

# Rejuvenating Lives

*Chronicles of agricultural transformation on the fields of small and marginal farmers*

## *Doha – The creative approach to fulfill the irrigation gap*






### Introduction

Steady irrigation supply is a fundamental input in productive farming. Scores of farmers in the country, especially small and marginal landholders, are still stymied with an absence of this critical resource to practice agriculture profitably. Many a farm dotting the terrains of eastern Madhya Pradesh face a similar predicament. Their irrigation needs are only temporarily fulfilled through seasonal streams recharged by seasonal rains since they dry up just a few months after the monsoon season and are rendered inadequate to meet the farmers' needs. In this backdrop, Action for Social Advancement (ASA) has introduced context-specific technology of Doha in the region, wherein the stream beds of the local rivulets are dug up to construct a series of open chambers, which are separated by earthen bunds to augment water availability in these streams and enhance groundwater recharge.

### The Specifics

Different parts of eastern Madhya Pradesh are characterized by an uneven surface oscillating between ascending and descending land formations accompanied by large portions of forestlands. Scheduled Tribes are the dominant population in the region, who primarily depend on agriculture for their livelihood. They face water shortage both for irrigation as well as domestic consumption. The seasonal streams in which water lasts for a few months post the monsoon is not sufficient for year-long farming. ASA is plugging this gap by evolving new modus operandi of administering irrigation in the region, which is referred to as Doha, a pond like structure around 100 feet long and 10 feet deep. The Dohas are dug along a stream through its natural course and are separated by earthen bunds between them. The average size of a Doha is 850 cubic meters. Formation of Water Users' Groups is integral to Dohas, which ensure their operation and maintenance. Given that the Dohas are vulnerable to incessant silting and more so in the region marked by the undulating landscape, maintenance is an inalienable aspect of these structures.

### Benefits

-  *Dohas are a low-cost and eco-friendliness technology*
-  *Have potential to recharge groundwater*
-  *Do not require land acquisition*
-  *Reduce water-logging or damage to nearby farms*
-  *Mitigate the drinking water issue*
-  *Easily replicable*

### Figures at a Glance

\*As on 31<sup>st</sup> March 2020



**725 Dohas constructed**



**1082 hectares irrigated**



**1334 farmers benefitted**





## Dohas provide the irrigation momentum for small landholders

Around 50 km from the district headquarters of Dindori district, Bahadur Chirpani village in Mehandwani block is part of the area with a terrain oscillating between hills and recesses hyphenated by narrow patches of plain fit for farming. Farmers in such topography face various agricultural challenges including reliable and regular irrigation. A group of 42 farmers from the village was confronted with severe crises of irrigation as a small stream nearby would dry up after the seasonal rains. They were all involved in few months of rain-dependent sustenance farming on a total land of 26 hectares. Distress migration was a regular phenomenon observed among the village farmers. Their sense of hopelessness was cured in 2018 when ASA staff members visited the site and found the local stream ideal for Doha construction. ASA staff members educated the farmers about the utility of Doha and the promise of irrigation it held for them. The farmers were convinced and partook along with ASA team members in the construction of Dohas on the stream. A Water User Association of all the farmers was evolved for the upkeep of the Dohas. Today, the farmers are engaged on their farms during all the cropping seasons. Taking a full loop approach, ASA also introduced better farming techniques and the results are visible for all. The farmers grow paddy and wheat using improved varieties of seeds along with different vegetables. This had a direct bearing on the farmers' income which has grown from INR. 15,000/- to INR. 40,000/-.

*“The lack of irrigation forced me to sow just 1 acre of my 4 acres of land during the monsoon period, which gave me a small production of 4 quintals of paddy. After the access to irrigation via Dohas, I am able to produce 50 quintals of paddy on 5 acres of the plot along with increasing the cropping intensity as I grow wheat along with some amount of red lentil (masoor dal) and chickpeas (channa) in winters and vegetables. I am able to produce 30 quintals of wheat. My annual farm income has jumped to INR 90,000/- from almost nothing before the Dohas. I have also benefited from the series of training organized by the ASA staff, which comprised trainings on home-made manure production, paddy and wheat seed production and use of SRI, which have had positive impacts on my farming. The days of migration have stopped. I plan to intensify the farming and purchase my own motor and pipe for water transmission to the field, which I have to rent currently”, **Kaval Singh, Beneficiary Farmer, Bahadur Chirpani Doha.***





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The headways of Dohas intervention are also visible 100 km away from Dindori in the district of Mandla. ASA has developed Dohas in a stream in the tribal-dominated village of Dohranala in the Maharajpur block of the district on a stream benefiting 15 farmers and irrigating 10 hectares. ASA had noticed that earlier interventions on improving the water availability on the local streams had not yielded any great results since only broadening work was undertaken without carrying out any effort towards the deepening. It is also a common practice among farmers with plots adjacent to the streams to dig a small hole in the ground, which got filled with water from the stream, which was used for irrigation. Building on the local knowledge, ASA convinced the local farmers in Dohranala village to get involved in the development of Dohas in late 2017 to which farmers readily agreed. The 15 farmers only cultivated paddy earlier during the monsoon duration and left for work outside the village. Three small groups of farmers with five farmers each have been developed for upkeep and operating the Dohas. After the development of Dohas, they have extended the farming to winters, wherein they grow 10 to 12 quintals of wheat apart from some amount of chickpeas and green peas. As a consequence, the average income of these farmers has jumped to INR 40,000/- to INR 45,000/- from around INR 20,000/- earlier. Other farmers with dug wells and shallow bore wells have also benefited indirectly through recharge of groundwater and an overall increase in moisture in the area.

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