

The Rufford Foundation Final Report

Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your Name	Moushumi Basu
Project Title	Managing Man Tiger Conflicts and Conserving Tigers In Indian Sunderbans By Restoring Mangrove Bio Diversity With Community Paricipation
RSG Reference	19301-2
Reporting Period	April 25 , 2016 - March 25, 2017
Amount Of Grant	£5000
Your Email Address	Basu.Films@Gmail.Com
Date Of This Report	March 30, 2017

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
1. Reducing anthropogenic/ human pressures and dependency of local communities on the tiger habitat by generating sustainable livelihood options in our 12 target villages.				<p>This time the key thrust of our objectives and activities has been to create more gainful and sustainable livelihood options for the beneficiaries in our target villages. Our efforts have reduced their entry in the tiger habitat by at least 35% - 40 % which is about 750 - 800 persons.</p> <p>We have been able to raise income generation activities, by covering more number of beneficiaries and villages, in the second round of RSG, beginning from its first round.</p> <p>Simultaneously, we have also identified two additional livelihood sources in our second round of RSG involving the women folks and tiger widows.</p>
2. Reducing incidents of man tiger conflict in our target villages.				<p>Based on our door to door surveys of human deaths/ injuries in tiger attacks, this time (2016) such incidents were reduced to two in our target villages during the current project duration, as compared to last year. This figure however does not tally with the official records of forest department, as the local communities injured or killed venture within the forest without official permits, from forest department.</p>
3. Climate Change Mitigation				<p>Our 32 ha of community mangrove forest achieved from both rounds of RSG so far in 12 villages provide examples on how global problems can be solved locally. Mangroves being excellent eco-barricades against the impacts and vagaries of climate change.</p>

			These community forests around the villages are in turn also protecting at least 12-13 km of earthen embankments bordering our target villages preventing incursion of tidal water and protecting home and assets of beneficiaries.
4. Developing agriculture as a feasible means of livelihood/ sustenance for local communities But you will be pleased to know that the majority of them are using compost. We are creating awareness on the importance and use of organic manure. Some of the families have dug up pits outside their homes for developing vermi compost.			While forestry has been the traditionally predominant source of livelihood in our beneficiary villages, we have fairly succeeded in bringing about a conscientious approach towards cultivation of certain coarse varieties of crops and vegetables in areas next to the community ponds. About 2.5 - 3 ha of land could be brought under cultivation this time. With availability of water through ponds being an advantage in this regard, our efforts
5. Awareness drives on mangrove and tiger protection, with income generation opportunities			This time, we have been able to develop two cultural teams comprising 11 members (dancers along with singers and musicians) in each that were initially engaged in spreading awareness in our target villages. They are today earning their livelihood by performing before tourists in the lodges. Integrating awareness with local culture, such programmes are also educating the outside tourists on the do's and don'ts of forest conduct. We have also worked our way with the children, involving them in a number of activities right from the beginning including drawing competitions, quiz, cultural activities and developing educational mangrove garden in their school campus. This time we also organised "conservation lessons" for them with the local teachers and environmentalists.
6. Restoration of traditional practices as			We have been able to bring up two more folk healers who are using the

Folk Medicine and other local cultures.			resources from the community grown mangrove forests for their medicine. We are also reviving other traditional folk cultures of the region with a gainful purpose of income generation.
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

This year, monsoon was very heavy in our villages especially between June - July. The sea became rough and the tides were surging. During two-three occasions, there were situations like flash floods accompanied by cyclonic storms with heavy downpour. Our ponds were overflowing and the excess water partially submerged our homes and surrounding areas. We had to pause our work during such extreme weather conditions. This however did not create any significant impact on the overall pace of our work or its ultimate progress.

3. Briefly describe the three most important outcomes of your project.

1. Development of about 32 ha of community mangrove forests in degraded mangrove land covering about 12 villages. In the process, we have planted, about 12-14 species of mangroves. Some of them include - the Endangered- Sundari (*Heritiera Fomes*), Near threatened - Goran (*Ceriops decandra*), Tora (*Aegialitis rotundifolia*), Hental (*Phoenix paludosa*), Bhola Sundari (*Brownlowia tersa*) besides Goran (*Ceriops decandra*), Dhundul (*Xylocarpus granatum*), Byne (*Avicennia officinalis*), Peara Byne (*Avicennia marina*), Keora (*Sonneratia apetala*), Kankra (*Bruguiera gymnorrhiza*) Passur (*Xylocarpus mekongensis*) etc. These patches will develop into mangrove forests owned, managed and maintained by the local communities using their traditionally sustainable practices.

These growing forests in different stages of development will/are generating sustainable sources of livelihood, such as tidal fishing, crab catching in mangrove slush after recession of tide, apiary honey besides supplementing their needs for firewood.

Further, these community mangrove forests are protecting earthen embankments bordering our villages from incursion of tidal water. They act as eco-barricades against various impacts of climate change as rise in sea level, tidal storms, cyclones etc.

In order to make our work sustainable, we have also developed at least two more nurseries in our target villages, in addition to two more developed from RSG1. This has created sapling pools of various mangrove species for our restoration work. In the process, our local community will be self reliant and more assured on the respective choice of saplings and their survival.

The villagers feel that this would be the best gift they can pass on to their future generations.

2. Developing nine community ponds, that sustain diverse species of fish and crabs whose fingerlings have been released in these water bodies by the beneficiary families.

Further, such community managed water bodies also provides water for irrigation, thereby promoting agriculture as an additional livelihood option and ultimately adding on to the conservation outcome in target villages. The brackish water in the region can support certain coarse varieties of paddy/ pulses etc in rotation suiting the seasons, along with certain vegetables and fruits as watermelon, cucumber, potatoes, varieties of gourds, pumpkins etc.

3. More awareness - Our ongoing awareness campaigns, have been made more gainful in terms of livelihood generation, this time, involving more community members. Banners with awareness messages were designed this time by our beneficiaries especially for the tourists.

Children have participated in a big way in a number of activities. Our village school became one of our nerve centres of awareness activities. We had drawing competitions, quiz and extempore speech contests on tiger and mangrove conservation, involving school children. A specimen mangrove garden, has also been developed by the children in school. This is grown and managed by the children themselves. The children are also participating in "conservation lessons" on tigers, wildlife and mangroves, taken by our local teachers on weekends.

We organised six village level awareness meetings, with the help of our Mangrove Conservation Committees. The beneficiaries are getting more aware and convinced that it is possible to continue with their traditional livelihood even outside the tiger habitat. This way we not only save human lives and reduce man tiger conflict but also help in tiger conservation.

Our efforts have helped us to reduce at least 35% - 40% of human pressures in the tiger habitat area.

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

The basic aim and objective of our project have been designed to ensure maximum involvement of the local communities, through decision making and management, besides collective participation in the activities. Their opinions, ideas and requirements, were discussed in various social surveys during village level meetings from time to time, which were integrated with our project tasks. After all, the key to a durable solution lies in proper application of local knowledge, wisdom and collective action.

This time in particular, we worked out certain specific women and children centric activities, to ensure more extensive participation of local communities. The whole idea was to make them self reliant and make their conservation efforts sustainable based on their traditional knowledge.

Various means of livelihoods generated as per their needs and capacities have thus empowered the villagers. They have developed a greater sense of belonging with the landscape and understanding of the situation whereby the human, the tiger and the mangrove have to co-exist and not at the cost of the other.

Our Mangrove Conservation Committees comprising local men and women are emerging as effective watch dogs, monitoring the grass root implementation of the respective activities and their efficacy.

5. Are there any plans to continue this work?

Yes, certainly. The work supported by RSG is a part of our long-term programme which needs to continue both for conservation of tigers and saving human lives in the villages besides mitigation of climate change impacts, through mangrove restoration.

Thanks to the RSG projects that the local communities are coming into terms with their possibilities of making a living outside tiger habitat, while using their traditional skills and knowledge. Hence, the need of the hour is to build up on this work further, by involving more number of villages and beneficiaries, with the basic objective of reducing human pressures in the tiger habitat.

Most importantly, this will also set an example for the other forest villages beyond our present target area. After all, the villagers enter the forest for their livelihood with much trepidation, as it involves much life risk. Hence, given the choice, they would rather prefer to leave the habitat inviolate for the tigers.

6. How do you plan to share the results of your work with others?

The results of our work are being compiled and processed by two of our school teachers and few other villagers, in vernacular language. Called "*Poribesh Shiksha*" (Lessons on Environment), we plan to share it with our school children, by way of fortnightly lessons, as part of their extracurricular activities.

On special occasions as International Tiger Day on July 29th, International Mangrove Day on July 26th, World Environment Day on June 5th, and other similar occasions as, we will especially show case our project activities at the local level as well as at the level of state forest department. Our archive/ slide of still pictures, various survey reports besides awareness programmes prepared by the local villagers will be presented on these occasions. Our cultural teams have songs, skits, dances etc. to propagate the objectives of our project in such programmes and events.

The abstract of our work has been selected for further presentation in the proposed Rufford Conference to be held at Sawai Madhupur in Rajasthan from April 23rd – 26th 2017. Participation in the conference will not only enable me to showcase our work, but also learn from the best practices of other grantees, invited on the occasion.

The results of our work including updated survey reports will be shared with the other grass roots organisations, through workshops and meetings. We are/ will also share this with the forest department at various levels besides local environmentalists and journalists.

7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?

The grant was used over a period of one year from March 31st 2016 to March 31st 2017.

Since, this was the second round of RSG, much of our initial groundwork and preparations had already been done while starting up with RSG1.

Officially, we began our work RSG2 from the first week of April 2016 with village level meetings, social surveys and core committee meetings of our organisation, to set the agenda for yearlong project.

However, this time, since the local beneficiaries were already aware of the basic aims, objectives and major activities of the project, we could complete it within a fortnight, by the third week of April 2016.

Next, our activities of mangrove seed collection and maintenance of nurseries, actually did not stop after the completion of RSG1. In an ongoing, self sustainable process, the villagers began mangrove seed collection with the onset of spring from February 2016 and continued till end of April 2016. During this period, mangrove trees are in full bloom and develop propagules / seeds for dispersal by tidal waters.

Prior to arrival of monsoon, we got two more mangrove nurseries ready, in addition to the two already existing ready with the saplings for plantation work. Plantation of mangrove saplings commenced with the onset of monsoon from June 2016. During rainy season, the tides are at their peak and help in the growth of halophytic mangroves. Our plantation work continued till October 2016, prior to the beginning of winter, when the level of tide gradually reduces.

The community ponds were also dug up for the release of fingerlings of various species of fish during monsoon from June to September 2016, when their development is optimum.

Awareness campaigns in various forms and cleanliness drives were conducted round the year.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Item		Budgeted Amount	Actual Amount	Difference	Comments
Mangrove Collection	Seed	313	450	137	This time we welcomed and had more than anticipated participation from family members of those killed in tiger attacks, as widows and children of tiger victims/ tiger attack survivors. For them, it has become very difficult to earn their regular living. Hence, in a token gesture of help, we compensated them, for few days in a month, on the basis of their work, at par with the daily wages of semi-skilled worker in India. These beneficiaries were engaged on a rotation basis on purely humanitarian grounds.
Maintaining Nursery	Mangrove	450	472	22	
Mangrove plantation	sapling	690	750	60 (60-25)=35	We had more than anticipated participation of members of deceased tiger victims. This also enabled us to exceed our targeted areas by about 3-5 hectares.
Mangrove Guarding	Protection/	325	300	(-) 25	We adjusted this difference in amount with our exceeded expenses under plantation work.
Cleaning of plantation & nursery sites		260			
A. COMMUNITY MANGROVE FOREST (TOTAL)		2038	2232	194	
Manual Desiltation of Community Ponds	4	293			
Introducing Fingerlings/ Developing Fish Culture & Duck Rearing		725			

Cleaning Of River Banks/ areas in the vicinity of ponds	320			
B. RESTORATION OF COMMUNITY PONDS (TOTAL)	1338			
Various Awareness Programmes with school children		325		This activity was not originally budgeted for in the application. Its expenses were adjusted from other budgeted heads under Awareness progs.
Setting up Mangrove Educational Garden in school	120	85	(-)35	We diverted this difference in amount for various awareness programmes with school children.
Preparing banners, holding street corner campaigns, village meetings etc. (added collectively) (130+300+840) =	1270	980	(-)290	We diverted this difference in amount for various awareness programmes with school children.
Workshops & Exchange Programmes with other local grass root organisations/ academicians , experts etc.	75	105	30	This got increased due to more number of participants from local villages and other organisations, exceeding our anticipations.
C. AWARENESS & SKILL ENHANCEMENT	1465	1495	30	
D. MISCELLANEOUS (TOTAL)	250	280	33	This money was largely used in training our women in Self Help Groups for our programme of creating "wealth out of waste", generated by plastic throwaways and other litters from the tourists.
Total (A + B+ C+ D)	5091	5345	254	We managed to raise this extra money with the help of our cultural team artistes, who performed in tourist lodges. Some of our women members from SHGs also contributed from their earnings obtained by selling their products to the tourists.

9. Looking ahead, what do you feel are the important next steps?

The most important step is to maintain the ongoing pace of work and in the process generate more options of livelihood.

We have so far been able to divert about 35% - 40% of our target beneficiaries from the tiger habitat. Our goal is to divert more number of persons in near future from the tiger habitat.

For this, following are our next steps ahead -

1. INCREASING OUR COMMUNITY MANGROVE FOREST COVER - We are chasing a tall target of 22 villages and 250 ha of land to be covered by community forests.

2. INCREASING THE NUMBER OF OUR COMMUNITY PONDS- Next, at least 16- 18 community ponds are required to be dug up in these villages. So far, we have dug up nine.

3. MORE STRESS ON AGRICULTURE - We are encouraging the diversification of agriculture in our target area based on soil conditions and availability of pond water as an alternative source of sustainability for the local communities. We are also propagating on the increased use of organic manure in the process, being prepared by the villagers themselves, to boost up agriculture production. However, these are on a limited scale which we want to expand further.

4. EMPOWERING TIGER WIDOWS & WOMEN- This time, we worked with the females in our target villages, especially from families of those killed/ injured in tiger attacks. The plight of such women/ girl children in particular becomes dismal as they are almost abandoned by their families.

We began by setting up four Self Help Groups with six members in each. Two of these groups pick up waste littered by the tourists from our mangrove sites and river banks. They have been trained to create "wealth" out of this colourful waste of plastic throw away into items of daily use. These are sold to tourists, with a message of keeping river banks clean.

Two more groups that are adept at needlework, assemble together after completing their household work in the afternoons, embroidering flowers and motifs on bed sheets, pillow cases and covers while sharing their day to day conversations.

We are happy to state that these items are being appreciated and purchased by the tourists who carry them as souvenirs from Sunderban. Our SHGs are thus generating additional income with a cause through awareness messages to local tourists.

Further, some of these women from our self help groups have recycled this additional income for raising hens and poultry in their homes, which is supplementing their income further. This part of the work can be carried out on a larger scale.

5. MORE AWARENESS- Our cultural teams are spreading awareness with gainful options of livelihood, by performing before tourists in the lodges. Presently, we have two teams, which can be strengthened further by providing accessories, musical instruments and other paraphernalia as required by them for better performances.

Programmes with the school children can be increased further.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

Yes, we largely used the RSG logo in our awareness programmes in the posters used by our cultural teams to educate the tourists on do's and don'ts of forest conduct. Use of Rufford Foundation logo, boosted our confidence and credibility among the visiting tourists.

The Mangrove Conservation Committees (MCC) set up in our respective target villages, to review and monitor the progress of our project work, are also our "local ambassadors" who take part in exchange visits, workshops and discussions with relevant government agencies and other organisations working in the area. During such occasions, RSG invariably figured in our talks and deliberations, whereby its support for our work was acknowledged and appreciated. In fact, this also made the other participants sit back and take notice of our work further.

As the project leader, I shared my experiences of working with RSG, with other conservationist colleagues, wildlife biologists from Bombay Natural History Society (BNHS), the oldest wildlife research organisation in India, Wildlife Institute of India forest department and other concerned organisations. Some of them plan to apply for RSG in future, to carry out their work further.

11. Any other comments?

It feels wonderful to watch the evolution of local communities from frightened victims of man tiger conflicts to protectors of tigers and mangroves. Thanks to RSG, the local communities are getting to realise the importance of tigers as an endangered species and the necessity for its inviolate its habitat. With our developing livelihood opportunities in the target villages, they realise that the so-called "official forests" are not the beginning and end of their lives. It is certainly possible to develop other feasible options of livelihood, in keeping with their traditional knowledge even outside their boundaries. So, let the tiger be left in peace in its own habitat, while we stay safe in our villages!

**PHOTO DOCUMENTATION OF VARIOUS
SUSTAINABLE LIVELIHOOD OPPORTUNITIES
GENERATED THROUGH RSG IN OUR TARGET
VILLAGES**

1. LIVELIHOOD OPTIONS THROUGH COMMUNITY MANGROVE FORESTS

A. FISHING IN TIDAL WATERS



B. CRAB CATCHING IN THE SLUSH OF OUR COMMUNITY MANGROVE FORESTS

CRABS ARE FOUND IN MANGROVE SLUSH AFTER RECESSION OF TIDE



C. INCOME FROM BEE HIVE BOXES THROUGH OUR COMMUNITY MANGROVE FORESTS

OUR COMMUNITY MANGROVE FORESTS BORDERING VILLAGES IN BLOOM



VILLAGERS RENT OUT THEIR LANDS FOR KEEPING BEE HIVE BOXES TO OUTSIDE BEE KEEPERS



2. LIVELIHOOD OPTIONS GENERATED THROUGH COMMUNITY PONDS

A. FISHING IN COMMUNITY PONDS



B. CRAB CULTURE IN OUR COMMUNITY PONDS



C. AGRICULTURE & VEGETABLE/ BANANA CULTIVATION DEVELOPING AS A FEASIBLE LIVELIHOOD OPTION FROM COMMUNITY PONDS

TILLING POND SIDE SLUSH FOR COARSE PADDY PLANTATION



PADDY PLANTATION NEXT TO PONDS



HARVESTED PADDY BY THE COMMUNITY PONDS



PLOTS OF VEGETABLES & BANANA PLANTS BY THE COMMUNITY PONDS



USE OF VERMI COMPOST IN AGRICULTURE BY OUR BENEFICIARIES



3. LIVELIHOOD OPTION THROUGH AWARENESS PROGRAMMES

OUR CULTURAL TEAMS PERFORM IN TOURIST LODGES WITH AWARENESS MESSAGES & SONGS



HIGHLIGHTS OF OUR AWARENESS INITIATIVES WITH CHILDREN

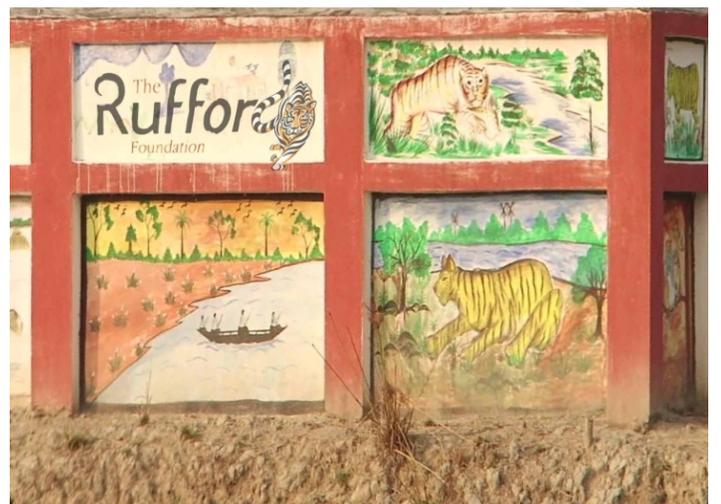
MANGROVE SCHOOL GARDENS DEVELOPED & MAINTAINED BY OUR CHILDREN



LESSONS ON TIGER & MANGROVE CONSERVATION



EXPRESSING CONSERVATION THROUGH ART



4. TIGER WIDOWS & WOMEN MEMBERS ORGANISED IN SELF HELP GROUPS FOR NEW INCOME GENERATING ACTIVITIES

CREATING “WEALTH OUT OF WASTE” OR ITEMS OF DAILY USE WITH PLASTIC THROW AWAYS WHICH ARE SOLD TO TOURISTS WITH MESSAGE OF KEEPING FORESTS & RIVERS CLEAN



MAKING EMBROIDERED BED SHEETS & PILLOW CASES THAT ARE ALSO PURCHASED BY TOURISTS



**SOME WOMEN HAVE DIVERTED THESE EARNINGS FOR RAISING POULTRY IN THEIR HOMES FOR
ADDITIONAL INCOME**

