

# Community-led Water Management

## Part 4 - Water Security Planning



## **What need does the playbook address?**

Large swaths of the country are facing severe water stress, largely due to over-exploitation of groundwater and surface water resources. Lower water availability leads to unequal distribution of water resources, lower crop yields during dry months, and issues of salinity and aridity of the soil. Addressing this issue requires community participation and behavioral change.

Rather than designing top-down schemes for agrarian water use, DSC emphasizes on community planning of water resources. The design of field assessments, community mobilisation, village-level water budgets, water recharge structures, monitoring and the participatory approach to water security planning best exemplify this.

## **Who can use this playbook?**

Practitioners, Trainers, Community Resource Persons,  
Progressive Farmers, Subject Matter Specialists,  
Local Governance Representatives

This playbook is designed using the expertise of **Development Support Centre (DSC)**, which works on participatory water management and judicious use of water in Gujarat, Madhya Pradesh, Rajasthan and Maharashtra.

These solutions by DSC have been designed and pioneered under the leadership of Anil Shah, founder chairman; Mohan Sharma, executive director; and Sachin Oza, former executive director. These community-empowering participatory technical and social processes in DSC's 30-year journey led to the evolution of the approach to promoting community-led water security.

*Today we have gathered to talk about the water situation in our village. Let's see how deep is the water.*

*Did any of you notice that the soil is getting arid because water is saline?*

*How many of you had lower crop yields in this dry season?*

*Did some of you feel you received less water than your neighbouring regions?*



*If we manage our water properly we can solve these problems of irregular water supply and quality*

### In this book you'll learn to

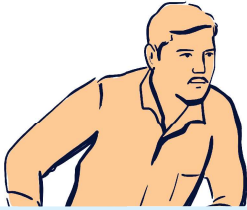
- Understand your village's water needs and resources
- Get involved in water management
- Prepare water budgets
- **Plan for water security**
- Replenish groundwater by building recharge shafts
- Monitor water resources
- Cooperatively manage irrigation

*\* This playbook is **Part 4** of a 7-part playbook series on cooperative water management. Find the complete set here: [link](#)*

# 4.

## Water Security Planning

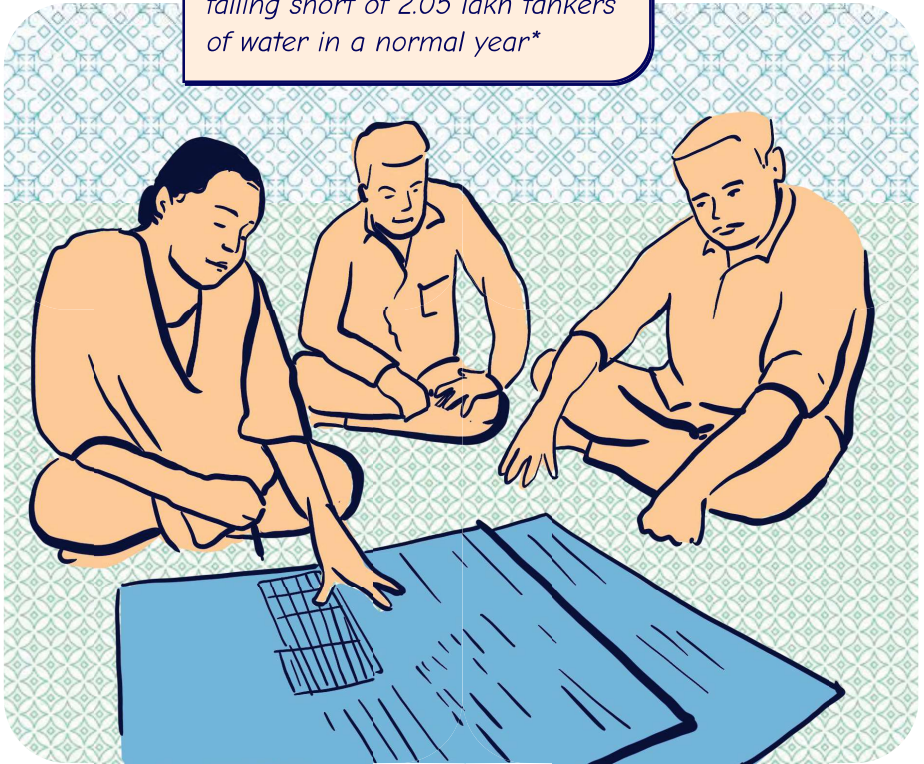
We then work to increase access to water and to reduce our agriculture demand to ensure there is parity in water supply and demand.



Why should we do water security planning? Let me explain.

- Water Security Planning helps contribute towards **behavioural change** allowing for faster adoption of water sustainable practices
- It can also lead to **equal distribution of water** resources and increase agrarian incomes through better water use planning

*As you can see, our village is falling short of 2.05 lakh tankers of water in a normal year\**



\*A normal rain year is where the amount of rainfall received in that year is considered average or typical for a specific location, typically calculated over a period of 30 years.



*This is quite shocking. I didn't know we are in so much of a deficit.*

*I thought washing dishes and household work consumes more water. But this is clearly showing that agriculture is the biggest consumer of water.*



*This is why groundwater levels are falling. We are extracting more water than is being recharged.*

*What should we do about this?*





To ensure there is parity in water availability and demand, we can work on multiple programmes to increase supply of water and to optimise our agriculture water demand.

This is called **Water Security Planning**.

For instance, we can plan to build a recharge shaft or a check dam. We can also desilt ponds and create farm ponds to store water that would otherwise be running off to neighbouring villages.



We would need committee's help to identify the right spots to build these solutions

We can certainly help with finding ideal spots that will help a large number of farmers. We can also convince other villagers to help or follow-up with gram panchayat to execute this.





*It is also important to reduce the water demand in agriculture.*

*You mean, drip irrigation? It is expensive to implement*



*Drip irrigation is a good way, but not the only solution. There are multiple ways one can save water in agricultural fields by using on-farm water management, like:*

- Straw Mulching,*
- Alternate Furrow System,*
- Developing Farmer Support for Change, and*
- Planting low water requiring crops*

## Straw Mulching

Cotton waste (that is, plant that are left over after harvest of cotton) or paddy straw can be dried and used as mulch.

Pile the dried waste around saplings. This reduces loss of soil moisture.

If done effectively along with alternative furrows, it can reduce water usage by more than 50%.

### **BENEFITS:**

- Sustainable, low cost
- Reduced water usage
- Removes the need for disposal of agricultural waste
- Maintains and enriches soil health

Alternatives: Plastic mulch sheets (which are used for drip-irrigation systems) can also be used in case the farmer uses agricultural waste as fodder. However, its not an ecologically friendly model as the residues can lead to land degradation.

## Alternative furrow system

In this system, a furrow is created in the spacing between rows. The mud removed is piled to create a raised bed that is about 1 feet in height above the furrows.

Water is let into every alternate furrow at a time (that is, in one watering, every alternate furrow is closed.)

Ideal for plants that require a wider spacing between rows of crop such as cotton or castor.

### **BENEFITS:**

- Saves water usage by about 40%, without affecting yields.
- Prevents overwatering of the plants that can lead to crop-loss, soil erosion and increased soil salinity.
- Reduces pumping costs and can lead to lower fertiliser costs for farmers.
- Since furrows are shallow and wide, it can used effectively for cotton. cultivation which needs space for tractors to move between rows of the crop.

## Developing farmer support for change

Demonstration plots can be made with the help of enthusiastic farmers. For each method of water conservation, create two plots: one with measures adopted (demonstration plot) and one without (called, a control plot)

Farmers can be trained in noting down measurements using a cutthroat flume. Measurements are noted for each irrigation cycle in demonstration plot and control plot.

The average water consumption reduction for one crop during one season can be compared between the plots. This can be discussed with farmers and inculcated in the water budget for a village.

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### Documentation Partner



### Knowledge Partner



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