Imprints of Ecological Footprints ...

A compilation of
Ecologically Sensible
Good Practices
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Visuals: Cheriyal Nakashi Artists Family - Shri D Vaikuntam and his family members
Mrs. D Vanaja (wife); D Vinay and D Rakesh (sons).

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I am very happy to present "Imprints of Ecological Footprints .... A compilation of Ecologically Sensible Good Practices".

I take this opportunity to thank all organizations and individuals who contributed to the process of documenting these good practices. They were kind to frankly share with us their experiences, thoughts, challenges and achievements. They also shared relevant data to substantiate any critical point from their experiences. Some of them even prepared the first drafts of these case studies. They also revised them, based on our feedback. All the organizations/ individuals happily gave consent for publishing these case studies and using them for learning purposes under "Leaders for Nature" program of IFHD, IUCN, CII, Hivos and Wild Life Trust of India. The entire process of producing this compilation was an enriching and fruitful experience. It is also a humbling experience for us to learn several lessons from these interactions and visits to several villages/ sites. We genuinely believe that this compilation truly enriches the learning processes of "Leaders for Nature" program.

The Writeshop was one of the important events of this process. We got guidance and feedback on the '0' drafts from the participants of the writeshop. This was useful in refining the initial drafts. The participants of writeshop also made important suggestions on the presentation and utility of these case studies. From their busy schedules, they spared few days for refining these case studies, which is a very kind gesture. I thank everyone who participated in the writeshop. Their inputs are invaluable.

I thank Ms. Aruna Rangachar Pohl, IFHD for having faith in WASSAN and entrusting us the responsibility of compiling these case studies. She is an active team member at all critical stages of the project and guided us on choice of case studies, structure/ framework, presentation, etc. The partnership with IFHD is really cherished by all of us, at WASSAN.
I also thank the family of artists of Cheriyal - Shri D Vaikuntam, Mrs D Vanaja, Mr D Vinay and D Rakesh, who visualized these experiences in their own unique style.

My team - MB Vali, Anitha Vustela, Waseem Mohammad, Benita Mahanta, Radhashree who spent considerable time on this agenda. I also thank K Suresh for providing editorial inputs and support at various stages of this process.

MV Rama Chandrudu

WASSAN
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Foreword

It is almost three decades back, the threats to "Our Common Future" were formally identified and deliberations started gaining more steam and support from governments too... (Our Common Future, Gro Harlem Brundtland, 1987). Climate Change and its implications were also slowly getting recognized during this period. The need for "producing more with less" was also part of this thinking process, as a means to address the challenges of the future. Over a period of time, the world witnessed more economic distress, unemployment, political turmoil and ecological disasters across different countries and regions of world. Those early predictions seemed to be less threatening than the current reality. The global gloom got predictable companions - unscrupulous industrial growth, irresponsible urbanization, careless global politics, dishonest governments, self-centric citizenship, which tried to glorify the current trends as achievements and inevitable solutions.

In the middle of such despair and misery, there is a hope. "Imprints of Ecological Footprints - A Compilation of Ecologically Sensible Good Practices" is a compendium of good practices that brings the efforts made by relentless civil society organizations, citizens and community based organizations, to change the direction of this trend. These experiences bring cheer and hope in the lives of thousands of rural, tribal and urban citizens in India, who are part of these experiences. They were able to take a different path that is less travelled and troublesome. There were several challenges, at each step and milestone. But they continued their journey and proved that "producing more with less" is possible. They also ensured that the ecological and environmentally sustainable processes are feasible for improving economic standards and quality of life of poor communities.

These case studies give a hope and confidence that we can face the cruel world and transform the same into a comfortable place for all - including endangered species, poor and marginalized communities. While Corporate Social Responsibility is gaining more support
from governments, corporate agencies and development agencies, these experiences provide guidance and help them to think about alternatives. These experiences help the willing and discerning development agencies and investors in social change, to transcend the mundane "photo stories" of majority of current CSR interventions. They provide an array of options, strategies and ideas that proved themselves in different parts of the country.

I thank all the organizations and agencies who shared their stories - highs and lows of it, with us frankly and completely. I thank them for providing leadership on the chosen theme - promoting biodiversity; conservation and governance of natural resources; promoting ecologically sensitive production processes; enhancing livelihoods by developing environmentally harmonious economic models and several others. These experiences are invaluable and are certainly useful for provoking thoughts in the minds of participants of "Leaders for Nature" programs, which are jointly organized by IFHD, IUCN, CII, Wild Life Trust of India, HIVOS and other like-minded organizations. I thank WASSAN for producing this compilation of case studies and supporting us in this endeavor.

Aruna Rangachar Pohl
IFHD, Bengaluru
Aug 2016
2010 is a turning point in the lives of Sivaramappa and Mallikarjuna. Sivaramappa cultivated groundnut along with jowar as intercrop in half an acre and tomato in the rest of the land. While groundnut earned him a profit of Rs 12,300; tomato gave him a net income of Rs 42,000. Jowar was used for household consumption. Mallikarjuna cultivated groundnut along with red gram and jowar as intercrops in his one acre. His profit from groundnut was Rs 10,450; while redgram gave a total income of Rs 4,200. He also used jowar for household consumption.

Interestingly, Sivaramappa does not own a borewell, which is considered to be an important asset in a drought prone district like Anantapur, Andhra Pradesh. However, Mallikarjuna owns a borewell. The income and profit from agriculture of these two farmers started improving since 2010 and they never looked back...

This is a tale of two farmers in Kummaravandla Pally, a small hamlet in Anantapur district. These two have good company of another 23 farmers in the same village, who are part of Koluganti Ummadi Neeti Yajamanya Sangham - a collective of farmers for management of water. Since 2010,
all these farmers are enjoying the benefits of using groundwater as collective and common resource, irrespective of borewell ownership. Farmers like Mallikarjuna are magnanimous and gracious to share water from their borewells with other farmers like Sivaramappa, who do not have one...

**What happened in 2010?**

Water is a contentious resource and fights could erupt in regions like Anantapur. Farmers in the drought prone areas tend to give high priority to access groundwater and rarely agree to share "their" water with others. There are also examples where borewell (water) became the centre of controversy between joint families and several criminal cases were registered, as a result of such feuds. In such a background, the experiences of Kummaravandla Pally sound like fiction.

**Let us visit this real fiction...**

Kummaravandla Pally village has 53 families and 41 farmers. Rainfed agriculture is the main occupation of the villages and there are 19 borewells in the village. These farmers are dependent on groundwater resources for irrigating their crops. However, as all farmers extract groundwater from the same aquifer, any new borewell would introduce a new user to the same aquifer. As this accessing of groundwater (digging borewells and pumping) is not regulated, there is always some kind of uncertainty about the availability of groundwater, even if one has a borewell. It is common that a new borewell makes existing borewells dysfunctional (as the new borewell may be deeper and extracting water from deeper strata). A borewell owner is always worried about the life expectancy and dependability of his own borewell, given the competitive digging. On the
other hand, farmers who do not own borewells are completely at the mercy of rainfall. Delayed monsoons, long dry spells in between two rains and complete failure of monsoon are very common in Anantapur. Farming in such situations is a gamble. WASSAN team facilitated discussions and reflections among farmers on the above points in Kummaravandla Pally village.

WASSAN team interacted with all farmers and conducted a situation analysis of the village. Like many other villages, Kummaravandla pally also faces groundwater related problems (shortage, inequitable access to groundwater; inappropriate cropping pattern). Large areas are left fallow and a limited area is cultivated with high water requirement crops. There are no previous experiences of collective use of groundwater resources.

Based on series of meetings, awareness camps, exposure visits and personal interactions, 25 farmers in the village came forward to form a collective - Kolagunti Ummadi Neeti Yajamanya Sangham. They resolved to "share groundwater with one another to sustain our crops". This led to the concept of networking of borewells for groundwater sharing. In this group there are 15 farmers who own 8 borewells and 10 who do not. About 56% of farmers in this group own 1 acre of land, 36% own 2 acres, 4% own 2.5 acres and 4% own about 4.75 acres of land. This collective evolved a system that addresses the problems of all the farmers. The overall objective of this initiative was to secure rainfed crops of all farmers, irrespective of borewell ownership.

This system involves voluntary compliance in pooling and sharing of groundwater among 25 farmers. By linking all borewells with a network
of pipelines and outlets, all farmers could access groundwater. WASSAN facilitated the discussions in evolving norms of water sharing, design of physical infrastructure and investment requirements. During this process, the group agreed on the following points:

- The committee would have farmers with and without borewells.
- A joint account would be opened in the names of these members.
- Equal contribution towards share capital, irrespective of borewell ownership.
- Annual contribution towards the maintenance fund, on per acre basis, @ Rs. 100/ acre.
- One farmer would be elected for monitoring the schedule for water distribution/ allocation and also collect contribution from each member.

Apart from the institutional norms, the group also decided on the following norms for sharing groundwater:

- The irrigated area under borewells should not be increased from the current status (2009 situation), whereas the critically irrigated area can be increased.
- In the critically irrigated areas water should be given during four phases of the crop and must provide critical irrigation for a minimum of 3 phases. The four phases are:
  - Sowing,
  - Flowering,
- Pod development, and
- Crop harvesting.

- Crop water budgeting exercise should be conducted before sowing.

- If paddy is to be cultivated, the System of Rice Intensification (SRI) should be practiced.

- Micro Irrigation system such as drips and sprinklers should be used to conserve water.

- No new borewells should be dug for 10 years without the permission of the committee.

- During June to November any repairs to the borewells during critical phase will be borne form the maintenance fund. During the rest of the year the borewell maintenance will be undertaken by the farmer owners.

After these norms were evolved, the group developed an action plan for sharing water. This plan was implemented as part of AP Drought Adaptation Initiative (APDAI - with the aim of insulating crops and farmers against climate variability), which was a collaborative project between Government of Andhra Pradesh and World Bank. Mandal Mahila Samakhya (an apex body of women self-help groups) functioned as an implementing agency of this project for this village, while WASSAN provided necessary technical and project management support. Sharing groundwater from existing private borewells among all the farmers in a group ensures protecting crops during dry spells and helps them to withstand the vagaries of climate.
Farmers got financial support for necessary infrastructure for sharing the groundwater such as pipeline network and regulators for connecting existing borewells. Funds from Andhra Pradesh Micro Irrigation Project (APMIP) were accessed to get 7 sets of sprinkler and drip systems. Total cost of the 7 sprinkler sets was Rs. 140000/-. Each sprinkler set costs Rs. 20,000/- with farmer group contribution of Rs.2000/-. For promoting diversity in agriculture, redgram and groundnut seeds were provided free of cost from National Food Security Mission (NFSM), Agriculture department, GoAP. Government schemes such as horticulture plantation in five acres of land; water and soil conservation works through Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS); NADEP compost pits from Non Pesticidal Management (NPM) were accessed as per the needs of these farmers.

Before 2009, the borewell owners were largely cultivating paddy and non-borewell farmers were cultivating groundnut. Only small patch of land was irrigated and the rest of the land was either rainfed or left fallow. The farmers who do not own a borewell had very small profit margin, that too only in a good monsoon year. The agreements/ norms among farmers and water sharing pipeline network introduced a new way of agriculture in the 72 acres of land belonging to the 25 farmers, since 2010. The cropping pattern changed and there is a diversity of crops in this patch. There is also considerable reduction in cost of cultivation (investment); improvement in value of produce and also net profit. The average profit percentage is about 146% per acre of land. It is to be noted that groundwater sharing has enhanced their profit margin by two folds.

During 2011, the group grew 9 varieties of crops in various combinations: groundnut, redgram, jowar, chrysanthemum, mulberry,

A tale of two farmers...
castor, paddy, mango plantations and tomato (and other vegetables). Fodder plots also became part of the cropping pattern now.

According to a study conducted by Department of Rural Development and Social Work, Sri Krishna Devaraya University, Anantapur; it was noted that there was an increase in water use efficiency due to the use of pipeline system instead of field channels. Farmers reduced cultivation of paddy and shifted to less water intensive crops. Critical irrigation has not only helped in preventing crop loss, but also in increased productivity of groundnut. The data on water levels of these borewells is maintained since 2009 which indicates that the groundwater levels are sustained, while the area under agriculture and critical irrigation improved. The factors for this sustainability are:

- No new borewell was dug. So existing borewells survived, without failure.
- Assured water supply to fields. Even when one of the borewell fails, water would be supplied through the network of borewells.
- Repairs and maintenance is taken care of by the group during kharif season.
- Water losses in transmission are avoided due to pipelines that supply water to each field.
- Similarly, drip and sprinkler systems helped in improving the water use efficiency.
- Area under water intensive crops decreased and diversity increased, which improved net profit from agriculture.
This study and recent surveys conducted by WASSAN indicate that all farmers in the group including Sivaramappa and Mallikarjuna have also accumulated moderate assets since 2010 - a house, TV, agricultural equipments, a bank balance. They are also able to take care of medical emergencies of the family and send their children for higher education.

This group of 25 from Kummaravandla Pally is now a role model for several other farmer groups in the state. They stand out as a wonderful example for sharing groundwater and withstanding the vagaries and variability in rainfall. They could reduce crop losses by providing water to crops at critical stages. Diversity in agriculture is another principle they followed to ensure that they prosper.

Sneha Anantakrishan and MV Rama Chandrudu, WASSAN
with support from C Bakka Reddy and Uthappa, WASSAN
About Cheriyal Paintings

Shri D Vaikuntam and his family members Mrs. D Vanaja (wife); D Vinay and D Rakesh (sons) are keeping the tradition of Cheriyal Paintings of Telangana state, for generations. All members of the family are engaged in protecting and conserving this rare art form, that is not likely to survive for long. This is the only family in the country that is still engaged in this traditional art form. The Cheriyal Art has a unique character - red color background; vivid presentation of figures (men, women, animals, flowers, plants and others) with unique strokes and style. This art form belongs to "nakashi" form of paintings in India. But Cheriyal paintings contextualized this nakashi format to local Telangana and improvised it, with their unique styles. Apart from paintings and scrolls, Cheriyal Masks are also very attractive and unique with their bright colors and large eyes. D Vaikuntam received several awards from Central/ State governments, for his unique contribution to Cheriyal Art.

D Vaikuntam and his family members agreed to present the key messages of these case studies. They spent time with us to understand the essence of each case study and presented it in their own style. These pictures further enriched the experiences, which are already exemplary in several ways. WASSAN thanks the family of artists of Cheriyal for their support in visualising these case studies.

Pictures of some of the paintings/ scrolls and masks could be seen on this blog:
http://vaikuntamnakash.blogspot.in/
".....In the middle of such despair and misery, there is a hope. "Imprints of Ecological Footprints - A Compilation of Ecologically Sensible Good Practices" is a compendium of good practices that brings the efforts made by relentless civil society organizations, citizens and community based organizations, to change the direction of the trend. These experiences brought cheer and hope in the lives of thousands of rural, tribal and urban citizens in India, who are part of these experiences. They took a different path that is less travelled and troublesome. There were several challenges, at each step and milestone. But they continued their journey and proved that "producing more with less" is possible. They also ensured that the ecological and environmentally sustainable processes are feasible for improving economic standards and quality of life of poor communities..."Aruna Rangachar Pohl, IFHD, Bangaluru.

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