SGP The GEF Small Grants Programme 25 YEARS

Innovations for Sustainability

Select Experiences from the UNDP implemented GEF Small Grants Programme (SGP) India

Ministry of Environment, Forest and Climate Change
Government of India

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About the Book

The UNDP implemented GEF Small Grants Programme India (SGP India), overseen by the Ministry of Environment, Forest & Climate Change, Government of India, has been operational in India since the year 1995. UNDP Country Office India is the implementation agency of the Project and the Centre for Environment Education (CEE) India has been the National Host Institute since the year 2001.

The SGP India Programme aims to pilot and demonstrate community-based innovative strategies and technologies that could reduce threats to the global environment if they are replicated over time; gather lessons from community-level experience and initiate the sharing of successful community-based innovations. The thematic areas of the SGP India Programme mainly include: Land degradation, Biodiversity and Climate Change.

This publication containing 20 Case Studies of community-based environmental conservation SGP India projects is dedicated to the communities and the SGP partner organisations. It is their passion and dedication to the cause of sustainable development, which has enabled the SGP India Programme to effectively render support to experiment with and pilot innovative solutions to local environmental problems across India in different ecosystems and climatic zones.

The communities have been doing a wonderful job of following their own traditional wisdom, working with the resources available to them and linking them to innovative technological interventions to tackle the problems of climate change, land degradation and biodiversity loss. This publication aims to project the combined community level local efforts of SGP India partners to bring about global environmental benefits.

The Government, multilateral and bilateral agencies and the development sector have been addressing environment and development issues in their own ways, but the work done at the grassroot level by local communities is unique and path breaking.

The SGP is operational in over 125 countries around the globe and the work of all the SGP supported NGOs and CSOs alone is enough to show the impact that the UNDP implemented GEF SGP Programme is making worldwide.

We, therefore, whole heartedly thank the communities and dedicate this publication to them and our SGP partners. We also thank all our SGP partners who have contributed to this publication.

The SGP India Team

Preface

This year the UNDP implemented GEF Small Grants Programme completes 25 years. In India, SGP was launched in 1996. The programme, under the auspices of the Ministry of Environment, Forest and Climate Change, Government of India and UNDP, has been carried out since the year 2000 with CEE acting as the national host institution.

During this period, over 430 community based innovative projects have been undertaken through 350 NGO partners. The main focus of this program is in the area of biodiversity conservation, combating climate change and preventing land degradation. Some of the programs have also been in the area of persistent organic pollutants and international waters.

The India programme has been particularly successful through its partners in raising co-financing both in cash and kind. Over the five operational phases of the GEF, projects worth 10.9 million USD have been sanctioned and 21.6 million USD has been raised through co-financing. During Operational Phase 5, the ratio of funding to co-financing has been 1:3. Several of the projects are related to major initiatives of the Government of India. A national SGP India Meet is bringing together several of the NGOs that have partnered the whole process in order to share ideas for mainstreaming these grassroots level innovations. As we enter the next operational phase, it is time to consolidate the learnings and experiences from the vast array of projects. It is also an opportunity to evaluate the impact of these interventions both in the short and long term. Several of the projects have led to new products being developed. These are marketed on a small scale through limited outlets. There is tremendous scope to make them available more widely, and improve quality standards as well as certification processes, especially in the production and packaging sector.

This publication of 20 case studies gives us a flavour of the kinds of projects that have been undertaken as part of the program. We hope that all SGP projects can be documented in the years to come so that their learnings are widely available not only in India but internationally.

Kartikeya Sarabhai
Director
CEE
National Host Institution

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Facilitating Credit for Renewable Energy for Marginal Farmers

Biogas Plants as an Alternate Clean Energy for Economic Empowerment of Poor, Landless Farmers in Sindhudurg

Bhagirath Gramvikas Pratishthan
Post Zarap, Tal. Kudal, Dist. Sindhudurg, Maharashtra 416 520
Period: June 2015 to June 2018
SGP Grant: ₹ 2,496,000 ($41,600)
Co-financing – In Cash: ₹ 1,630,000; In Kind: Nil
Code: IND/SGP/OP5/Y4/CC/STAR/2015/66/MAH06

Summary

The Bhagirath Gramvikas Pratishthan (BGP), working towards rural economic empowerment in a remote and poor region of Maharashtra, has managed to successfully identify a critical bottleneck that had been preventing marginalised farmers from accessing rural credit schemes made available by NABARD (National Bank for Agriculture and Rural Development). This bottleneck was the requirement of cash contributions from the farmers in order to secure credit from NABARD to install biogas plants. Finding that the extremely poor and marginal farmers were unable to raise this cash contribution, BGP came up with an innovative solution that enabled these farmers to access the loan to install biogas plants, and improve their environment as well as enhance their livelihood. Using the small grants program to partially subsidise the cash contribution component, they factored in free labour contributed by the farmer's family thus making it possible to access NABARD credit. BGP has also successfully tested the use of new materials that were locally available, resulting in the overall reduction of the cost of construction of these plants.

Project Snapshot

Cost of Biogas Plant	NABARD Loan	₹ 16,000
	Contribution Required from Family	₹ 6,000
	Break up of Contribution	
	SGP Seed Funding	₹ 2,700
	Family Contribution (Labour)	₹ 2,800
	NGO Contribution (Installation)	₹ 500
Target for Biogas Plants	450 Families; 10 Local Masons	
Impact of Biogas Plants	Reduction in wood consumption	8-10 kgs per day
	Reduction in time taken to collect wood	From 10-12 days to 2 days per month
	Wood saved	4.5 mt per day
	Bio manure generated	20 lts per day
	Increase in Productivity	₹ 4,500 per acre
	Reduction in CO2 Emission achieved by end of Project	208 tonnes
Target for Livelihood Enhancement (Livestock)	Fodder Plots	50 Plots in 50 villages
	Animal Health Camps	2-3 in 3 years
	Tavisises Installed	in 30 villages

Indicators Achieved

Land Brought Under Sustainable Land and Resource Management (Ha.)	Dry Land Agriculture Lands Brought Under SLM with Improved Vegetative Cover (Ha.)	Tonnes of CO2 Emission Reduction Achieved through Appropriate Energy Efficient Technologies by end of Project
		208

Background

BGP had secured a loan for 1,200 farmers from NABARD under their umbrella program for natural resource management to install and institutionalize biogas plants. Based on the scheme, NABARD was willing to provide loans of ₹ 16,000 per farmer towards building a biogas plant, with the farmer contributing ₹ 6,000 in cash and labour.

However, with a high incidence of poverty in the project area, around 20% of the families are extremely poor and marginalized. Their income is irregular and often drops below ₹ 2,000 a month ($30/month). Their condition is further exacerbated by their inability to access timely and affordable credit or funds from government sources. Consequently, they are excluded from the process of development and are driven towards migration and sometimes even suicide.

Though such families stand to benefit greatly from the above program, they are not able to participate in it, as they are unable to raise the requirement for cash contribution. Therefore, BGP approached the SGP to raise seed funding, after valuing the family's contribution in the form of labour, and their own (NGO's) contribution towards the installation charges. They also planned to make other efforts relevant to the need for livelihood enhancement to offer a holistic package that would truly benefit these families.

Objectives

1. Biogas plants (450) to be built for extremely poor farmers
2. Local masons (10) to be trained in construction and upkeep of biogas units
3. Fodder plots with different fodder varieties to be developed of in each of the 50 villages
4. Animal health camps to be conducted 2-3 times during the project period of 3 years
5. Travises (partitions) to be installed in 30 villages

Methodology

- Identification of the target villages for intervention through a baseline survey
- Identification of the poorest households that needed support within these villages through PRA

- Formation and strengthening of women SHGs to manage SHG operations, and cultivating technical knowledge to manage a biogas installation effectively
- Exposure visits to learn about the management of biogas units from practical examples
- Location of the sites within the community compounds was carefully planned based on need
- Ten local masons underwent skill development for the erection and upkeep of the biogas units
- Successfully tested and used local materials such as bamboo and ferro-cement instead of steel and chicken mesh for the construction of biogas domes
- Fodder plots were developed with different fodder varieties in each of the target villages
- Technical and scheme based support for the fodder plots was sought from the State Agriculture Department through linkages established earlier
- Animal health camps were conducted on a cluster basis, offering paid, service based facility for improved cattle care
- Travises (partitions) were installed in the stables of 30 of the target villages to facilitate inoculation and mating of the cattle
- Documentation was carried out to capture the efforts and experience of the project

Innovation

- BGP designed an innovative approach by combining small seed funding, community labour, and its own contribution, to facilitate the access of a community to a government development scheme that was earlier out of its reach
- The project also made innovative use of the locally available bamboo instead of steel and chicken mesh for the construction of biogas domes. These were successfully tested and implemented through local community members trained in masonry thus addressing long term needs of maintenance and skill building as well as employment generation.

Learning

- Identification of the critical component, in this case the need for small seed funding, can enable significant change. Here a large section of the poor were

finally able to access a government supported program that had the capacity to create sustainable livelihoods

- This project also resulted in substantial environmental benefits by creating a smoke free environment, where trees would be spared, and the soil improved due to the biogas slurry that is a by-product of the biogas plant.

Sustainability Implications

- The innovative problem solving approach designed by BGP of combining small seed funding, community labour, and its own contribution, to facilitate the access of a community to a government development scheme that was earlier out of its reach, can be replicated in other areas to ensure the inclusion of similarly challenged sections of society
- The formation and capacity building of the SHG groups lends itself to the sustainability of efforts to develop this community, as BGP now has plans to link these groups to the Bank and introduce other income generating activities through them, such as a dairy
- The knowledge gained regarding the innovative use of bamboo or other locally available materials in the construction of the biogas domes, can be shared with other projects in areas where bamboo is locally available, to reduce the cost of construction

Using plastic waste to create community infrastructure

An Alternative Approach to Sustainable Plastic Waste Management and Resource Enterprise

Sacred Earth Trust
Maharani Road, Kalachakra Ground, Bodhgaya, Dist. Gaya, Bihar 824231
Period: December 2014 to November 2016
SGP Grant: ₹ 2,472,438 ($41,207)
Co-financing – In Cash: ₹ 175,000; In Kind: ₹ 409,500
Code: IND/SGP/OP5/Y3/CC/STAR/2014/56/BHR02

Sacred Earth Trust

Summary

Bodh Gaya, a Buddhist and Hindu pilgrim centre and a UNESCO world heritage site in Bihar, has a huge floating population of pilgrims for six months of the year. This impacts the surroundings due to the waste generated by pilgrims, polluting land, water and air. Plastics waste also poses a major threat to the waste management facilities in the city. Sacred Earth Trust (SET), an NGO, addressed this problem by mobilising the community members and other NGOs to manage the waste by setting up a Recycling and Eco Training Centre. By training the local people, especially the Dalit community, in the disposal and management of waste, the project provided livelihood and income generation opportunities to more than 150 people.

Moreover, using a simple technology, plastic waste was compressed and converted into blocks which were used for construction purposes, especially construction of toilets and roads. This solution was validated when the toilets thus constructed withstood an earthquake of 5.5 Richter magnitude.

Project Snapshot

No of people impacted/provided livelihood	164
Waste management technology used	Compression of plastic waste to produce blocks which would be used in the contruction of toilets and roads
Institutions established	Recycling and Eco Training Centre

Indicators Achieved

Tonnes of CO2 Emission Reduction Achieved through Appropriate Energy Efficient Technologies by end of Project	Number of Panchayats incorporate Sustainable Management Practices into Village Level Resource Use Plans	Number of Women Groups Formed/ Strengthened for Planning and Sustainable Natural Resource Management
350	1	3

Background

Given the floating population and the lack of an adequate and responsible waste management system, Bodh Gaya faced great difficulty in coping with the enormous waste generated, especially during the tourist season. Lack of awareness among the people about the impact of poor waste management, and the resultant environmental pollution on climate change, health and well-being, added to the problem.

On the other hand, people were struggling to make ends meet and waste management was perceived to be a lower priority in view of the poverty. This needed to be addressed in a sustainable manner with a range of interventions that ensured livelihood opportunities as well as a solution to the waste generated. It was also important to make the project sustainable by establishing an eco training and recycling centre so that more people could be trained and the waste would be managed by the community.

Objectives

- Reduce waste and environmental degradation by setting up a recycling and eco training centre, and demonstrating good practices in the disposal and sustainable management of waste
- Raise awareness and resolve issues by developing systems for training and educating local people through identified courses as part of the eco centre's activities
- Create job and business opportunities for local people through acquired skills in all aspects of sustainable and eco-friendly waste management and related activities in order to alleviate poverty
- Increase mindfulness towards environmental issues in the community by motivating behavioural change among young people through education and training

Implementation

- Establishment of a Recycling Centre and Eco Training Centre to enable and empower local people to develop sustainable solutions to the problem of waste
- Participation of more than 40 women and 30 men from the Dalit community along with 70 women already working on a sewing project for making bags
- Providing full time employment to 24 persons in managing the operations of the recycling centre
- Making arrangements to collect plastic wastes, wash them and compress them into building blocks that can be used for the construction of public toilets, roads and any other purposes as identified by the community
- Usage of a low technology solution to transform waste into blocks through a compression machine
- Undertaking research to identify and deploy appropriate technology to meet local needs, to test the building material for durability in various climatic conditions, and to determine improvements to be made for different types of constructions in the future
- Increasing the number of toilets constructed using earth bags and blocks made of compressed plastic – as the technology used was validated when an earthquake of 5.5 magnitude on the Richter scale caused no damage to the toilet structures; this also helped utilise about 5000 kg of plastic waste
- Designing and conducting training, consultancy and awareness programmes supported by professionals from relevant backgrounds functioning as volunteers

Innovation

- SET's approach to waste management is of low dependence on municipal authorities and high involvement of community members.
- The approach demonstrates a truly effective model that responds to the local situation – a pilgrim place with a large floating population during six months of the year and the waste they generate.
- This model uses volunteers who can take on larger responsibility of keeping Bodh Gaya clean.
- Collecting, cleaning and compressing the waste, and deploying it to an alternate use, increases the multiple use life cycle of materials, thus reducing pressure on further production. A truly effective model has thus been created in a town of global significance.

Learning

- Motivation of the community to help resolve its problems is a major attribute that leads to successful outcomes.
- SET's project is an apt blend of a situation creating a need and a simple approach to address the problem, executed well by ensuring commitment of the stakeholders.

Sustainability Implications

- This project could be a model for other NGOs in other cities in that it not only addressed management of waste in a pilgrim city but also found alternate uses of waste through a simple technology.
- Institution building/strengthening (eco training centre and recycling centre) ensures that the project sustains for a longer period and provides livelihood opportunities to youth and women through training/capacity building programmes.
- SET could work to step up advocacy to make an impact on visitors and residents alike to reduce waste generated or at least begin by disposing it in a responsible manner; this would help reduce the work burden of SET and allow them to increase their coverage area.

Scaling up a successful alternate energy environment and livelihood program

Scaling Up Focus on Alternate Energy Resources, Livelihoods and Better Quality of Life for Tribal Communities

Vivekananda Trust
771/B, 5th Cross, Roopa Nagar, Mysore, Karnataka 570026
Period: July 2013 to July 2015
SGP Grant: ₹ 2,031,000 ($33,850)
Co-financing – In Cash: ₹ 9, 63, 117; In Kind: ₹ 3, 63, 950
Code: IND/SGP/OPS/Y3/STAR/2013/6/KAR03

Summary

This case is an example of efforts to scale up an already completed activity by extending it to more villages and households, especially on a proactive demand from the community and institutions. The target group was was heavily dependent on the nearby forests – B.R. Hills Wildlife Sanctuary – which was leading to deforestation; almost 30% reduction in the forest cover was estimated in the last 20 years due to the community's energy needs. Vivekananda Trust (VT), through this project, installed smokeless cook-stoves that reduced carbon emission and use of firewood. The project also undertook tree plantation – 500 saplings – with the help of SHGs and students in the area towards greening of the villages. Besides this, an extensive skill development program was carried out for women SHGS and others.

Project Snapshot

No of villages benefited	9
No of families benefited	1000+
No of smokeless cook-stoves installed	More than 1000
Amount of fuel wood saved through use of cook-stoves	1500 mt/year (1000 cookstoves x 4 kg. wood/day x 365 days)
No of saplings planted in the villages	500
No of person days saved due to the stoves	9000 (valued at ₹ 1,350,000 cook-per annum
Savings in treatment cost due to improved living conditions	₹ 2000 per family

Indicators Achieved

Land Brought Under Sustainable Land and Resource Management (Ha.)	Dry Land Agriculture Lands Brought Under SLM with Improved Vegetative Cover (Ha.)	Tonnes of CO2 Emission Reduction Achieved through Appropriate Energy Efficient Technologies by end of Project
109	18	2745 mt

Background

The forest based community in the project villages were heavily dependent on the neighbouring forests for their requirements of cooking fuel. With increasing population, the forests were getting denuded. In order to reduce their dependence on forests, VT introduced smokeless cook stoves which also aided in reducing the drudgery of the women. Reforestation was also an important factor to ensure that the green cover is maintained. The youth and women in the villages needed skill based training to enhance their income generating capacity which would ensure a sustainable livelihood for them and wean them from forest dependence.

Objectives

- Reverse the process of deforestation and promote climate change mitigation in the fringe areas falling under the B.R. Hills Wildlife Sanctuary by providing livelihood options to tribal communities
- Build convergence with state supported initiatives and schemes relating to energy and environment, in order to counter climate change

Implementation

- Formation of Village Development Committees (VDCs) in each of the nine targeted villages, comprising members who are opinion makers like teachers, anganwadi workers, village heads and members of women SHGs who were involved in developing Village Resource Plans by conducting PRA exercises
- Formulation of plans in consultation with the Panchayat (local self government body) to avoid overlap of programs
- Short-listing of prospective SHGs with good track record of cohesiveness, bank linkage and re-payment
- Awareness creation among 1500 school children and parents about the adverse impacts of deforestation, global warming and climate change through interactions, drawing and painting competition and essay writing
- Skill development for livelihood improvement through training of youth: electrician, motor rewinding, computer courses, mobile repairing and plumbing for boys; tailoring and embroidery for girls
- Selection of beneficiaries willing to provide cash co-financing of ₹ 300-400 for taking up energy efficient cook-stoves
- Organising exposure visits for SHG leaders to the earlier project areas for exchange of learnings

Innovation

While projects bring benefits to the target groups, sustaining the activities is difficult, mainly due to lack of funds and inability to scale up to cover larger number of people. Scaling up requires a multi-pronged approach of livelihood options, conservation of resources and utilising existing schemes for the benefit of the community. This is what VT has been able to achieve through this project, with its focus on non-land based livelihood options and energy conservation through smokeless cook stoves.

Learning

- While a skill development programme looks attractive, youth who are earning about ₹ 300-400 through unskilled labour find it difficult to attend these programs due to the loss of income. Hence it was necessary to provide them a stipend to compensate their wage loss so as to enable them to undergo skill development training.
- Capacity development needs to be seen as a long term and continuous process in order to enable SHGs to move from generation of small savings to higher

income generation activities. Measures also need to be taken to reduce spending of the generated funds on un-productive expenses.

- Concerted efforts need to be made to create a pool of local village masons/master trainers through a job oriented livelihood training to ensure sustainability of the program.

Sustainability Implications

- In order to reduce tribal communities' dependence on forests, capacity building and skill development of the community in non-land based income generating activity suitable to the needs of the community is required.
- Convergence of project activities with government schemes enhances the benefits of the project to the community.

Promoting resilient low carbon coastal habitats

Creating Responsible Actions for Promoting Resilient, Low Carbon Construction for Better Environment and Livelihoods in Rural Odisha

Co-Operation For Rural Excellence
Baishnabi Vihar, Jajbhairab Nuagaon, P.O. Agrahat, Charbatia, Dist. Cuttack, Odisha - 754028
Period: December 2014 to December 2016
SGP Grant: ₹ 1,812,000 ($30,200)
Co-financing – In Cash: ₹ 2,400,000; In Kind: ₹ 583,222
Code: IND/SGP/OP5/Y3/CC/STAR/ 2014/63/ORR06

Summary

The poor in the coastal regions of Odisha are vulnerable to natural disasters which lead to loss of habitation and destruction of land resources. Added to this, landlessness, dependence on subsistence agriculture and migration in search of work, leads to instability and unemployment. Cooperation for Rural Excellence (CORE) focused on developing integrated habitats, with housing, water and sanitation facilities, along with livelihood provision. This initiative also helped strengthen the village governance institution – the Panchayat – in playing a significant role in the process of designing and management of the village habitat system, with the participation of the beneficiaries in the habitat development process. CORE also nurtured a resource centre that helped build capacity of SHGs, especially in technology for the production of sustainable building materials.

Background

The poor in the coastal regions of Odisha constantly suffer due to cyclones, floods and tsunamis that wreck their poorly built habitations year after year, preventing them from achieving stability in their lives. Destruction of land resources also affects their livelihoods. Added to this is landlessness and unemployment. It was not enough to provide housing to the affected people; the need was also to create opportunities for livelihood generation through capacity building, strengthening of institutions, linking to financial resources and introduction of low cost and sustainable technology. CORE rose to this challenge by utilising building material made of waste material and fly ash, constructing habitats that include sanitation and water facility, organising artisanal SHGs linked to a resource centre that provides construction services locally, and linking the SHGs to bank schemes.

Project Snapshot

No of families impacted	1450
No of villages/Panchayats impacted	28 villages/10 Panchayats
No of enterprises established	28 (group/individual)
No of households provided with drinking water facility	500
No of toilets constructed using fly ash based building material	2450
No of artisanal SHGs trained and linked to resource centre	10
No of SHGs linked to credit facilities	50

Indicators Achieved

Land Brought Under Sustainable Land and Resource Management (Ha.)	Dry Land Agriculture Lands Brought Under SLM with Improved Vegetative Cover (Ha.)	Tonnes of CO2 Emission Reduction Achieved through Appropriate Energy Efficient Technologies by end of Project
60	60	680

Objectives

- Demonstrate improvement in sustainable quality of life and tangible reduction in vulnerability of rural families through interventions that enhance income and improve habitat conditions
- Link rural poor families in the target area with appropriate shelter, water and sanitation using low carbon resilience technologies, and finance to access the same
- Build capacities in rural unemployed women and men for taking up production and supply of materials, building elements, and skills in a financially sustainable manner
- Build capacity of local institutions to develop and implement action plans related to physical and economic asset creation in villages
- Consolidate management capacities of local civil society and governance institutions to provide facilitation support to "people's habitat and livelihood processes"
- Build a scalable model of 300 villages to demonstrate sustainable improvement in people's quality of life through provision of integrated habitat

Implementation

- Reaching out to 1450 families in 28 villages in 10 Panchayats of coastal Odisha and establishing services for developing structurally strong and cyclone resistant habitats (shelter, water, and sanitation)
- Linking of housing cooperative of women SHGs to habitat linked credit facilities
- Establishment of 28 group/individual building material production and sanitation enterprises that provide products and services to the village community, government projects and homeowners on commercial terms
- Construction of 2450 toilets using 750 mt. of waste fly-ash that helped in reduction of CO_2 emission as well as reduction in construction cost of a toilet by ₹ 3500
- Provision of drinking water through roof rainwater harvesting and improved sanitation facilities for 500 households
- Training of 10 artisanal self help groups and linking them to the Ashraya Resource Centre, an established institution within the project region providing services to homeowners and village community groups

- Raising of around ₹ 12,00,000 as co-financing and linking to banks' lending schemes for promoting alternative livelihoods related to building construction, water and sanitation
- Building of self-reliant and enhanced capabilities for managing and maintaining local initiatives and resources through local civil society institutions
- Utilising environmentally hazardous waste generated to produce materials for buildings, and using fly ash as a substitute building material

Innovation

- CORE took a long term approach to the subject of human living – instead of merely providing housing, water and sanitation facilities were also ensured.
- Reduction of vulnerability due to natural disasters was achieved through implementing sustainable building technologies like utilisation of waste material and fly ash as building material.
- Linking habitat to livelihoods by capacity building SHGs, nurturing a resource centre that would provide building technology services to the institutions and home owners in the area, and linking the SHGs to financial institutions, ensures that the project is not a one off initiative but a sustainable one.

Learning

- It is important to address the needs of quality of life rather than just plan to build a roof over the head of the poor. The model implemented by CORE which is rooted in local needs, materials and technology developed based on availability of materials, will aid sustainability of the project.
- Institutions should not be wedded to any single approach but need to keep constantly evolving to review and try out alternatives that can benefit the poor by offering sturdy and affordable means of housing.

Sustainability Implications

- Using sustainable building technology to provide affordable housing as in this project sets an example for others to reduce pressure on conventional building technologies that use energy intensive building material.
- The success achieved by CORE with this project demonstrates the viability of its approach and can be scaled up by linking to larger funded initiatives.
- The search for local material that can be sustainably utilised for local needs should form part of ongoing efforts to keep materials affordable while ensuring environmental conservation.
- CORE could also get their technologies and approaches evaluated periodically to offer technologies that are relevant and appropriate under the circumstances.

Preventing land degradation through sustainable resource management

Promoting Sustainable Use of Natural Resource Management by Arresting Land Degradation in 10 Villages of Hazaribag District, Creating Alternative Source of Livelihood for 728 Families

Manav Vikas
P.O. Ichak, Dist. Hazaribagh, Jharkhand 825 402
Period: 25 December 2014 to 24 June 2017
SGP Grant: ₹ 1,926,000 ($32,100)
Co-financing – In Cash: ₹ 873,600; In Kind: ₹ 542,500
Code: IND/SGP/OP5/Y3/MF/STAR/2014/54/JKD02

Summary

Ichak is the poorest block in Hazaribagh (Jharkhand), one of the 100 poorest districts in the country, with 90% of the population dependent on rainfed agriculture for their livelihood. With climate change and land degradation affecting agriculture, the farmers are losing interest and migrating to towns for work. Manav Vikas (MV) addressed these issues by capacity building the community in efficient management of natural resources, best practices in agriculture and allied sectors, and watershed development. The NGO also created awareness about government schemes for rural development so that the villagers could access the benefits of these schemes. These activities enabled the villagers to bring land under improved cultivation. This is a good example of awareness bringing in development, especially in the agriculture and allied sectors.

Project Snapshot

No of SHGs formed/women involved	33/352
Land brought under cultivation through improved soil and water management practices	153 ha
Amount of organic manure generated and used	122 quintals
Water sources enhanced	Construction of 8 new ponds and 20 wells; rejuvenation of 6 defunct ponds and 4 check dams

Indicators Achieved

Land Brought Under Sustainable Land and Resource Management (Ha.)	No. Of biogas units installed	Number of Women Groups Formed/ Strengthened for Planning and Sustainable Natural Resource Management
153	178	33

Background

The Ichak region remains backward in spite of a series of central and state government schemes launched for rural reconstruction, most of which are not availed largely on account of lack of awareness among the people. Poverty in such regions after six decades of independence pointed to the need for improved awareness creation among the people regarding government schemes available and enabling convergence of schemes to implement a host of improved measures in agriculture and allied activities.

Objectives

- Improve food security of small, marginal and landless farmers, including women headed families, through land development, farm bundling, and other capacity building trainings
- Increase integrated farming activity, including agricultural and horticultural inputs, for recovery of livelihood systems of the most vulnerable landed families in drought hit villages
- Strengthen competence of communities, CBOs, and grassroots organisations by adopting best practices in agriculture, allied sectors and efficient management of natural resources
- Integrate watershed management with agricultural productivity, irrigation and water for human and animal use, agro-forestry/agro-horti-pastoral and livestock activities
- Converge flagship government schemes/programs earmarked for rural/village development

Implementation

- Formation of Village Development Committees (VDCs), village Forest Protection Committees (FPCs) and SHGS – 33 SHGs involving 352 women

- Development of micro plans of 10 villages covered under the project and establishing norms for regular meetings and responsibilities
- Levelling and bunding of waste land, rejuvenation of defunct water structures and construction of wells through Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA)


Uneven and infertile land


Current status of the plants

- On the agricultural front, supply of seeds, saplings, and tools for vegetable farming; establishment of poly houses with drip irrigation as demonstration units for nursery raising; and providing paddle pumps to widows and women headed families
- Capacity building initiatives: two-day training organised for promotion of organic farming; training of Panchayat Sewaks (local government volunteers) for awareness on measurement issues; and a two-day training of SHG functionaries on leadership and group management
- Training of Panchayati Raj Institution (PRI) members on Forest Rights Act and Right to Information Act
- Other trainings implemented: technical topics such as SRI (System of Rice Intensification) paddy cultivation, animal husbandry, soil management and management of herbal gardens
- Organising exposure visits for interested and needy groups and PRI members to nearby areas that demonstrated successful models
- Convergence of government schemes through organising: celebration of Employment Day for creating awareness about MNREGA; campaigns in all project villages; district level convergence workshop with multi-stakeholder participation
- Monitoring of work to ensure achievement of planned activities and outcomes, and documentation for sharing the learning and outcome widely

Innovation

- The project took an approach that addressed long term and short term concerns through a planned and scientific approach that ensured good results.
- Planning the activities in an integrated manner – capacity building on agricultural practices, awareness creation on various related issues, and convergence of existing government schemes, ensured an overall improvement in the lives of the people of this region who had been suffering from neglect, and helping them to take up agriculture in a more purposeful manner.

Learning

- Engaging and enabling the community to address aspects that concern their future proved it to be the best approach to achieve results which otherwise seemed infeasible.
- Strengthening traditional occupations such as agriculture and allied activities add meaning and purpose to the lives of the rural poor, and encourage them to stay back and tend their land which helps conservation of the environment.
- Awareness of government schemes can make a huge difference to the lives of the poor who can then claim access to them as a right. Increasing such efforts can lead to a snowballing of demand for support that can be addressed well by the local governance system.

Sustainability Implications

- With improved awareness of government schemes the local population can tap into support mechanisms formulated for their benefit and also bring about improved accountability to the functioning of the local government.
- Financial literacy and linkages can be speeded up as a consequence of the community's heightened awareness of their ability to tap the potential benefits available within their region.

Supporting climate change mitigation through sustainable farming practices

Developing Alternative Energy Source, Climate Friendly Farming Practices and Gender Sensitive Enterprises for Supporting Climate Change Mitigation and Viable Rural Livelihoods

Peekay Tree Crops Development Foundation
MIG-141, Gandhi Nagar, Kochi, Kerala 682020
Period: July 2013 to July 2015
SGP Grant: ₹ 2,000,000 ($33,333)
Co-financing – In Cash: ₹ 2,763,000; In Kind: ₹ 580,000
Code: IND/SGP/OP5/Y1/RAF/2013/7/KER01

Summary

Peekay Tree Crop Development Foundation (Peekay) initiated activities in the project village to bring awareness about climate change impacts and the need for mitigation actions; to conserve resources and to promote agro-biodiversity through Green Farming models. In a place where cattle rearing was common, the NGO introduced and set up biogas plants so that energy for household applications is made available. In order to create a carbon sink and promote agro-biodiversity, green farming models that incorporate useful tree species, arable crops including fodder and livestock management were introduced. To provide livelihoods, skill training was imparted to men, women and youth and 30 micro-enterprises set up. Market linkages through setting up of a community marketing facility centre and a permanent training institution were established to ensure sustainability as well as community ownership of the project. In short, Peekay had identified the lacunae – techno-economic support to the local community for venturing into economically viable and gender sensitive activities to promote balanced development with conservation of the natural endowment.

Project Snapshot

No of biogas plants installed	60 (as against the planned 50) – potential to reduce 29 mt. of CO2 equivalents annually
No of LPG gas cylinders saved per household	8-10

Area of land brought under improved land use (sustainable forestry, agriculture & water management practices)	46 ha
No of new trees planted	4500 (annual carbon sequestration of 188.5 mt)
Animal husbandry activities promoted	1700 poultry birds & 25 goats
	integrated in the green farming models along with trees
No of microenterprises promoted	30
No of people trained	400 men & 800 women
Infrastructure/institutional achievements	Establishment of permanent training institution and community marketing centre; registration of Society for Women's Welfare

Indicators Achieved

Land Brought Under Sustainable Land and Resource Management (Ha.)	Agriculture Lands Brought Under Tree-based Integrated Farming System with Livestock as a component (Ha.)	Tonnes of CO_2 Emission Reduction Achieved through Appropriate Energy Efficient Technologies by end of Project
85	28	1,370

Background

In the project region, firewood and petroleum-based products constituted the primary sources of cooking energy. Although cattle rearing was common, it was not linked to biogas production and use as energy for household applications. Scanty vegetative cover and poor quality of the soil caused depletion of the natural resource base and hindered efficient carbon sequestration and storage, resulting in accelerated emission of greenhouse gases. The local community had not much awareness of the likely impact of climate change on farming and general living conditions. Opportunities for income and employment for a sizeable section of the population, particularly women, was low. The farming community did not have facilities to market their produce, especially organic produce. Peekay thus initiated community-based integrated activities targeting all of the above described

problems and also coopted the local governance and departments to provide support and institutionalise the activities. This was coupled with capacity building and training of all sections of the community.

Objectives

- Promote the generation and use of biogas energy for farm-households and community in order to minimise dependence on firewood and fossil fuel-based non-renewable energy
- Popularisegreen farming models as climate resilient production systems for assimilating atmospheric carbon and storing it in vegetation and soil; resource conservation and promoting agro-biodiversity
- Make village youth conscious of the likely impacts of climate change and train them to function as local leaders in propagating mitigation and adaptation strategies
- Organise skill development trainings and promote gender sensitive rural enterprises to support income and employment generation locally

Implementation

- Formation of Community based Organisations (CBOs) in the 5 Panchayats of the project to provide leadership in the implementation and monitoring of the project
- Selection of project beneficiaries and subsequent follow up by the CBOs to instil confidence in them to accept the project as their own
- Establishing linkages with Panchayati Raj Institutions (PRI) and departmental agencies in the area for accessing techno-economic support
- Encouraging financial participation of local institutions and community members to make them effective owners of the project
- Establishing rapport with state development departments and facilitating their technical and financial participation
- Installation of 60 biogas units and several smokeless chulhas as alternative energy source in households, through community participation
- Supporting agro-biodiversity through developing 100 multi-storey cropping and green farming models comprising useful tree species, arable crops including fodder, and livestock components

- Establishing 14 micro-enterprises under the aegis of men and women SHGs to ensure regular income and employment
- Organising 20 training programmes and seminars for rural youth and Panchayat level functionaries to upgrade their skill and knowledge in climate resilient adaptation technologies

Innovation

- Peekay has seeded a comprehensive, environment friendly and multi-pronged approach as a means of sustainable livelihood option through micro-enterprises; agro-biodiversity through green farming models; and resource conservation through biogas plants and smokeless chulhas.
- The approach of training and capacity building covered not only the beneficiaries of the project but also the PRIs to enable them to lead and take ownership of the project.

Learning

- To bring in awareness and action on climate change issues, projects have to be comprehensive and integrated, ensuring involvement of community members, PRIs, departments and other agencies.

Sustainability Implications

- Community initiatives need to be managed and taken forward for ensuring sustainability by increasing the beneficiary base and involving departments and PRIs.
- Institution building (permanent training centre, community marketing centre, women's welfare society) establishes community assets that help in sustaining the local efforts as well as replicating the same in other areas.

Clean energy for sustainable land and resource management

Alternate Renewable Energy for Sustainable Land and Resource Management

Lok Paryavaran Shiksha Sansthan
Sitakot Gongarh, P.O. Saunf, Dist. Tehri,Uttarakhand
Period: June 2013 to June 2015
SGP Grant: ₹ 1,932,000 ($32,200)
Co-financing – In Cash: ₹ 877,800; In Kind: Nil
Code: IND/COMDEKS/SGP/2013/03

Summary

In the harsh and hilly terrain of the Himalayan region, where employment opportunities are few and forests that provide people a means of livelihood are denied to them due to conservation needs, the people have necessarily to depend on animal husbandry and agriculture. Lok Paryavaran Shiksha Sansthan (LPSS) initiated a project to reduce the drudgery involved in their lives, especially in women's lives, as they spend 16-18 hours in collecting fuel wood, fodder and drinking water, by providing them access to livelihood activities – vegetable cultivation, spice processing and animal rearing, as well as non-farm activities - and credit facilities. Water mills were provided as part of the water energy component which enabled power generation as well as running mills to earn a living. Selected households were also provided biogas units which enabled them to use the dung and waste water to generate biogas to fuel their cooking needs.

Project Snapshot

No of SHGs formed	100
No of women trained in sewing and embroidery	130
No of watermills built	30
No of biogas plants installed	12
No of smokeless chulhas provided	63
Income generated from power and wheat grinding using watermills	$56,727
Enhancement of income due to utilisation of biogas	$2,618

Amount saved due to avoidance of tree cutting (use of watermill and biogas)	$35,635
Number of beneficiaries	Female: 3282; Male: 3295; Children: 1200

Indicators Achieved

Reduction in carbon emission (Mts)
400

Background

The Himalayan region is characterised by a certain vulnerability attached to daily living and the role of nature within one's life being respected. Employment opportunities are few and forests that can provide a means to daily living and livelihoods have been cordoned off to pursue conservation approaches leaving the community to depend on animal husbandry and agriculture.

LPSS initiated this project with a view to reduce poverty through pursuit of economic growth in the region where few options exist. People, particularly women, are resource poor and heavily dependent on environment for meeting basic needs, usually working for 16-18 hours a day out of which around 8-10 hours are spent in collecting fuel wood, fodder, and drinking water. Drudgery in terms of carrying fuel wood and fodder as head load is enormous, both in terms of time of spent and resultant fatigue. This also results in neglect of health and children.

Objectives

- Reduce drudgery in people's lives by demonstrating innovative approaches to enhance livelihood opportunities for the poor through sustainable management of micro-hydro power watermill, micro watermills, and biogas plants in selected project areas
- Protect, conserve and ensure sustainable use of natural resources and ecosystem services to maintain the livelihoods of the poor
- Mobilise and involve local communities to use mechanical and electrical power generated from these Micro Hydro Power watermill for various use at the village level
- Revive and upgrade traditional watermill technology into community managed advanced watermills

- Develop replicable models for up-scaling in other parts of the state and region
- Install biogas plants fed with dung and waste water to produce enough biogas to sustain the families' cooking needs and to replace firewood and kerosene

Implementation

- Conducting a baseline survey through participatory processes, leading to the formation of 40 SHGs whose capacity was strengthened to function as an institutional system
- Creation of bank linkages and opening of accounts for obtaining credit facilities for pursuit of livelihoods
- Providing exposure to various livelihood activities that were feasible for them to pursue in such a region: vegetable cultivation, spice processing, and animal rearing - all three being endemic to the region
- Awareness and capacity building on other non-farm activities that had potential, such as tailoring, Napier grass production, and manufacture of smokeless chulhas
- Capacity building for project management members and SHG heads for capacity building on subjects such as productivity and entrepreneurship
- As part of the water energy component,two efforts initiated:
    - Four micro hydro power multifunctional watermills capable of functioning as a mill as well as generating electricity were installed, with support from technical staff of the State Energy Department who assisted in site selection and installation
    - 26 watermills were installed along rivulets, each catering to a cluster of five villages, that could grind 400 kg of wheat a day, enabling the operator to earn upto ₹ 300 a day

- As part of the bio-energy component, a few households were chosen as demonstration locations for installing biogas plants that helped show the community the virtues of using such a means for cooking: savings in time and cost, with environment conservation. In addition smokeless chulhas were installed in 63 households.
- These two interventions enabled community members to save time and encouraged them to pursue sustainable practices in relation to natural resources, or for personal and financial improvement.

Innovation

- The project has achieved the use of a combination of traditional and new technologies to meet human needs by building sustainable dependence on natural resources available to the community members.
- The project has managed to rebuild the social framework of interdependence of humans and nature, especially in remotely located communities.

Learning

- It is important to have improved channels of internal and external communication and linkage between organisations and agencies involved in projects to ensure effective implementation.
- Knowledge of local social structure is important in project implementation in order to make livelihood activities sustainable.
- Since the project area is based in harsh hilly terrain, availability of labour and transportation of raw material can offer serious challenges. Hence there is a need to look for local solutions to local problems.

Sustainability Implications

- Considering the multiple options the community has been exposed to and the capacity building provided, the NGO partner could help establish linkages to equipment, supply chains and markets for the community members to effectively scale up their activities. There is much demand in the plains for such market produce and community members can benefit if market linkages are strengthened.

Ameliorating work conditions for rag pickers

Sustainable Management of Plastic Waste and Increased Livelihoods for Sarthak Karmis in partnership with Bhopal Municipal Corporation

Sarthak Samudayik Vikas Avam Jan Kalyan Sanstha
597, Vargikrit Bazar, Near Golden Transport, Berasia Road, Bhopal, Madhya Pradesh 462018
Period: 2010 to 2014
SGP Grant: ₹ 2,975,750 ($49,596)
Co-financing – In Cash: Nil; In Kind: ₹ 20,795,780
Code: IND/SGP/OP5/Y3/CC/STAR/ 2014/55/MP05

Summary

Sarthak, an NGO in Bhopal, initiated a project to manage the waste being produced in the city and also to ensure a dignified livelihood to rag pickers. Though Bhopal Municipal Corporation (BMC) has arrangements to provide garbage bins and collect waste from these regularly, it was just not enough to handle the enormous amount of garbage produced. Rag pickers collected plastic and other waste from a common dumping site in very unhealthy conditions. Strengthening the waste management system of BMC, Sarthak mobilised the rag pickers into SHGs, and provided them training as well as equipment and transport, before deploying them into defined areas for waste collection from households. As an extension of this, a paper bag making unit and a vermicompost unit were set up, which were managed by trained SHGs of rag pickers. The plastic waste was collected and sent to cement manufacturers as a substitute for coal. The rag pickers were also linked to social protection schemes, and several other welfare measures introduced for them.

Project Snapshot

Amount of garbage produced	480-500 mt/daily
No of biogas units installed in different parts of Bhopal	55
Amount of plastic recycled	32,781 mt (in 2016)
No of SHGs formed	250
No of rag pickers mobilised and trained	8654
Average income post project	₹ 250-300 (from ₹ 100-120)

Indicators Achieved

Tonnes of CO_2 Emission Reduction Achieved through Appropriate Energy Efficient Technologies by end of Project	Number of bio-gas units installed	Number of Women Groups Formed/ Strengthened for Planning and Sustainable Natural Resource Management
	55	5

Background

The increase in Bhopal's population (from 1.48 mn in 2001 to 1.75 mn in 2011) was compounded by increased migration from other districts and states. All these resulted in slums as well as generation of garbage to the tune of 480-500 mt per day, of which 10% was non-biodegradable plastic. Bhopal Municipal Corporation had a system of providing garbage bins in each ward and collecting the garbage regularly, it could not cope with the amount of garbage produced. A dumping site of 40 acre had become an unhygienic mass and blocked use of fertile land.

Sarthak, an NGO, carried out an assessment of the situation in 2008 and identified as many as 1,465 rag slums and more than 23000 rag pickers. A significant number of rag pickers were males in the age group of 15-30 years with only 20% being literate, with street children also found engaged in the activity. Most of them belonged to scheduled and backward castes and earned ₹ 100-150 a day. A substantial number of them were addicted to alcohol and drugs and engaged in gambling and unsafe sexual activity. Limited access to information and to social protection schemes made the situation worse. It is in this setting that Sarthak planned a project to addressing the waste issue and other problems like pollution brought about by neglect of urban waste. The project was also aimed to improve the welfare of the rag pickers.

Objectives

- Address the management of waste and develop a sustainable system for its processing in the 70 wards of Bhopal city, especially the plastic waste
- Improve the socio-economic condition of the more than 2000 rag picker families
- Establish vermi-composting, paper bag and cotton making units
- Make Bhopal a polythene-free city through a sustainable model that other cities can emulate

Implementation

- Sensitisation of key stakeholders, i.e. Municipal Corporation officials, ward corporators, residents' welfare associations and influential persons located within the project area
- Strengthening the waste management system being implemented by BMC
- Organising of rag pickers into SHGs of 10-12 members, building their capacities to implement and manage door-to-door collection within a defined geographical area, each SHG covering 100-125 households, and linking them to the waste management system of BMC
- Providing them with garbage collection bags and cycle rickshaws
- Linking the rag pickers (more than 18,500) with social protection schemes like ration card, identity card, insurance and mediclaim, besides health check ups
- Enabling marketing of plastic, compost and paper bags to increase their income
- Establishing vermicompost units and paper bag making units to recycle waste; training rag pickers the production and marketing of the products recycled and developed from waste material
- Encouraging exposure visits to Bhopal from other cities like Indore and Jabalpur so the project can be replicated in those cities

Innovation

- Sarthak's commitment and response to the growing menace of waste in one of the state capitals of India is appreciable, especially since it involves ensuring the well-being of rag pickers who contribute to cleaning up the city.
- This project demonstrates the ability of civil society to assist the government in its responsibility while working for the betterment of those engaged in the effort.

Learning

- Sarthak has effectively demonstrated how a multi-stakeholder collaboration can be engineered to work for the benefit of the larger society, keeping the welfare of the poor and marginalised in view.

Sustainability Implications

- Efforts should be made to scale up the project in Bhopal city itself and to create awareness and bring in a sense of responsibility in citizens to manage their waste.
- The Bhopal model can be adapt suitably for other cities to counter the waste management problem and ensure the welfare of rag pickers.

Improving energy efficiency in foundries through design modifications

Energy Efficiency in the Use of Cupola and Energy Conservation Methods in Small Scale Foundry Sector

The Institute of Indian Foundrymen
67, Tughlakabad institutional Area, New Delhi-110062
Period: 2010 to 2014
Period: June 2007- March 2012
SGP Grant: ₹ 1,972,500 ($32,875)
Co-financing – In Cash: ₹ 4, 86,203; In Kind: Nil
Code: IND50 SGP/OP4/RAF/07/06/DEL/06

Summary

The Institute of Indian Foundrymen (IIF) undertook a project to develop and demonstrate potential energy savings in various operational areas of foundries. Detailed energy audits were conducted in six foundries in Jalandar and Ludhiana districts highlighting the scope and payback period on investments. The recommendations made were in the areas of melting and operation of auxiliary equipment used in foundries such as cooling towers, compressors, pumps, motors and induction melting. In the operational areas of foundries, recommendations covered inefficient use and selection of equipment, especially cupolas (device for melting), to incorporate design modifications and processes. This raised a potential of 10-15% energy saving during melting, which in turn would reduce the consumption of met-coke and emission of GHGs, while also improving the bottom line. This was achieved through sensitisation and awareness programs for foundry units in the small and medium enterprise (SME) sector, recommendations for an appropriate technology mix for energy efficiency, demonstration of the benefits in select foundries and development of a toolkit for energy efficiency in the foundry sector.

Project Snapshot

Reduction in coke consumption	191 mt
Improvement in melt temperature	70°C (approx)
Improved melt rate of cupola	2.5 to 3 tonne/hour
Lower coke to metal ratio achieved	1:8 to 1:12

Indicators Achieved

Annual reduction in coke consumption (Mts)	Dry Land Agriculture Lands Brought Under SLM with Improved Vegetative Cover (Ha.)	Annual reduction in CO_2 emission (Mts)
191	NA	553

Background

The Institute of Indian Foundrymen (IIF) is a registered society with approximately 3,000 members drawn from cross sections of foundrymen in the country. There are about 4,500 foundry units across India, out of which 90% are SMEs and about 2,500-3,000 units use cupolas for melting. This provides a large potential to improve energy efficiency and cut down GHG emissions by adopting energy efficient cupolas, by proper measurements and controls of various parameters, and demonstrating opportunities in various operational areas of foundries. These measures would lead to a saving of at least 10-15% of coal during melting. Adopting appropriate processes and modifications would result in reduction of met coke consumption and GHG emission. This project was undertaken to develop and demonstrate the potential energy savings in various operational areas of foundries. The initial beneficiaries of the project were: Juneja Iron and Steels, Sharp Chucks, Laxmi Auto, RG Industries, Ramco Industries and Hindmurti, in the districts of Jalandhar and Ludhiana.

Objectives

- Conduct awareness programs through seminars/workshops to sensitise Micro, Small and Medium Enterprise (MSME) units about the potential of savings in various operational areas
- Bring out publications on topics such as efficiency in induction melting, ready reckoner on cupola and tool kits giving specific examples of possibilities, with facts and figures
- Conduct detailed energy audits in 5-7 units and prepare detailed reports giving specific recommendations on energy savings with investments required and return on investment
- Analyse and review the operation of cupolas in 5-7 units, develop energy efficient cupolas for adoption by small and medium units suitable to individual unit's needs, and demonstrate the outcome after installation of the modified

cupola furnace in terms of energy saving and reduction in carbon dioxide emission.

- Demonstrate reduction of GHG emissions by using energy efficient designs for cupolas in 40 industrial units and recommend energy saving measures in various operational areas of foundries, so that they can be replicated by other members too.

Implementation

- Conducting awareness programs to sensitide the SME foundry units about possible potential for improved efficiency in various operational areas through meetings and workshops based in cities
- Identification of a group of small scale enterprises in the foundry industry who were willing to take up the detailed energy audits: this was done through meetings, seminars, workshops and one to one meetings
- Carrying out a detailed energy audit with the help of experts in the selected foundries, with the costs being shared by the respective enterprises
- Encouraging an appropriate technology mix for the energy efficiency measures, especially a detailed design of energy efficient cupolas.
- Recommending possible improvements in operational areas by adopting more efficient equipment and through appropriate measurement and control, giving break up of pay-back period of investment
- Developing a tool kit on opportunities for energy efficiency in the foundry sector

Innovation

This is a well planned project to work with smaller foundries (GEF had already conducted a similar one with the larger steel rerolling mills sector), where energy efficiency can be obtained through specific and custom made changes in equipment including cupolas.

The industry body –IIF - not merely recommended, but demonstrated savings through a technical study, and brought smaller foundries on board to financially undertake the needed switchover to improved technology.

Learning

- In the manufacturing sector, especially in the case of SMEs, it is necessary to demonstrate financial savings for them to adopt measures for sustainability, as their goals are to pursue financial gain.

Sustainability Implications

- This project is highly replicable in other similar clusters and with other industry sectors as well. What is needed is an energy audit and recommendations for specific design and other changes in equipment and processes.
- Bringing MSMEs into the net of energy efficiency is a significant step as they often do not get the benefit of such measures due to their lower economic flexibility.
- An industry body taking the lead, rather than a government or individual industry, will have a greater impact as they will be able to demonstrate the changes required with better outcomes.
- It is also important to review newer technologies every decade or so, so that they can be modified and used appropriately in the respective sectors.

Reducing GHG emissions through energy efficient processing technology

GHG Emission Reductions through Use of Energy Efficient Technologies by Textile Processing Units in Tamil Nadu

Technology Informatics Design Endeavour

19, 9th Cross, 6th Main, Malleswaram, Bangalore, Karnataka 560003

Period: September 2006 to July 2009
SGP Grant: ₹ 1,623,447 ($27,057)
Co-financing – In Cash: ₹ 131,865; In Kind: ₹ 784,000
Code: SGP/GEF/IND/OP3/02/06/KAR 11

Summary

Technology Informatics Design Endeavour (TIDE) worked with about 500 local institutions and associations in Tamil Nadu to facilitate reduction in firewood consumption and carbon emissions by textile units. The textile processing sector in Tamil Nadu consists of textile bleaching, dyeing, sizing and calendaring units which consume unsustainable quantities of wood in energy inefficient stoves, to meet their thermal energy requirements. TIDE undertook a survey project in 2004-2005 with funding from the British High Commission and guidance from Tamil Nadu energy Development Agency, Chennai, to assess the potential for emission reduction through use of energy efficient technology by textile processing units in five districts. Based on the results of the survey, it was surmised that adoption of fuel efficient stoves and solar water heaters would conserve more than 30% of fuel consumed. Accordingly, the tiny and small bleaching and dyeing units chosen to benefit from the intervention were given fuel efficient stoves while the medium and larger dyeing, bleaching, sizing and calendaring units were provided with solar water heaters. Moreover, this also provided livelihood opportunities for entrepreneurs who would provide these equipment, while a support network would be established to deal in these products.

Project Snapshot

Amount of firewood saved during the lifetime of the products	22,000 MT
Total no of products (energy efficient stoves and water heaters) installed	120
No of entrepreneurs benefited through supply of equipment to textile units	6
Earnings of entrepreneurs	$ 20,000
Profits of entrepreneurs	$ 4000

Indicators Achieved

Tonnes of CO_2 Emission Reduction Achieved during life of products through appropriate Energy Efficient Technologies by end of Project	Number of products that facilitated emission reduction	Income for local entrepreneurs through the intervention	Number of groups benefited
30,000	120	20,000 USD	6 grass root entrepreneurs

Background

TIDE conducted a survey during November 2004-April 2005, with funding from the British High Commission and guidance from TNEDA, with the aim of assessing the potential for emission reduction through use of energy efficient technologies in textile processing units in the districts of Erode, Coimbatore, Karur, Dindigual, Madurai and Virudhunagar. The results of the survey indicated that, on an average, each dyeing stove consumed 150 - 200 kg of firewood every day, while the bleaching stoves were consuming about 400-500 kg. of fuel daily. Adoption of fuel-efficient stoves would conserve at least 30% of fuel consumed, while using solar water heaters would save much more.

Through this project, various segments of textile processing units (bleaching, dyeing, sizing, and calendaring) were chosen to benefit from the intervention, with the provision of . The tiny and small bleaching and dyeing units would benefit through use of fuel efficient stoves, whereas the medium and large bleaching, dyeing, sizing and calendaring units would benefit from use of solar water heating systems. The demand for these products also threw up livelihood opportunities for local entrepreneurs.

Objectives

- Create sustainable mechanisms for reduction of GHG emissions in textile processing units by addressing barriers that inhibited adoption of energy efficient technologies in the textile bleaching, dyeing and sizing units of Tamil Nadu
- Install at least 45 energy efficient stoves and 5 solar water heating systems paid for by the textile industry
- Develop a local sustainable network to promote and disseminate energy efficient/renewable energy technologies for various segments of the textile industry

Implementation

Demonstration of a package of energy efficient technologies in textile processing units, organised in partnership with technology developers/suppliers, industry associations, and government departments, to overcome knowledge/information barrier

- Technical monitoring undertaken to assess impact of installed demonstration units and assess potential for reduction of wood consumption in other segments of the textile processing sector
- Network created with Industry associations for information sharing, resource support, and technology delivery
- Establishment of demand for energy efficient technologies by developing and implementing market led activities
- Creation of a network of rural entrepreneurs to provide for construction of devices, with forward and backward linkages, to service the needs of the entire district and provide sales and after sales support to the technology adopter
- Data maintained in the format required for carbon trading and linkages created between industry associations (comprising members who have adopted fuel efficient technology) and agencies facilitating carbon trading
- Linking up the textile sector with financial institutions to obtain credit for procurement of firewood conserving equipment

Innovation

- This initiative of TIDE helped reduce pressure on forests and upgraded the technological process within the textile sector.

- There was a concerted effort to save costs for tiny, small and medium units while also helping save the environment.
- Being able to convince small manufacturers and process agents to convert to energy efficient equipment was notable since their focus is usually their own survival before turning attention to other needs.

Learning

- Institutionalising such efforts not only gives it the needed credibility but also improved chances of continual functioning.

Sustainbility Implications

- This process of identifying energy efficient equipment can also be extended to other industry segments that are dependent on natural resources for their process needs of heat or energy.

Combating drought and land degradation through rainwater conservation measures

Fofal River Command Area Development Project

Vruksha Prem Seva Trust
8, Krishna Palace, Gangajaliya Park, TimbaWadi Bypass Road, Junagadh, Gujarat
Period: 20 April 2013 to 19 April 2015
SGP Grant: ₹ 1,000,000 ($16,667)
Co-Financing – In Cash: ₹ 1,044, 500; In Kind: ₹ 742,618
Code: IND/SGP/OP5/Y3/STAR/2013/17/GUJ03

Summary

The project area – Junagadh - is a drought prone one where it was observed that the quantum of waterfall had improved but the land's geographical features make it difficult to retain water available from the seasonal Fofal River. Vruksha Prem Seva Trust (VPST) made water available by constructing a series of small check dams so that (a) additional crops could be sown; (ii) women's drudgery for water procurement for household as well as cattle needs was resolved; (iii) ground water level improved in wells; (iv) means of earning were re-established; (v) socio economic problems were addressed; and (vi) green cover improved as land degradation and environmental degradation took a backseat. This was achieved with the involvement of Panchayats and technical experts, besides the community members.

Background

In the drought prone area of Junagadh, given the recurrent drought conditions, the situation was very bleak since crop failure was a regular feature, leading not only to migration but also to degradation of land. While migration was increasing, education levels were dipping, with pressure on members to earn for family needs. Young men from these villages were facing difficulty in finding brides, thus causing social unrest.

VPSS realised that runoff of water could be controlled and utilised with the construction of check dams, thus reviving hope in the community. The check dams provided water for farming as well as improving the forest cover of the region, besides family needs.

Project Snapshot

Land Brought Under Sustainable Land and Resource Management (Ha.)	Number of check dams constructed	Beneficiaries	Number of trees planted	Number of rainwater harvesting structures built
300 Hectares	2050	Male: 140 Female: 75 Children: 22	1 crore	2000

Objectives

- Improve land quality through regular supply of water for at least 6 months
- Provide water for farming and improving forest cover, as also for the needs of household and cattle
- Improve the economic condition of the weaker sections of society
- Increase women's participation in decision making and policies
- Organise various water sharing groups and educate them on using water judicially
- Train youth to participate in environmental issues
- Build capacity of villagers for efficient irrigation
- Plant trees along water bodies and catchment areas where the water table had improved
- Strengthen the bonds of various sections of society

Implementation

- Organising a series of consultations leading to the formation of Water User Groups (WUGs)
- Survey and marking of area and commencement of work in consultation with state departments
- Commencement of work to build check dams
- Visits by people from other areas to learn from this project
- Work undertaken in 4 phases with stakeholders being sensitised and trained progressively on aspects of dam maintenance, management, water sharing norms, and dispute resolution

Phase I

a. Consulting with the Gram Sabha and finalising design by volunteer engineers

b. Area of digging measured and finalised and purchase of material commenced

Phase II

a. Foundation work and masonry completed under the guidance of the engineer.

b. Work was constantly monitored, measured, and recorded; with reporting integrity adhered to.

Phase III

a. 2050 check dams constructed.

b. Soil work commenced in surrounding areas to aid tree plantation of 1,00, 00,000 (1 crore) trees in the waste land.

c. 24 mt of Jatropa (Physic Nut) seeds were sprinkled around intervention areas for greening and as natural protection from Neelgais that were a menace to standing crops.

Phase-IV

a. Engineers who had volunteered inspected the site and certified completion of project.

b. All expenses including purchases were audited by an independent CA.

In each phase, care was taken to photograph and document the progress of the work.

Innovation

- The use of local labour, material and relevant technology helped reduce the cost of intervention and made it possible for improved coverage. More than 2000 roof top rainwater harvesting tanks have also been installed.
- Multiple ways of conserving runoff water – check dams and rain water harvesting structures are needed to ensure availability of water for a good part of the year.

Learning

- The value of collective thinking and execution has a positive impact on the community's future stake and ownership. This can also translate into good quality maintenance.
- While the community has come together to carry out this effort for the common good, continued upkeep and maintenance of established infrastructure including periodical repairs are also important.
- To ensure harmony over use of water, dispute resolution mechanisms should be effectively grounded within the community as efforts progress.

Sustainability Implications

- Adjoining and other drought prone areas can benefit tremendously from this experience and find motivation to bring about such changes in their land and lives.
- CSR funding could be sought to create more such initiatives by NGO partners.

Conserving agro-biodiversity through mobilising the local community

Promotion and Conservation of Agro-Biodiversity Impacting Community Livelihoods and Sustainable Development in Rural Areas

Gramin Vigyan Seva Sansthan
Village & PO. TitarwadaKalan, Via Kundal, Dist. Dausa, Rajasthan
Period: 20 October 2013 to 19 October 2015
SGP Grant: ₹ 1, 788,000 ($29,800)
Co-Financing – In Cash: ₹ 535, 756; In Kind: ₹ 1, 269, 396
Code: IND/SGP/OP5/Y3/STAR/ 2013/20/RAJ3

Summary

Gramin Vigyan Seva Sansthan (GVSS), operating in 20 villages of Dausa and Bandi Kui districts, supported land based actions to enhance soil productivity and protecting ecosystem services that created improved provision for food, fibre and fuel. GVSS also helped bring 1200 ha. of land under cultivation through small measures such as check dams, village ponds and other sustainable water conservation efforts in 18 villages. The villages were also linked to state supported social security schemes such as Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) and National Rural Livelihoods Mission (NRLM) thus providing work for the villagers. These activities were carried out with community participation through an initial Participatory Rural Appraisal (PRA) exercise and formation of SHGs and Farmer Friends Associations, followed by extensive training in various aspects of agriculture and horticulture.

Project Snapshot

Land Brought Under Sustainable Land and Resource Management (Ha.)	Number of community associations formed	Beneficiaries	Number of smokeless stoves distributed
1200 Hectare	• Women SHGs: 20 (257 Members) • Farmer friend association: 10 (186 members)	Male: 3605 Female: 2910 Children: 511 (2700 households)	204

Background

The project area is located in the foothills of Aravalli with 31% land being agricultural, of which 12% is irrigated. Another 31% falls under forest land, while the balance 38 % is barren, wasteland and pastureland. The project interventions were carried out mainly on the wasteland covering 10 villages each in Dausa and Bandi Kui districts. Rainfall in the area is scanty and most of the land being undulating, flow of rainwater during monsoons resulted in creation of deep trenches and erosion of fertile soil. Agriculture was pursued below subsistence levels in the region.

Objectives

- Conserve and enhance biodiversity through promotion and use of biomass with better agro practice resulting in reduced use of chemicals to promote healthy soil
- Improve the quality of life of poor and marginalsed farmers through agro-biodiversity approaches focusing on livelihoods enhancement pursued as a community based activity

Implementation

- Conducting a PRA exercise in the 10 project villages to gather topographic and other data through making resource maps followed by a door-to-door contact program
- Creation of 20 SHGs in the project area, initiation of 10 Krishi Mitra Mandal (Farmer Friends Association) in all 10 selected villages
- Organising a series of meetings and trainings to engage participants with the subject of sustainable land management; concurrently school children also engaged with the subject to improve depth and reach of the effort

- Training for farmers on agriculture, horticulture, agroforestry and changed cropping practices; topics covered included inter-cropping, crop harvesting , rotation, and low water demanding crops, as also agro forestry for fuelwood, fodder, and timber

- Exposure visits to state sponsored research stations in the region and to villages where alternate livelihood activities were being pursued, eg. leaf plate making or by-product potential of cattle rearing - these visits helped open up the community mindset to adopt new approaches.
- Activiites covered include:
  - 4,520 saplings of fruit trees planted covering 7 ha. Land in 8 villages
  - 1,042 saplings of fodder and timber plants planted across 15 ha. Land in 8 villages.
  - Smokeless stoves manufactured by GVSS staff from sand, gravel and cement; and purchased by beneficiaries paying for the cost of the chimney only - a large number of these were either erected or distributed across 7 villages
  - Soil and moisture conservation measures were adopted by constructing 10 Nala Bunds (gully plugs), with a third of cost being borne by beneficiaries
  - 134 bio-compost pits made to ensure proper use of crop residue
  - 204 smokeless stoves distributed
  - Renewed agricultural practices initiated: (I) crop rotation and mix cropping with pulses in 10 ha. land, (ii) seed banks were established in 4 locations with farmer support, (iii) demonstration farms were established arhar seed production, (iv) mix-crops (maize+ arhar+ green gram+ lobia) were initiated in place of staple crops such as mustard or bajra that yielded 3 to 4 times additional income and helped improve soil fertility, and (vi) dry farming based alternative crops such as Taramira was taken up in 150 ha. land.

Innovation

Restoring land gone waste for farming: The project envisioned improving rural livelihood and promoting activities for sustainable natural resource management. It encouraged the stakeholders in practicing horticulture and agro-forestry. This approach helped in biodiversity conservation. Creating awareness amongst the population about soil fertility and crop pattern along with training them in modern farming practices enhanced livelihoods in an environment friendly way.

Learning

- A participatory and gender sensitive approach can help establish access to timely and affordable credit through bank linkages, in this case, for 20 women self-help groups. Nearly ₹ 575,000 was saved over two years by women SHGs who could then access credit of ₹ 350,000 from banks for productive asset building.
- The sustainability of the project lies in the participatory approach of the community, the direct involvement of the beneficiaries in resolving the issues affecting their livelihoods on one hand and environment on the other.
- GVSS systematically applied a series of approaches in a professional manner to deliver tried and tested solutions for the benefit of humans and nature.

Sustainability Implications

An improved extension mechanism could further bolster efforts in the region and can be replicated in areas with the similar features, characteristics, provisions and agendas.

Preventing climate change impacts through integrated management interventions

Ensuring Sustainable Livelihoods for Locals from Risks and Effects of Climate Change Variability on Agriculture Production

Gram Vikas Nav Yuvak Mandal
Village Laporiya, Block Dadu, Dist. Jaipur, Rajasthan303008
Period: 20October 2013 to 19 October 2016
SGP Grant: ₹ 1,932,800 ($32,213)
Co-Financing – In Cash: ₹ 120,000; In Kind: ₹ 51,127
Code: IND/SGP/OP5/Y3/STAR/2013/21/RAJ04

Summary

The area covered under this project has come under stress on account of impact of climate related changes as a result of which incidence of migration has increased. With water not available, other natural resources have come under pressure. Gram Vikas Nav Yuvak Mandal (GVNYM) took an integrated approach by developing interventions around sustainable livelihoods backed by efforts directed at sustainable development through improved land, water and livelihood management. The participants were organised into various community based organisations which were then capacity built on aspects of local relevance. This approach also helped maintain democratic values and obtained community support for the activities. Interventions were planned to regenerate common resources like water structures, wasteland and pasture land, along with improving agricultural practices. Existing farm based livelihoods were supported and the needs of livestock management addressed.

Project Snapshot

Land Brought Under Sustainable Land and Resource Management (Ha.)	No. Of community associations formed	Beneficiaries
400 Hectare	• Number of women SHGs formed: 26 • Village development committee: 01 (15 Farmers)	Female: 386 Male: 392 Children: 755

Background

The rural landscape of India, particularly a location such as Rajasthan, is fraught with high incidence of poverty resulting in rampant food insecurity and malnutrition. The situation of natural resources is no better with most project villages experiencing a high extent of resource decline over the years. Hence, it is not surprising to have a high incidence of migration to satisfy financial needs but this came at the expense of poor social impact on family, and neglect of natural resources in such locations, given the lack of hands available to contribute to its upkeep.

This is the setting in which the project covering eight poor villages of Dudu block of Jaipur District worked to build opportunities for beneficiaries by developing their source base and introducing new technologies. About 2,100 families reside in in these villages with 30% of households belonging to SC and ST followed by 45% of other backward classes who are least touched by development efforts.

Objectives

- Develop the resource base and capacity of communities to to cope with adverse weather conditions brought on by effects of climatic change
- Manage people's institutions on a self-sustained basis leading to a productive and well managed system being established

Implementation

- Building capacity of community participants to responsibly manage their natural resource, thereby also creating sustainable livelihoods that are adaptive to climate change
- Planning interventions to regenerate common resources like water structures, wasteland, and pastureland, as well as improving agricultural practices
- Improving agriculture production while also supporting and supplementing existing farm based livelihoods, and addressing needs of livestock management

- Developing ownership in the community members by organising all activities through community action, and providing the efforts with the required social impetus
- Promoting participatory management by mobilising and facilitating community members to identify livelihoods and appropriate interventions needed in their villages
- Developing the village development plan based on a community plan that incorporated experts' advice and translated into a set of activities
- Organising participants into various community based organisations and building their capacity on aspects of local relevance – this helped solicit support from the community and maintain democratic values
- Institutionalising community values and cooperative principles amongst community members to bring sustainability to the created organisation even beyond completion of the project

Innovation

GVNYM's efforts have helped popularise the Chauka (square) system - a method for harvesting rainwater that is useful in arid areas whose only source of water are the monsoon rains. The system works by building a series of square shaped embankments that have 9" high bund walls on three sides with one side left open to allow rainwater to fill the structure as well as overflow. As one structure fills, the overflow spills into the next Chauka and so on. Retaining the rainwater in this way helps prevent soil erosion and recharges the surface water, enabling grasses to thrive.

Learning

- With a gradual shift to non-land based livelihoods, keeping the interest of community alive to issues of land and natural resource management will become increasingly difficult. This needs to be taken note of and community engagement need to be devised carefully.
- The Chauka system of rain water harvesting may find relevance in similar regions and could be encouraged across other SGP projects.
- Given the project location, land value has escalated since 2005 and land grabbers have turned to occupying common land and legalising

it for their own interest. Such efforts need to be thwarted if interests of the poor are to be protected; GMVNL has been able to successfully vacate 45 ha of affected land.

Sustainability Implications

- Kair (Caparisdesidua) is a tree native to Laporiya that has medicinal value for humans and animals though in the recent past it has lost its appeal to the local community. Typically found in desert regions, it is drought resistant and good for creating soil moisture. It was suggested during the planning that its saplings should be grown. If successful, this will have good livelihood potential since it has a ready demand as a medicinal plant as well as a popular pickle ingredient.
- While GMVNL has been advocating and advising the construction of Chaukas, the effort needs to gather momentum since it could address water needs in many regions that have come under stress.
- With increased availability of water, efforts towards fodder development and vegetable growing could gain momentum to better meet the local needs of food security.

Conserving indigenous agro-biodiversity through sustainable practices

Promotion and Conservation of Native Variety of Paddy Through Sustainable Agriculture Practices with Special Emphasis on Increasing Income

Lotus Progressive Centre

Village & P.O. Morowa, Dist. Nalbari, Assam 781348

Period: 1 February 2014 to 31 July 2016
SGP Grant: ₹ 2,217,000 ($36,950)
Co-Financing – In Cash: ₹ 177,500; In Kind: ₹ 23,39,425
Code: IND/SGP/OP5/Y3/BD/STAR/ 2013/40/ASM01

Summary

In the context of native paddy varieties rapidly disappearing due to poor awareness in the farming community, rampant promotion of hybrid and imported varieties, Lotus Progressive Centre's (LPC) project works to promote the cause of native rice. The project activities emphasised collective production, processing, grading and marketing of demand driven native rice through SHGs and farmers' organisations. The project was built on the principles of strengthening ecological sustainability (natural soil fertility, water conservation, minimisation of pollution, biodiversity conservation, maintaining natural landscape and climate), economic sustainability (debt, risk involvement, niche markets, and employment) and social sustainability (inclusiveness, farmers' participation, local acceptance, indigenous knowledge, gender, food security and participation). Emerging as a synthesis of these principles, a standardised package of sustainable practices has been developed for the promotion of native rice. Further the project is eyeing the coveted Geographical Indication (GI) tag for the special kind of native rice locally called "Boka Chaul" that does not need to be cooked.

Project Snapshot

Land Brought Under Sustainable Land and Resource Management (Ha.)	Reduction in CO_2(Tons)	Community empowerment	Beneficiaries
550 Hectares	800 Tons	• 181 SHGs were formed • 15 Farmer clubs formed • One Producer and Marketing Co operative Society formed and registered to carry forward the business plan	Female: 3000 Male: 2500

Background

Native paddy varieties are rapidly disappearing on account of poor awareness within the farming community as well as rampant promotion of hybrid and imported varieties. But due to erratic rainfall, farmers now find it very difficult to cultivate high yielding and hybrid varieties as these cannot withstand adverse climatic variations. Although native seeds are preserved by some small farmers, the genetic purity has been lost due to the unscientific practices pursued. This has not only affected the productivity of such rice but also the taste, aroma, grain size, and grain weight among several other phenotypic traits. Although there is demand for certain high value native rice, given the small scale of cultivation, it cannot meet consumer demand.

Objectives

- Conserve and promote the native variety of paddy through farmer led efforts
- Promote sustainable agriculture practices
- Develop a community knowledge register on traditional agriculture practices
- Explore the marketing potential of native paddy

Implementation

- Conducting baseline survey in 45 selected villages to establish ground realities and record the status prior to project intervention

- Mobilisation of 1500 farmers through a Participatory Rural Appraisal (PRA) exercise, formal and informal meetings, focus group discussion, survey and other methods, for participation in project activities, in collaboration with a local agro activist
- Collection and recording of Information related to native paddy variety available in the project as well as adjoining areas – eg. names of growers, local name of variety, botanical name, farming practice, yield capacity, duration, fertilizer response, growth parameters, agronomic features, specific characteristics if any, and market demand
- Documentation of at least 15 phenotypic characteristics like grain length, grain weight, panicle length, leaf width, tillering ability, panicle density, plant height, cooking quality, amylose content, degree of aroma, colour variety, plant stature, flag leaf angle, etc. – this was done in consultation with the Indian Council for Agricultural Research (ICAR) stations and regional rice research stations.
- Organising an intensive awareness programme for the participating community to sensitise them about the need for conservation of native paddy
- Organising training on an improved package of practices for paddy cultivation, including institutional and field training
- A special training on System of Rice Intensification (SRI) and packaging of products conducted for participating farmers
- Organising exposure tours for lead farmers to field locations and research stations, local Krishi Vigyan Kendra (KVK), rice research institutions, and government agriculture departments

- Organising training on leadership development, group dynamics, achievement motivation, financial management, institutional management, participatory monitoring and evaluation, network and linkage for active farmer groups and SHGs
- Skill upgradation programs for duck and poultry rearing, pisciculture, kitchen garden, and processing of agriculture products
- Funding provided on a cost sharing basis to allow community participants to pursue income generating activities of their interest, leading to additional income of ₹ 2500-3000 per month

- Maintaining good quality of genetic back up being a key factor for conservation, good quality seed of 15 selected rice varieties were produced in a farmer's field under supervision of a rice breeder attached to a research institute. Three hundred interested farmers participated in the production of good quality Truthfully Labelled Seed (TLS) on 20 ha of land. To ensure quality seed availability for sowing, farmer group- or SHG-managed low cost seed banks were established with a capacity of 16,000 kg for 13 promising varieties in the project villages. Sustainable agricultural practices led to the reduction in usage of 5040 quintals of chemical fertilizer and 500 litres of chemical pesticides. FSSAI registration was also obtained for the rice varieties for creating market linkages.

Innovation

- Raising awareness about the importance of local rice varities and pursuing actions to bring it back into mainstream agriculture is an important pursuit for regions that have historical dependence on rice.
- The participative approach adopted in this project will help develop self understanding, ownership and appreciation for what is unique to their region leading to sustainability.

Learning

- Preservation of indigenous produce can become an important pursuit if an enabler comes forward with a committed approach. An issue that is moving towards extinction can derive a new meaning through such efforts.
- Scientific underpinning helps develop a strong foundation when addressing issues of importance otherwise neglected or not seen as significant.
- NGOs such as Lotus have shown the way forward to develop a model of engagement helping the community and institutions collaborate to address an important issue concerning biodiversity.

Sustainability Implications

- This model of collective groups working on preserving and perpetuating native rice varieties can be tapped for preserving biodiversity in the region.

Mobilising local communities to adopt sustainable resource management practices

Up-scaling the Project of Reclamation of Ravines through Endogenous Technology & In-situ Conservation of Local Biodiversity, and Strengthening Livelihood Security in Three Panchayats of Morena District

Sujagriti Samaj Sevi Sanstha

L.I.G. – 914, New Housing Board Colony, Morena, Madhya Pradesh 476001

Period: 25 October 2013 to 25 October 2016
SGP Grant:₹ 2,480,800 ($41,347)
Co-Financing – In Cash: ₹ 728,000; In Kind: ₹ 1,775,100
Code: IND/SGP/OP5/Y3/STAR/2013/30/MP03

Summary

The Chambal Valley in Madhya Pradesh, once famous for its dacoits, is home to the threatened medicinal plant species Guggal,which due to its huge demand, is overharvested for its gum, especially using destructive methods like branch cutting and de-barking, which has led to plant loss and depletion of population. With not even young trees spared, it needed an organised conservation approach to improve its stock. Sujagriti Samaj Sevi Sanstha (SSSS) adopted a community partnership based Participatory Micro Planning approach, and prioritising community needs with reference to poverty, gender and livelihood issues. Through formation of SHGS, SSSS mobilised the community members into SHGs and brought more than 4000 acres under cultivation with Guggal seeds. Other activities related to this involved setting up 25 medicinal gardens in the schools of Morena, construction of two check dams, distribution of 3000 smokeless chulhas and construction of water channels called jalnikasnalis. The community participants were also provided extensive training in various aspects of project management.

Project Snapshot

Land Brought Under Sustainable Land and Resource Management (Ha.)	Community empowerment	Beneficiaries
1000 Hectares	• 5 Biodiversity Management Committees were formed. (7 members each) • 60 Women SHGs were formed	2500 beneficiaries in 7 villages

Background

The indigenous residents of the Chambal region located in north Madhya Pradesh are largely dependent on non timber forest produce (NTFP) collection that accounts for 25-40% of their income. Lack of skill, education, infrastructure and institutional mechanism has resulted in unethical and destructive harvesting, especially of species such as Guggal, Satavar and Gokharu that are otherwise an important source of income. These three species also have identical soil binding properties and act endogenously as biodiversity based measures to check ravine ingress. Lack of organised and viable trade and development activity further adds to their misery as they are forced to sell the harvested produce to middlemen and earn small amounts which are often wasted on liquor and tobacco.

Cultivating farmlands allocated to them under the Forest Rights Act, 2005 has not yielded much due to natural risks like skewed rainfall pattern. Thus farmers lack confidence and remain poor and hungry; with prevalence of high infant and maternal mortality rates, and women prone to anaemia. There is also severe migration pressure. All these challenges only add further risk to natural capital in this region, which in turn increases the risk and well-being of the poor who are dependent on these natural resources for their livelihood. The project targets about 4,000 poor indigenous members of the Mogia, Bhil, and Saharia community, among other marginalised scheduled caste community members, in 10 Panchayats of Morena Block.

Objectives

- Ensure long-term sustainability of the threatened species while securing livelihood improvement for the poor through establishment of an institutional arrangement of community-led women Self Help Groups (SHGs)
- Up-scale small actions to enhance economic returns from biodiversity driven livelihood activities

- Conserve as well as restore and sustainably use the Guggal plant species and other medicinal plants found in the fragile Chambal ravine

Implementation

- Adopting a community partnership based Participatory Micro Planning approach in the context of local area based exercises that led to developing clear action plans.
- Prioritisation of community needs with special focus on the issues of poverty, gender and livelihoods. Consultation with women as well as the old and specially-abled people for inclusive governance
- Regular briefing meetings to update about activities and plans with the Forest, Agriculture, Health and Rural Development Departments
- Develop mutual respect, community ownership and sustainable actions through a three-step approach:
    - **Step I**: Mobilisation of the community through use of project management professional (PMP) techniques to identify, analyse, and prioritise their needs; documentation of details in local language by community members accompanied by reflection
    - **Step II**: Facilitation to promote informal, kinship based SHGs who shared a common interest; drawing up of participative plans based on collective bargaining, community negotiations, and needs of program implementation
    - **Step III**: Engaging the skill and capacity of a range of local community volunteers and local grassroots functionaries (both men and women) to plan, implement, manage and monitor resources and activities according to agreed plans, thereby involving local people at all levels of project development, monitoring and implementation.
- Conservation of guggal seeds through cultivation in 4038 hectares of land
- Setting up of 25 herbal gardens in the schools of Morena
- Construction of two check dams leading to greater fresh water availability and soil moisture retention
- Distribution of around 3000 smokeless chulhas amongst the stakeholders and scientific construction of channels called jalnikasnalis

Innovation

- The very involved, detailed and transparent approach applied through participatory planning not only indicated serious ownership and commitment to

implement the project but also brought and kept the community together in a region that is highly vulnerable from the perspective of human and natural fragility.

- The fact that the family of 4,000 stood committed to achieve project goals speaks much for the approach and foresight of the implementing partner.
- Conservation of a medicinal plant as a means of livelihood and through that protecting the endemic biodiversity of the region is a special characteristic of this project.

Learning

- The ongoing success of such a project in the Chambal region offers hope to efforts planned in other conflict ridden areas.
- The process of including all – women, differently abled, and state functionaries; and yet making progress towards project goals is worthy of being noticed and shared.
- The increased consciousness within project members to care for the environment and thus secure their future livelihood bodes well for the sustainability approach adopted.

Sustainability Implications

- Now with efforts coming on stream and scale of operations showing an upward curve marketing efforts would be better served through formation of a Producer Company to benefit all involved.
- Once sufficient traction has been gained for the currently identified species, other produce endemic to the region may be taken up for caring and commercial returns.

Re-orienting tribal communities towards sustainable agriculture

Promotion of Sustainable Land Use Practices Among Vulnerable Tribal Communities in and Around Karlapat Wildlife Sanctuary in Kalahandi Dist.

ARAMBHA
1401, 1st Floor, Sushanti Vihar, Tankapani Road, Bhubaneswar-751018
Period: February 1, 2014 to January 31, 2016
SGP Grant: ₹ 2, 190,000 ($36,500)
Co-Financing – In Cash: ₹ 224, 984; In Kind: ₹ 1, 126,000
Code: IND/SGP/OP5/Y3/BD/STAR/ 2013/32/ODI01

Summary

In Kalahandi District, one of the poorest in India, local farmers practised shifting cultivation which was not a sustainable livelihood for them. Arambha promoted application of sustainable land use practices in the face of a failing shifting cultivation. It focused on women through a system of trainings, demonstrations, and exposure visits, helping build their understanding and capacity to deal with the changing situation. The pressure of pursuing a forest based livelihoods approach turned the focus on agriculture and craft making for the people. However pursued in their traditional mode, these activities were not getting community members very far and there was thus a need to reinvent them to make them meaningful livelihood options again. Arambha provided the farmers training in Slope Agriculture Land Technology (SALT), which covered inter cropping, line farming and soil-water management, along with setting up vermin-composting units for producing compost. On the other side, Arambha also organised design workshops and skill upgradation programs along with market linkages.

Project Snapshot

Land Brought Under Sustainable Land and Resource Management (Ha.)	Dry Land Agriculture Lands Brought Under SLM with Improved Vegetative Cover (Ha.)	Beneficiaries
290	200	Female: 2603 Male: 2591 Children: 686

Background

Kalahandi District is one of the poorest regions in India and its inhabitants among the least exposed to development initiatives. Agriculture in the project region is pursued as shifting cultivation by the poorer farmers who are under pressure due to various factors impacting their livelihoods and the needs of the environment. The goal of the project was to build resilience of vulnerable communities by promoting sustainable land use practices to prevent loss of biodiversity and lead to a coping strategy being developed for climate change mitigation.

Objectives

- Develop appropriate land use practices for sustainable production as an alternative to shifting cultivation
- Build capacity of targeted communities and local groups to withstand, respond and mitigate impact of climate change through alternative livelihood initiatives
- Create heightened awareness of the negative effects of shifting cultivation, and popularise government schemes for appropriate reclamation and development of wastelands

Implementation

- Conducting a baseline study of 1,163 families in 29 villages to identify a target list of 2,207 project beneficiaries, including 1,025women
- Creation of awareness on climate change and the adaptation strategies needed, as also the adverse impacts of shifting cultivation prevalent in the region. Traditional varieties of paddy cultivation, organic farming, availability of land type for agriculture, and seasonal calendars practised for different kinds of cultivation, were also discussed and reviewed.
- Formation of five agro-forestry management committees and organising 10 trainings on Slope Agriculture Land Technology (SALT), covering inter cropping pattern, line farming, and soil-water management
- Contribution of paddy seed for covering 200 ha. of fields by the farmers. About 60% of this was of the local varieties and 40% hybrid. This SALT based intervention helped arrest soil erosion as was evident in the following years, and also contributed to improved yield compared to previous years.
- Concurrently other activities such as vermin composting and bee keeping were pursued after training, and two skill up-gradation programs and design workshops were carried out for crafts development. The ten vermi composting units produced 150 quintals of compost. A catalogue to establish market linkages was developed for handicrafts and other NTFPs found in the region.

- The project is being documented so that the products and technologies used here could help future scale up efforts.

Innovation

- By getting farmers engaged in a method alternative to the old agricultural practice of shifting cultivation, Arambha succeeded in getting them to experience the benefits of change. In this way, the project managed to develop an alternative source of income while also conserving the environment.
- In the case of craft too, adopting new designs and establishing market linkages provided them better bargaining power and income.

Learning

- If a viable alternative is presented to the poor through exposure and demonstrative means, they see reason in working towards a better future for the planet. However they need to be exposed, trained, and invested in to give the alternative approach a fair chance.
- Human need for creating an improved quality of life for their family and self can be an effective driver to motivate efforts. Their concern for the environment too stands acknowledged since they are closer to it with their lives depending on it.

Sustainability Implications

- With conviction established about the conventional agriculture practice using SALT, other crops like vegetables could be introduced gradually so that they develop earning potential off their land round the year.

Creating business models for the sustainable production of lac in wastelands

Demonstrate and Create Business Models for Conservation of Lac (Kerrialacca) Through Value Addition Product Preparation Technologies

Bioved Research Institute of Agriculture & Technology
103/42, Motilal Nehru Road, Allahabad, Uttar Pradesh-211002
Period: 25 December 2014 to 24 December2016
SGP Grant: ₹ 2,985,000 ($49,750)
Co-Financing – In Cash: ₹ 6, 187, 202; In Kind: ₹ 800,000
Code: IND/SGP/OP5/Y3/BC/STAR/2014/59/UP02

Summary

Bioved Research Institute of Agriculture and Technology (BRIAT) has initiated this project in Allahabad district of Uttar Pradesh with a focus on biodiversity, linking lac to additional income and employment generation through improved lac host plantation, harvesting and value added production. This has been achieved through (a) plantation of trees conducive to lac production in large tracts of wasteland systematically through nursery raising, planting, nurturing and growth management; (b) multi-tiered system of developing master trainers and craftspersons for manufacturing lac based value added products; and (c) development of a commercial channel to ensure buyback of value added products and the waste generated through a federation of NGOs. This model has also aided the project in scaling up with the associated NGOs taking up responsibility for lac plantation, resource centre management and SHG coordination for value addition.

Project Snapshot

Land Brought Under Sustainable Land and Resource Management (Ha.)	Beneficiaries	Number of women SHGs formed
	10,500	26

Background

Lac is an eco-friendly, biodegradable, natural polymer produced by the lac insect (Kerrialacca) offering little risk to the environment. On the other hand, it aids the

environment by taking on the role of pollinator. BRIAT initiated this project to provide employment to the villagers by both plantation of lac host plants as well as production of lac value added products, thus increasing their earning potential. Through this project, 26 SHGs were involved with lac host plant nursery development, 154 with lac cultivation, and 48 with lac value added production. As a result of project efforts, 10, 500 beneficiaries are earning between ₹ 21,200-48,000 per annum. Other than lac, utilisation of agro waste and bio-resource waste materials such as cow dung, urine, dead animal waste materials (eg. horn and bone) and converting them into value added products was also part of the project.

Objectives

- Invest in sustainable lac production practices including nursery establishment
- Rehabilitate the poorest families in the region through training in lac value added products
- Provide scientific know how about the working apparatus, utensils, dyes, colour decorative items, and agro based materials
- Provide buy back arrangement of lac value added items by forming federations of SHGs

Implementation

BRIAT's three-fold strategy of implementing this project included:

- Signing a Memorandum of Association with 10 grassroots NGOs who bore the responsibility of lac plantation, establishing and managing the resource centre, supervising and federating SHG management, and lac value addition – with the aim of scaling up. They also served as the commercial channel for the buyback arrangement of manufactured products and waste generated in process.
- Plantation of trees conducive to lac production in large tracts of wasteland - this was conducted in an organised

manner through nursery raising, planting and nurturing, pruning, and effective management for good growth.

- Training of 20 Master Trainers by BRIAT who, after working for a month at the BRIAT Resource Centre, further trained three Resource Trainers in lac based value added product manufacture - This lot of 80 trainers, drawn from various regions of the target area, after working at the BRIAT supervised resource centre for another 30 days, then moved back to their respective areas and in turn trained two people every month raising the number of skilled craftspersons to 960 over a year. A resource centre was established in partnership with local NGOs, to which these craft groups were linked. Together they have produced 8600 lac host plants, 35 quintal scapped lac and 10 quintal broad lac has been produced.

Innovation

The BRIAT enterprise model has achieved success by capitalising on wasted land and human potential to strengthen the resource base and develop a value added production line through rigorous capacity building and activity monitoring.

Among several other unique features, the following deserve mention:

I. A multi-tiered institutional model helped the project to grow and be managed effectively keeping intact the multiple interests of all involved.

II. By effectively managing plantation, a constant source of raw material supply was ensured, while also positively impacting the ecological needs of land degradation. A 1000 tons of CO_2 has been reduced annually along with conserving 2000 litres of water.

III. The true potential of lac and other waste material was recognised and market sources tapped effectively to keep the production system engaged through a buy-back mechanism.

IV. All points of the value chain were addressed effectively from plantation to markets.

V. Effective integration of the changing needs of the market was taken care of through production of items meeting market needs.

Learning

- Realising the potential of natural resources and marrying it to needs of the market through sustainable practices can offer long term ongoing benefit to the community and nature.

- Establishment of an institutional structure with interests of each tier being addressed helps create a robust model to scale up activities and even diversify into related areas.
- Efficient monitoring of a multi-tiered and scaled up structure is essential for continued viability.
- What is seen as waste in fact has hidden wealth within it for those who know how to tap it.

Sustainability Implications

- An aggressive coverage target of a large tract of land has been set for the plantation of palas, ber, and other trees. More than 1000 plants have been conserved by the adoption of lac culture technology.
- Increase in geographical coverage has been planned for production of items by engaging additional NGO partners, to generate wider geographical reach and bring improved viability to the federated operations. Efforts are also being made to address market needs for derivatives that can fetch higher value addition.
- With the robust SHG structure evident, other materials such as bamboo and animal waste are being considered for developing value added products since both these materials are abundantly available.

Correcting trade practices for the benefit of indigenous tribal communities

Community NTFP Enterprises for Sustainable Forest Development & Peace in a Violent Chhattisgarh

The Covenant Centre for Development
BajpayiBhavan, Deepak Nagar. Opp. Railway Station, Durg, Chhattisgarh
Period: 7 October 2013 to 19 October2016
SGP Grant: ₹ 2,413,830 ($40,230)
Co-Financing – In Cash: ₹ 592,000; In Kind: ₹ 380, 000
Code: IND/SGP/OP5/Y3/STAR/2013/29/CHT1

Summary

The Covenant Centre for Development (CCD), through this project, addresses practices of unfair trade and lack of community participation in management, resulting in the exploitation of people and natural resources and causing social and environmental un-sustainability. As a consequence, indigenous communities are subjected to poverty besides being robbed of a future that is linked to the forest. The survival of these communities is at stake given existing regulations that advocate prohibition or impose constraints, besides being affected by forest degradation. Since Non Timber Forest Produce (NTFP) gatherers are paid poorly they have little motivation to protect the forest or NTFP that grows within, leading to its unsustainable use or diversion.

CCD achieved this by getting forest produce gatherer groups to partner with Joint Forest Management Committees after being trained in good collection practices, quality issues, sustainable forest management practices, production of traded species, replanting on degraded forest lands to improve forest cover, and utilisation of improved bio-fuel options for domestic needs. This was followed by formation of producer companies for better management and aggregation with strong women focus. The companies were then linked to industrial buyers in the metros to ensure better income and returns, and to state schemes and financial institutions for credit facilities.

Project Snapshot

Land conserved under indigenous and community conserved areas (ICCAs) (Ha.)	Land Brought Under Sustainable Land and Resource Management	Number of community associations formed
400 hectares	500 hectares	• Number of women SHGs: 15 • Number of Farmer Groups: 03

Background

The development of Non Timber Forest Products (NTFPs) is a key to the well-being of the population at the "bottom of pyramid" that resides within the remote, hilly and forested tracts. Produce such as Tendu (Diospyrosmelanoxylon), Mahua (Bassialatifolia), Gum and Resin, Dyes, Lac, Tussar Silk, Medicinal Plants, and Plate Leaf Making, contribute roughly 25% or more to the income of tribal families, especially during the lean season, and is crucial to their survival. Since such produce grows in its natural habitat, it requires less water and faces lower risk or damage from wildlife or routine environmental shift thus offering a good and stable source of income to forest dwellers. A total amount of $ 18, 000 worth NTFP is being produced, collected and sold every year.

Objectives

- Build capacity of 500 NTFP gatherers, mostly women, to encourage improved collection, fair trade, management, and value addition practices
- Develop improved community livelihoods utilising fair trade and organic certification means
- Pilot sustainable forest management initiatives in collaboration with technical institutions
- Build long term institutional sustainability by linking to government schemes, industry users, and financing institutions such as banks and insurance companies
- Document and disseminate methodologies and experiences through manuals and other materials focusing on improved community forest management practices

Implementation

- Partnering of forest produce gatherer groups and Joint Forest Management Committees (JFMC) after conducting an initial survey and holding discussions to identify local needs and feasibility – this led to300 poor tribal families being covered under the project in 20 villages.

- Training of identified NTFP gatherers in good collection practices, quality issues, sustainable forest management practices, production of traded species, replanting on degraded forest lands to improve forest cover, and utilisation of improved bio-fuel options for domestic needs
- Formation of Producer Companies to address the needs of better aggregation and collective management - strong women involvement was ensured in management and governance of the institution created, ensuring equity and just benefit sharing.

- Development of infrastructure and equipment such as storage shed and low-cost machinery for de-husking/shelling/seed-removal, etc., backed with capacity strengthening of local producer groups. Capacity efforts were directed at reducing women's drudgery and wastage, and improving product quality.
- Linking of producers to industry buyers in metros such as Kolkata, Nagpur, Mumbai, Bangalore and Delhi, to improve price realisation and better returns for the produce than offered by local traders, and to also ensure long term income security through sale contracts entered into with traders
- Linking to state supported schemes such as the National Rural Livelihood Mission and NABARD, to banks and other financial institutions, to address the needs of credit; other government agencies to be linked include Forest, Planning and Finance departments.
- Prevention of 10 tons of biomass residue burning by using it in vermiform composting
- Initiation of a strong documentation effort covering success stories and learning generated - engagement with local and national policymakers helped

improve focus on NTFP and poverty alleviation, contributing to planning, finance, schemes and operational processes.

Innovation

CCD's approach banked, on one hand, on federating groups to bring in sustainable and fair approaches to production, harvesting, and marketing of NTFPs; while on the other, it worked through a market approach that disengaged intermediate functionaries within the value chain.

Learning

- With the focus of the project being only on NTFPs and the excessive dependence of community members on this, a need was felt to have a more diverse portfolio of activities to hedge the risk of limited options.
- During years of project implementation, the region became extremely disturbed from a law and order point of view that impacted the functioning of the project since community members could not move freely in the forest area as before. This impacted the project's ability to build linkages to state institutions as well. While such eventualities are difficult to forecast, keeping an eye on political climate is essential while planning projects.
- While moving away from existing market intermediaries would seem a simple and logical approach to bring in efficiency in the supply chain, at times those eliminated can work to the detriment of supply and need to be handled carefully to keep the supply chain moving without impacting the fate of community members.

Sustainability Implications

- Improved engagement with design and market led institutions will help improve the quality of production, encouraging the beneficiaries to remain competitive and relevant to expectations of the market.

Empowering tribal communities through traditional knowledge systems

Community Empowerment through Sustainable Livelihood Generation Using Diverse Traditional Knowledge Systems

Krishnamurti Foundation India
Kaigal Education and Environment Program (KEEP), Haridvanam,
Thatguni Post, and Bangalore 560062
Period: 15 July 2013 to 14 July 2015
SGP Grant: ₹ 1,900,000 ($31,667)
Co-Financing – In Cash: ₹ 2, 178,000; In Kind: ₹ 2, 149,000
Code: IND/SGP/QP5/Y1/RAF/2013/9/KAR04

KAIGAL
Kaigal Education & Environment Programme, KFI

Summary

Krishnamurti Foundation India (KFI), thorugh this project, has scaled up its existing livelihood program activity in Chittoor, Andhra Pradesh, by establishing processing and value addition facilities and markets. They have been able to increase the number of involved community members and enhance the quality of existing product range through R&D. They have introduced about 50 new NTFP and 40 hand crafted products to the current portfolio. Other activities include establishing a community network for product development, storage and processing facilities, nursery centre for indigenous plants, and marketing networks. R&D is ongoing with surveys being conducted to identify plants that can be commercially exploited. A field guide to indigenous plants is also under preparation. Besides these, on the hand crafted products front, research into traditional craft skills in communities, ways of enhancing them and creating market linkages for them is also ongoing.

Project Snapshot

Land Brought Under Sustainable Land and Resource Management (Ha.)	Community Empowerment	Beneficiaries
6873 Hectares	• 01 Women SHG formed • 03 community resource centre formed	• Females: 5000 • Males: 4520 • Children : 16, 660

Background

Indigenous communities living on the fringe of forests have immense knowledge of biodiversity and also earn their livelihood by harvesting and selling Non-Timber Forest Produce (NFTP) collected in its primary form. As a consequence, the income they generate is very small, which is also on account of the exploitative practices pursued by the middle men they deal with. The approach of this project has been to empower the tribal and nearby communities to be able to earn better incomes by introducing them to new skills in value addition and marketing of local forest and farm produce.

Objectives

- Research and promote sustainable methods of use of NTFPs to preserve forest ecosystems
- Empower forest collectors and individuals of tribal and nearby communities to be able to earn better incomes by introducing them to new skills in value addition and marketing
- Up-scale earlier funded project involving improvement of existing product range, research and development of new products, developing skills among more women and youth in processing, value addition and marketing through training programs to increase the number of communities who benefit from the project
- Include new NTFPs for value addition along with adding other local resource and skill based occupations for people

Implementation

- Scaling up of existing livelihood program activity by establishing processing, value addition facilities and markets. A new independent processing plant of 600 sq feet was rented with space for processing, raw materials, finished products, well designed hygienic storage shelves; as well as space for water storage, cleaning and drying bottles, containers and equipment.
- Increasing the number of involved community and enhancement of the quality of the existing product range – through research on new products and development of new distribution and marketing channels. 50 NTFP, agricultural products and 40 new hand crafted products have been introduced.
- Establishment of a community network with monthly community meetings conducted in target villages on development of new products

- Training for ex-situ conservation and multiplication efforts of NTFP species through support documentation
- Establishment of a nursery centre of about 6,000 sq. ft. with 50% shade cover for young seedlings and new seed beds.
- Conducting field and vegetation surveys for identifying indigenous dye yielding plants, tubers, wild fruits and medicinal plants, endangered species, also using earlier data - Efforts were made to preserve seeds in the seed bank, multiply the germ-plasm, ex-situ in the forest nursery for the newly identified species. The community will be encouraged to have backyard gardens of these species through planned farmers' network.
- Development of the draft copy of a book comprising a field guide to the identification, collection and techniques of seed preservation of indigenous species, germination and nursery methods; publication of a research paper that covered changes in the natural population of endemic species and important NTFPs based on field data; development of awareness and communication materials on various plants used as food, with primary focus on nutrition and food security.
- Pursuit of craft-based activities to include identifying traditional craft skills in local communities, enhancing their skills, and developing a market for handmade crafts - sales turnover was enhanced to Rs. 14.38 lakh in 2014-15 from Rs. 5.1 lakh in the preceding year.
- FSSAI registration was obtained for NTFPs

Innovation

By applying a scientifically reinforced approach to a traditional pursuit familiar to indigenous communities in forest areas, KFI managed to give a new meaning to a known activity. Given their networked reach, they were then able to establish successful markets for produce that helped forest linked producers get a fair value for their work.

Learning

- Credibility of an institution such as KFI plays a great role in establishing initiatives for the poor as well as addressing the needs of markets.
- Running a program on a sustained and long term basis improves chances by seeding strong foundational efforts on which future growth strategies can be

built. This however needs sufficient financial strength that may not be feasible for all NGOs.

- Systematic approaches backed by strong documentation helped build a solid foundation to upscale work for the NGO partner.

Sustainability Implications

- NGOs such as KFI could look to develop themselves as a Resource NGO encouraging a tiered structure of NGOs below them to share their learning and experience, while nurturing increased sustainable production of NTFPs given their capability on the production and market fronts.
- Given available resources and networking abilities, KFI can engage design and marketing professionals through a volunteerism approach to raise the bar of their activity to compete even with the organised sector.

Reducing community pressure on forests through alternate livelihood schemes

Strengthening and Generation of Livelihood and Employment for Tribal CommunitiesThrough Conservation of Natural Resources

Sarjana Samajik Sanskrutic Avam Sahitik Manch
Pithaurabad, Unchehra Block, Dist.Satna, Madhya Pradesh
Period: 20 October 2013 to 19 October 2016
SGP Grant: ₹ 2,090, 000 ($34,833)
Co-Financing – In Cash: ₹ 1,343,000; In Kind: ₹ 428,400
Code: IND/SGP/OPS/13/STAR/2013/24/MP01

Summary

Sarjana Samajik Sanskrutik Avam Sahitik Manch (SSSASM) works with the tribal/adivasi population of the Parasmani hill region who have traditionally been dependent on the forests for their livelihood. With the pressure on forests increasing, the SSSAS project involves 100 villages of the Unchehara block in Satna District pursuing conservation of natural resources around them. It also bore the responsibility to provide each member with a sustainable means of livelihood which in turn will lead to lesser dependency on forest resources giving it a better chance to restore itself. The achievement of SSSAS is that they have been able to convert this population (adivasis comprising Kole, Gond, and Bhumia communities who constitute 80% of the total BPL population in the block) from a forest dependent community to agriculture and NTFP based livelihoods. The method followed is formation of SHGs and capacity building them in techniques like SRI, providing them exposure to JFM and agricultural fields, identification and documentation of endangered medicinal plants, grains and millets, forming a producer company and linking it with scientific institutions for technical support.

- Providing project members exposure to the JFM (Joint Forest Management) form of institution and conducting exposure visits to agricultural fields
- Formation of SHGs and organising demonstration of the SRI (The System of Rice Intensification) technique of rice cultivation, also known as the Madagascar process, with a view to equipping them to implement it
- Identification, documentation and conservation of endangered plants and 150 other types of wild and 250 rare medicinal plants along with long forgotten local grains including 110 paddy varieties, 10 Jowar, and 3 Corn varieties – development of an advanced seed bank and three nurseries.

- Engaging community members in agricultural and forest produce based sustainable livelihoods as an alternative means of income that lowered their dependency on forests
- Formation of a producer company with 100 members
- Creating linkages with scientific institutions to extend technical support as per needs of the project

Project Snapshot

Land Brought Under Sustainable Land and Resource Management (Ha.)	Community associations	Beneficiaries	Reduction in fuel wood (Mts)	Reduction in CO_2 emission (Mts)
2800 Hectares	• 29 Women SHGs were formed • 01 Producer Company (100 members)	• Female: 300 • Male: 1500	2.5 MTs	4.75 MTs

Background

Kole, Gond, and Bhumia communities residing in the Parasmani hill region are dependent on the forest and do not know of any other livelihood option. Considering they are born and brought up in the forest, it is like a mother to them, providing for their needs throughout their life. Given the pressure of earning, forests are getting degraded, and, while they are aware of the impact, they cannot turn to any other option for their living. This project helped institutionalise the cultivation of indigenous rice along with 150 other wild and medicinal plants in the project area, directly involving them in decision making and planning according to their skills and knowledge. During the course of the project an approach of hand holding was adopted through effective capacity building and close monitoring, helping to motivate them at every step.

Objectives

- Conserve natural resource such as water, land and forest that are important to the environment, in 30 Panchayats of Unchehara development block
- Conserve the traditional long forgotten grains and 65 types of local paddy rice found in 30 Gram Panchayats in the region.

Implementation

- Providing project members exposure to the JFM (Joint Forest Management) form of institution and conducting exposure visits to agricultural fields
- Formation of SHGs and organising demonstration of the SRI (The System of Rice Intensification) technique of rice cultivation, also known as the Madagascar process, with a view to equipping them to implement it
- Identification, documentation and conservation of endangered plants and 150 other types of wild and 250 rare medicinal plants along with long forgotten local grains including 110 paddy varieties, 10 Jowar, and 3 Corn varieties – development of an advanced seed bank and three nurseries.
- Engaging community members in agricultural and forest produce based sustainable livelihoods as an alternative means of income that lowered their dependency on forests
- Formation of a producer company with 100 members
- Creating linkages with scientific institutions to extend technical support as per needs of the project

Innovation

- The scale at which groups of indigenous community members were supported to move from a traditional forest based livelihood to a more contemporary and mainstreamed activity through pursuit of agriculture will rate as a massive effort.
- The new technique initiated for rice sowing could be considered unique compared to other ongoing efforts in the region.
- Installation of 200 smokeless stoves has helped in reduction of CO_2 emission.

Learning

- A project of this nature and scale can only be achieved if the NGO partner has the complete trust and confidence of community members.

- Making a paradigm change in approach to livelihoods for a large set of people needs a hugely reinforced project structure and very active monitoring efforts.
- While a change may be in the making, its long term management for sustainability will yet have to stand the test of time and an active watch should be maintained.

Sustainability Implications

- Capacity building efforts of the community groups formed should be continued, keeping in mind the potential of engaging in other livelihood streams once the transition to SRI stands satisfactorily achieved.
- The project should develop linkages to scientific institutions to preserve the heritage of other forgotten grains and local rice that can also be pursued more strongly by other SGP NGOs.

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