisis, which routinely befalls Maharashtra, has long been in the making. Agricultural experts and water conservationists questioned why the state remains so heavily dependent on rainfall when it has the highest number of dams in India and the highest expenditure on irrigation.

Curiously, during these hard times, farmers in Gujarat, another state in western India prone to drought, were using harvested rainwater for irrigation through an indigenous technology developed by Biplab Paul, called Bhungroo. Bhungroo, which means "hollow pipe" in northern Gujarati dialect, is typically overseen by women.

“I saw the devastation caused by floods in West Bengal and severe droughts in Gujarat. These two opposite weather phenomena made me think about how I can help crops survive weather-induced miseries,” says Paul, who developed this technology after 18 years of field experience in semi-arid regions of north Gujarat.



Bhungroo, an indigenous water-management technology developed by Biplab Paul, is typically owned and... [\[+\]](#)

Simply put, the technology ensures rainwater seeps through a straw into a pipe that carries it to an underground well to supply abundant water in the dry months. The technique also helps standing crops during flash floods and reduces soil salinity.

“It guarantees crop survival in a searing drought without any external irrigation supply. For marginal farmers, this technique is the cheapest option; once installed, it lasts for 30 years,” he adds. Using a surface space of one square meter, Paul says, a single unit of Bhungroo can conserve four million liters of water each year. “It’s a poor-centric technology where the beneficiary groups themselves can maintain it and improvise on it.”

Since a large share of Indian rural households live in poverty and are extremely vulnerable to loss of income as they have limited savings to draw upon, this prompted Paul to develop a water-saving technology that can guarantee food security and income growth to marginal farmers. “Each piece of land where Bhungroo is installed has two seasonal crops, generating an income of over \$5,700 per annum,” says Paul.

Oxfam warns that small-scale farmers from Europe to the U.S. to Asia will bear the brunt of the negative impacts of climate change. Unpredictable weather in India has already left thousands semi-destitute. With the frequency of drought years increasing in India, it will become harder to remain insulated from the huge changes in food production that the rest of the century will bring. “Bhungroo is a small step in the right direction. It’s a solution that’s easy on the pocket for farmers, and easier to maintain as well,” Paul says. One of the world’s biggest producers and consumers of rice, cooking oil, sugar and cotton, India relies heavily on the annual monsoon rains as nearly half of its farmland is rain-fed.

Paul’s water conservation technique has traveled as far as Ghana, Indonesia and Bangladesh. “Over 100,000 people have benefitted from this technology. We are also training farmers in Vietnam, Sri Lanka and Laos on how to use this technology,” he says.

Paul, who showcased his innovative technology at the recent interior and home ministers' summit of the South Asian Association for Regional Cooperation (SAARC) countries in Islamabad, has big plans for the next few years.

“We are now going to focus on 12 drought-prone states of India, and by 2022, we aim to cater to 1 million farmers, which will help in inching closer to the UN initiative of sustainable development goal of food security for all.”