

## Innovative rainwater harvesting empowers women in Gujarat, India

### Key findings

- Recognising the contribution of women in agriculture and bringing them to the forefront enhances agricultural productivity and strengthens climate resilience.
- In India, women do not own land. However, providing women with land ownership and natural resources, and getting them involved in decision-making processes, can have manifold impacts, such as ensuring household food security and improved living conditions.
- Women's lack of land ownership was tackled in Gujarat by building their skills and allowing them to own and manage a technology 'Bhungroo' that improved the usefulness of land. Therefore, even though women did not own the land, they had rights to the tools to make the land useful.
- The active representation of women in politics and local government decision-making eventually helped to address other gender relations issues, like their social position in their families, and helped negotiations with government to fund more relevant programmes.

### Introduction

Prolonged dry spells and unseasonal rainfall in the western state of Gujarat in India has resulted in drought-like conditions or waterlogging in many fields, leading to the destruction of crops. This has seriously threatened underprivileged female farmers whose livelihood depends on the monsoon. In such situations, 'Bhungroo' technology appeared as a life-saver.

Bhungroo is an innovative rainwater-harvesting technique that stores excess rainfall underground, making it more accessible for farming, and pumps it out for use during dry spells. The massive underground reservoir can hold as much as 40 million litres of rainwater. It harvests water for about ten days in a year and can supply water for as long as seven months. The technology is suitable for geophysical conditions where:

- Water logging is due to rainfall or flash floods
- The subsoil aquifer is available within 30 metres
- The underground geology has coarse grain-permeable sand

The non-saline rainwater, when mixed with the underground saline water, brings down the salinity of the groundwater, making it fit for agricultural use. The technology has helped to reduce salt deposits in the soil and increase freshwater supply, saving farmers and crops from drought. Naireeta Services, a social enterprise, has been training and empowering women to install, manage and monitor Bhungroo since 2011.

### Approach

The aim of the initiative is to improve the socio-economic circumstances of marginal women farmers by building their skills and giving them greater control over their natural and social environment. Women are the sole owners of the Bhungroo technology and are provided with tools to make the land usable and cultivable. Women play multiple roles in helping their communities adapt to difficult land and weather conditions, while also leveraging the power to decide where the water goes and when it is harvested. This has strengthened their position in the community. The water management technology eventually helped strengthen resilience to climate change, as well as rejuvenate local biodiversity.



A woman with her certification of Bhungroo ownership in Gujarat.

One hundred and thirty two units of the Bhungroo system were initially installed in Gujarat.<sup>1</sup> Each Bhungroo system is jointly owned by five of the most vulnerable and poorest members of society. The beneficiaries are identified following a thorough three-tiered selection process: first, the women of a given village identify the poorest women in their community; then, the list is crosschecked by women from surrounding villages; and finally, the list is vetted again at the sub-district level to ensure that the intervention reaches the targeted community. The selected five women farmers have to enter into an agreement on sharing water amongst themselves, working on each other's land during the peak season, and buying raw products in bulk. This helps to reduce the cost of farming and jointly managing the Bhungroo system.

### Results

The initiative has reached more than 20,000 marginal farmers, improving their income generation and livelihood.<sup>2</sup> By ensuring that the groups owning the Bhungroo systems consist only of women and irrigation water is provided directly to them, the men's control over irrigation water has been curtailed. This has led to women having greater decision-making power over water management. Eventually, the government revenue department was involved to transfer land ownership to these women, since they had irrigation water rights. Useless and fallow land has been converted to cultivable land that grows at least two crops every year.

This has led to reverse migration of almost 6,100 farmers who had migrated to cities due to drought and loss of livelihood opportunities.<sup>3</sup> A better rate of agricultural inputs through collective bargaining has been achieved, along with better rates for agricultural products through a collective-sale process. Women have been able to access government schemes like soil health cards.<sup>4</sup> They have been able to invest in cattle and earn more through allied sector development. Other similar asset-building activities were undertaken by the community, leading to the creation of local economic opportunities.

Women have been empowered and encouraged to take on political positions, helping with other issues around gender relations (such as strengthening their own position in families) and negotiating with the government for irrigation cooperatives.

### Success factors

Giving women **ownership rights over technology** and **building their technical skills to install, manage and monitor** the Bhungroo system eventually helped them to gain rights over land.

Bhungroo is available in 17 technical designs for a **variety of agro-climatic zones** and can be **customised**. It is suitable for an environment where annual rainfall ranges are from 400 to 2,100 millimeters, in salt-affected and seasonally-eroded soil.

### Learning

The initiative focused on a 'bottom-up' approach, where the most vulnerable and marginal women farmers were selected and capacitated. It clearly recognised that social change is not always instigated by governmental policies and laws. Change can be brought about by empowering women, building their know-how, and providing them with control and decision-making power over natural resources.

### Way forward

The Bhungroo system has reduced the impact of climate change in the region, increased the political participation and social status of local women, and promoted scaling-up of this innovation throughout the country. Following the success of the system, Naireeta Services is replicating the model in partnership with different NGOs and cooperatives.

The Bhungroo system is also being implemented in Andhra Pradesh, Madhya Pradesh and Odisha under the Mahila Krishi Sinchayee Programme of the Mahatma Gandhi National Rural Employment Guarantee Act. Internationally, the technology is being promoted in Bangladesh, Ghana and Togo.<sup>5</sup> This innovative arrangement is being used as a drought-proofing method in summer and an adaptation method to reduce disaster risk in the country and across the globe.

### Endnotes

1. <https://unfccc.int/mfc2014/lighthouse-activities/women-for-results/bhungroo/>
2. Naireeta Services. (2020). Retrieved from: <https://www.naireetaservices.com/socio-economic-impact/>
3. Ibid.
4. The scheme aims to promote soil-test based and balanced use of fertilisers to enable farmers to realise higher yields at lower cost. Aims to make farmers more aware about the appropriate amount of nutrients for the concerned crop, depending on the quality of soil.
5. Naireeta Services. (2020). Op cit.

### Contact

Mr. Biplab Paul, Director, Naireeta Services Pvt. Ltd.  
Email: [biplab@naireetaservices.com](mailto:biplab@naireetaservices.com)  
Mobile : +91 9825506900

**Author:** Ritu Thakur, ICLEI South Asia