

Community stewardship in conservation, restoration and sustainable management of mangroves in Orissa



Women groups plant mangroves in Basantapur, Kendrapara district, Orissa © IUCN/APOWA

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Summary

This project, *Community stewardship in conservation, restoration and sustainable management of mangroves in Orissa*, has resulted in several meaningful and sustainable outcomes. The success of the project lies in the community's complete ownership of the mangroves, including conservation, restoration and sustainable management of the forests. A significant stepping-stone towards achieving this outcome was the development of the Village Mangrove Councils (VMC), who were responsible for implementing the project model.

Within the twelve months of the project period, ten VMCs were formed. VMC members were capacity built to enable them to assume full responsibility in developing a comprehensive understanding of the importance of mangrove conservation within their communities. Approximately 12 ha of mangrove plantation has been developed along the creeks and waste lands around two of the project villages. The mangrove nursery established under the project produced 48,000 saplings within the project period. Education and awareness of mangroves was directly targeted at approximately 1,100 community members and 1,178 school students in ten villages. 981 mangrove dependant community members were skill developed to undertake alternative and supplementary livelihoods.

In addition to this, the project has formed linkages and converged with existing government programmes including the Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) for mangrove dependant families.

1. Introduction

The Bhitarkanika mangrove forest, located in the estuarine region between the Brahmani and Baitarni rivers in Orissa, is the second largest mangrove formation on the India sub-continent. The forests are of immense value to the surrounding communities, ensuring security of lives and livelihoods. In recognition of the importance of this ecosystem the State Government of Orissa declared it a Sanctuary in 1975 under Wildlife (Protection) Act. In lieu of the high degree of productivity of these forests and associated wetlands, the density of the resident human population in and around the sanctuary is increasing exponentially with time, presenting complex socio-economic characteristics. Paddy cultivation and subsistence fishery are the predominant livelihoods for the people and an estimated 307 villages (two hundred thousand people) depend directly on fuel fodder and other non-timber forest products from the Bhitarkanika mangrove forest. Over time, much of the mangrove forests in Orissa have been encroached on and reclaimed for agriculture and aquaculture and human settlement (local and migrant). Deforestation has led to fragmentation and areas that are completely devoid of mangroves. Construction of commercial ports coupled with extensive shrimp farming and cattle grazing have similarly caused considerable damage to the forests. Communities living along the fringes of the Bhitarkanika sanctuary are involved in poaching, illegal fishing, and collection of crabs to supplement their livelihoods and feed their families.

It is apparent that sustainable management and conservation of these vital and life sustaining natural resources are essential. The objective of this project is to strengthen and sustain community

stewardship in conservation, restoration, sustainable management of mangroves based on scientific principles taking into account the vulnerability of the region to natural disasters, sustainable livelihood security for local communities and conservation of ecologically significant natural resources. The project will be implemented in ten villages in Rajnagar block, Kendrapara district in Orissa through interventions including restoration of degraded mangrove forest areas, improved governance structures at the village level and increased community awareness and education of mangrove conservation management.

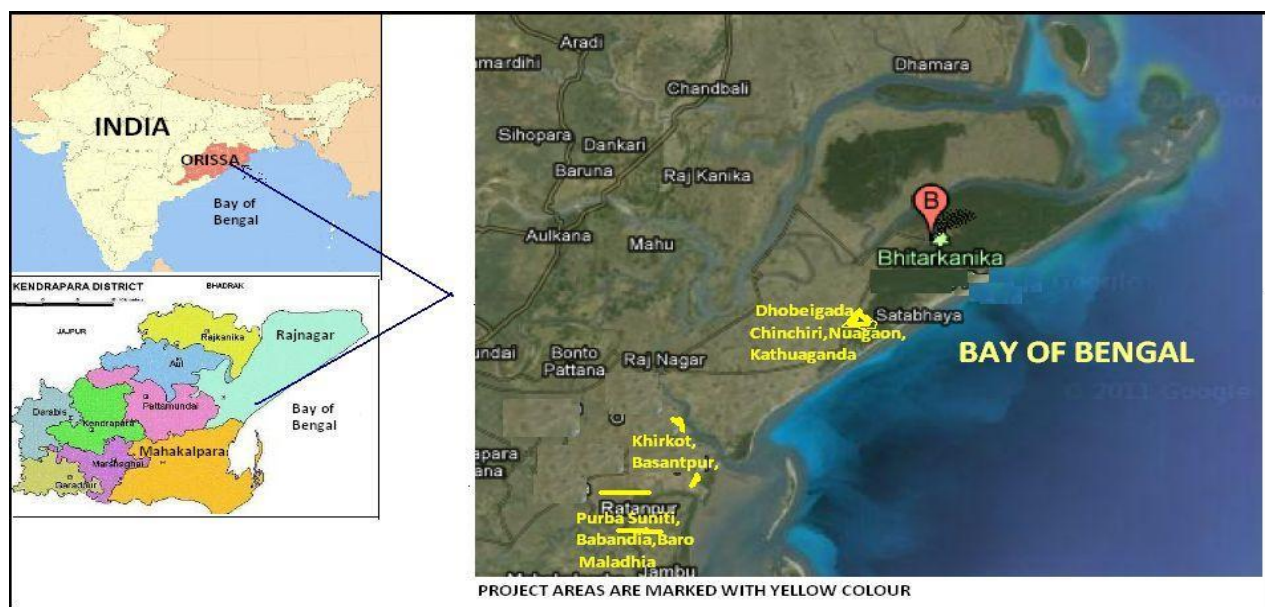


Figure 1. Map of project site and villages

2. Activities

2.1. Restoration of Degraded Mangrove Forest Areas

2. 1. 1. Establishment of a mangrove nursery

The project established a community-led mangrove nursery in May 2013. Until the project ended in December 2012, 36,000 mangrove saplings were reared through MFF SG project funds and 12,000 saplings were grown through funds from community-based groups in neighboring villages. Community members and the Baba Baman Das Village Mangrove Council (Khirkot village) have been managing the nursery, with technical assistance from APOWA. The square shaped nursery consists of sixteen beds in which propagules of Rai (*Rhizophora mucronata*), Sinduka (*Kandelia candel*), and Bandari (*Bruguiera sexangula*), are being reared. The mangrove nursery is being used as a demonstration site and to generate awareness of mangroves amongst local communities, school students and teachers. The nursery will be managed beyond the project period to generate mangrove saplings for equitable distribution amongst the local communities in contribution to the conservation of the forests.



Figure 2. A community member measures the growth of saplings

2.1.2. Plantation and restoration of mangroves in degraded areas adjacent to villages

A large portion of the project time-period, from July to November 2012, was dedicated to the restoration and multi-species plantation of mangroves, through community participation, in identified degraded areas in Basantpur and Khirkot villages, in the Rajnagar block of Kendrapara district. Two types of planting activities were employed, a) restoration using mangrove seeds collected from the local forests and b) saplings from the nursery. Approximately 14,800 mangrove propagules and associated mangroves were planted on 5ha of land in Junglekati creek of Basantapur village. This site is being protected and maintained by Maa Sidhha Marichaani VMC, (Basantpur village) with technical guidance from APOWA. Prior to planting, tidal channels were dug out in Junglekati Creek through the creation of mandays. Additionally, 21,300 mangrove saplings were planted on 7ha of degraded land in Khirkot village through the active participation of the Baba Baman Das VMC (Khirkot village).

All plantation sites were fenced with bamboo poles to prevent damage from cattle. The plants were thereafter used once they reached self-sustaining maturity age. All the planted saplings were sourced from the mangrove nursery established under this project.

Mr. Manoj Kumar Mahapatra, D.F.O., Mangrove Forest Division, Rajnagar, who participated in community-led mangrove plantation activities in Basantpur village, said, "I am happy to be a participant in mass plantation work with local communities, which is need of the hour. I am excited and happy to see the assembly of such a large number of community members for mangroves."

The villagers can already foresee the benefits to be reaped from such restoration activities. “We are happy that now our village will be protected from cyclones or tornados and mangroves saplings which we planted would save our village in coming days” said Mr. Suresh Kumar Rout, a schoolteacher and member of Basantapur village.

“Although it will take time for the newly created mangrove forest to mature, the planted mangrove saplings look promising” said Mr. Satyabrata Panda, Project Associate, APOWA.



Figure 3. Community members plant mangroves along identified canals

2.1.3. The role of women in the protection of the mangroves

Women have the power to change our society. The sixteen female members of Maa Mangala SHG of Basantpur village are at the forefront of the drive to protect mangrove plantation sites in their respective villages. From an early stage the members decided to play an integral part in the project, particularly with those activities bearing direct relation to their villages. They have participated in the mass mangrove plantations and have been protecting these sites on a regular basis. This had a twofold outcome a) the women became more confident in their dealings pertaining to mangrove management and b) they strove (and succeeded in some cases) to become leaders in their own villages, encouraging women in other villages by their example, to take assume leadership roles in mangrove management.

“We are happy to be engaged in the mangrove plantation, and protection work. It’s great and we are able to motivate other people in our village to participate with this project, which will not only protect our futures, but will also give livelihood support to our family”, says Mrs. Lili Priyadarshani Rout,

president, Maa Mangala SHG, and member, Sidha Marichani VMC (Basantpur village). This marked the first time in Basantpur village that women members willingly left their homes and gave up time to participate in decision-making meetings and to work long hours in the field to restore the mangroves.



Figure 4. A female community member partakes in the mangrove plantation drive

2.2. Formation of Village Mangrove Councils for Sustainable Management of Mangrove Resources

2.2.1. Formation of Village Mangrove Councils (VMC)

The village level people's institution for the sustainable management of the mangrove resources is known as the Village Mangrove Council (VMC); a VMC was constituted in each of the ten project villages early in February 2012 (please refer to Annex 1, Table 1 for more details) and is recognized by the Gram Panchyat. The villagers democratically selected a president, secretary and other members (eleven in all). Representatives of all ages and from various professions including women, men, youth, fishermen and grass-root level Panchyat Raj Institute members (ward members) were elected to the Councils. The VMCs are responsible for the restoration of the mangroves and for ensuring that dependence on mangroves in their village decreases to a sustainable rate. VMCs maintain transparency, effectively manage and consistently enforce the importance of mangrove conservation activities. This model enables the local community to assume complete stewardship of the mangroves and allows them to

reap the benefits that the mangroves afford, thus providing them with a sustainable and long-term means of exploitation.

2.2.2. Conflict resolution

Basantpur is a small village of 51 households, comprising of schedule caste and other backward families. In the last four years there have been intense disagreements between the two factions, particularly concerning the lease of the community tank used for pisciculture purposes; the tank has been in disuse since the conflict started. When APOWA commenced project work in the village, it was clear that in order to ensure success the conflict between the communities would need to be absolved. It was at this time that the Siddha Marichani VMC stepped in to play an instrumental role in resolving the conflict through frequent dialogue. The project work was subsequently carried out with the active participation of both communities. Following the mangrove restoration work APOWA further extended support for skill development for the uptake of alternative livelihoods; this was in convergence with the Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS), previously existent in the village.



Figure 5. Capacity building of VMC members

2.2.3. Strengthening the Management and Technical Capacity of the VMCs

Capacity building workshops for members of the Village Mangrove Council were conducted in all ten villages. In turn, through the VMCs local communities have gained a better understanding of the significant provisioning and support services that mangroves offer and the importance of their role in protecting them. The capacity of VMC members has improved significantly, not just in protecting existing forests but also for taking care of the newly planted mangroves. This project provides an exemplary demonstration of how community involvement in mangrove conservation can be bolstered to improve livelihood opportunities and living conditions for coastal communities.

2.3. Community Awareness and Education and Best Practices on Mangrove Conservation Management

2.3.1. Project Inception Workshop

The project inception workshop was held on 28 February 2012 at the Cyclone Shelter in Okilapala, Kendrapara district Odisha. The workshop was attended by sixty one men and women from various organizations, representing a range of stakeholders, including Mangrove For the Future India, the Mangrove Forest Division in Rajnagar, local NGOs, Village Mangrove Councils, local community members, school teachers, PRI members, fishermen organizations, researchers, media personnel and representatives from various government line departments including Agriculture, Animal Resources, Fishery, Horticulture, TRIPTI, Soil Conservation and KVK.

The workshop concluded with a concrete action plan, established with considerations from all stakeholders, and a commitment of all participants to implement it.

2.3.2. Raising community awareness in villages

One of the aims of the project was to enhance awareness of conservation and sustainable management of mangrove resources amongst the communities. This was achieved through frequent formal and informal community meetings, training workshop and targeted awareness programs . The awareness campaign was initiated in the project villages in order to mobilize and cement the support and commitment towards the mangrove conservation and restoration activities. This formed an integral component to the continued success of the project.

2.3.3. Mangrove educational programmes in Schools

Educational programmes in schools are considered to be a significant component of the project. It is important that future generations of decision-makers have the necessary scientific awareness to be stewards of the vital mangrove resource base. Educating the students in these matters was also indirectly resulting in the education of their family members. The project team has undertaken a series of regular mangrove educational class in several schools (for more details please refer to Annex 1 Table 4).

International Children's Mangrove Art Contest

Kumari Ananya Atmaja Mohapatra, aged 14 years (MN High School, Pattamundai) placed first in India in the 2013 International Children’s Mangrove Art contest, conducted by USA based Mangrove Action Project (MAP). In addition, Sri Nirakar Lenka, aged 12 years (Shivananda Vidya Mandir School, Rajnagar) and Sri Om Prakash Panda, aged 13 years (Kundupur U.P. School, Rajnagar) placed second and third respectively.

The project team facilitated the submission of art for the contest amongst sixty students in fifteen coastal schools of Kendrapara district. The five best entries were sent to Mangrove Action Project (MAP), USA for consideration. Approximately 2,500 children from fifteen mangrove nations around the world partook in the contest. This event has enhanced awareness not just amongst the students, but their families and the community at large of the important role that mangrove forests play in the lives of the coastal communities in particular and for ecosystem in general. The contest provided the project team with the opportunity to build relationships with schools, teachers and children.



Figure 6. Eco-club students were taken on a field tour through Bhitarkanika mangrove forest

2.3.4. Mangrove study tour for eco-club students:

Sixty eco-club students and ten teachers from two schools were taken on an action-packed field tour to the Bhitarkanika mangrove forest. The study tour focused on basic mangrove ecology, the importance of ecosystems in biodiversity conservation, and carbon sequestration. This study tour was funded by MFF India.

The programme started with a treasure hunt focusing on nature and involved boat trips and forest walks, in order to students to fully explore the core area of Bhitarkanika mangrove forest. Through the hunt, they learned about the several species of mangroves, studied their root systems, life cycles and

their importance in the ecosystem web. The students were also introduced to the symbiotic and asymbiotic relationships within mangrove ecosystems. The walk led the students through older mangrove forests as well as regenerated forests, illustrating zonation, habitat succession, structure and key functions. The idea was to instill in the minds of the students the important role that mangroves play in climate change mitigation, protection against coastal erosion, buffers to cyclones and storm surges and overall conservation of coastal ecosystem.

A plastic cleanup campaign was also conducted in conjunction with this programme and the students were sensitized to the danger of litter and non-biodegradable substances to the ecosystem. The students collected and recycled or correctly disposed of glass bottles, plastic bottles, plastic carry bags, wrappers and other such items, which contribute to the deaths of a significant number of organisms.

2.3.5. Awareness raising materials meeting local conservation needs are prepared and disseminated

Production and distribution of Information Education and Communication (IEC) materials:

Education outreach will continue beyond the project duration to involve the communities further in understanding and caring for the mangroves. Brochures have been developed both in English and local language, Odia, for dissemination. These materials are also very useful in schools where project team works in partnership with local schools and teachers. The educational materials have been distributed to schools, VMCs, youth clubs, media personnel, intellectuals and other relevant stakeholders.

Project Information boards

In addition to awareness activities, information boards showing the area size, the funding agency (MFF), locality, conservation slogan, pictures were clearly displayed in the sites in each project villages. The content, shape and related design were discussed and passed by Stakeholder committee.

2.3.6. Introducing alternate/supplementary livelihoods

The project has been focusing on empowering communities to reduce pressure on the mangroves through skill development trainings for adoption of alternative and supplementary livelihoods such as mushroom farming, vegetable cultivation and Systematic Rice Intensification (SRI) techniques. The project has been linked with the various existing livelihood promotion and flagship programmes of the government like the Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) for sustainable livelihood development of the community.

Vegetable Cultivation as a supplementary livelihood

Chinchiri village is situated on the fringe of Bhitarkanika mangrove forest in Rajnagar block of Kendrapara district. It is surrounded by dense mangrove forest and the Bay of Bengal to its east. There are thirty-six families living below the poverty line who depend directly on the mangrove forest for their livelihoods, extracting fuel wood, fodder and fish from the already degraded mangrove forest. This has put significant pressure on the mangroves; this in turn is adversely affecting the villagers.

APOWA conducted a systematic livelihood scoping study to assess what supplementary livelihood would be most beneficial to the community. The results of the study and discussions with the local community indicated that vegetable cultivation was the most suitable option. APOWA conducted several skill development programmes to capacity build the community to grow vegetables; men, women and youth were involved in the training. Women in particular took up this activity and a few banded together to start their own enterprise. All the families in the village are growing vegetables to different extents. Several families are now able to grow enough vegetables to sustain themselves and to sell at the local markets with help from their respective VMCs.

Parvati Pradhan, a 43-year-old woman, and her husband are supporting a thirteen member large family. They now grow vegetables and fruits like papayas, drumsticks, brinjals, tomatoes, okra and leafy vegetables in their own backyard. They grow enough to sustain the whole family and even sell the surplus to ease their financial burdens. She says, “We found it easier to make a living from our small land than exploiting the mangroves. We have set example for others.”

Vegetable cultivation is one of the most successful activities promoted in all the ten project villages. The project team has supported the vegetables cultivation by providing training on improved practices, crop diversification and techniques of SCI (System of Crop Intensification) for higher productivity. For the geographically isolated, marginalized and vulnerable communities vegetable cultivation has been a great boon.

3. Outputs and Deliverables

- Over twelve hectares of degraded areas were planted and restored in two villages, Basantpur and Khirkot
- Collaborative linkages were established between the community and other stakeholders and target groups.
- Capacity building training was conducted for the Village Mangrove Councils in all ten villages; 882 community members were trained in two phases.
- More than 48,000 mangrove saplings were grown in the nursery established under this project, out of which 36,000 saplings were given to the VMCs for the plantations and 12,000 saplings were distributed to community members, free of cost.
- More than 8,000 mangrove seeds were collected from the mangrove forest and raised in the nurseries.
- 560 man days created and additional income for poor people and daily labour in the project area through digging of channel, trenches to facilitate tidal inundation in plantation site.
- Ten Village Mangrove Councils have been formed for sustainable managing and conservation of mangrove resources.

- Detailed biophysical resources and Socio-economic Assessment and Mangrove Management appraisal undertaken and documented in ten villages (Please refer to Annex 2 for the survey)
- Education and awareness resource materials like leaflets, brochures and posters were prepared.
- Ten community awareness programmes and an awareness camp were conducted in different project villages; 1,035 men and women participated in total.
- Mangrove educational classes were conducted in eight schools; 1,178 students participated in all.
- International Children's Mangrove Art contest conducted in fifteen schools, in which sixty students participated and five best entries sent to Mangrove Action Project, USA.
- Sixty eco club students, ten teachers were taken on action-packed mangrove study tour to Bhitarkanika National park.
- Twelve wall paintings displayed in ten project villages.
- Skill development trainings on alternative sustainable livelihoods of mangrove dependant families were conducted in all ten villages; 981 people attended.
- The project has increased the knowledge, awareness among communities on mangrove management.
- There was an observed reduction in the illegal clear felling of mangroves and other destructive resource use practices.
- Sustainable feed stock and bio-fuel produced from community mangrove conserved areas.
- Uncontrolled grazing reduced and controlled grazing and development of stall feeding for domestic animals was established.
- Some families use weed/grass as fuel for cooking; this has reduced the dependency on fuel wood from the mangrove forest.
- Due to increased control of open grazing in the restored mangroves area, fodder production (i.e. *Porteresia coarctata*) increased to ten times more fulfilling the fodder requirement of fodder dependant people.



Figure 7. Fodder production increased ten-fold as mangrove associates including marsh grass were collected for cattle

4. Lessons Learned

- a) The need for sustained sensitization of communities on mangroves and how it affects their livelihoods been the most critical learning from this intervention. This is only effective if institutional set-ups at the village level, like village mangrove councils, are strengthened to assume responsibility of the ecosystem, ensure it's sustainable use and maintain transparency and equity. This also promotes a sense of pride and livelihood security.
- b) The increased participation of women in the project activities was a real mark of success, particularly in a culture and society where women are often seen at the forefront of decision-making activities and management. The introduction of livelihoods for the women increased their family's financial capacity and imparted a sense of equity that prompted them to become part of the VMCs and various other local set-ups.
- c) We have observed that, the closer cooperation and information & knowledge sharing between one VMC to other VMC on mangrove restoration and conservation is encouraging. Each VMC has been playing a significant role as facilitator for communication and liaison between villagers and project team for mangrove restoration and conservation. The collective action of communities building a solidarity effort and strengthens a sense of stewardship which is important for the sustainability of the community work for the mangrove resource management and conservation.

- d) Engaging and encouraging the local media personnel is very important as an advocacy strategy and highlight critical mangrove issues. With this in mind, the media was invited and encouraged to publish articles on the importance of mangroves, project activities and successes. (Please refer to Annex 3 for the press clippings)
- e) Working in cooperation and association with a variety of stakeholders including local forest department, women groups, youth clubs, NGOs, fishermen community associations, and local panchayat that have diversity of ideas, united of voices, knowledge, and experience also provides many benefits, as the stakeholders bring their own strengths in one platform.

5. Dissemination of information

The project team works directly with communities and other stakeholders to widely disseminate the lessons learned. We communicate findings through stakeholder meeting, community workshops, and educational presentations in schools that provide opportunities for exchanging lessons learned. Presentations, brochures are produced in local languages.

The project team has shared the results of project work with communities and other stakeholders: internal and external. Internal sharing means exchanging the results within the existing ten project village committees. The external sharing, on the other hand, means sharing the outcome of our project among the wider communities and stakeholders like media personnel, forest officials, local institutions policy makers, non-governmental organizations, professionals, academics and practitioners etc. We are also encouraging journalists to write more features and articles about the mangrove conservation and its benefits for the coastal ecology for larger outreach.

6. Risk, Issues and Challenges

- a) It was quite challenging to change the community perception and attitudes on mangroves. In Odisha, negative attitudes towards mangroves are exaggerated in areas where incomes are low and populations are high. This project began around the urgent problem of building resolution mechanisms through community awareness programme for conflicts between mangroves and coastal communities. Teamwork was probably the most important tool we have at our disposal for overcoming the challenges.
- b) Community mobilization is a slow and difficult process and needs continuous motivation and incentives. The project team faced some challenges and experienced disappointment in the early stages of the project. Some factors contributing to the lack of motivation amongst the community members included inter group conflicts (mostly credited to local politics) and disputes within villages due to election issues, inequity within the community and alcoholism. The project addressed these problems through the training of project staff and volunteers from all project villages in conflict resolution. The involvement of women raised attention to the issues faced by marginalized groups within the community .

The project team consulted with the village headmen, youth, Self Help Group members and schoolteachers to seek their cooperation and support for the project and aid in conflict resolution amongst other community members. Equitable distribution of work and responsibility and maintenance of transparency were important components in trust building within the communities. Local volunteers and community members held all major responsibilities to ensure the success of the project, in order that they retain complete stewardship over the mangroves.

- c) The massive dependence of local population in the vicinity on mangrove forest resources leads to over exploitation. Unfortunately, there is neither an adequate mangrove management plan nor a proper sensitisation programme, by which the local people can learn about sustainable use of the mangrove resources. The areas have already encountered severe damage due to large quantity of firewood collection, dumping of pollutants, maximum use of chemical fertilizers in agricultural land. Such issues need to be addressed not only for the sake of the local community, but also with respect to God's own beautiful creation mangrove ecosystem.
- d) The schools have their own educational priorities, time schedules, tight administrative constraint; and difficult them to spare time for our project team.
- e) In the mangrove nurseries, one of the initial problems encountered was that serious heat wave of summer during the early nursery period caused damaged to seedling, usually because the seeds are light and easily floated away.
- f) It was sometimes very hard and some difficulties for volunteers and team to collect the large quantity of mangrove seeds from the creeks in mangrove forest, which is a crocodile prone area. After all, our team worked hard to achieving good results.

7. Future of project

The Village Mangrove Councils will continue to closely monitor the health of the mangroves and where possible spread the work of the benefits of the mangroves to their community, to neighbouring villages. The MFF SGP has convergence with existing government schemes to enable better opportunities for sustainable livelihoods for vulnerable and mangrove dependent communities.

Linkages/Convergence with Dept.	Key Programmes/Schemes
Gram Panchayat and Grass root level Panchayti Raj Institutes	Advocacy and awareness linkages to Village Mangrove Councils with concern Gram Panchayat on Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS),
Krushi Vigyan Kendra, Odisha University of Agriculture Technology	Enhancement of Agricultural Productivity
Horticulture Mission, Government of Odisha	Support of quality planting material of fruit plants

	for planting in backyards. Linkages the each Village Mangrove Councils with block level officials of horticulture programme.
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APOWA wishes to create a networking of professional volunteers as mangrove ambassadors in each mangrove village around Bhitarkanika region, which shall continue to spread the conservation message on mangroves and will act as an agent of change in their village; proper training is essential for these volunteers. Additionally, the conservation and restoration of mangroves calls for further efforts in comprehensive stakeholder involvement. This requires frequent trainings, workshops and exposure visits for the stakeholders towards identifying greater innovations and action plans for sustainable management and restoration of mangroves. APOWA will explore funding opportunities to ensure that this will be continued and replicated in all villages in the region, in the future.

Table 1. Village Mangrove Council

Sl no	Name of the Village	Block name	Name of the Village Mangrove Council	Name of the President
1	Khirkot	Rajnagar	Baba Baman Das VMC	Sri Niranjan Swain
2	Chinchiri	Rajnagar	Maa Buddhi Mangala VMC	Sri Dilip Kumar Pradhan
3	Kathuaganda	Rajnagar	Maa Bata Mangala VMC	Smt Bilasi Swain
4	Nuagaon	Rajnagar	Sri Sri Damodar Goswami VMC	Sri Panchanan Sethi
5	Basantpur	Rajnagar	Sidha Marichani VMC	Sri Fakir Ch Rout
6	Dhobeigarh	Rajnagar	Maa Dhobeichandi	Sri Baidyanath Samal
7	Babandia	Mahakalpada	Maa Manasa Devi VMC	Sri Dipankar Mandal
8	Ostria	Mahakalpada	Maa Sitala Devi VMC	Sri Subal Ray
9	Purba Suniti	Mahakalpada	Maa Manasa Devi VMC	Sri Sankar Gochhayat
10	Panikhia	Mahakalpada	Maa Mangala VMC	Sri Gurupad Mandal

Table 2. Capacity Building Training Programme

Sl No	Village Name	I Phase Training		II Phase Training	
		Date	No's of Participants	Date	No's of Participants
1	Chinchiri	22/04/2012	38	10/12/2012	36
2	Nuagaon	28/04/2012	42	14/12/2012	43
3	Basantapur	06/05/2012	46	3/10/2012	45
4	Panikhia	10/05/2012	45	1/12/2012	44
5	Ostira	11/05/2012	43	4/11/2012	48
6	Kathuaganda	24/05/2012	37	9/11/2012	40
7	Khirkot	26/05/2012	52	8/10/2012	41
8	Dhobeigada	07/06/2012	48	16/11/2012	52
9	Purba Suniti	19/06/2012	51	19/11/2012	49
10	Babandhia	28/06/2012	40	25/11/2012	42

Table 3. Community Awareness Programme details

Sl No	Date	Location/Village	No's of Participants
1	26th & 27th July , 2012	Sankhapur Cyclone Shelter	112
2	5 th & 6 th August, 2012	Khirkot Cyclone Shelter	91
3	12 th & 13 th August, 2012	Basantpur	68
4	18 th & 19 th August, 2012	Chinchiri	92
5	14 th & 15 th November, 2012	Babandhia	108
6	20 th & 21 th November, 2012	Nuagaon	114
7	27 th & 28 th November, 2012	Purba Suniti	123
8	4 th & 5 th December, 2012	Panikhia	110
9	11 th & 12 th December, 2012	Ostira	102
10	24 th & 25 th December, 2012	Kathuaganda	115

Table 4. Mangrove Educational Programme in Schools

Date	School Name	No's Participants	Subject Contents	Students Activity
20/04/2012	Panchayat High School, Bilikna	128	Why Mangroves are Important for our Community	1. Class room teaching 2. Film show on Bhitarkanika mangrove ecosystem and Mangroves: Guardians of the Coast' by Mangroves for the Future (MFF).
25/8/2012	Ramachandi Nodal U.P. School, Dimiria	151	Why Mangroves are Important for our Community	1. Art competition 2. Class room and group discussion
28/8/2012	Singhabahini Sanskrit Vidyalaya, Koriapalla	125	Why Mangroves are Important for our Community	1. Students training programme 2. Film show on mangrove
29/8/2012	Bhagabati Nodal U.P. School, Kaitala-Lanjuda	140	Why Mangroves are Important for our Community	1. Class room teaching 2. Quiz competition
30/8/2012	Sidha Marichani Nodal	168	Why Mangroves are Important for	1. Class room teaching

	U.P. School, Mar		our Community	2. Film show on mangrove
22/11/2012	Kundupur U.P. School, Kundupur	182	Why Mangroves are Important for our Community	1. Class room teaching 2. Quiz competition
06/12/2012	Badapalli High School, Badapalli	214	Why Mangroves are Important for our Community	1. Class room teaching 2. Quiz competition
21/12/2012	MN High School and Balipatana High school	70	Mangrove Ecology Study Tour	Study on mangrove ecology and anti-plastic campaign in Bhitarkanika national park

Table 5. Skill Development Training Programme

SI No	Village Name	I Phase			II Phase		
		Date	No's of Participants	Area/Trade	Date	No's of Participants	Area/Trade
1	Basantapur	16/7/12	52	Kitchen Gardening and Vegetable Prodcution	8/12/12	47	Mushroom cultivation
2	Purba Suniti	28/7/12	54	Kitchen Gardening, Vegetable Prodcution Mushroom cultivation	2/12/12	51	SRI on Paddy
3	Chinchiri	09/8/12	51	Kitchen Gardening, Vegetable Prodcution	30/11/12	42	Mushroom cultivation
4	Babandhia	16/8/12	48	Mushroom cultivation, Vegetable Production, Kitchen gardening	2/1/13	48	SRI on Paddy
5	Kathuaganda	20/8/12	49	Kitchen Gardening, Vegetable Production	5/1/13	50	Mushroom cultivation
6	Nuagaon	5/10/12	46	Kitchen Gardening, Vegetable Prodcution	9/12/12	46	Mushroom cultivation
7	Khirakot	12/10/12	51	SCI & SRI	7/1/13	52	Kitchen gardening, Vegetable

							Prodcution
8	Dhobeigada	5/11/12	45	Kitchen gardening ,Vegetable Production	3/12/12	49	Mushroom cultivation
9	Ostira	10/11/12	48	Kitchen gardening, Vegetable Production	9/1/13	54	Mushroom cultivation
10	Panikhia	18/11/12	52	Kitchen gardening, Vegetable Production	10/1/13	46	Mushroom cultivation

Socio-economic and biophysical resource surveys

1	Name of the Mangrove area:		
2	Location & Site Map		
	2.1	Village	
	2.2	G.P.	
	2.3	Tehsil/Block	
	2.4	District	
2.5	State		
3	Ownership Details:		
	3.1	Private/ Revenue/Forest	
	3.2	Unknown/ disputed	
4	Land Use Pattern:		
	4.1	Aquaculture/Agriculture/Housing/Industry/ Mineral /Sand Mining/ Any other	
5	Legal Status:		
	5.1	Reserve Forest/ Biosphere Reserve/ National Park/ Sanctuary/ Marine Protected Area/Heritage Site	
6	Ecological features of the proposed site:		
	6.1	Mudflat Creek/ estuary/ lagoon	
	6.2	Physical structure of soil: Sandy, loamy	
	6.3	Chemical structure of soil: Salinity, Acidity,	
	6.4	Source of freshwater	

Ecological Status :		
2.1	<u>Vegetation status:</u> Dense/ sparse/ degraded	
2.2	<u>Species composition:</u> Mono culture/ mixed forest	
2.3	<u>IUCN Status; Rare/Endangered /Threatened / Endemic Species</u>	
2.4	Breeding/ nesting sites of Turtles /Horse Shoe Crabs	
2.5	Roosting/ Nesting / Breeding site of Migratory Birds	
2.6	Associated Biodiversity: Flora, Fauna, Wildlife,	

Socio-economic Activities :		
3.1	Aquaculture/Fishing/ Bee-keeping/ Crab fattening/ Weed culture/ Any other	
3.2	Industry/ Port/ Harbour Development	
3.3	Tourism	
3.4	Other Employment Opportunities/ Livelihood options	
Ecological Benefits (as perceived by people)		

4.1	Shore line protection/ Stabilization/ Prevent Erosion	
4.2	Act as a Bio-shield against Cyclones, Hurricanes/	
Economic Benefits (as perceived by the Community)		
5.1	Provide Food and Fodder	
5.2	Enhance Fisheries potential	
5.3	Provide Fuel /Fire Wood	
5.4	Provide employment opportunities & livelihood	
5.5	Sources of Traditional Medicines	
5.6	Any other	
Threats to Mangroves:		
6.1	Anthropogenic pressures	
6.2	Freshwater source (reduction/ diversion, etc.)	
6.3	Developmental Activities Industry, Sand/Mineral Mining Port, Aquaculture, Agriculture, Housing etc.)	
6.4	Grazing/ cutting of trees for fuel/firewood etc.	
6.5	Pollution: sewage/ industrial/ oil, solid waste disposal etc.)	

Some of the news articles that were published in Odia dailies, pertaining to the project, in particular the mangrove plantations

ବିଭିନ୍ନ ସ୍ଥାନରେ ବନ ମହୋତ୍ସବ ଓ ବୃକ୍ଷରୋପଣ



ରାଜନଗର, ୭୬ (ଇମିସ): ସପ୍ତର୍ଷି ନିଆରା ବଜାର ଆଡ଼ି ପାକନ ହୋଇଥିଲା ୬୩ତମ ବନମହୋତ୍ସବ । ରାଜନଗର ବ୍ଲକରେ କୋଇଲିପୁର ପଞ୍ଚାୟତର ବସନ୍ତପୁର ଗାଁର ପୁରୁଷ ଓ ମହିଳା ମିଳିମିଶି ନିଜ ଚରପତୁ ପାକନ କରିଥିଲେ ବନ ମହୋତ୍ସବ । ଲୁଣା ଜଙ୍ଗଲ ଗାଁକୁ ବନ୍ୟା, ବାତ୍ୟା ଓ ସୁନାମାକୁ ରକ୍ଷା କରିବ, ଏହି ସଦେବନତାର ଗାଁ ନେଇ ଗାଁ ଲୋକେ ପାଳିଥିଲେ ବନ ମହୋତ୍ସବ । ଗାଁର ଦମୟନ୍ତୀ ରାଉତ, ସତ୍ୟଭାମା ରାଉତ, ଭାରତୀ ରାଉତ, ଶାନ୍ତିଲତା ରାଉତ, ପ୍ରମିଳା ରାଉତ, ସାବିତ୍ରୀ ରାଉତ, ସୁରେଶ ଚନ୍ଦ୍ର ରାଉତ, ଅଲେଖ ରାଉତ, ଜଗନ୍ନାଥ ରାଉତ ପ୍ରମୁଖ ଶତାଧିକ ଗ୍ରାମବାସୀ ଆଜି ସକାଳୁ ଗାଁର ଜଙ୍ଗଲକଡ଼ି ଯୋଗ ନିକଟରେ ଥିବା ୧୦ ଏକର ଜାଗାରେ ଗଛ ଲଗାଇବା ଆରମ୍ଭ କରିଛନ୍ତି । ଗାଁର ଛୋଟ ପିଲାଠାରୁ ଆରମ୍ଭ କରି ବୃଦ୍ଧା, ବୃଦ୍ଧା ପର୍ଯ୍ୟନ୍ତ ସମସ୍ତେ ଗଛ ଲଗାଇବାର ଅର୍ପଣ ଦେଖିବାକୁ ମିଳିଥିଲା । ଏହି ବନ ମହୋତ୍ସବ ସମୟରେ ରାଜନଗର ଡିଏଫ୍‌ଓ ମନୋଜ ମହାପାତ୍ର, ଏସିଏସ୍ ଗୋଧର ପାତ୍ର, ଡେଡ଼ ଅଫିସର ଶୁଭେନ୍ଦୁ ଦେହେରା ପହଞ୍ଚି ଗ୍ରାମବାସୀଙ୍କ ସହ ମିଶି ଗଛ ଲଗାଇଥିଲେ । ଲୋକଙ୍କ ମଧ୍ୟରେ ଗଛ ଲଗାଇବା, ପରିବେଶ ରକ୍ଷା କରିବା ପାଇଁ ବିଭିନ୍ନ ସଚେତନତା କାର୍ଯ୍ୟକ୍ରମ ସମେତ ବନ ବିଭାଗ ପକ୍ଷରୁ ବନ ମହୋତ୍ସବ ପାଳନ କରାଯାଇଛି । ମାତ୍ର ବସନ୍ତପୁର ଗ୍ରାମବାସୀଙ୍କ ଦ୍ଵାରା ସମୂହ ବୃକ୍ଷରୋପଣ, ଲୁଣା ଜଙ୍ଗଲ ସୃଷ୍ଟିର କାର୍ଯ୍ୟକ୍ରମ ଅନୁସାରେ ଚଳାଯିବ ବୋଲି ଡିଏଫ୍‌ଓ ମନୋଜ କହିଥିଲେ । ଆଜିର ଏହି ଅଭିନବ ଓ ନିଆରା କାର୍ଯ୍ୟକ୍ରମରେ 'ଆପୁଆ'ର ବିଭିନ୍ନ କୁମାର କବି ଓ ସ୍ଵେଚ୍ଛା ସେବାମାନେ ସହଯୋଗ କରିଥିଲେ । ଆଜି ଏହି କୁଆର ମାତୃସିଦ୍ଧା ସ୍ଥାନ ମଧ୍ୟରେ ବନ ବିଭାଗ ପକ୍ଷରୁ ବିଶ୍ଵ ପରିବେଶ ଦିବସରେ ଶ୍ରେଷ୍ଠ ବକ୍ତୃତା ଦେଇଥିବା ପଞ୍ଚାମୁଖାଇ ଏମ୍.ଏନ୍. ହାଇସ୍କୁଲର ୧୦ମ ଶ୍ରେଣୀର ଅନନ୍ୟା ଆଡୁଳା ମହାପାତ୍ରଙ୍କୁ ପୁରସ୍କୃତ କରାଯାଇଥିଲା । ବିଲିକଣା ହାଇସ୍କୁଲ ଶିକ୍ଷକ ସୁରେନ୍ଦ୍ର ନାଥ ରାଉତ ଏହି ପୁରସ୍କାର ପ୍ରଦାନ କରିଥିଲେ । ଶିକ୍ଷକ ଅଲେଖ ଚନ୍ଦ୍ର ରାଉତ ଧନ୍ୟବାଦ ଦେଇଥିଲେ । ଏଠାରେ ସୂଚନାଯୋଗ୍ୟ ଯେ ବସନ୍ତପୁର ଗାଁଠାରୁ ବଡ଼ଶେଇ ମୁହାଣ (ବଙ୍ଗୋପସାଗର)ରୁ ଦୂରତା ଗୋଟିଏ କିଲୋମିଟର । ଆଜି ଯେଉଁ ସ୍ଥାନରେ ସମୂହ ବୃକ୍ଷରୋପଣ କରାଗଲା ସେଠାରେ ପୂର୍ବରୁ ଜଙ୍ଗଲ ଥିଲା । ଗ୍ରାମବାସୀ ଓ ଅଞ୍ଚଳର ଗାଁର ଲୋକେ ଏହାକୁ ବାଟି ସଫା କରିଦେଇଥିଲେ । ମାତ୍ର ଜଙ୍ଗଲ ସଫା ହୋଇଯିବା ପରେ ୧୯୭୧ ଓ ୧୯୯୯ ମହାବାତ୍ୟ ସମୟରେ ଲୁଣା ସ୍ଵଆର ଏହି ଗାଁକୁ ମାଡ଼ି ମାଡ଼ି ବ୍ୟାପକ କ୍ଷୟକ୍ଷତି କରିଥିଲା । ଏପରିକି ୧୯୭୧ ମସିହାରେ ୪୦ ଜଣ ଲୋକ ପ୍ରାଣ ହରାଇଥିଲେ ।

ବସନ୍ତପୁରରେ ବନ ମହୋତ୍ସବ ପାଳିତ

ରାଜନଗର, ୭୬ - କୋଇଲିପୁର ପଞ୍ଚାୟତ ବସନ୍ତପୁର ଗ୍ରାମବାସୀଙ୍କ ଉଦ୍ୟମରେ ଏବଂ ସ୍ଵେଚ୍ଛାସେବୀ ଅନୁଷ୍ଠାନ 'ଆପୁଆ' ସହଯୋଗରେ ଏହି ବନ ମହୋତ୍ସବ ପାଳିତ ହୋଇଯାଇଛି । ଏହି ଅବସରରେ ବସନ୍ତପୁର ଜଙ୍ଗଲକଡ଼ି କୋର ନିକଟରେ ଚାରା ରୋପଣ କରାଯାଇଥିଲା । ବସନ୍ତପୁର ଗ୍ରାମବାସୀମାନେ ଲୁଣାଜଙ୍ଗଲ



ପୁରୁଷା ସମିତି ନାମକ ଏକ ସଂଗଠନ ଗଠନ କରି ତାରି ମାଧ୍ୟମରେ ଏହି ଚାରା ରୋପଣ କାର୍ଯ୍ୟକ୍ରମ ହାତକୁ ନେଇଥିଲେ । ଆପୁଆର ସଂପାଦକ ଅଧ୍ୟାପକ ବିଜୟ କୁମାର କବି ସେମାନଙ୍କୁ ସହଯୋଗ କରିଥିଲେ । ରାଜନଗର ବନଖଣ୍ଡ ଅଧିକାରୀ ମନୋଜ କୁମାର ମହାପାତ୍ର, ଅତିରିକ୍ତ ବନଖଣ୍ଡ ଅଧିକାରୀ ଗୋଧର ପାତ୍ର, ରେଞ୍ଜ ଅଫିସର ଶୁଭେନ୍ଦ୍ର ପ୍ରସାଦ ଦେହେରା, ପ୍ରମୁଖ ଅତିଥିଭାବେ ଯୋଗଦେଇଥିଲେ । ପରିବେଶ ଉପରେ ଛାତ୍ରଛାତ୍ରୀଙ୍କ ଦ୍ଵାରା ହୋଇଥିବା ବକ୍ତୃତା ପ୍ରତିଯୋଗିତାରେ କୃତୀତ୍ଵ ହାସଲ କରିଥିବା ପଞ୍ଚାମୁଖାଇ ମନୁଥନାଥ ଉଚ୍ଚ ବିଦ୍ୟାଳୟର ୧୦ମ ଶ୍ରେଣୀ ଛାତ୍ରୀ ଅନନ୍ୟା ଆଡୁଳା ମହାପାତ୍ରଙ୍କୁ ପୁରସ୍କୃତ କରାଯାଇଥିଲା । ବିଲିକଣା ଉଚ୍ଚବିଦ୍ୟାଳୟର ଶିକ୍ଷକ ଅଲେଖ ଚନ୍ଦ୍ର ରାଉତ ଧନ୍ୟବାଦ ଦେଇଥିଲେ । ବସନ୍ତପୁର ଲୁଣା ଜଙ୍ଗଲ ପୁରୁଷା ସମିତିର ସୁରେଶ ଚନ୍ଦ୍ର ରାଉତ, ଅଲେଖ ରାଉତ, ଜଗନ୍ନାଥ ରାଉତ, ଦମୟନ୍ତୀ ରାଉତ, ସତ୍ୟଭାମା ରାଉତ, ଭାରତୀ ରାଉତ, ଶାନ୍ତିଲତା ରାଉତ ପ୍ରମୁଖ ଏହି କାର୍ଯ୍ୟକ୍ରମରେ ସାମିଲ ହୋଇଥିଲେ ।

ହେଡ଼ାଳବଣର ଯତ୍ନ ନେବାକୁ ଆହ୍ଵାନ

ଜନଗର, ୨୬ (ଡି.ଏନ.ଏ.)- ରୁବାର ଅନ୍ତର୍ଜାତୀୟ ହେଡ଼ାଳବଣ ରକ୍ଷା ଦିବସ ସ୍ଥାନୀୟ ଶଙ୍ଖପୁର ଛୁମୁଖୀ ବାତ୍ୟା ଆଶ୍ରୟକ୍ଷମାଠାରେ ପାଳିତ ହୋଇଯାଇଛି । ଜ୍ୟୋତସାଗର ଡେଭରୀ ରାଜନଗର, ହାକାଳପଡ଼ା, ପଞ୍ଚାମୁଖାଇ ପ୍ରଭୃତି ମୁହୂର୍ତ୍ତକୁଳିଆ ୬୪ଟି ଗାଁ ସୁନାମିପ୍ରବଣ ଖଳ ଭାବେ ଚିହ୍ନଟ କରାଯାଇଛି । ଏହି ଗୁଡ଼ିକ ମଧ୍ୟରୁ ଅଭିଶପ୍ତ ସାତଭାୟା, ୧୫ ଗ୍ରାମ ସମୂହ ଗର୍ଭରେ ଲୀନ ହାକୁ ବସିଲାଣି । ତେବେ ସମୂହ ସଂରକ୍ଷା ଅଞ୍ଚଳସବୁ ସାମୁଦ୍ରିକ ଝଡ଼ ଥା ପ୍ରାକୃତିକ ବିପର୍ଯ୍ୟୟରୁ ରକ୍ଷା

କରିବା ପାଇଁ ହେଡ଼ାଳବଣର ଆବଶ୍ୟକତା ଜରୁରୀ ହୋଇପଡ଼ିଛି । ଏହି ପରିପ୍ରେକ୍ଷାରେ ପ୍ରତ୍ୟେକ ସ୍ତରରେ ହେଡ଼ାଳବଣର ଯତ୍ନ ନେବା ସମୟର ଆହ୍ଵାନ ବୋଲି ପରିବେଶବିତ୍ମାନେ ମତପୋଷଣ କରିଛନ୍ତି । ସ୍ଵେଚ୍ଛାସେବୀ ସଙ୍ଗଠନ 'ଆପୁଆ' ପକ୍ଷରୁ ଆୟୋଜିତ କର୍ମଶାଳାରେ ଅଧ୍ୟାପକ ବିଜୟ କବି ପୌରୋହିତ୍ୟ କରି ଅନ୍ତର୍ଜାତୀୟ ହେଡ଼ାଳବଣ ଦିବସର ଆଜିମୁଖ୍ୟ ଉପରେ ଡର୍ଜମା କରିଥିଲେ । ଅନ୍ୟମାନଙ୍କ ମଧ୍ୟରେ ଜିଲା ଇକୋ କୁବର ସଂଯୋଜକ ଗୋପୀନାଥ ଦାଶ, ଅଧ୍ୟାପକ ଶୁଭକାନ୍ତ ନାୟକ,

ସୁଶାନ୍ତ ମହାପାତ୍ର, ରେଞ୍ଜ ଅଫିସର ବିନୋଦ ଆଚାର୍ଯ୍ୟ, ମନୋଜ ଶତପଥୀ, ଭୀଷ୍ମର ରାଉତ, ପ୍ରମୁଖ ଯୋଗଦେଇ ହେଡ଼ାଳବଣ ଉପକାରिता ଉପରେ ଆଲୋଚନା କରିଥିଲେ । ଏହି ଅବସରରେ ମହାକାଳପଡ଼ା ବ୍ଲକର ସୁନାମି ଗ୍ରାମୀଣ ଅବହତୀ ଗୋଛାୟତ, ବସନ୍ତପୁର ସୁରେଶ ରାଉତ, ବାଲିସାହିର ଅଶୋକ ରାଉତ, ବୀଣାପାଣି ଯୁବକ ସଂଘ ନରଣପୁରର ଗଜେନ୍ଦ୍ର ଲେଙ୍କାଙ୍କୁ ସମ୍ବର୍ଦ୍ଧିତ କରାଯାଇଥିଲା । ସତ୍ୟବ୍ରତ ପଣ୍ଡା, ଅଶ୍ଵିନୀ ନାୟକ, ନିରଞ୍ଜନ ସ୍ଵାଇ ଏହାକୁ ପରିଚାଳନା କରିଥିଲେ ।