

# Wastewater reuse with bioremediation and rainwater harvesting

The story of a block printing workshop in Vadodra, Gujarat



Case Study

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## Background

Bodhi – a small block printing workshop in Vadodara, India has showcased excellence in all three aspects of sustainability – environmental, social and economic since its inception in 1986. They have employed a bioremediation facility to treat and reuse their wastewater. They also harvest rainwater to aid their operations and recharge groundwater

*"Bodhi was set up with the goal to preserve India's rich tradition of crafts, while aligning to the core principles of sustainability"*  
- Mala Sinha

### Locational challenge

Bodhi is situated outside traditional craft clusters like Ahmedabad; common infrastructure, market, etc. were not available.

Due to the lack of supporting ecosystem, Bodhi had to improvise and adapt to survive and grow.

### Organization background and motivation

Bodhi is a small enterprise of artisans excelling in the craft of hand block printing, hand screen printing and embroidery located in Vadodara, Gujarat. It is run by Mala and Pradeep Sinha. It was established by Mala Sinha, a graduate of the National Institute of Design, Ahmedabad, in 1986.

In the early eighties, design as a career was just being established; fresh graduates from Indian design schools turned to entrepreneurship to make a living, as well as create jobs.

Bodhi's operations began with small scale printing of table mats and napkins. Bodhi is rooted in the principles of frugality and ethics—conservation of resources and fair treatment of workers have always been the guiding mantra.

Currently, Bodhi employs 10 artisans and workers.



*Canna plantation on microbial treatment tank*

## A sustainable/circular business model

Bodhi's operations are focused on reducing energy and water footprint. Solar energy is utilized for baking pigment-printed fabrics, and heating water. Rainwater is harvested, which is used in the production process as well as to recharge groundwater.

Bodhi has installed a bio-remediation facility, where waste water from the printing and dyeing processes is treated by:

- Flocculation
- Removal of sludge
- Bio-remediation by passing it through a microbe rich growing medium with Canna plantation
- Sand and pebble filtration

## Regulatory challenges and buyer dependency

As Bodhi grew, to maintain a large production capacity involving many craftsmen and workers, it had become dependent on a single international buyer for orders. To preserve its artisanal roots and its core values of frugality and sustainability Bodhi scaled down and now runs as a small organization focused on the principles of circular economy. It now caters to the domestic market.

In the initial years, there were regulatory challenges too, as environmental and pollution control laws were made by the state government but there was no guidance for implementation.

## Investment and Benefits

Bodhi invested about Rs 3.5 lacs (at 2010 rates) for a rainwater harvesting and bio-remediation plant. One worker (a screen printer) doubles up as the maintenance crew for the bioremediation facility. He spends 2 hours a day in pre-treatment and sludge removal from the retention tank. No specific skills are required to operate and maintain the facility.

Bodhi's water consumption is about 15-20 litres per kg of fabric, about half of which is supplied through recycling and water collected from rainwater harvesting. Fresh water is used only to make up for evaporation loss and to prepare fresh colours.

Bodhi is a zero discharge facility.

## A fair workplace



*Mala Sinha and her team of skilled workers*

All workers and artisans are provided fixed salaries, rather than on a piece-rate basis. This ensures better quality of work, as well as provides income security to all employees. Employment is permanent; as opposed to contractual work which is seasonal and demand based, which makes it difficult for workers to make a living during lean periods. Bodhi's model counters such difficulties.

Many of the artisans now working at Bodhi joined as unskilled helpers and have learned their craft on the job. All the women who embroider for them are trained to embroider by their team of trainers and supervisors, and the work is given to them at their homes and collected from them when finished.

Bodhi believes in establishing long-term relationships with their employees, craftsmen and traders.

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