

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	Mohammad Belal Uddin
Project title	Monoculture Plantations in Bangladesh: Consequences for Biodiversity Conservation and Rural Livelihoods
RSG reference	10669-2
Reporting period	July 2013
Amount of grant	£5963
Your email address	belal405@yahoo.com
Date of this report	04.07.2013

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
Identify the monoculture plantations in the study area			√	It was hard and tedious job to identify the species as well as to know whether certain species is exotic or indigenous origin.
Alpha diversity of native and mono-plantations			√	Again species identification was a difficult job as I am not a taxonomist, however, I got help from taxonomist.
Effects of monoculture plantations on native biodiversity			√	Sometimes it was difficult with the parameter as regeneration to identify. They are small, tiny plants while it was not clear either seedlings from native or from exotic.
Interrelationships between biodiversity and mono-plantations			√	-
Identify the introduction time of mono-plantations			√	-
Positive role of monoculture plantations on rural livelihoods			√	-
Negative role of monoculture plantations on rural livelihoods	√			As people were highly biased about the mono-plantations because of their fast growing and high fuel value characteristics. They were not aware of the negative impacts of mono-plantations as well as conservation initiatives. They are mostly extreme poor and strongly dependent on forest resources for their livelihoods.
To have clear idea about the consumptive and economic use and trade of mono-plantations			√	-
Policy message for local forest department			√	However, it is difficult to implement.

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

As a young conservationist and professional from developing country like Bangladesh, I faced some unforeseen difficulties to do my work successfully. One of the greatest difficulties what I faced during my work was the local peoples' knowledge about the protected areas as well as about the mono-plantations. Though, these plantations have negative effects on native biodiversity however, they were not aware of these negative impacts as well as the conservation value protected areas native biodiversity. They perceived that the conservation efforts and embargo on raising mono-plantations could affect their own livelihoods. They were afraid of any conservation worker, researcher to disclose anything during my household survey. Another difficulty was the attitudes of forest personnel towards the researchers. Sometimes they did not take us easily for investigation, as they thought the original situation will be published. Time and season for fieldwork were also more severe difficulties as like most of the research works in the tropics. Other difficulty was the sincerity and dedication of the chief researcher as well as the team in the field. Other difficulty was the political unrest during my data collection. However, as I was convinced with the excellent perspectives of my work on landscape ecology and conservation science, I tried myself to make great mental, physical and financial efforts to tackle these difficulties. As I was strongly devoted to the project's agreement; to work for a shining career as an ecologist and conservationist in future and to work on a better future for my home country, I could able to overcome these unforeseen difficulties.

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

From my project, I have two fundamental research outcomes and one most important policy outcome: Firstly, this study found out the methodological approach for comparing the mixed and mono-plantations regarding the conservation of native biodiversity based on some ecological features. There is a clear ecological gradient (higher to lower) from mixed to mono with respect to biodiversity conservation and other ecological features (e.g. regeneration, basal area).

Secondly, this study used the general livelihood approach to find out the effects of mono-plantations on rural livelihoods (human well-being) and its effectiveness. Both positive and negative effects had been tried to extract. Mono-plantations had positive role on livelihood security e.g. fuel wood consumption, primary occupation, ailment of diseases as medicinal plants to a great extent. However, rural peoples were dramatically biased to mono-plantations as their fast growing characteristics and as they were not aware of the nature conservation. Therefore, negative impacts on rural livelihoods were unrevealed.

Thirdly, based on this baseline information from my fundamental research findings, my project has one of the most important conservation policy implications. The best way to conserve biodiversity in Bangladesh forest ecosystems is to conserve the natural forests and to stop the conversion of natural forest to mono-plantation with exotic species. It is also crucial to develop a framework that will optimise biodiversity and nature conservation at one hand and ensure local need for rural livelihoods on the other hand. To achieve these social and ecological goals, an integrated forest area management should be introduced where one of the primary goals will be the sustainable use of forest biodiversity. It also indicates the effectiveness of protected areas for biodiversity conservation in developing countries. Finally, it is enhancing an important policy guideline to ensure both nature conservation and local livelihoods in protected areas in the developing countries especially highly populated countries in a sustainable way.

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

There were different types of direct and indirect involvement of communities and the benefits they derived from the project. During the reconnaissance survey, local communities were involved to perform key informant interviews, focus group discussion, community mapping, and transect walk. There were refreshments for the participants arranged from the project's fund. During the main social survey (household survey), selected persons as well as other persons from the household of communities were directly engaged in active interviews. Moreover, during the field survey and the social survey, selected persons from the communities were appointed as field guide and field facilitators. They were directly engaged and accompanied by the research group. They were paid staff from the community. They facilitated the field work through their guidance, assistance. After the field work, some local meetings were arranged with the participants as local levels administrators, social leaders, local political leaders and other representatives from the communities surrounding the study area. They were informed about the outcomes and shared the field experience to aware the general mass about the monoculture plantations and conservation of natural resources. There were some honorariums arrangements for specific local representatives as an encouragement for the implications of project's outcomes.

There were some indirect involvement and benefits to the communities. During all types of survey, community people were more cordial, friendly, frankly in their engagement. They made the research work easy. The outcomes of my project will help to improve the community's livelihood upon implementation of them.

5. Are there any plans to continue this work?

Yes, I have a plan to continue this work particularly with reference to climate change adaptation and mitigation. From my last two RSG Projects (RSG 59.08.09 and RSG 10669-2), I got impression and experience that land use changes, anthropogenic disturbances and monoculture plantations are the major drivers for biodiversity as well as nature conservation in this highly populated landscape. However, in the face of global climate change, it is crucial to find out the adaptive functional characteristics or functional diversity of the flora of this disturbed landscape. The recruitment, composition and diversity of this tropical forests community are dramatically affected by these drivers. Therefore, it is a prime research need to analyze this functional diversity to adapt this climate change in tropical forests. I would like to continue this research through designing a future research project on this aspect (functional diversity to climate change). Being informed about the functional characteristics particularly suitable for climate change adaptation, will help to accelerate the nature conservation initiatives.

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

After my field study and data analysis, I have already arranged a workshop at my university campus where I invited forest department officials, conservationists, and social workers etc. to disseminate my project findings. Hopefully, it would help them to take necessary steps as well to design future research. A manuscript has been published from the project's findings (partly). This is entitled "Does environmental attributes, disturbances and protection regime determine the distribution of exotic plant species in Bangladesh forest ecosystems?" at Forest Ecology and Management, 303 (2013): 72-80, published from Elsevier having impact factor 3.7. I have already planned to present these findings

in one of the world's largest ecological congress "INTECOL 2013" will be held on 18-24 August, 2013 at ExCel Centre, London, UK. There will attend ecologists, conservationists and researchers from different countries around the world. There I will give one talk highlighting the effects of exotic species on biodiversity, their distribution etc. I have also arranged some local meetings at my study area to communicate my results with local levels administrators, social leaders, local political leaders and other representatives from communities surrounding my study area. They will make awareness at the grass root level being informed about advantages and disadvantages of monoculture plantations with respect to the importance of biodiversity and livelihoods conservation from my findings. Currently, I have already prepared another manuscript based on my project's findings and planning to publish it in refereed scientific journal.

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

My time plan was December, 2011 to May 2013 for this RSG project. However, during this time span I could not finish all of my project works (e.g. organising fieldwork, data collection, data analyses, report writing) successfully. I need another month to organise all the planned activities. As social data from households took much time, therefore, this time plan was exceeded for one month.

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
Canon Dual Flash Cam Recorder (Qty. 1)	253	300	-47	To match with a suitable specification, more money was needed than that of budgeted. I provided this amount from the item "Miscellaneous"
Stationary	80	80		They were very essential for the project preparation and documentation
Photocopies	70	70		Do
Recyclable Paper	40	40		Do
Miscellaneous	80	33	47	This surplus due to the cooperation from the staffs from Forest Department. This surplus was used to buy a Cam Recorder
Purchase of References	120	200	-80	I used to buy more number of related books as for the collection for future work and other academic purposes (e.g. teaching, research). I provided this amount from the item "Purchase of different Maps and GIS Software etc."
Purchase of different Maps and GIS Software	250	170	80	Some maps and software were freely available. This surplus was used to

etc.				buy more reference books
Preparation of Herbaria for Species Identification	70	70		
All types of Transportation	1050	1050		Since, the study site was far from the working place, all transportation budget was run out
Extra Manpower (Graduate Field Assistant, Local Field facilitator, Local Guide)	2100	2100		
Publication and Dissemination	450	600	-150	Since, more meetings and workshops were arranged, it needed more money than budgeted. I provided this amount from the item "Accommodation"
Accommodation	750	600	150	Accommodation was cheaper in rural areas. This surplus was used for dissemination campaign
Food	500	500		Though a longer field stay was made than planned, however, food were cheaper in village rural areas
Medicine	50	50		
Miscellaneous	100	100		
Total	5963	5963		

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

To me, it is very much important to do some awareness campaign among the rural villagers about the positive and negative impacts of monoculture plantations on nature conservation. It is also necessary to convince them about the importance of biodiversity conservation with respect to livelihoods security. I have a plan to do the same. Another important step is to publish my project's findings at peer reviewed scientific journals. I am on the way of that. This will disseminate my project's findings to the scientific community to encourage them further extensive research on these aspects for different conservation areas. One of the most important steps is to inform my findings to the policy makers to formulate suitable policies and policy guidelines regarding nature conservation. I have a plan to print some "Policy brief" and distribute to them. The final and the most important step is to design a new research project (in the sense of continuation) on functional diversity in the face of climate change adaptation.

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, I will use this to present my findings in one of the world's largest ecological congress "INTECOL 2013" will be held on 18th-24th August 2013 at ExCel Centre, London, UK. I used some data from the project's findings to write a manuscript. This has been published entitled "Does environmental attributes, disturbances and protection regime determine the distribution of exotic plant species in

Bangladesh forest ecosystems?" at Forest Ecology and Management, 303 (2013): 72-80, published from Elsevier having impact factor 3.7. I have already sent the pdf of it to RSG secretariat.

11. Any other comments?

As a young scientists and professional from developing country like Bangladesh, it is absolutely necessary for me to get support for research. Though currently I am a Faculty at the university as an early career level, however, I am getting a nominal sum of salary which is suitable just to maintain my regular expenses. Moreover, there is no fund from my university to do such type of extensive research. Therefore, I sincerely believe this small grant is continuously helping me to develop my expertise and a better linkage for fruitful future efforts on nature conservation. I feel heartily that this type of support is crucial to build up a challenging research career as an academic and researcher on nature conservation from developing country that is especially threatened by the loss of biodiversity and by climatic changes. Thus, I would be able to work for the better future of my country.