

Final Evaluation Report

Your Details	
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Project Title	Appropriate Restoration'– Analyzing reforestation & afforestation efforts through the lens of ecological and community-need drivers
Application ID	39082-1
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1. 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. IDENTIFICATION OF VILLAGES AS STUDY SITES		✓		<p>This objective is considered partially achieved due to extant circumstances. The project identified five villages as the potential study sites, however, we could conduct data collection in three of them. The reduction in the number of villages was because:</p> <p>i) The two left-out villages, <i>Bharitola</i> and <i>Lavar</i>, were situated in a socio-politically sensitive district and 2023 (phase of primary data collection) witnessed some major changes in power-holding actors. We could not get permission eventually and therefore, had to let go of these sites.</p> <p>ii) The <i>Gram Sabhas</i> (village council of elected members) of these two left-out villages did not maintain proper paperwork of CFR-related information and there were no other sources to get reliable information from 2011-2012 (phase of CFR entitlements).</p>
2. DOCUMENTATION OF HISTORICAL NARRATIVES OF EACH VILLAGE			✓	<p>This was one of the primary bases of information requisite for the project. We could outline the historical background of each village primarily addressing three central questions.</p> <p>i) What were the drivers of forest degradation in those sites and what were the motivating factors to collectively act for CFR-driven forest management practices?</p> <p>ii) Events of natural and/or human-driven disturbance events.</p> <p>iii) Geospatial evidence-backed</p>

				historical narrative and collating with present bioclimatic data sets.
3. VEGETATIONAL SAMPLING IN CFR-ENTITLED FOREST PARCELS			✓	This was one of the primary objectives of this project and was achieved. We laid quadrats across the forest sites to record plants of herb and non-herb habits, and saplings as well. We consulted secondary web-based sources to check the nativity and IUCN Red List status of recorded plants. Further analysis on diversity and richness indices is in progress.
4. EXAMINING PERCEPTIONS OF LOCAL COMMUNITIES REGARDING CFR RIGHTS			✓	Overall, we carried out 250 household interviews, nine key informant interviews, and three FGDs, more than expected. We also went a step ahead and reported cultural and psychological facets of CFR rights (from individual PoV) to draw a complete picture of the impacts of CFR rights on human well-being aspects.
5. ASSESSING THE EXTANT CARBON STORAGE THROUGH LIVING BIOMASS AND SOIL ORGANIC (SOC) FORM			✓	We estimated living biomass through allometric-based measurements with species-specific equations (analysis is in progress). In total, we collected 144 soil samples across the three villages and tested for SOC% and texture analysis.
6. OUTREACH EVENTS FOR KNOWLEDGE DISSEMINATION AND AWARENESS			✓	Bearing with usual tendencies of lack of enthusiasm and hesitance, we could pull off six outreach events (two in each village) with satisfactory attendance. Not only information on primary findings was provided to the attendees but the outreach events were instrumental in engaging local communities to voice out their narrative of forest conservation and prospective plans of CFR-driven forest management.

2. Describe the three most important outcomes of your project.

a) Forest structure is the function of CFR-management practices and restoration in its intent may not be the same in practice.

CFR-driven forest management practices are approached differently across the three villages considered in this project. We could tease out three distinct models of forest management: 1) restoration in *Payvahir*; 2) assisted natural regeneration (ANR) + restoration in *Dhamditola*; and 3) assisted natural regeneration (ANR) in *Pachgaon*.

Preliminary findings suggest that management practice decides the forest structure-diversity, richness, abundance, canopy cover, and presence of invasives. Since the analysis is under way, it won't be right to infer any 'best' model at this stage without accounting for other confounding variables like bio-climatic factors, land use/cover history, and motivations behind the decisions taken.

That said, one significant outcome is the dichotomy between intent and on-ground translation of restoration- it is found that the *Gram Sabhas* and local communities at large are, sometimes, engaged in not-so-restorative practices causing more harm to the landscape than the larger good as envisioned. Such is the outcome of a lack of evidence-backed awareness regarding species choice and its biological attributes- we attempted to address this issue through outreach events.

We would validate our findings on the association between forest structure and CFR-driven management approach through soil results as well, thereby able to produce more in-depth data.

b) CFR rights improved livelihood and economic security and provided a window to participative decision-making

We found that local communities perceived CFR rights as key to improving their lives and participation in forest management. Most of the respondents reported that their incomes have increased after CFR rights were received.

We found that a major section of the respondents perceived an increase in their incomes after CFR rights reception in their villages. This was likely possible through the *Gram Sabhas* as they started managing the sale of forest products after receiving CFR rights and villagers became income beneficiaries. Livelihood diversification post CFR rights were reported by most of the respondents and as such, there are now many avenues of livelihoods through CFR-related activities like nursery managers, pit diggers for plantations, forest supervisors, etc.

Local communities also realised their freedom to express opinions and participate in decision-making of CFR-driven forest management practices. The voices of forest-dwelling communities have been ignored in the forest management discourse since the colonial regime. This project could sense the role of local communities in forest habitat conservation and the need to envisage management measures through active land stewardship.

Through this project, we could infer that local communities can successfully engage in complex ecological and economic management with decentralised community empowerment, such as being provided by CFR rights.

c) Some bi-products of CFR rights bear social costs and unequal burden(s) on local communities

While the Recognition of Forest Rights Act (FRA-2006) guaranteed a semblance of social justice by offering CFR rights legal protections, it aggravated the traditional problem of human-wildlife conflicts (HWC) through the creation of additional legally protected wildland and forest-covered parcels in and around human habitations. Preliminary findings indicated that there is a community perception of more frequent HWC incidents since the advent of FRA-2006 protected CFR rights forest parcels in villages.

Theoretically, it is often expected that emigration for income would reduce in the CFR-entitled villages, but it has been pervasive in the last 10 years of the CFR regime across two of the three villages in this study. Further studies need to be conducted to check for drivers causing the migration, but preliminary findings suggest that often the diversified livelihood options (through CFR-related activities) are getting adjusted to the people (from the local communities) who are in better relations with power-holding actors. However, such needs to be examined with precision.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

One of the primary difficulties in conducting fieldwork in this region of central India is excruciating heatwaves during summer. The selected districts fall in the Vidarbha region of Maharashtra which touches temperatures as high as 115° F, making it nearly impossible to walk outdoors after 10 AM ([Nagpur Swelters at 45.6 Degrees as Vidarbha Region Faces Intense Heatwave \(nagpurtoday.in\)](#)). Such high levels of temperature were neither unanticipated nor was it easy to adapt and seamlessly continue with the work. One of the field assistants got seriously ill from the heatwaves while helping with data collection in the forest, creating the need to be more alert.

The erratic electric power supply in the villages caused more delays than expected in fieldwork. It was difficult to charge the non-battery-driven electric items like laptops and rechargeable batteries of the GPS units and cameras. The remote locations of villages added to this problem as regular traveling to the nearest town 70 to 80 km away was logistically unworkable. This issue was tackled with maximum possible charging during the electricity-available phase, going to an inverter-owned grocery store, and buying additional sets of rechargeable batteries.

Conducting household interviews with women respondents was unfavorable in this patriarchal social setting - this unforeseen issue worsened as the primary investigator of this project is a male. In certain situations, we particularly requested a woman member of the household to consent to the interview, however, she refused directly or a male member sat beside her and constantly answered on her behalf. This issue was tackled by hiring female field assistants, in addition to pre-hired male ones. The presence of a known female helped break the ice and removed hesitancy among respondents.

Finally, an unforeseen issue that slowed down the work progress was way too many cultural and religious festivals. Animism is widely practiced in the study villages and their calendar is filled with one or two events on average every week. As such, it is difficult to get respondents for interviews, and sampling across the forest as there are local restrictions on movement, and field assistants will also be unavailable. This issue was tackled by enlisting all events per week/ month (discussing with *Gram Sabhas* and elderly villagers) and planning the fieldwork thus.

4. Describe the involvement of local communities and how they have benefitted from the project.

It won't be an overstatement to recognise local communities as primary conduits of information in this study, providing traditional socio-ecological knowledge, putting in the picture data about the history of the landscape, and offering prospective plans of conservation. Once the phase of data collection was finished, it was realised that local communities, in their capacity, are outperforming the state forest departments to ensure forest sustainability.

Local communities were actively involved during interviews - the grant recipient has visited every household in the three villages and requested for interviews. Responses varied across gender, age, occupation class/ type, and caste depending on village demography.

We have conducted six outreach events (two in each village). In the first outreach event, the grant recipient raised science-backed awareness regarding the present conservation status of the CFR-entitled forest parcels using hand-outs and banners. Representatives from local NGOs were also invited as resource persons to lead some sessions during the outreach events to enable capacity building. We also requested teachers from local schools to attend the outreach events to encourage youth and other student leaders to participate. These outreach events were used as a medium to hear from local communities about their thoughts and opinions regarding the design of conservation plans. The second outreach event was conducted after a gap of 2 to 3 months to discuss community experiences and suggestions about any decisions concluded from the first event.

Local stakeholders in the outreach events were also encouraged to collaborate in drafting a village-level CFR-entitled forest parcel's "conservation and management" plan consisting of a description of the ecological and social findings and restoration suggestions based on this project's findings. Thus, the outcome of this project is likely to bring on-ground changes by providing a platform for the local community to discuss and deliberate on conservation plans of the CFR-entitled forest parcels.

Over and above all, *Chacha* and *Chachi* (Engl. Uncle and Auntie respectively) from *Dhamditola* were involved thoroughly in this project (the grant recipient lovingly calls the couple as '*Chacha*' and '*Chachi*'- we cannot reveal the names per their consent). In *Payvihir* and *Pachgaon*, there are provisions of accommodation for researchers and people coming from outside; however, that option does not exist in *Dhamditola* yet. The grant recipient might have to reject this village as a potential study site if *Chacha* and *Chachi* were not there to support- provide a room to stay and food to eat and a bathroom to shower!

5. Are there any plans to continue this work?

Yes, there are plans to continue this work likely as follows:

- a. As stated in the larger outcome, there are some by-products of CFR rights like HWC and persistent migration. We have limited data on the socio-ecological implications of CFR rights and more empirical data is required to understand it deeply. It would be good to look at each of these aspects and see what the data says to derive broader patterns.
- b. There are plans to continue this close association with villagers and relevant government officials to retain the space for research and implementation. It will also involve adding more angles to understanding these socio-ecological landscapes and creating awareness.
- c. Socio-ecological research is subject to time, it calls to build trust and reliance with the local communities. Therefore, further work will entail spending more time in the landscape to document indigenous forest management practices and how that creates a space for dialogues between forest ecosystems and people.

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

The project is aimed to impact community-driven forest management practices at the grassroots level in CFR-entitled forest parcels of Vidarbha Maharashtra. Therefore, the primary target audience are local communities of these villages. The outreach events were conducted to disseminate the findings to them.

Besides that, peer-reviewed publications and popular science articles are underway which when come will cater to a larger audience.

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

We will be sharing the findings of this project with the local stakeholders, *Gram Sabha* and government officials. For instance, we will create a distribution map as a project outcome highlighting the occurrence regimes of these plants based on their conservation and nativity status. Since the CFR-entitled forest parcel shares its boundaries with neighboring villages and forest department areas, this map will support the villagers in strategising their conservation plan.

Local NGOs carry a significant role in the management and democratisation of *Gram Sabhas* and CFR functioning, the project outcomes will be shared with the NGOs such that they can help make informed decisions.

We will write scientific publications and articles on popular science platforms to share the project findings with the academic and non-academic fora. Such an article, [Green Ties: Sustainable Wedding Traditions Of Maharashtra's Gonds \(outlooktraveller.com\)](https://outlooktraveller.com), is already written. RSG will be acknowledged in all publications.

There are some plans for the soil aspect of this project. The clay levels of the soils are high given the old and weathered soil nature and semi-arid and dry sub-humid rainfall of the region. The preliminary analysis of SOC values indicates that soils in the region are capable of stocking a good amount of organic carbon to a depth of 2m, even when considering the disturbed surface layer (0-5 cm), and the usual top 1 m of soil (5-100 cm) and the 1st m of deep soil which captures carbon through deep rooting and leaching of organic matter from upper layers due to rainfall infiltration. Moving forward, we must measure the Clay/SOC ratio- these calculations consider the texture of the soil to physically hold on to SOC in association with the clay fine mineral soil fraction.

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

Yes, I used the Rufford Foundation (RF) logo in multiple materials as listed below:

- a. I presented a part of my work at the 9th Annual FLARE meeting held in Nairobi, Kenya in October 2023. I have used the RF logo in the acknowledgment slide of the PPT.
- b. I presented my ongoing work in two consecutive presentations at the institutional (ATREE-) seminars of 2023 and 2024 and used the RF logo in the acknowledgment slide of the PPT.

- c. I have used the RF logo in the banners and hand-outs during the outreach events in the village (pictures attached with the email).
- d. I am drafting manuscripts and will be submitting them soon, recognising the funding contributions from RF in those drafts.

9. Provide a full list of all the members of your team and their role in the project.

Dr. Nirmalya Chatterjee- As the erstwhile doctoral supervisor of the grant recipient (during the grant stint), he has been overlooking the progress of the project through regular updates. Chatterjee bears a decade-long research experience in restoration practice and soil science, therefore, his insights on tree mensuration for allometric C-estimation and soil sampling were quite valuable. Further, Chatterjee also suggested tackling measures for the aforementioned unforeseen challenges.

Dr. Asmita Sengupta- As the present doctoral supervisor of the grant recipient (from July 2023), she has been involved with data collection design and analysis during the phase of fieldwork and now, with data organization and manuscript drafting. Sengupta brings some critical skill sets to the table- statistical expertise, publications experience, and understanding of socio-ecological systems and landscape. This proverbial triad is, as well, a requisite for this project. Further, Sengupta is an IBPES member and therefore, contributes to strengthening the link between scientific outcomes and policymaking of this project.

Harshal Sonare- As a native resident of the landscape and field assistant of the grant recipient, he has been the source of practical solutions to problems encountered in the field sites. Sonare suffered from sporadic heat exhaustion during the summer but that did not deter him from (on-field) data collection. Further, Sonare aided in plant identification and translating during household interviews (if the respondents did not understand any of the languages spoken by the grant recipient).

10. Any other comments?

I want to reiterate my gratitude to the RSG for allowing me a 'no-cost extension' that allowed me to utilize the funds appropriately. It has been crucial to my Ph.D. work and covered my field expenses for most of the PhD fieldwork.

Besides that, the grant recipient had to make some adjustments with regard to the initial funds allocated.

- a. Hiring additional field assistants for household interviews.
- b. Expenses for soil sample testing adjusted from camera expenses (informed to RSG team).
- c. Organisational overheads.

Having local resource persons on board in the outreach events enabled successful execution owing to their experience and local relativity with the audience. This can be a lesson for similar events in the future.

A significantly lower attendance of woman participants was noticed in the outreach events. The irony lay in the fact that balanced forest management practices were being discussed with a rather gender-unbalanced audience. This issue also needs to be dealt with more sensitively, like inviting the children to the outreach events such that their mothers and grandmothers also accompany or having separate outreach events for males and females to provide more comfort to the latter.