



**ORISSA FORESTRY SECTOR DEVELOPMENT PROJECT**  
SFTRI Campus, Ghatikia,  
Bhubaneswar-751 003

No. 1141

Dated: 20 .04.2010

**Invitation for offers for “Study on impact of ANR practices on biodiversity”**

Offers are invited, for undertaking a study of comparative analysis of impact of different ANR practices on the biodiversity, from Government/Semi Government/Autonomous /Private/NGO organizations having experiences of executing minimum of 2 National/State level projects of similar nature.

The detailed Terms of Reference and application form can be downloaded from the website [www.ofsdp.org](http://www.ofsdp.org) from **22<sup>nd</sup> April, 2010**

Offers may be submitted in prescribed format along with a non-refundable bank draft of Rs 1000/- drawn in favour of Project Director, OFSDP, payable at Bhubaneswar on or before 3:30 PM of **10<sup>th</sup> May 2010**.

Deputy Project Director (FT)

## Terms of Reference

### Title: Study on impact of ANR practices on biodiversity

#### 1. Background

Orissa Forestry Sector Development Project (OFSDP) aims to promote sustainable forest management in the state with a larger goal of supporting rural livelihoods. This is a 7 years project (2006-13) and is executed by an autonomous society under Forest and Environment Department, Government of Orissa, with the assistance from Japan International Cooperation Agency (JICA). In about 2000 selected forest-fringe villages, in 14 Forest Divisions; the project is implemented through active participation of the village community, which is organized in to Vana Samrakshana Samiti (VSS)/ Eco-Development Committee (EDC) The divisions are *Rourkela Circle* : Rourkela, Bonai, Deogarh and Keonjhar; *Angul Circle* : Angul and Satkosia WL; *Berhampur Circle*: Phulbani, Balliguda and Paralakhemundi; *Koraput Circle* : Rayagada, Koraput and Jeypore; Baripada Circle: Balasore WL and Bhadrak WL. Two main components of the project are restoration of degraded forests through Assisted Natural Regeneration and Plantations and community/tribal development through community empowerment, Income Generation Activities (IGA) and Livelihoods Improvement.

#### 2. Rationale

For the enrichment of degraded forest land, Assisted/Aided Natural Regeneration (ANR) forms the major strategy under the National Afforestation Plan (NAP) and also under the externally aided forestry projects. ANR afforestation models under different projects/schemes, prescribe different types and intensity of operations. There is also differential understanding and comprehension of changing paradigms in forestry sector which has resulted in different prioritizations and hence different types of actual activities during implementation of ANR. There are local variations in forest interventions while preparing and implementing Micro Plans. Considering the vast area being treated under ANR and also the implications of these treatments on the resultant forest ecosystems, especially in terms of their biodiversity and livelihoods contribution, it is essential to study the different practices in vogue and their impacts on the regeneration, and consequential changes in bio-diversity.

This study is a step in that direction. It is proposed to analyze the impact of different intensities of ANR operations as prescribed and implemented under OFSDP on different types and forest density. It is expected that the results of this comprehensive field

analysis will contribute in better understanding of the dynamics and impact of ANR treatments vis-à-vis the degraded forest types in Orissa in terms of biodiversity and livelihoods implications. Such results will be vastly useful in contributing to future policy and investment decisions in forestry sector in Orissa as well as India.

Looking at the scope and urgency of integration of research findings, two studies will be taken up: a short-term study of about 2 month's duration and another a long-term study of one year duration

### 3. Scope of Work/ Key Tasks

- 3.1. *Inception Meeting*: A meeting between the study team and project officials at Bhubaneswar, after signing of the contract.
- 3.2. *Inception Report*: The study team will submit an 'Inception Report' comprising the following-
  - o A comprehensive background paper on ANR practices in India and in Orissa developed through comprehensive review of papers, reports, statistics and other publications/documents, and peer consultations
  - o Based on the review and as per the approach suggested (Section 4 and 5 below), it will refine the proposed study methodology.
- 3.3. *Field study and Data collection*: The study team will visit sample VSS sites and collect qualitative and quantitative primary data through consultation with villagers, field stakeholders and quadrat survey. Apart from visiting villages and forest areas, they will also interact with other stakeholders including staff of forest departments, PRIs, VSSs and NGOs.
- 3.4. *Submission of Draft Report* :  
Based on the above, the organization will prepare and submit a draft report as per the contents finalized in consultation with the PMU. The report may have the following prescriptive list of chapters
  - i. *Introduction*
  - ii. *Review of the ANR practices in India and Orissa*
  - iii. *Methodology*
  - iv. *Results of the field work*
  - v. *Analysis and Discussion*
  - vi. *Recommendations*

### 3.5. *Peer Review Workshop:*

This draft report of Study I & II (Refer Section 4 & 5) will be shared in a one-day Peer Review Workshop (PRW) to be organized at Bhubaneswar to get critical feedback from policy makers, senior researchers/academicians, NGO representatives, and senior officials from Forest Department/projects. The total participants will be around 25 decided in consultation with the Project. Major focus will be to contextualize and rationalize the recommendations in Orissa perspectives. The workshop proceedings will be recorded and submitted to PMU within 1 week.

### 3.6. *Submission of Final Report:*

Based on the feedbacks from the PRW and comments of draft report by the project, draft report will be revised and final report with illustrative colour photographs, and including the minutes of PRW as annexure, submitted to the Project.

## 4. Study I

### 4.1. Objectives

The objectives of this are:

- To analyze the impact of different types of ANR treatments in OFSDP on the forest composition, structure, and floral biodiversity

### 4.2. Approach & Methodology

There will be about 12 treatments (2F X 2D X 3 A) as described below.

- 2 types of Forest area treated viz.
  - F1 = Sal Coppice
  - F2 = Mixed-deciduous Forest
- 2 types of Degradation status (based on status of vegetation and soil condition) under each forest types
  - D1 = Heavily degraded
  - D2 = Moderately degraded
- 3 types of ANR Operations
  - A 1 = ANR Cleaning Operations (as prescribed) only
  - A 2 = A1 + Gap Planting [replaced planting of trees in gaps]
  - A3 = A2 + Other accompanying Operations like Soil Moisture Conservation, Seeding etc.

In each treatment there will be at least 1 VSS site (replications) in each DMU. Only 2<sup>nd</sup> batch VSS sites where better ANR implementation has been done will be selected for study in 3 representative DMUs from 3 circles (Berhampur- Balliguda, Koraput - Koraput,

Rourkela – Rourkela). The project staff at DMU/FMU level will suggest their best treated sites as per the specifications. There will be around 36 VSS sites in total to be studied.

In every site, two plots will be taken up for detailed ecological study. As per PMU's letter no. 768/OFSDP-49/2006 dated 3<sup>rd</sup> March 2008, each ANR site should have at least two demarcated plots of 0.1 ha size (with GPS reading), one being the control without any treatment and another with all representative treatments. In case such plots were not made, in these sites they are to be prepared by laying out 30m X 30m plots with GPS reading of the 4 corner points and referencing with at least one pillar with DGPS reading. The two plots will be studied for the following parameters by adopting the methodology indicated below

- Vegetation analysis through quadrat (only once in post monsoon period Aug-Sep)
  - 30m X 30m for tree species (record trees >25cm in GBHOB /species);
  - 5m X 5m [four plots] laid along diagonals wherein all the shrubs and tree species <25 cm GBHOB will be recorded;
  - 1m X 1m [five plots, one at the centre and four @ one per quadrat] note herbs, grasses and regeneration of tree species in four plots and above ground biomass (green and then air dry weight in one plot).
- Information to be collected – number of individuals of each species, dbh/basal area of representative species,

In addition, community perceptions and interpretations of the ANR impact on biodiversity will be taken up through focus group discussions, questionnaire survey as well as through use of PRA tools.

## **5. Study II**

### **5.1. Objectives**

The objectives of this study are:

- To analyze the impact of ANR treatments taken up under different programs/schemes in Orissa over an age gradient on the forest composition, structure, and floral biodiversity
- To assess the implication of resultant biodiversity in terms of products and services flow for livelihoods augmentation
- To gauge the impact of ANR treatments on faunal diversity

## 5.2. Approach & Methodology

There will be about 24 treatments (4G X 2F X 3 A) as described below.

- 4 age-group of ANR treated forests
  - G1 = RDF treatment under Social Forestry (~ 20 years old)
  - G2 = RLTA ( ~ 10 years)
  - G3 = FDA (~ 5 years)
  - G4 = OFSDP ( ~ 2years)
- 2 types of Forest area treated viz.
  - F1 = Sal Coppice
  - F2 = Mixed-deciduous Forest
- 3 types of ANR Operations (to be collected from available records)
  - A 1 =ANR Cleaning Operations (as prescribed) only
  - A 2 = A1 + Gap Planting [replaced planting of trees in gaps]
  - A3 = A2 + Other accompanying Operations like Soil Moisture Conservation, Seeding etc.

In each treatment there will be at least 1 VSS site (replications) in each DMU. The study will be taken up in same 3 representative DMUs from 3 circles (Berhampur- Balliguda, Koraput - Koraput, Rourkela – Rourkela). The project staff at DMU/FMU level will suggest their best treated sites (as per information available with them or collected through field visits/interaction with the villagers) as per the specifications. There will be around 72 VSS sites in total to be studied. The sites chosen under OFSDP for study I, can be included as sites in this study.

In every site, two plots will be delineated for detailed ecological study by laying out 30m X 30m plots at a representative site well within the forest area (to avoid boundary influences). GPS reading of the 4 corner points of the plot has to be recorded with referencing against at least one pillar with DGPS reading. There can be certain demarcations in form of trench (4 L – 2 T). The two plots will be studied for the following parameters by adopting the methodology indicated below

- Vegetation analysis through quadrat (only once in post monsoon period Aug-Sep)
  - 30m X 30m for tree species (record trees >25cm in GBHOB /species;
  - 5m X 5m [four plots] laid along diagonals wherein all the shrubs and tree species <25 cm GBHOB will be recorded;
  - 1m X 1m [five plots, one at the centre and four @ one per quadrat] note herbs, grasses and regeneration of tree species in four plots and above ground biomass ( green and then air dry weight in one plot).

- Information to be collected – number of individuals of each species, dbh/basal area of representative species,

In addition, community perceptions and interpretations of the ANR impact on biodiversity will be taken up through focus group discussions, questionnaire survey as well as through use of PRA tools.

- Analysis of economic/livelihood biomass production
  - Economic biomass production (timber, grass, fuel wood, NTFP, bamboo etc.) per individual/unit area
- Soil Analysis
  - Organic carbon in 1-15cm and 15-30 cm layers (*Can be measured in simple soil laboratories available with different Govt/Private agencies in the state; will contribute to understanding of nutrient recycling soil resilience and soil carbon sequestration in the treated forest*)
  - Thickness of humus layer
- Faunal biodiversity
  - Tracks & signs of wild life in the plot viz. species-wise number of droppings, nesting, sighting etc.

In addition, community perceptions and interpretations of the ANR impact on biodiversity will be taken up through focus group discussions, questionnaire survey as well as through use of PRA tools.

## 6. Schedule and Outputs

The tentative schedule for the study is given in figure-1 below:

**Figure 1: Time frame**

Months →	1	2	3	4	5	6	7	8	9	10	11	12
Inception meeting	▼											
Inception Report (3 copies)	■											
<b>Study I</b>												
Field Work		■	■	■								
Draft Report (3 hard copies and 3 CDs)				■								
Final Report (5 hard copies and 3 CDs)				■								
<b>Study II</b>												
Field Work		■	■	■		■	■	■		■	■	■
Draft Report (3 hard copies and 3 CDs)				■			■					■
Peer Review Workshop												■
Final Report (5 hard copies and 3 CDs)												■

Outputs:

- 6.1. Inception Report as per the contents described on Section 3.2, Draft Report as per section 3.4 ((3 hard copies and 3 CDs)
- 6.2. Organization of Peer Review Workshop as per Section 3.5
- 6.3. Final Report as per section 3.6 (5 hard copies and 3 CDs)

## **7. General Roles and Responsibilities**

In addition to the above mentioned scope of work, the general roles & responsibilities of the organization will include the followings:

- 7.1. The involvement of the organization will start from the time of signing the contract with PMU and continue till finalization of the reports and acceptance by the Project.
- 7.2. The organization will make sure that all Client Information used or held by the persons engaged by it during the period of the Agreement shall be and remain at all times the property of OFSDP. Upon the termination or expiry of the Agreement, the organization shall promptly deliver to OFSDP all such tangible items related to this agreement, which is in its possession or control and which either belong to OFSDP or contain information related to this agreement.
- 7.3. The organization will ensure that the persons engaged by it, shall not disclose or use or cause to be disclosed or used, at any time during or subsequent to the Agreement, any confidential information of OFSDP and keep all the information collected during the study, strictly confidential.
- 7.4. The organization is required to extend the necessary cooperation to the monitoring personnel from OFSDP and other collaborating agencies.
- 7.5. The organization shall provide information on the progress of the work to PMU on monthly basis that will include the details about the work completed, work in progress, future plan etc. with respect to the scheduled work plan.
- 7.6. OFSDP has engaged teams from partner NGOs at FMU level & VSS animators at village level, to assist field level project implementation. The organization shall request NGO Team members with consent from the concerned DMU Chief, for arranging group discussions/personal interviews for data collection with villagers and also to have interactions with them.
- 7.7. The persons engaged by the organization will keep record of places visited, stakeholders consulted, along with minutes of those discussions and findings.

## **8. Qualification of Experts**

Considering the requirement for the expertise for the study, the organization should provide the detailed Curriculum Vitae (CV) of the persons to be engaged in the study. Apart from experience of carrying out similar assignments in recent past, the organization will have the following skills within its team

### (1) Principal Investigator:

- i. Qualification: Minimum Masters in Forestry/Botany/ Life Science with experience of coordinating and managing ecological/biodiversity research. Exposure and understanding of the forest types, forest-biodiversity and forest management operations in Orissa.
- ii. Minimum 5 years of relevant experience.
- iii. Knowledge of Oriya language/ working experience in Orissa (desirable)

### (2) Research Associate

- a. Qualification: Minimum Masters in Forestry/Botany/ Life Science with exposure to ecological/biodiversity research. Knowledge of the forest types, forest-biodiversity and forest management operations in Orissa.
- b. Minimum 1 year of relevant experience.
- c. Knowledge of Oriya language/ working experience in Orissa (desirable)

### (3) Research Assistant

- a. Qualification: Minimum Bachelors in Forestry/Botany/ Life Science with exposure/aptitude to ecological/biodiversity research. Knowledge of the forest types, forest-biodiversity and forest management operations in Orissa.
- b. Minimum 1 year of relevant experience.
- c. Knowledge of Oriya language/ working experience in Orissa (desirable)

## **9. Pre-Qualification Conditions**

- 9.1. The invitation is open to Government/Semi Government/Autonomous /Private/NGO organizations.
- 9.2. The organization, lead organization in the case of consortium, must have executed minimum of 2 National/State level projects of similar nature funded by international donor agencies, Government of India or State Government.
- 9.3. The annual turnover of the organisation/each partner organisation (in the case of consortium) must be more than Rs 10 lakhs per year in each of the last three years.
- 9.4. Organisation having experience in Orissa and/or in forestry sector will be given preference

## 10. Procedures, Terms and Conditions

- 10.1. No sub-contracting of the work will be allowed.
- 10.2. The total duration of the contract will be 1 year from the date of signing of the agreement and the selected organization will have to produce the outputs and complete the work as per the time frame given above under section 6.
- 10.3. In case of consortium, all the agencies in the consortium shall submit a copy of documents mentioned in section 'Enclosure' of 'Format for Technical Offer' (*Annexure-A*) with the joint offer.
- 10.4. The bidders should submit their Offer in the formats enclosed. For 'Technical Offer' refer *Annexure-A*, and for 'Financial Offer' refer *Annexure-B*. Any deviations in the format shall make the offer liable for rejection.
- 10.5. An authorized representative of the organization must put his/her initials on all pages of the offer. The representative's authorization is confirmed by a written power of attorney accompanying the offer.
- 10.6. One original and 2 copies of the Offer (Technical and Financial both) is required and this should be marked 'Original' or "Copy" as appropriate. If there are any discrepancies between the original and the copies of the Offer, the original copy will govern.
- 10.7. A non-refundable Demand Draft worth Rs 1000/- (Rupees one thousand only) in favour of Project Director, OFSDP to be enclosed along with Technical offer.
- 10.8. The original and all copies of the Technical Offer shall be placed in a sealed envelope clearly marked "Technical Offer". Similarly the original and all copies of the Financial Offer shall be placed in a separate sealed envelope clearly marked "Financial Offer" and warning "Do not open with the technical offer". Both these envelopes shall be placed into an outer sealed envelop bearing the submission address and clearly marked "**Bid for Study on impact of ANR practices on biodiversity**".
- 10.9. The completed Offer, as mentioned above must be delivered not later than **15:30 hrs of dated 10<sup>th</sup> May, 2010** to:  

Deputy Project Director (FT)  
Orissa Forestry Sector Development Project (OFSDP),  
SFTRI Campus, at/PO Ghatikia, Bhubaneswar 751003  
Phone: 0674 2386016  
Fax: 0674 2386085
- 10.10. Offers received later than **15:30 hrs of 10<sup>th</sup> May, 2010** either in person or by post or through courier service will not be accepted.

- 10.11. Offer should be valid at least for a period of 90 days from the date of opening of the bids.
- 10.12. Project Director, OFSDP reserves the right to accept or reject any or all offers without assigning any reason thereof and to add, modify or delete any of the terms and conditions without any notice. The decision of Project Director, OFSDP shall be final.
- 10.13. Project Director, OFSDP reserves the right to modify the requirement at any time during the process of finalization of tender offer
- 10.14. Following is the selection procedure:
- After the closing time for submission of offers, the Technical Offer received shall be opened by the officials of Evaluation Committee constituted by the Project Director, OFSDP for this purpose. The Financial Offer shall remain sealed, unopened and shall be in safe custody until the evaluation of the technical offer is concluded.
  - Evaluation Committee will evaluate all technical offers with respect to the qualifications of the organisations and personnel to be assigned the work, and the approach and methodology. An offer considered to be unsuitable shall be rejected at this stage if it does not respond to important aspects of the Terms of Reference. Based on the evaluation of the Technical Offers, the shortlisted offers shall be ranked from highest to lowest and the organisation with highest ranked technical offer shall be invited to discuss the offer and negotiate a contract.
- 10.15. An act of submitting offer by the bidder amounts to his/her agreeing to the above terms and conditions

## 11. CHECKLIST

Envelopes	Documents	Furnished: Yes/No
Technical offer (No financial details)	1. Details as per the Format for Technical Offer	
	2. Detailed Methodology	
	3. CV's, recently signed by the proposed professional staff considered for this assignment	
	4. Profile of Organisations/Agencies/Firms	
	5. Annual Reports (Most Recent)	
	6. Copies of last three years' audited statements	
	7. Copies of relevant registration certificates	
	8. One "Original" and Two "Copies" of technical offer	
	9. Envelope with Technical Offer (Original & Copies) sealed properly and marked as "Technical Offer"	
	10. Non-refundable DD in favour of PD, OFSDP worth Rs. 1000	
Financial offer	1. Details as per the Format for Financial Offer	
	2. Envelope with Financial Offer sealed properly and marked as "Financial Offer" and warning "Do not open with the technical offer".	
Both sealed envelopes – "Technical Offer" and "Financial Offer" placed into an outer sealed envelop clearly marked "Bid for " <b>Study on impact of ANR practices on biodiversity</b> "		

Date: 20.04.2010  
Place: Ghatikia, Bhubaneswar

**Deputy Project Director (FT)**  
**OFSDP, Bhubaneswar**

**Annexure-A:**  
**Format of Technical Offer for Study on impact of ANR practices on biodiversity**

1. Name of the Organisation:
2. Address, Phone/Fax, e-mail:
3. Branches & Presence in Orissa (if any):
4. Registration Details:
5. Financial Strength & turnover (last 3 years):

Financial Year	Total Turnover
FY 2006-07	
FY 2007-08	
FY 2008-09	

6. Relevant Experience of Study/Research (last 5 years):

Title of the Assignment	Name of the Client/ Donor/Funding organization	Specific objectives & outcome	Total value of the assignment	Duration of assignment	Salient features of the assignment

7. Relevant assignments undertaken in Forestry Sector:

Title of the Assignment	Name of the Client/ Donor/Funding organization	Specific objectives & outcome	Total value of the assignment	Duration of assignment	Salient features of the assignment

8. Core team to be associated and their experience:

Name of the Principal Investigator/ Res Assoc/ Res Asst	Basic Qualification & Specialization	Experience in the area of the assignment	Designation in the assignment and commitment for involvement

9. Description of Methodology:

- (a) Detailed proposed methodology
- (b) Work Plan
- (c) Estimates of the total staff man days to be provided to carryout the Assignment. (Note: NO FINANCIAL /COST DETAILS TO BE PROVIDED IN TECHNICAL OFFER)

10. Enclosures:

- (a) CV's, recently signed by the proposed Experts considered for this assignment
- (b) Profile of Organisations/Agencies/Firms Annual reports (Most recent)
- (c) Copies of last three years' audited statements
- (d) Copies of relevant registration certificates

Date:

Name of the Signatory

Place:

Designation

**Annexure-B**

**Format of Financial Offer for Study on impact of ANR practices on biodiversity**  
 (This format must be kept in a separate sealed envelope clearly marked as "Financial Offer")

Name of the Organisation:

<b>A. Remuneration</b>				
Items	Quantity	Unit	Unit Price	Total
Principal Investigator		Man days		
Research Associate		Man days		
Research Assistants		Man days		
Total				

<b>B. Field Allowance, Transport Cost &amp; Other Incidentals</b>				
Items	Quantity	Unit	Unit Price	Total
Principal Investigator		Day		
Research Associate		Day		
Research Assistants		Day		
Total				

<b>C. Other Direct Cost</b>				
Items	Quantity	Unit	Unit Price	Total
Workshop	1	Lump sum		
Stationeries & Printing		Lump sum		
Others (Specify)		Lump sum		
Total				

Sub Total of A,B,C				
Service Tax				
Grand Total				