

# Management Lessons from a Rural Indian Water Project

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## **Motivation**

The motivation behind this article is three-fold:

- to share the story of a ponds restoration project with the engineering enthusiasts across the globe.
- to present the project's detailed blueprint so that it can be adopted by socially conscious corporates as part of their Corporate Social Responsibility (CSR) initiatives across India.
- to encourage environmentally conscious citizens to come forward in resolving the water crisis faced by India.

## **Background**

Thappalampuliyur village, [situated](#) in Thiruvarur district of Tamil Nadu in India, is home to over 1500 families and has over 1000 years of rich heritage. The villagers primarily depend on agriculture and livestock rearing for their living. For centuries, three water tanks (ponds) of this village have served as vital sources of water for the villagers. These ponds have historically served as drought mitigation structures to meet drinking water needs during distress periods. However, by the year 2016 continuous reduction in ground water levels, absence of sufficient spells of rain and the prevailing drought situation left the ponds to dry up

## **Restoration of the Village Ponds**

Over the past 2 years a core team comprising of Mr.T.P.Venkataraman, Mr.Seetharaman Kalyanaraman, Ms. Vaidehi Krishnamurthy, Mr.T.S.Balasubramanian and myself worked towards the desilting and restoration of these ponds – an activity that was carried out after eight decades. The effort that spanned over 18 months, has offered phenomenal environmental, and economic benefits. It has increased the water level and extended the water retention capacity of the ponds. It has elevated the ground water levels of the surrounding areas as well.

By replicating this model across villages in Tamil Nadu and similar water-sparse states of India, there is a good chance of increasing ground water levels across the country, thereby efficiently and sustainably addressing lack of water supply from rivers. The before and after pictures of these two ponds are given below.

Mela Kulam (Western Pond)



BEFORE DESILTING  
(MAY 2017)

AFTER DESILTING  
(DEC 2017)

Kezha Kulam (Eastern Pond)



BEFORE DESILTING  
(13<sup>th</sup> June 2018)

AFTER DESILTING  
(17<sup>th</sup> August 2018)

## Project Details and Lessons in Management

The ponds restoration initiative saw immense levels of passion, process optimization, cost optimization, meticulous planning and innovation - a combination that many professionals in the management field aspire for. I have outlined some of my key takeaways in management from this project, along with illustrations.

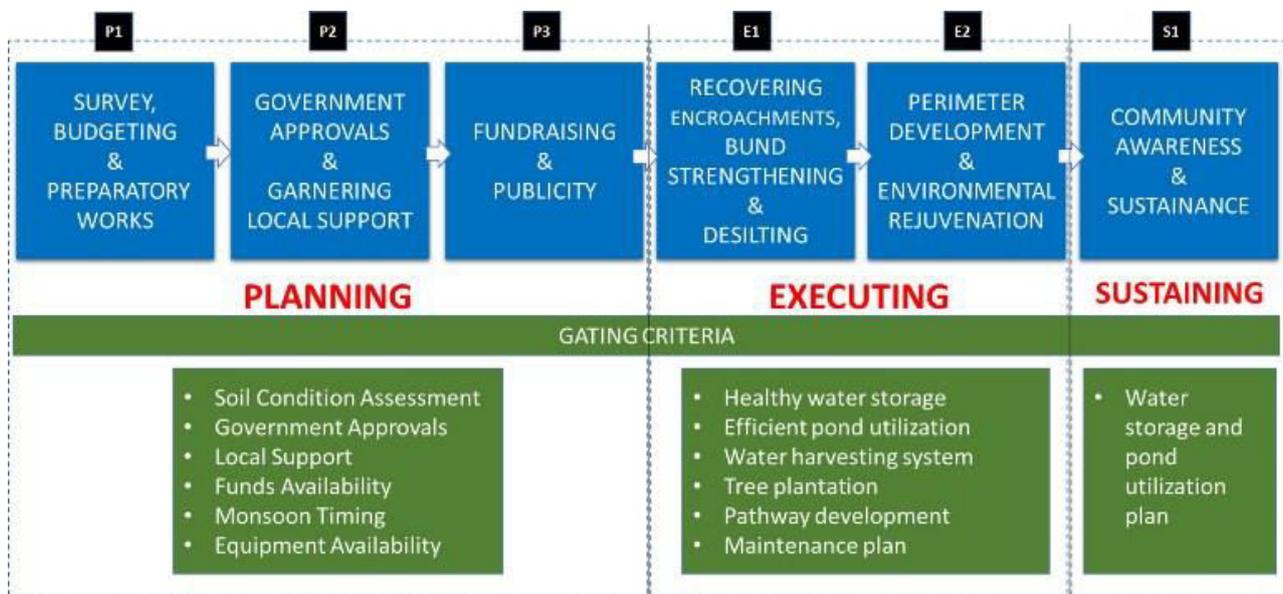
### 1. Attain clarity of purpose before embarking on the initiative

The foremost factor that resulted in the success of this initiative was the clarity of purpose. The anticipated benefits of desilting the ponds spanned across four areas – **Environmental, Societal, Economic and Wellness**. Some of the benefits aspired for were, to improve the water table, provide natural replenishment of ground water, strengthen the community in and around the village, improve agricultural productivity and most importantly provide clean water for current and future generations. With this powerful vision, the intent to carry out the initiative was quite compelling and provided the impetus to the subsequent planning and implementation stages.

### 2. Draft a blueprint, by involving relevant stakeholders

Once the purpose was established, a blueprint or a draft plan was put in place. For this, various stakeholders were engaged, and this helped in building consensus around the initiative. The stakeholder set included the villagers, village well-wishers, desilting and civil works experts, ecologists, geoscience experts, corporate donors, individual donors, NGO partner and local government authorities.

This also served as a good pulse check to evaluate what head-winds and tail-winds the project would face during execution. The draft plan also allows for identification of key tracks for the initiative and owners to drive those tracks.



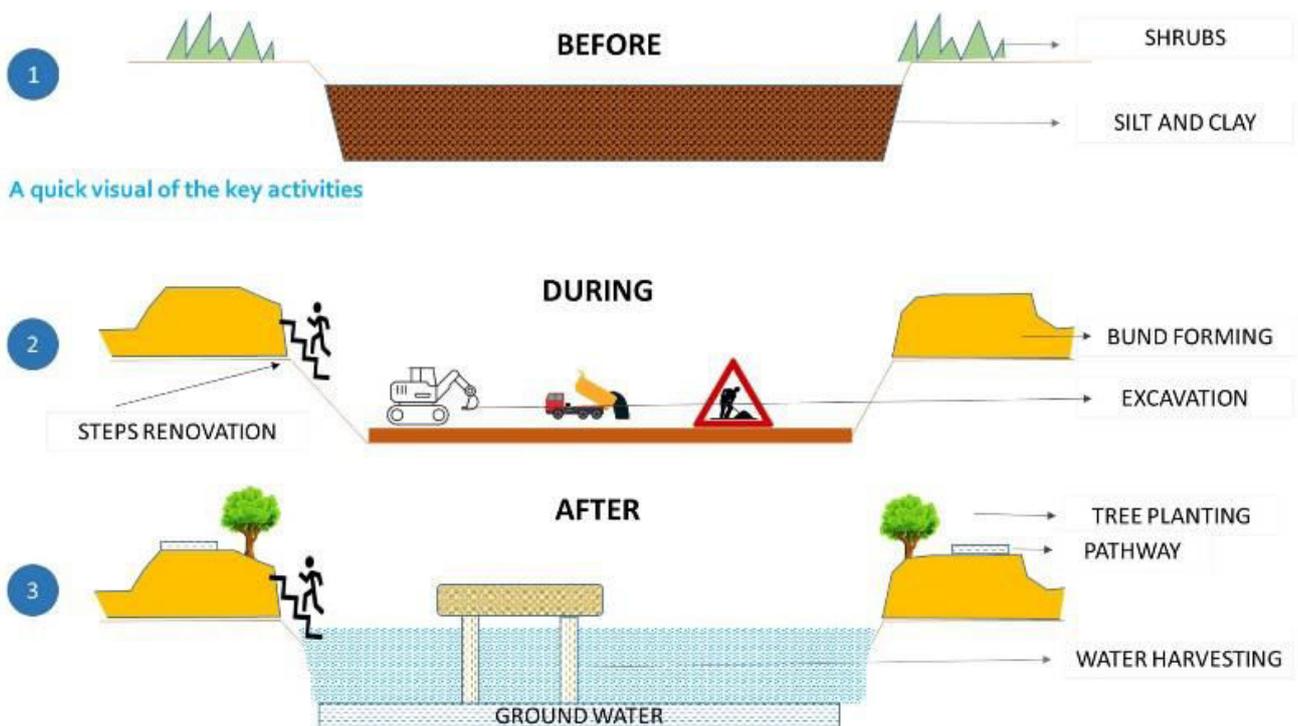
### 3. Study feasibility and visualize action plan to get it right

A scientific approach was adopted to assess the feasibility of the initiative. Established professionals from the geological discipline conducted a Total Station Survey of the ponds to study the soil quality and water management experts were consulted to propose measures to be taken for long term sustainability. The study also helped visualize the end-end process, assess the cost of restoration of each pond, and the administrative support needed.

The following interventions were recommended as a result of the survey.

1. Conduct a topographic survey covering the total extent, water spread, bund length and height, inlet and outlet channels, intake well and its dimensions etc.
2. Establish a baseline on the presence of groundwater extraction structures such as open wells and bore wells, their depth, usage, yield and water quality. Document the ponds' history by interacting with village seniors.
3. Clear the weedy and thorny vegetation around the water bodies, so that new vegetation cover with trees of good canopy can be developed on the bund of the pond.
4. Clean, desilt and deepen the water spread area to increase the water holding capacity. Utilize the desilted material to be used for shaping and strengthening the bund.

5. Investigate the sub-surface to assess the nature of aquifer and its groundwater potential so that groundwater extraction structure can be provided to maintain the vegetation.
6. Introduce a groundwater recharge system based on the nature of sub surface, that will harvest the excess water in the pond and recharge the groundwater system.
7. For future sustainability, protect the pond with proper fencing to avoid encroachment in future.
8. Provide walk ways around the bund for easy access for the local community.
9. Explore fishery as a pilot in the ponds and use the groundwater extraction structures to maintain water level during water distress periods.
10. Engage the local villagers and students in rejuvenating the water bodies.
11. Provide a notice board covering all the structural aspects of the water body.
12. For the long term, create the ability to increase the water bed and water quality, thereby improving the quality of life amongst the village community.



#### 4. Build consensus and secure necessary approvals to understand boundaries and achieve autonomy

Since these tanks were public property, it was important to secure approvals from the authorities. Based on consensus among the village, a requisition letter was submitted by the village locals seeking approvals. The approvals given by the authorities were time-bound and extendable based on progress achieved. This helped reveal the boundaries within which the project can be carried out such as dates approved, desilting criteria based on permitted depth/area etc. The approvals not only give better confidence and full autonomy to the team, but also helped with more detailed planning.

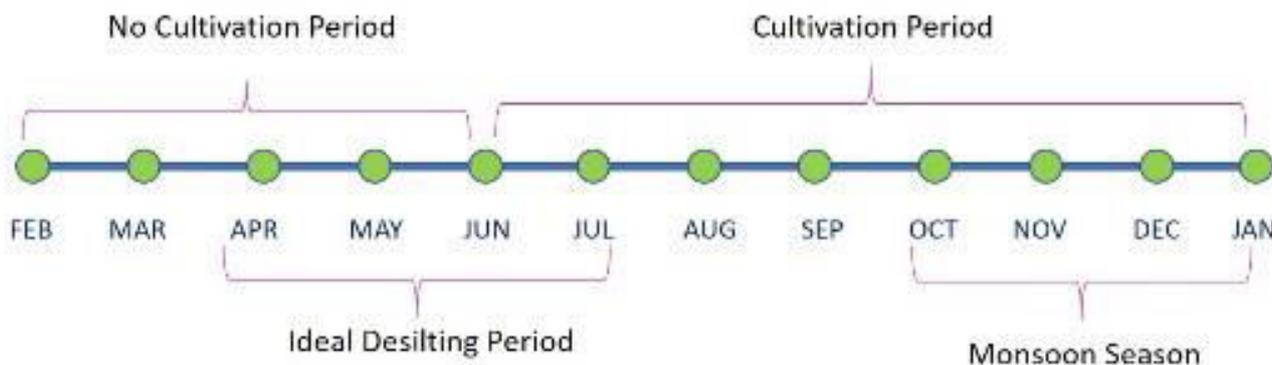
#### 5. Prepare a comprehensive, conservative and collaborative plan with budgeting, resourcing and timelines.

It was determined that the vital part of successfully executing this initiative lied in the detailed planning. Since this was the first time it was being done in 8 decades, unearthing the unknowns were more crucial at the earlier stage. In addition to surveying the ponds and reassuring the support of authorities, budgeting and fundraising were key factors that were seriously considered.

*Budgeting* - With help from experts in the field, budget needs were determined and distilled in a detailed manner.

*Fundraising* – A non-profit partner, Rotary Club, was identified as a partner to serve as the channel to raise funds. Funds were raised from individuals, corporates, organized/family trusts and village community. It was largely due to the CSR funds raised from environmentally conscious corporates, that a project of this magnitude was possible. Piecemeal donation options comprising of daily donations, activity specific donations, lump sum donations and machinery time contributions were instituted. Fundraising avenues included outreach to people with connects to the village, social media channels like Facebook and WhatsApp, and outreach to foreign nationals.

*Timing:* Given this initiative can only be carried out during summer months and months where agricultural activities were minimal, timing of the project was quite important.



*Resourcing:* We involved the village community from the initiation stage, and as a result locals actively participated in the supervision and execution of this initiative with adequate guidance. A daily report of on-ground activity was shared with the core team and the key stakeholders.

### 6. Explore avenues to constantly innovate on cost and effort

While determining the plan to dispose off the desilted soil, the villagers came up with an optimal, yet innovative plan. Instead of letting the soil accumulate in mud-piles, they reached out to the local farmers, who in turn brought their own tractors for removing the decades old fertile soil that was rich in nutrients and minerals. Hundreds of loads of soil were spread on the fields for cultivation, resulting in a much richer yield in the following cultivation season. Surplus soil was also used to lay roads and construct houses. In addition to saving the cost of soil removal, this also boosted agricultural productivity.



Reuse of the sand for agriculture purposes



Sand used for construction



Fixing Potholes on the street

### 7. Focus on sustainability beyond the initiative, to create true impact

The impact created did not end with completion of work. The ponds got a fresh flight of steps, elevated embankments were laid out to around the pond to prevent water overflow, a water harvesting plant was set up to ensure the surplus water is harvested as ground water, palm tree seeds were planted around the embankments to prevent soil erosion, and awareness was created within the village about the importance of maintaining and sustaining the initiative.

### 8. Monitor, Report and Communicate often

In order to provide visibility and transparency, the daily status update on the project was shared over simple channels like WhatsApp. Frequent visits by the core team members from the city boosted the confidence of the local team. Field experts also visited the site periodically to guide, enrich and course correct the activities as needed. Cost, effort and key milestones were tracked and recorded for documentation purposes. Donors were kept constantly updated on the ongoing progress and impact.

### 9. Establish a sense of community to nurture engagement and strengthen purpose

More than the successful execution of the project, the community that it nurtured and sense of purpose it established were the true indicators of meeting its vision. The project infused tremendous confidence among the village locals and has

resulted in a positive change in their mindset. Thanks to the constant engagement with the local community they now firmly believe that with support from individuals and corporates, and by adopting a structured professional approach they can create a much better life for themselves and their children. They have now started the next impactful initiative of desilting water canals which form the vital irrigation framework of the village, covering approximately 5 sq.km of the village's cultivable land, in addition to additional ponds in an around the village.

The greatest of management lessons are not always taught in B-School classrooms or corporate workshops. They are often experiential in nature and are taught on the field, while undertaking projects with a strong sense of purpose and long-standing impact.

PS: A more detailed presentation is available at: <http://bit.ly/tplponds>

#### About the author



Sathish Vaidyanathan is a core team member of Thappamalpuliyur Ponds Restoration Project. He has been associated with this initiative in planning, publicity, marketing and fundraising for this project.

An engineer by profession, Sathish Vaidyanathan works for PayPal India and heads the engineering team that launched PayPal's payments platform for the India domestic market. Before joining PayPal, he had stints in engineering at eBay, Sun Microsystems, Mentor Graphics, Ramco Systems, and two early-stage startups in the US. He is deeply passionate about empowering non-profits and social enterprises through technology, innovation, entrepreneurship, intrapreneurship, mentoring and leadership development and authored articles on these topics on LinkedIn. Sathish has a Masters' degree in Software Systems from BITS Pilani and an engineering degree in Computer Science from SRM Engineering College, Chennai

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#### Status of Drinking Water and Sanitation in rural India

In Budget Session 2018, Rajya Sabha has planned to examine the working of four ministries. The Ministry of Drinking Water and Sanitation is one of the ministries listed for discussion. In this post, we look at the key schemes being implemented by the Ministry and their status.

<https://www.prsindia.org/theprsblog/status-drinking-water-and-sanitation-rural-india>

#### 76 Million Don't Have Safe Drinking Water: India's Looming Water Crisis

Nearly 76 million people in India do not have access to safe drinking water, as polluted rivers and poor storage infrastructure over the years has created a water deficit which may become unmanageable in the future

<https://swachhindia.ndtv.com/76-million-dont-have-safe-drinking-water-indias-looming-water-crisis-5606/>

#### India's water and sanitation crisis

India is the second most populous country in the world, with more than 1 billion citizens. Roughly half of India's population, a staggering 522 million, practice open defecation.

The World Bank estimates that 21 percent of communicable diseases in India are linked to unsafe water and the lack of hygiene practices. Further, more than 500 children under the age of five die each day from diarrhea in India alone.

With its strong microfinance sector and extensive need for improved water and sanitation solutions, India provides a great opportunity for Water.org to scale our WaterCredit solution. Monitor Deloitte estimates that the rural sanitation market in India is worth US \$25 billion. <https://water.org/our-impact/india/>

#### Water In Crisis – India

With a diverse population that is three times the size of the United States but one-third the physical size, India has the second largest population in the world. According to the World Bank, India has taken significant steps to reduce poverty but the number of people who live in poverty is still highly disproportionate to the number of people who are middle-income, with a combined rate of over 52% of both rural and urban poor. Although India has made improvements over the past decades to both the availability and quality of municipal drinking water systems, its large population has stressed planned water resources and rural areas are left out. In addition, rapid growth in India's urban areas has stretched government solutions, which have been compromised by over-privatization.

<https://thewaterproject.org/water-crisis/water-in-crisis-india>