

# DROPS OF GOLD

Water management &  
agricultural interventions in  
Rajsamand, Rajasthan

SUMANA PALLE /  
SEVA MANDIR

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D R O P S  
G O L D

O F



# INTRO: WATER SCARCITY & LIVELIHOODS

## THE REGION:

Standing proudly in southern Rajasthan, the district of Rajsamand is famous for marble mining and is a primary supplier for marble throughout India and the world. This has led to significant groundwater extraction for the marble cleaning and cutting process. In addition, marble waste is dumped back into the water, resulting in pollution of drinking water sources and agricultural lands. While toxic, the marble industry is also the primary source of formal employment in the region.

## THE FARMERS:

Farmers here have historically grown wheat and corn, which are commodities with low prices. In the last five years, Seva Mandir has been introducing floriculture and horticulture, namely marigolds and broccoli, in an effort to boost income.

Farmers in the last few years have been giving up agricultural practices due to water scarcity and livelihood opportunities in the marble industry.

There is huge interest in pesticide-free and fertilizer-free farming from the locals but those from underprivileged backgrounds have trouble accessing the resources they need to actualize this.





### **THE PROBLEM:**

Traditional water sources, such as the Gomti River and underground aquifers, no longer provide enough water to meet the needs of the villagers; the Gomti River's flow has slowed and underground aquifers have been blocked by an increasing amount of marble mines. Both have led to decreased groundwater water recharge over the years, leading to water scarcity.

In addition, groundwater is being extracted at alarming rates and, because of abandonment of traditional water conservation systems, is not being recharged enough during the monsoon season. This has been affecting all water bodies, and by extension, livelihoods. Meanwhile, water pollution from the marble industry is adding onto water scarcity in the region, leading to a lack of clean drinking water.

This intense water scarcity is affecting the livelihoods of local farmers, who are no longer able to farm on their land due to the lack of water. While Seva Mandir has introduced several floriculture interventions, such as encouraging farmers to grow marigolds and roses, there is plenty of opportunity to grow crops that require very little water but are still highly profitable to contribute to farmers' livelihoods.

### **THE NGO:**

Seva Mandir's projects to enhance livelihoods of farmers are women-centric and focus on three components: jal (water), jungle (community forests and pasturelands), and jameen (the land and farms themselves).

To address the water scarcity of this region, Seva Mandir has been desilting and deepening local water bodies, as well as constructing dykes and check dams on rivers, to slow the flow of water and recharge the groundwater, which in turn will recharge the wells that provide the water for agricultural and domestic use.

To address the livelihoods in this region, Seva Mandir has floricultural and horticultural interventions that aim to increase farmers' income. Currently, the crops that are encouraged are marigolds, roses, and broccoli, which theoretically yield high prices but farmers have had trouble finding the right market linkages and establishing transportation logistics to more profitable markets such as Delhi or Pune.





## MISSION & VISION

### THE MISSION:

The mission of this project is to address the plaguing the water scarcity in the Rajsamand region to improve the livelihoods of farmers and provide economic stability for the most vulnerable in the region.

### THE VISION:

The vision is improved water management systems on the village and panchayat levels, as well as floricultural interventions appropriate for a water-scarce region to increase farmers' revenue.

# THE PROJECT

## CONSTRUCT WHAT WE NEED

Repair water structures to more effectively harvest rainfall and recharge community's water sources

## CONSERVE WHAT WE HAVE

Improve local agricultural practices to use less water and more efficiently irrigate farmlands

Raise awareness in community to manage water in households

## CHANGE WHAT WE GROW

Introduce water-efficient crops to revitalize farming in the area and improve livelihoods

## CHRONICLE EVERYTHING

Document indigenous technical knowledge of water management



# THE PLAN

## CONSTRUCT WHAT WE NEED:

### Villages to work in:

- Parwat Kheri
- Devdo Ka Khera
- Dhanji Ka Khera
- Ummadpura
- More, if time and budget allow (all work must be finished before monsoon season)

### Work:

- Construct, repair, and maintain water bodies to harvest rainfall, slow the flow of water, and better recharge local wells
  - Silt excavation and check dams/ subsurface dykes to be constructed in lakes and rivers
  - Ponds to be constructed on individual farms to harvest rainfall for the irrigation use
  - Anicuts, trenches, and check dams to be constructed to slow flow of water

**Impact on community:** This deepening and desilting will ensure that water bodies that are currently overflowing will be able to capture more rainfall. Slowing the flow of rivers will ensure better recharge of groundwater and underground aquifers, which then recharge wells and other water sources.

## CONSERVE WHAT WE HAVE:

**Villages to work in:** across 5 panchayats (20 villages)

### Work:

- Enlist 20 farmers for participatory irrigation management
  - Farmers' water usage will be tracked and farmers will be trained on water efficient techniques
- Raise awareness across villages through billboards, community meetings, etc. to reduce water in household usage

**Impact on community:** Raising awareness across villages will help with water conservation. Given that agriculture is the primary expenditure of water in this region, working with farmers to reduce their water usage will be a key component in raising awareness.





### CHANGE WHAT WE GROW:

#### Villages to work in:

- Parwat Kheri
- Khatamla
- Emri
- Rebariyon Ki Dhani

#### Work:

- Join the Central Institute for Medicinal and Aromatic Plants' Aroma Mission, aimed at improving the livelihoods of farmers who do not have access to plenty of water
  - The government provides training, needed materials, and seeds, as well as market linkages after harvest season.

### Work (Con'td):

- The farmers only need to grow the crops and distill essences and oils from these crops.
  - Recommended plants for the Rajasthan region are lemongrass, tulsi, and palmerosa
- Set up distillation plant in community to aid in Aroma Mission

**Impact on community:** Joining the Aroma Mission will allow villagers who have not been able to farm due to water scarcity reestablish revenue streams from their land in a water-efficient manner.

### CHRONICLE EVERYTHING:

**Villages to work in:** all villages previously mentioned

#### Work:

- Record stories and history of water bodies and water management from elders
- Create an internal database at Seva Mandir for these audiovisual files
- Create a digital exhibition showcasing the history of water in these communities

**Impact on community:** There will be a digital archive storing history and stories.

**"This is the first rule of nature. You can ask a man for forgiveness and he will grant it to you. But you water the land a little late or give it too little water, it does not matter how much you beg for forgiveness later, it will never forgive you."**

**AMBA LAL  
GHADRI, FARMER**



# MILESTONES & TIMELINE

Month	Activity	Deliverables
<b>May</b>	<ul style="list-style-type: none"> <li>• Lake desilting in 3 villages</li> <li>• Finalize action plan for Parwat Kheri</li> <li>• Enlist farmers for Aroma Mission</li> <li>• Train farmers and distribute seeds for Aroma Mission</li> <li>• Begin plan for distillation plant</li> </ul>	<ul style="list-style-type: none"> <li>• 3 lakes desilted and deepened</li> <li>• Action plan for Parwat Kheri</li> <li>• List of farmers (Aroma Mission)</li> <li>• Final plan for distillation plant</li> </ul>
<b>Jun.</b>	<ul style="list-style-type: none"> <li>• Construction work on Gomti Nadi in Parwat Kheri</li> <li>• Pond construction on farms</li> <li>• Train farmers on water efficient irrigation and <i>jeevamrit</i></li> <li>• Plant seeds for Aroma Mission</li> </ul>	<ul style="list-style-type: none"> <li>• Completed work on Gomti Nadi</li> <li>• Completed pond construction</li> <li>• Finished seed planting for Aroma Mission</li> </ul>
<b>Jul.</b>	<ul style="list-style-type: none"> <li>• Finish any remaining construction on lakes and rivers from June by beginning of monsoon season</li> <li>• Begin construction on distillation plant</li> </ul>	<ul style="list-style-type: none"> <li>• Total of 3-7 lakes desilted and deepened</li> <li>• Total of 1 river modified</li> </ul>
<b>Aug.</b>	<ul style="list-style-type: none"> <li>• Start harvesting Aroma Mission plants (lemongrass, tulsi, and palmerosa)</li> <li>• Train farmers on distillation process</li> <li>• Start measuring the impact of all construction work on groundwater recharge</li> </ul>	<ul style="list-style-type: none"> <li>• Finished distillation plant with trained farmers and employees</li> </ul>
<b>Sep.</b>	<ul style="list-style-type: none"> <li>• Start distillation process of crops</li> <li>• Sell to wholesalers via links provided by government</li> <li>• Continue research on groundwater recharge and water conservation in communities (improved agricultural water usage, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Initial oils and essences released into wholesaler marketplace</li> </ul>
<b>Oct.</b>	<ul style="list-style-type: none"> <li>• Finish research on groundwater recharge and community water conservation</li> <li>• Hand over operations of distillation plant to NGO</li> </ul>	<ul style="list-style-type: none"> <li>• Academic paper on water in Rajsamand region</li> <li>• Final detail project report</li> </ul>

# GOALS



**3-7** lakes desilted

**1** river modified

**20** farmers with ponds constructed on their farms

**20** farmers with increased water efficiency + using *jeevamrit*

**20** farmers growing more water efficient crops

**1** distillation plant

**1** academic paper on groundwater in the area

Internal database + digital exhibition of water stories

Increased awareness of water conservation

# CONCLUSION

It is my hope that this project will have lasting impact in the water conservation of the villages it is taking place in and, through water conservation, better the lives of the residents who so eagerly are looking for some hope. It is also my hope that this project will foster work across caste and class lines in these communities to provide much needed livelihood improvement for all.

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