Minutes of Discussion

FOREST DIRECTORATE

Government of West Bengal

West Bengal Forest and Biodiversity Conservation Project

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Minutes of Discussion

West Bengal Forest and Biodiversity Conservation Project

Between

Japan International Cooperation Agency

And

West Bengal Forest Department, Government of West Bengal

Minutes of Discussion

Date : 18th October, 2011
Place : New Delhi, India

The Japan International Cooperation Agency (JICA) Mission comprising of Mr. Takashi BABA, Ms. Kumiko UCHIDA, Ms. Atsuko ITSUKI, South Asia Division 1, South Asia Department, Mr. Hiroyuki MIYAZAKI, Mr. Hiroyuki HATORI, Forestry and Nature Conservation Division 1, Forestry and Nature Conservation Group, Global Environment Department had detailed discussions with the officials of the West Bengal Forest Department (WBFD) from September 14th to September 24th, 2011 in order to study the feasibility of West Bengal Forest and Biodiversity Conservation Project ("the Project") as a Detailed Fact-Finding Mission.

The JICA Mission and the officials of WBFD hereby confirm the result of their discussions as follows, subject to approval by the competent higher authorities of both sides and with understanding that nothing in present Minutes of Discussions should be understood as implying a commitment of JICA to extend a technical cooperation, loan and/or grant. The result of the discussions is as follows:

1. The JICA Mission stated that the result of the discussions would be taken into account by the Government of Japan (GOJ) in arriving at decisions regarding the commitment of the Japanese ODA Loan.
2. The JICA Mission and the officials of WBFD confirmed organization information, description of the Project, project implementation, benefits derived from the Project, operation and maintenance, and evaluation as in **Annex I** attached hereto.
3. The JICA Mission and the officials of WBFD confirmed the main points discussed as in **Annex II** attached hereto.

For
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For
Directorate of Forests,
Government of West Bengal

18.10.11
(Dr A.K. Raha IFS)
PCCF/ HS & HoFF

For
Ministry of Environment and Forests

R.K. GOEL
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ANNEX

ANNEX I

Note: The portion with "(P/R and PCR)", "(P/R)", and "(PCR)" should be filled in Progress Reports (P/R) and/or Project Completion Reports (PCR).

1 Project Description (Relevance)

1.1 Project Objective

Original

"To improve forest ecosystem and conserve biodiversity by undertaking afforestation, regeneration and wildlife management activities through Joint Forest Management approach, including institutional capacity development, thereby contributing to environmental conservation and harmonized socio-economic development of West Bengal".

Modified objective and its reason(s): (P/R and PCR)

1.2 Necessity and Priority of the Project

Consistency with development policy, sector plan, national/regional development plans and demand of target group and the recipient country.

Original:

(1) Necessity of Afforestation in the State of West Bengal

The forest and tree cover rate of West Bengal state has demonstrated upward trends for the last decade. However, the forest and tree cover rate of the state is 17.4% (15.68% forest cover, and 1.72% tree cover respectively), which is below the national average of 23.4% and national target of 33% stated in the National Forest Policy 1988. The open forest cover out of the total forest is as high as 41.8 %.

Secondly, West Bengal is heavily populated state with the average population density of 1,029 people/km^2, which is the second highest in India. As a result of high population density, per capita forest and tree cover in West Bengal is as small as 0.0115 ha compared to the national average of 0.075 ha. Because of the rapid increase of population and resulted high population density, the West Bengal State faces huge biotic pressure on forest resources. Currently, 20 million m^3 of fuel-wood and 0.915 million m^3 of wood (other than fuel wood) are in short supply and a huge demand-supply gap exists in the West Bengal State. Therefore, expansion of forest cover area by afforestation activities including plantation outside recorded forest area such as available government lands is required for bridging the gap between supply and demand of fuel wood, which also result in conservation of recorded forest area.

(2) Necessity of the Biodiversity Conservation in the State of West Bengal

The state of West Bengal has also diverse flora and fauna reflecting the variety of topography, climate and ecosystem. This is the only the state in India having both coastal and alpine ecosystems, of which significance of conservation values is further recognized internationally. In spite of its small area occupying only 2.7% of the country, the state has 53% of bird species recorded in the country, 47% of mammals, 32% of reptiles and 21% of angiosperms. In addition to its richness of biodiversity, the West Bengal State provides habitats for internationally endangered species like Asian elephant, Bengal tiger, fishing cat and Indian Gaur. Therefore, to conserve wildlife and biodiversity in West Bengal is great significant not only for the West Bengal but for India.

However, due to increasing wilderness-human interface and decreasing buffer areas, there is increase of incidents in man-animal conflicts in the State. Many human deaths due to attack by wild animal, killing of domestic animals by wildlife, disturbance into human habitation and farm land are reported every year. In order to release biotic pressure and create enabling environment to mitigate man-animal conflicts, it is imperative to undertake various biodiversity conservation improvements in conformity with the approved Management Plan of the area.

(3) Necessity of the Community Development Component in the State of West Bengal

Poverty level in rural area of West Bengal is 31.85 % and this poverty rate is higher than national average of 27.09%. Generally said that mostly poor, are dependent on forests for meeting their subsistence and livelihood needs. Therefore, this poverty combined with high population density in the region leads to increase pressure on forest resource and forest degradation. Taking into consideration that most of rural impoverished population is dependent on forest resources, the threats to forest might be partly attributed to continuous dependency of those people on forest by grazing, illicit cutting of trees and over-use of forest resources. Thus, providing alternative income sources in a participatory manner through Join Forest Management Committee (JFMC)/Eco Development Committee (EDC)/Self Help Group (SHG) are required to mitigate biotic pressure on forest and ecosystem, which will result in contribution of forest reservation.

(4) Necessity of the Institutional Capacity Development of the West Bengal Forest Department

Though the institutional capacity of WBFD is sufficient to manage and sustain the forestry and biodiversity conservation activities, mechanism such like JFM requires significant change in orientation of the staff to adopt a new role such as facilitator for villages. Furthermore, the Project involves multiple stakeholders and partners, it is vital to build up suitable capabilities at each level. Capacity development as well as the development of hard infrastructure of WBFD should be continued to enhance the capacities for addressing forestry and biodiversity conservation. Scientific forest management in terms of organizational set-up and facilities such as Geographical Information System (GIS) should be improved for the protection of natural resources in West Bengal including not only forest management but also biodiversity conservation.

Actual: (P/R, PCR)

Attachment(s): required only when they are revised.

1.3 Rationale of the Project Design

Timing, scale, technology of the project

Original: (P/M)

The project will be of 8 years duration, starting from 2011-12 to 2019-20 in consideration of capacities of stakeholders and time required to conduct activities in sustainable manners. The project activities will be implemented all over the State of West Bengal.

The project will be divided into 3 phases; preparatory phase, implementation phase, and closing phase.

Preparatory phase:

Preparatory phase is fundamental for implementation phase to maximize impacts of the project intervention and commences from the first year. Under this phase, institutional arrangement of Project Management Unit (PMU) / Divisional Management Unit (DMU)/ Field Management Unit (FMU) will be completed first. Deployment and recruitment of staff such as contractual staff of the project, selection of sites and target villages, procurement and training of partner NGOs, preparation of necessary guidelines, manuals and handbooks, and improvement of infrastructure and procurement of office equipment will follow the establishment of PMU. Capacity development for PMU staff in each level, formulation of JFMCs/EDCs, and preparation of micro plans will be commenced and consultant(s) will be hired by PMU during this phase.

Implementation phase:

All components in implementation phase will be put into action based on the activities in Preparatory phase. Afforestation, Biodiversity Conservation, Community Development and Institutional Capacity Development will be conducted till 8th year.

Closing phase:

In the last 2 years of the implementation phase, Phase-out Works will be undertaken. The project will provide a significant investment during its implementation period to the JFMCs/EDCs and SHGs so that they become self-sustaining financially and organizationally by the end of the project period.

Actual: (P/R, PCR)

2 Project Implementation (Efficiency)

2.1 Project Scope

2.1.1 Comparison of Original and Actual Location

Table 2.1.1-a: Comparison of Original and Actual Location

Location	**Original: (P/M)** State of West Bengal **Attachment 1: Location Map**	**Actual: (P/R and PCR)** **Attachment(s): Map**

Table 2.1.1-b: Comparison of Original and Actual Scope

Items	Original	Actual
Afforestation (Total 21,770 ha)	1) Afforestation in Recorded Forest Area (Total: 18,970 ha) A1: Plantation of High Yielding Eucalyptus hybrid clones (450 ha) A2: Plantation of Sal and Associate in South Bengal (3,430 ha) A3: Plantation of Quick Growing Small timber, Fuel & Fodder Species (6,000 ha) A4: Enrichment of Degraded Forests through coppice regeneration (7,500 ha) A5: Economic Plantation of Miscellaneous Species In North Bengal (1,050 ha) A6: Plantation of Sal and Associates Species In North Bengal (540 ha) 2) Tree Plantation Outside Forest (Total: 2,800 ha) B1: Strip Plantation (1,400 ha) B2: Block Plantation In non-forest land (1,400 ha)	
Biodiversity Conservation	1) Habitat Management (335 ha) - Grassland restoration and fodder tree planting in Gorumara National Park (NP), Jaldapara Wildlife Sanctuary (WS), Buxa Tiger Reserve (200 ha) - Bamboo under-planting in Mahananda WS (60 ha) - Fodder tree planting after removal of Maling bamboo in Singhalila NP, Senchal WS, Neora Valley NP (75 ha) 2) Man-Animal conflict mitigation - Erection and replacement of electric fencing for elephant and gaur in North Bengal (70 km) - Erection and replacement of nylon net fence (36 km) for tiger conflict in Sundarban 3) Research Activities *5 Research programs*	
Community Mobilization	1) Meeting - Selection of 550 JFMCs and 50 EDCs 2) Micro Planning - Micro Planning (600 numbers) 3) Community Development Infrastructure - Community Development Infrastructure (550 JFMCs and 50 EDCs) 4) Income Generation Activities - Formation and Selecting SHGs (2-5 SHG per JFMC/EDC) - Orienting and Building Capacity of SHGs - Income Generation Activities	

Items	Original	Actual
Institutional Capacity Development	1) Capacity Building - Training to Forest Department Staff - Training to JFMCs/EDCs members 2) Research Activities 3) Monitoring & Evaluation 4) Augmentation of office facilities & equipment	
Consulting Services	International: 42 M/M Local: 121 M/M Supporting staff: 166 M/M	

Attachment 3: Detailed Scope of Works

Attachment 4: Terms of Reference, M/M Schedule, and Cost Breakdown for the Consulting Services

2.1.2 Reason(s) for the modification if there have been any.

(P/R and PCR)

2.2 Implementation Schedule

2.2.1 Comparison of Original and Actual Schedule

Table 2.2.1: Comparison of Original and Actual Schedule

Items	Original	Actual
Selection of Consultants	April 2012-December 2012	(P/R, PCR) As of (Date of Revision) Please state not only the most updated schedule but also other past revisions Chronologically.
Establishment of PMU	March 2012	
Afforestation	October 2012- March 2020	
Biodiversity Conservation	October 2012- March 2020	
Community Development	April 2012- March 2020	
Institutional Capacity Development	April 2012- March 2020	
Consulting Services	January 2013 - March 2020	
Project Completion Date[1]	March 2020	

Attachment 5: Detailed Implementation Schedule

2.2.2 Reasons for change

Reasons for any changes of the schedule, and their effects on the project.

(P/R and PCR)

[1] Project completion date is defined when all activities are completed.

2.3 Project Cost

2.3.1 Comparison of Original and Actual Cost

Table 2.3.1-a: Comparison of Original and Actual Cost

BY ITEM

Breakdown of Cost	Foreign Currency Portion			Local Currency Portion			Total		
	Total	JICA Portion	Others	Total	JICA Portion	Others	Total	JICA Portion	Others
Afforestation and Allied Works	0	0	0	1,362	1,362	0	2,521	2,521	0
Biodiversity Conservation	0	0	0	158	158	0	292	292	0
Community Development	0	0	0	312	312	0	577	577	0
Institutional Capacity Development	0	0	0	417	417	0	771	771	0
Price Escalation	0	0	0	714	714	0	1,320	1,320	0
Physical Contingency	0	0	0	296	296	0	548	548	0
Consulting Services	128	128	0	115	115	0	341	341	0
Land Acquisition	0	0	0	0	0	0	0	0	0
Administration Cost	0	0	0	363	0	363	672	0	672
VAT	0	0	0	128	0	128	236	0	236
Import Tax	0	0	0	0	0	0	0	0	0
Interest during construction	181	0	181	0	0	0	181	0	181
Commitment Charge	51	0	51	0	0	0	51	0	51
Total	360	128	232	3,865	3,374	491	7,511	6,371	1,140

Note:

1. *Exchange Rate: US$1=Rs. 45.0, US$1=83.4 Japanese Yen, Rs.1 = JPY 1.85*
2. *Price Escalation*
   - *(a) Foreign Currency Portion: 1.6% p.a.*
   - *(b) Local Currency Portion: 6.6% p.a.*
3. *Physical Contingency: 10%*
4. *Base Year for Cost Estimation: May 2011*

Attachment 6: Annual Fund Requirement

Attachment 7: Detailed Cost Estimation

Breakdown of Cost	Actual								
	Foreign Currency Portion			Local Currency Portion			Total		
	Total	JICA Portion	Others	Total	JICA Portion	Others	Total	JICA Portion	Others
Item	( )	( )	( )	( )	( )	( )	( )	( )	( )
(P/R,PCR)									
Total									

(Note): Exchange Rate: US$1=Rs. =¥ (Rs.1=¥)

Base Year for Cost Estimation:

Table 2.3.1-b: Comparison of Original and Actual Cost

BY YEAR

Breakdown of Cost	Original			Actual		
	JICA Portion	Others	Total	JICA Portion	Others	Total
Fiscal Year	(Mil. Yen)	(Mil. Yen)	(Mil. Yen)	( )	( )	( )
2012	49	13	62	(P/R,PCR)	(P/R,PCR)	(P/R,PCR)
2013	882	137	1,019			
2014	1,184	188	1,372			
2015	1,455	236	1,691			
2016	1,326	226	1,552			
2017	684	138	822			
2018	509	117	626			
2019	282	85	367			
Total	**6,371**	**1,140**	**7,511**			

Note:

Exchange Rate: US$1=Rs. 45.0, US$1=83.4 Japanese Yen, Rs.1 = JPY 1.85

You can use any currencies in this chart, i.e. you may use your local currency as well as Yen for each figure.

If there were the portion of the financial resources such as of World Bank, ADB and so forth, other than your own budget, please fill in another column between "JICA Portion" and "Others" and fill in the figures of them.

2.3.2 Reasons for wide gap

Reason(s) for the wide gap between the original and actual, if there have been any, the remedies you have taken, and their results.

(P/R, PCR)

2.4 Organizations for Implementation

2.4.1 Executing Agency:

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original:

Executing Agency

West Bengal Forest Department (WBFD)

Organization's Role

The Project will be implemented by the West Bengal Forest Department through an autonomous Society registered under the West Bengal Society's Registration Act, 1961.

The Project Management Unit (PMU) under Society will be in-charge of the overall managerial tasks of the Project. Various offices of the West Bengal Forest Department at the Circle, Division and Range levels will implement the Project.

At the field level, 33 Division Management Units (DMU) and several Field Management Units (FMU) will be established, and the functioning of FMU will be monitored by concerned DMU.

Type	No. of Unit	Remark
PMU	1	An autonomous society
DMU	33	One (DMU) will be created within in each Division
FMU	-	One (FMU) will be created within in each Range

PMU will take the overall managerial charge of the implementation of the Project. The Governing Body (GB) will be created above PMU as required by the Society Registration Act. The GB will be the highest decision making body, and approve annual works and budget of the Project, monitor the financial and physical target to review the work of PMU and provide necessary assistance and direction from time to time. PMU shall function for the overall project coordination, procurement management, financial management including collating the expenditure statements from field offices and preparation and submission of reimbursement claims to JICA, monitoring and evaluation, and preparation of reports such as Quarterly Progress Reports (QPR) and Project Completion Report (PCR).

DMU will be created within the office of Divisional Forest Officer (DFO) and will not be registered as autonomous society. DMU will implement the activities of the project in the Division and assist the PMU in planning, fund management, work progress monitoring and documentation at the field level. The DMU will receive project fund from PMU for the execution of the works and disburse it to project implementers such as JFMCs/ EDCs/ SHGs/ NGOs only after approval of the DFO in charge. The rules and the regulations of the West Bengal Forest Department and instructions issued by PMU from time to time will be followed by concerned officers heading DMU in execution of the works of the Project.

FMU will be created within the office of Range Officer (RO) and will not be registered as autonomous society. FMU will have following major functions: 1) execution of works 2) technical support to JFMCs, EDCs and SHGs etc at the village level.

Actual, if changed: (P/R and PCR)

Attachment 8: Detailed Organization Structure, Organizational Chart for Implementation

2.4.2 Contractor(s)/ Supplier(s), and Consultant(s) and Their Performance:

2.4.2.1 Procurement and Consultant

Table 2.4.2: Procurement of Contractor(s)/Supplier(s) and Consultant(s)

Contract Package		Selection Method	
		Original: (P/M)	**Actual: (P/R and PCR)**
1	Contractor(s)	The works will be implemented by PMU/ DMUs/ FMUs/ JFMCs/ EDCs/ SHGs. Civil engineering contractors or NGOs will be utilized on the contract basis with local competitive bidding, price quotation or direct contract basis.	
2	Technical Assistance	NGOs and training institutions will be selected and contracted by PMU/ DMUs with local competitive bidding, price quotation or direct contract basis.	
3	Supplier(s)	Local competitive bidding, price quotation or direct contract basis.	
4	Consultant(s) -Project Management Consultant -Support for biodiversity conservation, community development and capacity development, etc	Short-list method for selecting an international general consultant. Other specific consultants may be selected either by short-list method or direct contract basis.	

Attachment 9: Principles of Procurement under the Project

Attachment 27: Procurement and Implementation Methods

2.4.2.2 Performance

(P/R and PCR)

Name(s) and Nationality(s) of the Contractor(s)/ Supplier(s):

Evaluation:

Name(s) and Nationality(s) of the Consultant(s):

Evaluation:

2.5 Photographs of Output

Photographs of Output of the project (P/R and PCR): Attachment

3 Benefit Derived from the Project (Effectiveness)

3.1 Operational & Physical condition of facility developed

Operational and physical condition of each facility developed/ supplied by the project.

Facilities	Description of condition	Problems, its Background and Remedial Action Plan
(P/R and PCR)	(P/R and PCR)	(P/R and PCR)

3.2 Precautions

Measures to be adopted/ Points which require special attention

- Risks and issues, if any, which may affect the project implementation and outcome, and planned countermeasures to be adapted.

  (Note) Please state environmental and social impacts (e.g., land acquisition, resettlement, HIV awareness and prevention program, gender consideration and EIA clearance) and Environmental Checklist or report of monitoring indicator in the following section "3-3 Environmental and Social Impacts".

Original issues and Countermeasure(s)	Actual issues and Countermeasure(s)
- Delay in PMU formation will affect the implementation of the Project. Therefore, PMU members should be identified and PMU shall be formed by March 2012 - Key staff shall be assigned by May 2012 - Required manuals or guidelines shall be prepared finalized by March 2013 - Proper budget allocation and management is required by the Executing Agency and PMU at the time of establishment of PMU for initial implementation of the Project.	(P/R and PCR)

3.3 Environmental and Social Impacts

Original issues and Countermeasure(s)	Actual issues and Countermeasure(s)
- No land acquisition and resettlement will be necessary in the project. - Neither preparation of an Environment Impact Assessment report nor obtaining an Environmental Clearance for the Project is necessary under the Notification of January 1994 by the Ministry of Environment and Forests. However, since the Project includes construction and rehabilitation of field level office and infrastructures in Protected Areas, WBFD is required to monitor the impact of the works on the environment.	(P/R and PCR)

Attachment 23: Environmental Check List

3.4 Qualitative and Quantitative Data of Monitoring Indicators

Indicators	Original (Yr 2011)	Present (Yr)	Target (Yr 2022)
1. Afforestation area (ha)			**Recorded Forest Area (Total: 18,970 ha)** A1: Plantation of High Yielding Eucalyptus hybrid clones (450 ha) A2: Plantation of Sal and Associate in South Bengal (3,430 ha) A3: Plantation of Quick Growing Small timber, Fuel & Fodder Species (6,000 ha) A4: Enrichment of Degraded Forests through coppice regeneration (7,500 ha) A5: Economic Plantation of Miscellaneous Species in North Bengal (1,050 ha) A6: Plantation of Sal and Associates Species in North Bengal (540 ha) **Tree Plantation Outside Forest Area (Total: 2,800 ha)** B1: Strip Plantation (1,400 ha) B2: Block Plantation (1,400 ha)

Indicators	Original (Yr 2011)	Present (Yr)	Target (Yr 2022)
2. Survival Rate (%) 5th year after plantation[1]			Plantation in Recorded Forest Area (75% - 80%) Tree Plantation Outside Forest Area (65% - 70%)
3. Number of Protected Area (National Park, Sanctuaries and Tiger Reserve) intervened by the Project			8
4. Number of JFMCs/ EDCs/ SHGs established and utilized under the Project			JFMCs: 550 EDCs:50 SHGs:1,200-3,000
5. Trainees of Forest Department Staff / JFMCs/ EDCs (numbers)			Forest Department Staff: 600 JFMCs/EDCs members: 60,000
6. Employment (Man/Day)			5,548,090
7. Comparison in number of man - animal conflicts in fenced villages under the Project/ non fenced adjoining villages[2]			Not applicable
8. Comparison in number of tiger straying in villages near erection of nylon net fencing in Sundarban			Not applicable
9. Income of household of members in JFMCs/ EDCs and SHG[3]			Not applicable

The data for the indicator will be prepared annually at the time of submission of the Project Progress Report of the first quarter of the fiscal year.

Indicator number 7-9: These indicators will be used only for monitoring purpose and setting the targets is not required.

Attachment 18: Methodology for Examination of Survival Rate

[1] The data collection for survival rates will be done by the Evaluation Wing in WBFD

[2] For the data collection for man-animal conflicts, same indicator used for Wildlife Wing Annual Report shall be applied.

[3] Data will be collected at the time of baseline survey, and End-term Survey to be conducted in the Project.

EIRR	**Original:** 8.43% Cost: Project cost (excluding tax and duties, price escalation, and IDC), Maintenance cost Benefit: Net sales of timber Project Life: 40 years	**Actual: (PCR)** ____% Cost: Benefit: Project Life: **Attachment(s): Supporting data for computing EIRR**

Attachment 20: Calculation of EIRR

3.5 Monitoring Plan for the indicators

- Monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term and so forth.

Original:

1) Weekly Monitoring and Monthly Reporting by FMU
2) Monthly Monitoring and Quarterly Reporting by DMU
3) Quarterly and Annually Monitoring by PMU (Annual Review Meeting) and Reporting by PMU twice a year
4) Quarterly Reporting to JICA and Yearly Monitoring by JICA

JICA would carry out the evaluation activities 2 years and 7 years after the project completion.

Actual: (P/R and PCR)

Attachment 17: Monitoring Framework

Attachment 19: Monitoring Sheet for Micro Planning including Forest Dwellers Development Plan

3.6 Achievement of the Project Objective

(PCR)

4 Operation and Maintenance (O&M) (Sustainability)

4.1 O&M and Management

- Organization chart of O&M
- Operational and maintenance system (structure and the number, qualification and skill of staff or other conditions necessary to maintain the outputs and benefits of the project soundly, such as manuals, facilities and equipment for maintenance, and spare part stocks etc)

Original:

WBFD has a responsibility of O&M and management of the assets and plantation created through the project implementation. To secure the continued O&M and management after the completion of the Project, the followings will be considered:

- Officers are skilful and available in sufficient numbers

- Facilities in form of surveying, computers, network & mobility needs enhancement
- Equipments for research and training etc will be purchased
- Empowerment of JFMCs/ EDCs/ SHGs through the Forest Department will be undertaken

Actual: (PCR)

Attachment 24: O&M Structure

4.2 O&M Cost and Budget

- The actual annual O&M cost for the duration of the project up to today, as well as the annual O&M budget.

(PCR)

5 Evaluation

5.1 JICA and Borrower/ Executing Agency Performance

Please evaluate the performance of the two bodies.

JICA: (PCR)
Borrower/Executing Agency: (PCR)

5.2 Overall evaluation

Please describe your evaluation on the overall outcome of the project.

(PCR)

5.3 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future JICA assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

(PCR)

Annex II

Main Points Discussed

Structure of Main Points Discussed

I. General Issues
II. Financial Arrangement of the Project
III. Scope, Cost and Implementation Schedule of the Project
  III.1. General Issues
  III.2. Afforestation Component
  III.3. Community Development Component
  III.4. Biodiversity Conservation Component
  III.5. Institutional Capacity Development Component
  III.6. Other Issues
IV. Project Implementation and Disbursement
V. Monitoring and Evaluation of the Project
VI. Environmental and Social Issues
VII. Other Issues

I. General Issues

Keys for Success of the Project

1. The JICA Mission stressed the following issues/principles as keys for smooth and timely implementation of the Project and sustainable realization of the Project effects.

- Smooth establishment and registration of Project Management Unit (PMU) under the West Bengal Society Registration Act, 1961, by March 2012.
- Preparation of Operational Manuals for preparation of Micro Plan including Forest Dwellers Development Plan, Joint Forest Management Committees (JFMCs), and Self Help Groups (SHGs) activities to be applied to the Project by March 2013.
- Selection of specialized NGOs for Micro Finance for supporting Income Generation Activities (IGA) by August 2013.

Key Actions with Timeframe

2. WBFD agreed on key actions with timetable shown in Time-bound Action Plan as Attachment 2 and committed to implement the Project in accordance with the Plan. The JICA Mission stated that there would be no problem if the actual implementation goes ahead of the schedule in the plan. The JICA Mission reiterated that timely implementation of these actions is crucial for smooth and timely implementation of the Project and sustainable achievement of the Project effects. WBFD agreed to monitor the Project progress with reference to the Plan.

Time frame toward the Loan Agreement

3. The JICA Mission explained the approximate timeframe towards signing of the Loan Agreement in FY2011 fast batch is as shown below.

4. The JICA Mission explained that it is subject to the decision of higher authorities in the Government of Japan as to whether the Project would be taken up in fast track batch.

Time	Event
November, 2011	Pledge (Prior Notification) from the Government of Japan (GOJ) to the Government of India (GOI) ***Tendering (Expression of Interest) can be started 30 days after the Pledge.**
December, 2011	Exchange of Notes (E/N) between GOI and GOJ
	Signing of Loan Agreement (L/A) between the President of India and JICA
	***Disbursement can be started after effectuation of the Loan Agreement**

Required Clearance

5. WBFD explained that EIA, environment, forest and any other clearances are not required for the Project.

Status of the Present Minutes of Discussion

6. The present Minutes of Discussion constitutes the sole common project document shared by JICA and WBFD while several other technical documents are issued by Indian side to meet requirements arising from its internal procedures (i.e. DPR, proposed for PIB, bidding plan etc.). It is understood by all JICA, WBFD and Ministry of Environment and Forests that, should there be discrepancies between the present Minutes of Discussion and those internal documents, the former should over-ride the latter.

II. Financial Arrangement of the Project

Terms and Conditions of Japanese ODA Loans

7. The JICA Mission explained that the current terms and conditions of the Japanese ODA Loan applicable to the Project are as follow:

Option		Interest Rate (%)	Interest Rate for Consulting Services (%)	Commitment Charge (%)	Repayment Period (year)	Grace Period (year)	Condition of Procurement
General Terms	Standard	1.40	0.01	0.10	30	10	Untied
	Option 1	0.80	0.01	0.10	20	6	
	Option 2	0.70	0.01	0.10	15	5	
Preferential Terms	Standard	0.65	0.01	0.10	40	10	Untied
	Option 1	0.55	0.01	0.10	30	10	
	Option 2	0.50	0.01	0.10	20	6	
	Option 3	0.40	0.01	0.10	15	5	

8. The JICA Mission and WBFD confirmed that the Standard Option in Preferential Terms would be suitable for the Japanese ODA Loan for the Project. The JICA

Mission informed WBFD that the term and condition for the Project will be confirmed subject to the decision of the higher authority.

9. The JICA Mission and WBFD confirmed that the loan period, in which disbursement would be available, would be within 10 years after the effectuation of the L/A, although the Project implementation period would be 8 years.

Re-lending Arrangement

10. The JICA Mission, WBFD and Finance Department of the West Bengal State agreed that, as GOI's policy, the Japanese ODA Loan for the Project and concerned exchange fluctuations will be passed on to the State Government on the same terms and conditions on which it is received (i.e. back-to-back basis). Finance Department of West Bengal confirmed to take charge of necessary financial arrangement.

Prepayment Premium

11. The JICA Mission explained introduction of prepayment premium for the Project, as per Attachment 26. The JICA Mission requested WBFD to consult with GOI, the borrower of the Loan, before corresponding with JICA, in case WBFD intends to make a prepayment.

Project Cost

12. During the meeting between the JICA Mission and the Principal Secretary of Finance Department of the West Bengal State on June 6th, it was requested that the total amount of the Project cost should not exceed Rs 406 Crore as officially approved by the State Government. JICA took note of it.

Budgetary Appropriations

13. The JICA Mission requested WBFD to make necessary financial arrangements with the Finance Department of West Bengal for the smooth implementation of the Project, so as to facilitate timely allocation of the annual budget and smooth release of funds by the State Government, in accordance with the schedule of the Project. It was pointed out by JICA that as reimbursement procedure would be adopted for the Project, any delay in the allocation of the budget and the release of funds in the first year will delay the entire Project implementation schedule.

14. In this connection, WBFD mentioned that if the L/A for the Project is signed by December 2011; it will facilitate smooth budgetary appropriation for the Project, as the State budget for the next FY is prepared in January of each year.

Ceiling of JICA Fund Coverage over Total Project Cost

15. The JICA Mission explained that a ceiling ratio of the coverage of Japanese ODA Loans over total project costs is 85% for India and there is no such ceiling ratio for particular component under the JICA eligible financial portion. Thus, in case the accumulated cost of JICA eligible financial portion exceeds 85% of the total project cost, the financing ratio on each component could be less than 100%.

Commitment Charge and Interest during Construction

16. The JICA Mission explained about introduction of Commitment Charge of 0.1% per annum as follow:

    a) As Japanese ODA Loans are made possible by using the public funds in Japan, in order to promote the early realization of the project effects and to increase the incentive of implementing the project within the set date, for projects newly pledged

after October 2007, commitment charge will be accrued from 120 days after the signing of the L/A. If the L/A is not effectuated within 120 days from the signing date, the commitment charge accrued up until the date the L/A comes into effect should be retroactively paid on the date of the first repayment under the Loan Agreement should be made.

b) The amount of the charge to be paid should be calculated on the prorated daily basis in accordance with the following formula:

0.1% × the amount of unused balance (loan commitment amount minus already disbursed amount) × actual number of days/365

c) Any Loan allocation which will not be utilized for the Project implementation can be transferred to the category of "Unavailable Balance" in order for WBFD to avoid having to pay unnecessary commitment charges on the same amount. However, this is a one way process meaning that once funds are transferred to "Unavailable Balance" category, it is not possible for the funds to be reallocated to any other categories. Therefore, a very careful consideration by WBFD would be necessary before undertaking this exercise.

d) The JICA Mission also explained that GOI and GOJ agreed to apply the commitment charge in India. As for the payment, the charges levied have to be paid in cash as is stipulated in the Loan Agreement. WBFD stated that they will abide by the Loan Agreement conditions.

The JICA Mission and WBFD mutually agreed that Interest during Construction and Commitment Charge be excluded from the eligible portion of the Japanese ODA Loan to the Project.

Non Eligible Portion

17. WBFD agreed that general administration costs, such as salaries for deputed staff in PMU, from WBFD as well as salaries, travel expenses and office expenses of Divisional Management Units (DMUs) / Field Management Units (FMUs) on pro-rata basis, all fiscal levies, charges, taxes, and duties imposed by the GOI or any other departments in central/state governments with regard to any activities of foreign and local contractors and consultants for the Project should be borne by WBFD through redemption of all those expenses claimed by the contractors and consultants. WBFD explained that the cost of monitoring of plantations and running costs of vehicles procured under the Project may be considered as administration costs. JICA confirmed it.

Physical Contingency

18. The JICA Mission explained that the physical contingency under the Project is set as 10% as of now, so that WBFD could avoid any possible shortage of funds for the implementation of the Project and realization of the Project objectives.

Counterpart Fund

19. WBFD is requested to prepare counterpart fund for non-eligible cost such as (a) general administration expenses, (b) taxes and duties, (c) purchase of land and other real property, (d) compensation, and (e) other indirect items. WBFD is also requested to mobilize additional financial resources in case the actual project cost overruns the original cost estimate when JICA's contribution reaches the Loan amount.

III. Scope, Cost and Implementation Schedule of the Project

III.1 General Issues

Name and Objective of the Project

20. WBFD and JICA confirmed that the name of the Project is "West Bengal Forest and Biodiversity Conservation Project".

21. WBFD and the JICA confirmed that the objective of the Project is "to improve forest ecosystem and conserve biodiversity by undertaking afforestation, regeneration and wildlife management activities through Joint Forest Management approach, including institutional capacity development, thereby contributing to environmental conservation and harmonized socio-economic development of West Bengal".

Security Issues

22. WBFD explained its intention to implement the Project in the entire State. However, the JICA mission stressed that the security situation in some south-western parts of the State is still not very stable. Therefore, JICA is very concerned about the same.

23. The JICA Mission stated that it is specially concerned about security situation in some Blocks in the three south-west districts of Paschim Medinipur, Bankura and Purulia, which are officially in the current list circulated by Development and Planning Department, Government of West Bengal, dated 1 June, 2011, Ref. No. 69(14)/DP/P/P-15-01/11 for Social Programmes, attached as per Attachment 25.

24. In this connection, it was proposed by the JICA Mission that at the time of the finalization of village selection in March 2013, WBFD shall confirm the status of security situation specially in the Blocks mentioned in letter of Development and Planning Department, Government of West Bengal, dated 1 June, 2011, Ref. No. 69(14)/DP/P/P-15-01/11 (Attachment 25) with the Home Department of Government of West Bengal and based on the outcome, Blocks or parts of Blocks listed therein, shall be either excluded or included under the Project. WBFD confirmed that in case the concerned Blocks are excluded from the Project area, the plantation targets agreed between WBFD and the JICA Mission under the Project can be achieved in the remaining available plantations sites in other Blocks of the State.

25. Furthermore, the JICA Mission stated that even in the rest of the Project area, the Project should be implemented only in areas where the law and order situation is peaceful. Therefore, villages where any violence has been reported involving forest officers/ staff and/ or has negatively affected activities of WBFD in any manner in the preceding one year from the time of finalization of Project target areas in March 2013, such villages shall be excluded from the Project scope. WBFD agreed to it and confirmed that it shall examine the law and order situation carefully before finalizing the Project sites as per the aforesaid criteria.

26. Based on WBFD's suggestion of selecting target villages, as mentioned in paragraph 25, WBFD shall consult with JICA to agree on the final Project target areas in March 2013 after assessing the latest law and order situation.

27. Furthermore, the JICA Mission requested WBFD to conduct public awareness campaign in Project area through publication, guidance and orientation, before Micro Plan preparation and during Project implementation, to obtain strong community support for the Project, particularly in security concerned area. WBFD took note of it.

Coordination with Other Projects

28. JICA requested WBFD to coordinate with other projects covered by its own schemes to maximize project benefits.

Scope of the Project

29. The detailed information of each component of the Project is described in the Attachment 3.

Overall Project Cost

30. The overall cost of the Project and Annual Fund Requirement is as per Attachment 6 and 7.

Target Area

31. The JICA Mission and WBFD confirmed that the Project area consists of three parts respectively designed for Afforestation component, Community Development component and Biodiversity Conservation component as below. (As per Attachment 3).
    - The target area for Afforestation component is 31 Divisions
    - The target area for Community Development component is 23 Divisions
    - The target area for Biodiversity Conservation component is 17 Divisions and 8 Protected Areas (PAs)
32. WBFD and the JICA Mission confirmed that the plantation sites of the past World Bank Project of 'World Bank Social Forestry Project' and 'West Bengal Forestry Project', shall be excluded from the target plantation sites under this Project, unless otherwise agreed upon with JICA for special consideration.
33. WBFD also confirmed that there is no duplication of components between "Project Tiger", which is the National Programme for conservation of tiger, and the Project.

Target JFMCs and Eco Development Committees (EDCs)

34. In the Project, JFMC is defined as a village members' body formed, where the recorded forest land is involved, in order to ensure adequate and quality community participation for forest protection and management. EDC is defined as a village members' body formed where land is under the PA, in order to ensure adequate and quality community participation for protection and management of PA including wildlife. Although JFMCs are provided the facility of sharing of forest resources through JFM, EDC does not get any sharing facility of forest resource such as fuel wood, timber sharing etc. as it is located in PA.
35. JICA Mission and WBFD agreed that community participation through Joint Forest Management is important aspect for the project implementation.
36. The JICA Mission and WBFD confirmed that the total number of JFMCs/ EDCs to be covered in the Project is 600 JFMCs/ EDCs as per Attachment 10, consisting of:
    - 550 JFMCs for undertaking Afforestation and Community Development component
    - 50 EDCs for working in Biodiversity Conservation component and undertaking Community Development component.
37. They shall be selected based on the criteria agreed between the JICA Mission and WBFD as below:
    - Criteria for JFMCs
        - Area identified by the Working Plans for each plantation model

- Availability for minimum plantation area required for each plantation model as decided between the JICA Mission and WBFD
- Proximity to forest within 1 km
- Higher Percentage of Scheduled Tribes/Castes population among JFMCs members

- Criteria for EDCs
  - EDCs within 1 km of the PA
  - EDCs undertaking the Project activities
  - Presence of Endangered species in the PA
  - Incidence of Man-Animal Conflicts
  - Higher Percentage of Scheduled Tribes/Castes population among EDC members

38. WBFD confirmed that there are more than 600 JFMCs/ EDCs meeting the requirements above and preparation for identifying villages shall be started immediately. Detailed selection criteria shall be finalized by WBFD and shared with JICA for obtaining comments by JICA by December 2011.

39. JICA and WBFD agreed that village base cluster approach shall be adopted, where a group of several villages in close proximity shall be selected under the Project to increase effectiveness of activities by taking advantage of scale, as well as to encourage efficient implementation and monitoring of the Project.

III.2 Afforestation Component

Plantation Target

40. WBFD confirmed the plantation target per each Division as per Attachment 11.

Tree Plantation Outside Forest Area (Social Forestry) (TPOFA)

41. TPOFA will be implemented in available government land with the objective of mitigating the biotic pressure on forest by increasing forest resources from outside recorded forest area in accordance with the State Resolution for Social Forestry issued on Government Order 2914-For/D/6m-3154-dt 22/07/1986 as Attachment 12.

42. Plantation sites for TPOFA in available government land and beneficiary villages shall be selected based on the criteria such as accessibility of Forest Department, strong willingness and motivation of *Gram Panchayat* and dependency on forest resources of communities, by *Ban-o-Bhumi Sanskar Sthayee Samiti* (Multi stakeholder committee of local self government for discussing usage of forest and land) at *Panchayat Samiti* level in which WBFD is one of members.

43. Executive Committee (EC) shall be formulated in each selected beneficiary village and individual beneficiaries shall be selected by EC for protection of plantation in view of including the people that fall under the following categories as stipulated in GO 2204-For/D/1/6M-7/93 as per Attachment 12.

- Economically backward people
- Schedule Caste and Tribe

44. WBFD and the JICA Mission agreed that a consent letter shall be signed between WBFD, *Gram Panchayat* and all individual beneficiaries after selection of individual beneficiaries. Format of Consent Letter shall be finalized between PMU and the

JICA. JICA affirmed that no TPOFA activities shall be implemented without the signed consent letter.

45. Each beneficiary village shall have a TPOFA Implementation Plan to be prepared by FMUs in consultation with individual beneficiaries / EC, and approved by DMUs. The Plan shall include the basic information such as tree species for plantation, time of harvesting, and the system of harvesting/ selling/ benefit sharing including the roles of individual beneficiaries, DMUs, *Gram Panchayat* and other stakeholders, if any.

46. WBFD explained that DMUs shall arrange for harvesting, bear labour cost and sell as per prescribed procedures.

47. WBFD explained that sustainability of plantations sites (replanting) after harvesting shall be ensured, as the required replanting cost shall be secured from harvesting revenue into Divisional Management Unit (DMU)'s account. Total sale proceed, after deducting actual cost of plantation and harvesting and required cost of replantation, shall be allocated among WBFD (50%), beneficiaries (25%) and *Gram Panchayat* (25%) as stipulated in GO No.2098-For.14/05/2010 as Attachment 12. Usage of net sale proceeds allocated for WBFD is restricted only for greening outside the recorded forest Area.

48. The JICA Mission also stated its concerns about the possibility of inadequate maintenance by individual beneficiaries. WBFD explained that following counter measures shall be taken to take care of the same:

- Plantation site shall be chosen where there is a *Gram Panchayat* with strong intention for implementing TPOFA. Intention for implementation of TPOFA shall be expressed in writing to FMUs by *Gram Panchayat* after reaching a consensus among *Gram Panchayat* members. Simultaneously, plantation sites shall be identified by FMUs through interaction with *Gram Panchayat* members.
- WBFD shall provide proper guidance for implementing TPOFA to individual beneficiaries to explain the duties, responsibility and rights of individual beneficiaries and *Gram Panchayat*. Especially, importance of protection of plantation site from grazing and other risks in order to obtain maximum harvesting revenue at the time of felling shall be emphasized. Thus individual beneficiaries shall patrol regularly plantation sites on voluntary basis.
- As *Gram Panchayat* is also responsible for protection of plantation site, proper guidance shall be provided by *Gram Panchayat* to individual beneficiaries.

49. WBFD shall monitor the plantation sites in the 1st, 3rd and 5th year of plantation year after plantation in the same manner of JFM monitoring mechanism. If necessary, casualty replacement shall be conducted up to 2nd year after plantation.

III.3 Community Development Component

Community Participation

50. Under the Community Development component, Community Development Infrastructure and IGA shall be undertaken. Community Development Infrastructure is to be implemented for the purpose of facilitating smooth implementation of forest management activities by involving the whole local community. On the other hand, IGA are implemented by SHGs to create alternative sources of livelihood for forest dependent people in order to wean them away from dependency on forests.

Micro Planning

51. WBFD and the JICA Mission confirmed that Micro Plan, which is a plan for the Project activities including Afforestation and Community Development to be taken in

each village, shall be formed as the first step of implementation of the filed activities. Micro Plans shall be prepared by FMUs with help of NGOs for each JFMCs/ EDCs for the purpose of integrating community need into comprehensive plan through analysis of current conditions, social assessment and interaction with community within the conditions prescribed in the Working Plan of the Forest Division.

52. WBFD and the JICA Mission confirmed that following points for preparation of Micro plan.

- Micro Planning shall be conducted based on Micro Plan preparation manual to be developed under the Project by PMU.
- Micro Plan shall be prepared for each JFMCs/ EDCs in both English as well as local language for implementing the Project by the FMUs with the support of hired NGOs and in collaboration with the local communities.
- No project activities related to JFMCs/ EDCs shall be implemented unless a Micro Plan is prepared through the appropriate mechanism and with participation of local community through Participatory Rural Appraisal over a period of 6 months with close interaction with all stakeholders including forest dwellers, Schedule Tribes/Caste, women etc.
- Micro Plan should not only be forestry activities focused but should be comprehensive so as to include all development activities that may be taken up by other government departments and agencies. Subsequently, the Micro Plan should be shared with other government departments and agencies for dovetailing their activities in the Project villages thus facilitating inter-sectoral linkages for larger project impact. To maximize the benefit of Micro Plan, WBFD committed to promote holding inter-sectoral consultation among concerned departments in practical manner at level of divisions and ranges.
- Micro Plans shall be reviewed and revisited by the FMUs three years after they are prepared to incorporate the progress made and update the emerging needs of the concerned villages.
- The tentative contents of Micro Plan are agreed with JICA and WBFD as Attachment 13.

Process of Micro Plan Approval

53. It is agreed between WBFD and the JICA Mission that process of Micro Plan approval at each stage shall be as follows:

- After preparation by the FMUs with the support of hired NGOs, Micro Plan of a village shall be first approved by the general body of JFMCs/ EDCs and then confirmed by the Executive Committee of the JFMCs/ EDCs. Thereafter, the Micro Plan shall be approved finally by concerned DMU chief.
- If any major changes in the content of Micro Plan are suggested by DMUs, the changes should be incorporated and approved in the next general body meeting of JFMCs/ EDCs, which will be held whenever needed.
- No activities shall be commenced until the Micro Plans are approved by DMUs.

Community Development Infrastructure

54. As necessity for community development in each JFMC/ EDC is different, infrastructures to be developed shall be decided during Micro Planning. WBFD and the JICA Mission agreed on the indicative list for the community development infrastructure as per Attachment 3. Infrastructures which are not in the indicative list may be taken up for the Project based on needs expressed by villagers during Micro

Planning. However, only those infrastructures that shall benefit the whole community and can be maintained by community itself shall be taken up.

55. The JICA Mission and WBFD agreed that the Community Development Infrastructures to be developed under the Project in villages shall be maintained by JFMCs/ EDCs through their own funds under JFM regulations.

56. WBFD explained that for the sake of keeping fairness and accountability among the local communities, fund provision for Community Development Infrastructure for JFMCs/ EDCs shall be categorized based on criteria such as the quantum of area to be protected, number of families, percentage of SC/ST population, and number of man and animal conflicts as per Attachment 14.

57. It was proposed that deep tube wells might be developed after preparing Micro Plan if requested by local communities. In that case, before constructing tube wells, WBFD shall seek the help of the Public Health Engineering Department (PHED) for examination of groundwater quality. WBFD agreed that unless the clearance is given by the PHED, construction work of tube wells shall not be undertaken.

Income Generation Activities

58. IGA shall be implemented by SHGs in selected 600 JFMCs/ EDCs. A minimum of two and maximum five SHGs per JFMC/ EDC shall be selected or formulated, and each SHG shall be given seed fund for starting IGA. Seed fund to be provided is agreed as Rs. 1 lakh for each JFMC/ EDC.

59. In villages, where SHGs already exist, SHGs consisting of JFMCs/ EDCs members, shall be selected for support under the Project. In case SHGs do not exist in selected villages, SHGs shall be formed with support of specialized NGOs for Micro Finance and other line departments.

60. WBFD confirmed that the following strategies shall be adopted to promote IGA:

- Specialized NGOs for Micro Finance shall be hired by PMU/ DMUs to strengthen the effective implementation and appropriate monitoring of IGA.
- Technical and vocational institutes to be hired by PMU/ DMUs under the Project shall provide technical training and knowledge to improve capabilities and capacities of SHG members.
- WBFD shall promote SHGs to coordinate with other NGOs and other line departments such as the Department of Rural Development, the Department of Cooperatives, the Women and Child Department, etc to scale up activities of SHGs.
- WBFD and specialized NGOs for Micro Finance shall explore possibility of up scaling and linkaging with Micro Finance Institutions and Rural Banks.

Process of Income Generation Activities

61. JICA and WBFD agreed that the guidelines for implementation of SHGs activities for IGA shall be prepared by PMU with the help of Project Management Consultant (PMC). IGA will be implemented in accordance with said guidelines.

62. WBFD confirmed that feasible business plans shall be prepared for each SHG with support of specialized NGOs for Micro Finance. Business plans shall be approved by Executive Committee of JMFCs/ EDCs and then shall be approved by DMUs. Only after due approval of business plan, seed funds shall be transferred to SHGs' account through JFMCs/ EDCs 'Revolving Fund' account.

63. JFMCs/ EDCs shall monitor repayment of loans from SHGs on regular basis with the support from specialized NGOs for Micro Finance to facilitate effective and

proper implementation of SHGs activities under the Project. However, WBFD shall take overall responsibility of implementing and monitoring SHGs activities.

64. Arrangement of annual audit for SHGs activities will be made by PMU/DMUs.

65. Modalities such as interest rate to be charged from SHGs, repayment period etc, shall be determined in the Micro Plan for each JFMC/ EDC.

Hiring Specialized NGOs for Micro Finance

66. In addition to the field NGOs to be hired for preparation of Micro Plans, the JICA Mission and WBFD agreed to hire specialized NGOs for Micro Finance to provide the support for IGA. Specialized NGOs for Micro Finance shall be selected by PMU in accordance with the "Guidelines for Procuring NGOs" to be prepared by PMU by March 2013.

67. Drafted Term of Reference (TOR) and necessary qualification for specialized NGOs for Micro Finance are mutually agreed between the JICA Mission and WBFD, as per Attachment 15.

68. "Experts related to ODA Loan" shall be dispatched by JICA to assist PMU in listing up probable candidates for specialized NGOs for Micro Finance and examination of their competencies and resources.

Dispatching "Experts Related to ODA Loans"

69. The JICA Mission proposed dispatching "Experts related to ODA Loan" along with local experts to WBFD in the first year of the Project before PMC are hired, in order to assist in listing up probable candidates for specialized NGOs for Micro Finance for supporting IGA. WBFD agreed to it. Further details such as TOR and dispatching schedule will be discussed later.

70. JICA and WBFD agreed possible TOR of the said experts as below:

- Identify the needs of Micro Finance in the Project area on the basis of ground reality check.
- Prepare the detailed TOR of specialized NGOs for Micro Finance to work in the project.
- Prepare the detailed cost estimation required to comply with the suggested TOR.
- Identify potential specialized NGOs for Micro Finance working in the State which would be suitable for the Project.
- Share collected information with PMU/ PMC.

Community Development Fund and Revolving Fund for JMCs/EDCs

71. Already existing bank accounts of JFMCs/ EDCs shall be used as 'Community Development Fund' for depositing funds for Community Infrastructure Development activities and other allied activities. A second bank account shall be opened for each JFMC/ EDC to be utilized as 'Revolving Fund' for IGA.

72. Transactions of both accounts shall be checked every month by FMUs. Bank accounts of JFMCs/ EDCs shall be audited annually by chartered accountants by WBFDs' own budget.

73. The funds for Community Development Infrastructure activities shall be released by DMU to Community Development Funds for JMFCs/ EDCs based on the requirements of approved Micro Plan only after Micro Plan is approved by DMUs

within the maximum amount of fund provision under the category designated in paragraph 56.

74. Utilization of Community Development Funds by JFMCs/ EDCs for the Project shall only be permitted after passing of Resolution for the same by JFMCs/ EDCs Executive Committee. Funds shall be withdrawn from the JFMCs/ EDCs' accounts under the joint signatures of President and Secretary of JMFCs/ EDCs.

75. Funds for plantation and allied activities, including labor cost and material costs, to be undertaken by JFMCs/ EDCs shall be released in advance only after work estimates prepared by JFMCs/ EDCs with the assistance of FMUs are examined and approved by DMUs. Procurement of required materials shall be made by JFMCs/ EDCs with support of FMUs based on the "West Bengal Financial Rules for Procurement". After incurring the necessary expenditure, JFMCs/ EDCs shall submit utilization certificates to the FMUs, for onward submission to DMUs. Even after the Project completion, WBFD shall be responsible for monitoring of the above mentioned accounts.

76. Notwithstanding the above, detailed accounting procedures for the Project, in line with West Bengal Societies Registration Act, 1961, shall be prepared by PMU by September 2012.

Extension Worker at JFMC level

77. WBFD agreed that extension workers shall be hired from the project villages to support undertaking various activities by JFMCs/ EDCs such as record keeping, accounting etc. The payment for these workers shall be borne by the Project cost during the Project implementation period. WBFD confirmed that one extension worker for 5 JFMCs/ EDCs shall be appropriate. The required qualification for extension worker shall be young (preferably within 30 years of age), an active member of JFMCs/ EDCs and be atleast class 8th pass. After the Project completion, JFMCs/ EDCs may continue services of extension workers on their own cost.

Voluntary Contribution

78. WBFD shall encourage JFMCs/ EDCs members to voluntarily contribute in form of labor or provide monetary contributions for Community Development Infrastructure activities, so as to promote sense of ownership amongst the village people and to ensure the sustainability of the assets created.

III.4 Biodiversity Conservation Component

EDC's Role

79. Under the Biodiversity Conservation component, EDCs may be involved in Habitat Management activities and Man-Animal conflict mitigation. Among those EDCs who are working for the Project activities, 50 EDCs shall be selected based on agreed criteria, to undertake Community Development Activities in the Project, as mitigating biotic pressure through community development will result in contribution to biodiversity conservation.

80. Man-Animal conflict mitigation shall be implemented with help of nearby villages where fences shall be created. WBFD explained that village people involved for fence creation, shall fully participate in monitoring of fences erected in the Project.

Management Plan of Protected Areas and Biodiversity Conservation

81. The JICA Mission and WBFD confirmed the activities and each targeted area under the Biodiversity Conservation Component as per Attachment 3.

82. WBFD confirmed that international protocol or standard defined by GOI/ Government of West Bengal shall be followed for undertaking each Project activity under the Biodiversity Conservation component.

83. WBFD explained the current status of all the Management Plans and Tiger Conservation Plans related to Biodiversity Conservation component, which is summarized as below:

Name of Protected Area	Type of Plan	Coverage Period	Current Status
Gorumara NP	Management Plan	FY2007-2017	Valid
Jaldapara WS		FY2007-2016	
Mahananda WS		FY1996-2006	Under Preparation
Singhalila NP		FY2000-2009	
Senchal WS		FY1999-2009	
Neora Valley NP		FY1998-2007	
Buxa Tiger Reserve	Tiger Conservation Plan	FY2011-2020	Draft submitted to National Tiger Conservation Authority under MOEF for their approval
Sundarban Tiger Reserve		FY2011-2020	Under Preparation

84. WBFD confirmed that all activities of Biodiversity Conservation component are/ will be described in the related Management Plans or Tiger Conservation Plans, including fodder tree planting after removal of Maling Bamboo in Singhalila National Park and Neora Valley National Park, which are currently not included in the relevant Management Plans.

85. WBFD explained that if the related Management Plans expire and their updation has not been completed, WBFD shall prepare annual plans for each PA in accordance with relevant expired Management Plans and obtain the approval from Chief Wildlife Warden for execution.

86. The JICA Mission and WBFD agreed that at the time of updation of Management Plans, whose validity expires during the Project implementation period, close consultation and coordination with experts in Project Management Consultant (PMC) will be made to improve the quality of Management Plans.

87. Regarding research subjects under the Project attached as Attachment 3, WBFD agreed that it will obtain approval from the Research Advisory Committee set under the Wildlife Wing, by the end of March 2012 in order for WBFD to commence preparation soon after conclusion of the Loan Agreement and even before the mobilization of PMC.

III.5 Institutional Capacity Development

Capacity Building, Training and Research

88. The capacity building programs will be held by PMU/ DMUs. The details are as per Attachment 3.

89. Officers to be deputed for overseas trainings shall be finalized in consultation with JICA India Office and all officers who will participate in overseas training would submit a report to JICA India Office upon completion of training. Overseas training activities are only eligible for the officers with following specifications:

- Only those officers directly engaged in the implementation of the Project (Not below the rank of Divisional Forest Officer and above up to the rank of Principal Chief Conservator of Forests (PCCF) involved in the Project and are part of PMU/ DMUs).
- All officers would also be required to serve the Project for a minimum period of two (2) years upon return from trainings.
- Overseas training should be undertaken only after obtaining necessary approval of the State/ Central Government and opportunity will be given to the officers once only during the Project period.

90. For overseas training, PMU shall determine preliminary plans including standards of cost items (transportation/ accommodation/ allowance etc) prior to the consultation with JICA.

91. The JICA Mission and WBFD agreed that any activities Of Institutional Capacity Development activities which are or will be financed partially or fully by the other JICA project including the Capacity Development for Forest Management and Personnel Training Project shall be excluded in the Project.

92. The JICA Mission requested that workshop for Micro Planning and Participatory Rural Appraisal for frontline staff and JFMCs/ EDCs should include gender issues.

Geographic Information System (GIS)

93. The JICA Mission and WBFD agreed to develop the GIS as per Attachment 16. Furthermore, JICA requested all the Project activities to be undertaken in field shall be recorded in GIS. For plantation activities, WBFD shall collect field data to be reflected in GIS, at the time of plantation as well as the time of examination of survival rate in 1st, 3rd and 5th year after plantation.

94. WBFD confirmed to develop infrastructures in GIS for satellite based monitoring in the preparatory phase itself so that baseline data, subsequent monitoring and evaluation are undertaken through technological based system by usage of satellite mapping, Global Positioning System, etc.

III.6 Other Issues

Interaction with other States

95. The JICA Mission explained that as JICA has financed over 20 forestry projects in India for past twenty years, it would be significant benefit for WBFD to have opportunity to interact with officials in other States where JICA Forestry Project have been implemented. In this connection, the JICA Mission suggested WBFD to hold exposure visits during preparatory period of the Project to visit other states such as Orissa and Tamil Nadu. WBFD agreed to do it. JICA offered to facilitate interaction with other states for WBFD.

Implementation Schedule

96. The JICA Mission and WBFD confirmed that the Project implementation period would be 8 years. JICA Mission explained that the loan period, in which disbursement would be available, would be within 10 years after the effectuation of the L/A, although the Project implementation period would be 8 years.

97. The JICA Mission explained that the Project period should be divided into three phases consisting of, preparatory, implementation and consolidation phases. It is necessary to secure the first two years as preparatory phase and plantation activities can be commenced from the third year. First year should be spent for setting up PMU, selection of PMC, selection of NGOs, capacity building of the department staff, and preparation of manuals and guidelines and finalization of project villages, etc. In the second year, WBFD can start preparation of Micro Planning, community development activities etc. Any works which relate to plantations and community development have to be implemented after completing preparation of Micro Plans.

98. The JICA Mission and WBFD confirmed that commencement period of any community activities such as Afforestation and Community Development activities shall be phased in two batches which starts in FY2013 and FY2014, respectively with 275 JFMCs (Approximately 50 JFMCs in North Bengal and 225 JFMCs in South West Bengal) and 25 EDCs (in North Bengal) per each batch. The detailed Implementation schedule is as per Attachment 5.

99. WBFD explained that if plantation target area is beyond 20 ha per JFMC, plantation activities in the concerned JFMC might be divided into two to three years considering the feasibility.

Price Escalation for Labor Cost

100. As the cost of the Project is labor oriented, JICA requested WBFD to estimate the appropriate price escalation of labor cost in a practical manner in the beginning of each Financial Year for appropriate budget allocation.

IV. Project Implementation and Disbursement

Responsible Organization for Operation and Maintenance

101. WBFD confirmed that, even after the Project completion, WBFD would continue to be responsible for the proper operation and maintenance of the assets created through the Project.

PMU under Society Mode

102. JICA and WBFD agreed that the PMU shall be established as an independent autonomous society under the West Bengal Society Registration Act, 1961, since PMUs established under society mode facilitate smooth implementation of the projects and also enhance level of transparency and accountability as per JICA's past experience.

103. WBFD stated that the PMU in society mode is acceptable to them. However, the Project Director of the PMU shall be preferably of the rank of Additional Principal Chief Conservator of Forest (APCCF) or PCCF, who shall dedicated for the Project and work exclusively for the Project. In this connection, the JICA Mission also requested, that the other staff of the PMU should be deputed exclusively for the Project. JICA and WBFD agreed the Organization Structure as per Attachment 8.

104. The JICA Mission and WBFD confirmed that Governing Body and High Powered Committee shall be established as highest decision-making body responsible for important approvals including PMU, annual work plans and budget.

Deployment of Staff

105. The JICA Mission stressed that the entire PMU staff, including core staff, such as Project Director, should be deployed exclusively for the Project and WBFD agreed to it. WBFD confirmed that officers with proven records of good performance shall be deputed to the PMU.

Staff Requirement

106. For the implementation of the Project, WBFD confirmed that current governmental staff is sufficient to ensure the smooth and timely implementation, monitoring of works and reporting of the progress works during the Project period. Apart from that, WBFD may employ 81 contractual staff only for the purpose of the implementation of the Project. The JICA Mission explained the salary payments to the administrative officer of permanent positions shall not be eligible under JICA's financing while the salaries of only the contractual staff shall be eligible. WBFD agreed to it.

107. The JICA Mission requested that newly employed staff on contractual basis shall work exclusively for the Project, and would not work for other projects of WBFD.

Minimization of Core Staff Transfer

108. Frequent transfers of core staff such as the PMU staff increase the difficulties in efficient and timely implementation of the Project components. The JICA Mission strongly recommended WBFD to minimize transfer of the staff, at the minimum for three (3) years, in the core positions under the Project for consistency from the past.

JICA Procurement Guideline

109. Procurement of goods and services, except for consulting services, covered by the Japanese ODA Loan should be implemented in accordance with "Guidelines for Procurement under Japanese ODA Loans", dated March 2009. Employment of consultants should be implemented in accordance with "Guidelines for Employment of Consultants under Japanese ODA Loans", dated March 2009. "Principles of Procurement under the Project" is attached for brief explanation of the above Guidelines as Attachment 9.

110. A copy of the following documents was handed over to WBFD for their reference and appropriate actions at the implementation stage:

- Guide for Evaluation Procedures for Employment of Consultants under Japanese ODA Loans (December 2006, Amended December 2009) to be sent from the JICA India Office.
- Handbook for Procurement under Japanese ODA Loans (March 2009).

Necessity of Consulting Services

111. The JICA Mission explained responsibility and role of consultants and the definition of Pro (A) and (B) as follows:

> **Pro (A) (International Consultant)** should be defined as "Engineer/ expert who has appropriate professional experience in the field of international projects as key staff where he (or she) assumed the primary responsibility for

project management and is capable to make and deliver a fair determination/ judgment to the Employer and the international contractor."

Pro (B) (Local Consultant), on the other hand, should be defined as "engineer/expert who has appropriate professional experience in domestic investment projects in the Borrower's country or who has appropriate experience in the field of international projects where he (or she) provided services under supervision/control of the International Consultants."

112. WBFD confirmed its necessity and agreed to hire PMC which will assist PMU in planning, implementing and monitoring of the Project, in particular, in the areas that WBFD has less experience in the fields such as Community Development Activities and GIS/MIS which are still relatively new and challenging components. Draft Terms of Reference for the consultants, manning schedule and cost estimation are attached as Attachment 4.

Consultant Selection Procedure

113. The JICA Mission and WBFD agreed that the consultant shall be selected by Quality- and Cost-Based Selection (QCBS) method, and standard allocation of weights in evaluation should be given to the quality and cost (80% and 20%, respectively).

Acceleration of Consultant Selection

114. Detailed procurement schedule for the Consultants is attached as Attachment 4 to share common understanding on the timeframe and important milestones in relation to the procurement process.

115. The JICA Mission and WBFD agreed to have an expert to expedite the employment of the consultants. In this regard, a procurement expert to be hired by JICA will be dispatched soon after the signing of L/A to assist WBFD.

116. In order to support timely implementation of the Project, JICA explained that, upon request from WBFD, JICA could provide information on international consulting firms having adequate capacity to carry out the tasks in the draft Terms of Reference in the Attachment 4 even before signing of the prospective Loan Agreement.

Debriefing to Unsuccessful Consultants or Bidders

117. "Guidelines for the Employment of Consultants under Japanese ODA Loans" (March 2009) introduce the Borrower's debriefing to unsuccessful consultants as follows: "If any consultant who submitted a proposal wishes to ascertain the reasons why its proposal was not selected, such consultant should request an explanation from the Borrower. The Borrower shall promptly provide an explanation as to why its proposal was not selected." (Section 3.12)

Disbursement Procedure

118. The JICA Mission briefly explained the disbursement procedures, namely Reimbursement Procedure, Commitment Procedure, and Transfer Procedure. Under the Project, Commitment Procedure will be applied for the Consulting Services, and Reimbursement Procedure will be applied basically.

(1) **Commitment:** After the letter of credit (L/C) is issued by L/C issuing bank (Bank of India) and L/COM is issued by JICA, suppliers can receive the fund from JICA passing through only commercial banks (L/C issuing bank and supplier's bank). This is applicable for foreign currency payments only.

(2) **Transfer**: Based upon the request from WBFD to JICA, JICA releases the fund to the bank account of the GoI, and CAAA gives the instruction to transfer the fund directly to supplier's bank account.

(3) **Reimbursement**: After WBFD makes payment to suppliers, WBFD requests JICA through CAAA to reimburse the fund. In this case, the funds transferred by JICA to the bank account of the GoI will pass through State Government of West Bengal to WBFD.

119. JICA explained that, under SOE procedure, the records and accounts related to expenditures financed from the Japanese ODA Loan shall be audited annually by an auditor appointed by WBFD.

V. Monitoring and Evaluation of the Project

Monitoring Framework

120. JICA and WBFD confirmed that each project activities shall be monitored by WBFD at different levels in appropriate manner as per Attachment 17. Survival rate of the plantation sites shall be monitored in each 1st, 3rd and 5th year after plantation in a mechanism described as per Attachment 18.

Rigorous Randomized Impact Evaluation Study

121. Under the Project, one of the rigorous impact evaluation methodologies may be applied by JICA in case such design is well prepared before application so that JICA can examine the effectiveness as well as the rationale of the scale-up of the intervention. WBFD understands the necessity of this study during the implementation of the Project (not after the completion of the Project), and agreed to provide full cooperation to JICA for this impact evaluation study in consultation with its experts.

122. To assess the feasibility of conducting the study, JICA requested WBFD to submit the indicative list of all the village names to be identified for the plantation models A3 and A4 that are likely to satisfy all the criteria mentioned in paragraph 37 by the end of June 2012. WBFD agreed to it.

123. Moreover, WBFD agreed with JICA to utilize the data collect by the baseline survey as well as the other administrative data collected by the WBFD under the Project, in case this impact evaluation study is conducted. WBFD also agreed that impact evaluation study may be made public by JICA and its affiliated academic experts.

Operation and Effect Indicators

124. The JICA Mission and WBFD agreed to the "Operation and Effect Indicators" (the "Indicators") applied to the Project as Annex I. The JICA Mission justified that the Indicators would not only enable consistent evaluation of the achievements throughout the project cycle but would also promote more effective and efficient project implementation. The JICA Mission informed that the Indicators would be disclosed on the website of JICA for more accountability to the Japanese people for JICA's operations. WBFD agreed to monitor the Indicators and provide the relevant data to JICA in appropriate timings.

125. JICA and WBFD confirmed to use level of household income as monitoring indicator to examine the impacts of the Project. Furthermore, JICA and WBFD confirmed that baseline survey shall be conducted at the time of Project implementation and completion to compare the changes during the Project period.

Economic and Financial Analysis

126. Based on assumption of timber production volume and price, Economic Internal Rate of Return (EIRR) is calculated to be 8.43%. The Project is found to be economically viable. The calculation sheet of EIRR is attached as per Attachment 20.

Climate Change Effect and Information Disclosure

127. The JICA Mission explained that estimated removals of Greenhouse Gas (GHG) achieved by the Project will be disclosed in line with JICA's Climate Change policy and WBFD agreed to it. The estimated annual GHG removals are 337,672 t CO_2 equivalent (as per the Attachment 21). (The mode of disclosure should be through JICA website after the Loan Agreement is concluded).

128. The JICA Mission explained that expected emissions reduction in Greenhouse Gas (GHG) achieved by the Project will be submitted to GOJ in line with JICA's Climate Change policy and WBFD agreed to it. The estimated annual GHG removals by sinks are 337,672 t CO_2 equivalent.

129. The JICA Mission explained that the Project intends to contribute to climate change adaptation, which will be reported to Organization for Economic Cooperation and Development – Development Assistance Committee (OECD-DAC) by JICA in accordance with the reporting directives, climate change adaptation marker. WBFD agreed to it.

Publication of Ex-Ante Project Evaluation Report

130. The JICA Mission notified that JICA will publish the "Ex-Ante Project Evaluation Report" soon after the signing of a Loan Agreement for the Project. The report consists of eight major items: 1) project name, 2) necessity and justification of the Japanese ODA Loan, 3) objectives of the project, 4) project description, 5) operation and effect indicators (performance indicators), 6) risk due to external factors, 7) evaluation results of past similar projects and lessons learned, and 8) evaluation plan. WBFD agreed to it.

Ex-Post Evaluation

131. The JICA Mission explained that JICA would conduct independent evaluation activities 2 years after the Project completion so as to review the effectiveness of the Project. Additional ex-post monitoring might be further implemented for the same purpose. It is agreed that, upon JICA's request, WBFD shall be responsible for the submission of performance evaluation result including the Indicators, EIRR, and the relevant data/assumptions adopted to arrive at the Indicators. WBFD or a succeeding organization, if any, responsible for the operation and maintenance will facilitate evaluation activities.

Ex-Post Procurement Audit

132. The JICA Mission informed WBFD that, if the Japanese ODA Loan for the Project is approved by JICA, an ex-post procurement audit shall be carried out by the Comptroller and Auditor General of India in order to ensure fairness and competitiveness of the procurement procedure. WBFD took note of it.

Submission of Reports

133. Quarterly Progress Reports (QPR): The progress report for the Project should be submitted by WBFD to JICA India Office on a quarterly basis, not later than 30 days

after the concerned quarter, by updating the Project Status Report (PSR) attached hereto as Annex 1 and Component-Wise Project Status Sheet (CW-PSS) attached hereto as Attachment 22.

134. Project Completion Report (PCR): The Project Completion Report should be submitted by WBFD to JICA India Office promptly, but in any event not later than six months after completion of the Project, by updating the Project Status Report (PSR) attached hereto as Annex I.

VI. Environmental and Social Issues

Environmental and Social Considerations

135. In light of the "JICA Guidelines for Environmental and Social Considerations" dated April 2010, the JICA Mission explained that the Project will be categorized as "FI" as the sub-project will not be determined before the Project starts.

136. WBFD confirmed that any sub-projects or area can be categorized as "A", which need land acquisition and involuntary settlement etc, will be excluded from the Project.

Forest Dwellers Development Plan

137. The JICA Mission explained that the above guidelines shall be applied for the Project. As per the guidelines, WBFD is required to prepare Forest Dwellers Development Plan as a part of Micro Plan, in order to ensure that any adverse impacts on forest dwellers should be avoided and minimized, if it is anticipated in result of social assessment under the Project. Furthermore, efforts should be taken to obtain the broad consent of forest dwellers in a process of free, prior, and informed consultation.

138. Manuals for Forest Dwellers Development planning shall be prepared as part of Manuals for preparation of Micro Plan under the Project by PMU with the help of PMC, as guided in Chapter 9 of the Final Report of the Preparatory Survey on West Bengal Integrated Forestry Development and Biodiversity Conservation Project. The prepared manual shall be consulted with JICA India Office before its finalization. The manual shall include the necessary contents of Micro Plan, including Forest Dwellers Development Plan, preparation process and monitoring framework in WBFD and reporting framework from WBFD to JICA, etc. JICA explained the required contents to be included as Attachment 13.

139. WBFD confirmed that Forest Dwellers Development Plan shall be prepared accordingly in an appropriate manner as a part of Micro Plan.

Monitoring of Micro Plan and Forest Dwellers Development Plan

140. JICA explained its intentions to monitor the preparation status of Micro Plan including Forest Dwellers Development Plan and execution of activities based on Micro Plan on quarterly basis by using monitoring sheet agreed between WBFD and the JICA Mission as Attachment 19. WBFD shall forward the monitoring format every quarter with one example of Micro Plan including Forest Dwellers Development Plan to JICA India Office.

141. If necessary, monitoring format agreed between WBFD and the JICA Mission shall be modified after consultation with JICA India Office.

Tribal Act

142. WBFD explained that "Tribals and Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006" would not affect the implementation of the Project since WBFD will exclude the area provided for tribal people based on this Act.

Environmental Check List

143. WBFD confirmed that the environmental considerations for the Project are summarized in the Environmental Check List as Attachment 23. WBFD assured that they will take necessary measures in accordance with the checklist, and will report to JICA India Office if any major changes affecting the environment occur to the Project during the implementation stage.

Minimum Age of Labourers

144. WBFD agreed that they shall observe 18 years as minimum age for forest labourers in accordance to the Child Labour (Prohibition & Regulations) Act 1986 and Rules 1950.

Safety Measures and its Reporting During Construction

145. WBFD agreed to notify JICA immediately in case that any fatal, major or other accident, which may involve serious injuries, occurs during the implementation of the Project.

146. For physical works at target villages and other major construction works, WBFD agreed that PMU shall accommodate necessary safety measures and provide essential facilities to labors such as drinking water, shelters, etc.

Usage of Pesticide and Insecticide

147. WBFD explained that usage of pesticide and insecticide are minimized for environmental consideration. The JICA Mission requested that in case that it is used, proper instruction shall be given by WBFD to JFMCs/ EDCs members for the purpose of safety. WBFD agreed to do it and further explained that pesticide and insecticide are stored only in Forest Department Range offices and usage of these is allowed only when WBFD officers are present in fields.

VII. Other Issues

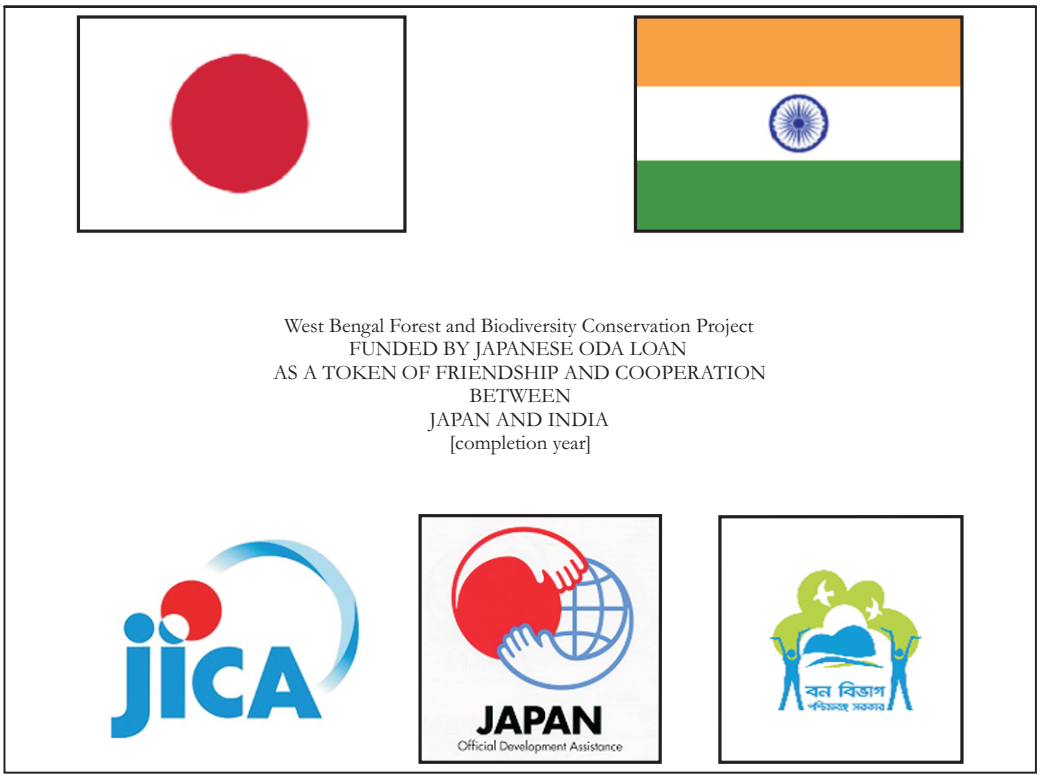
AR-CDM Credit

148. JICA explained the Project has a possibility for application of AR-CDM, if all necessary conditions are met, such as availability of eligible land, registration etc. WBFD took note of it.

Public Relations

149. WBFD is kindly requested to pay attention to public relations concerning the Project (for example: making brochures of the Project, putting plates or signboards at the Project sites, organizing an opening / inauguration ceremony for the Project, etc. for creating awareness and information dissemination) for increasing the support by people of both countries for better cooperation through the Japanese ODA Loans.

150. WBFD confirmed that these logos will be put up on at all substations constructed under JICA's funding in addition to the logo of WBFD:



Visual Record of the Project

151. The JICA Mission suggested that WBFD would make records of the Project progress in visuals as a "project life history" from the perspective of public relations. WBFD took note of it.

Disclosure of Project Implementation Schedule

152. The JICA Mission explained that the expected implementation schedule with the updated status of the Project may be madepublic by JICA. WBFD shall make the aforementioned information available for JICA upon request.

153. The JICA Mission and WBFD, in particular, agreed to disclose the following information at the time of signing of the Loan Agreement for the Project: schedule of (i) project completion; (ii) issuing of letters of invitation for consulting services; and (iii) tender announcement of initial procurement package for international competitive bidding (if any).

FOREST DIRECTORATE, GOVERNMENT OF WEST BENGAL

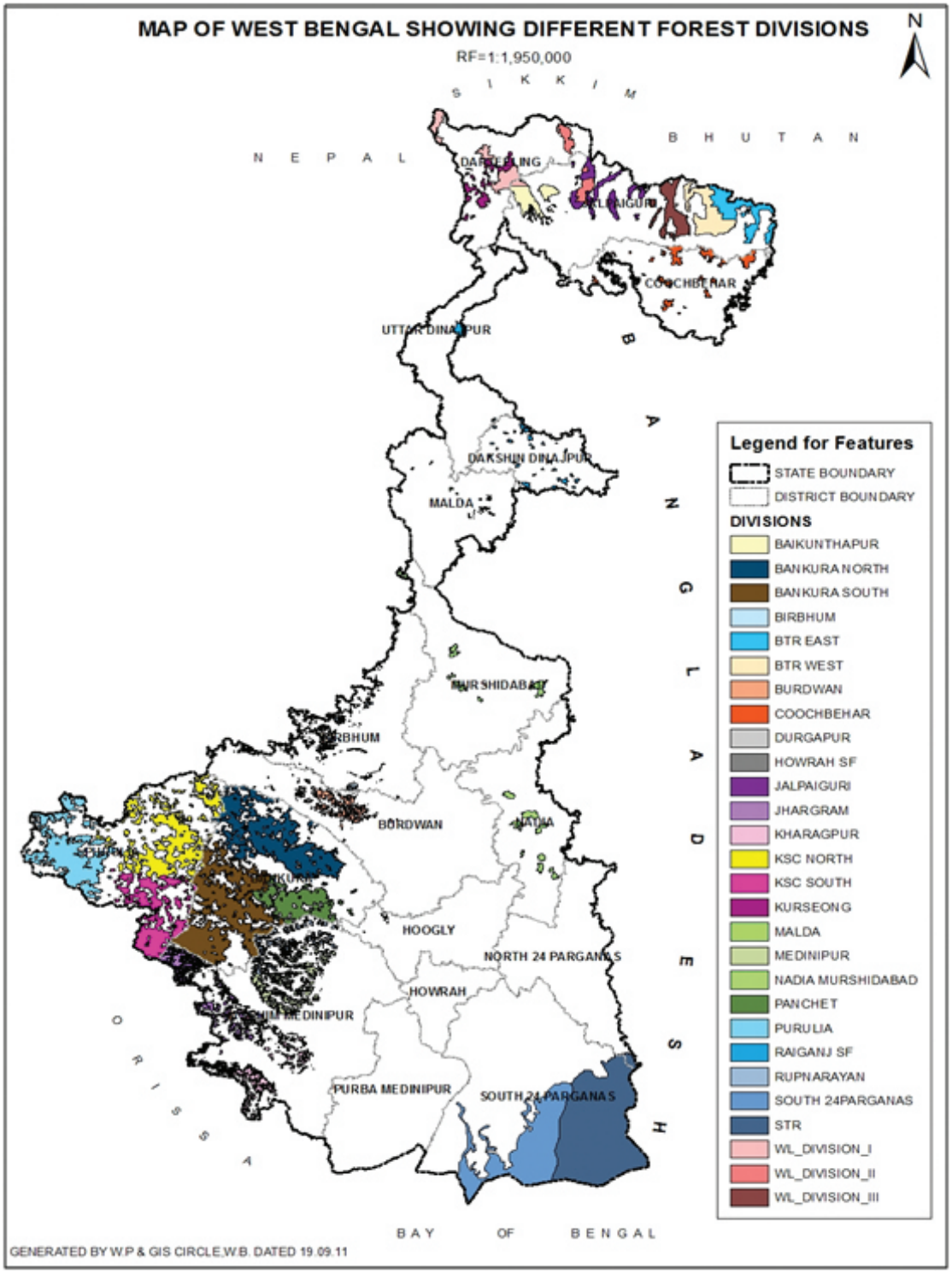
West Bengal Forest and Biodiversity Conservation Project

Attachments

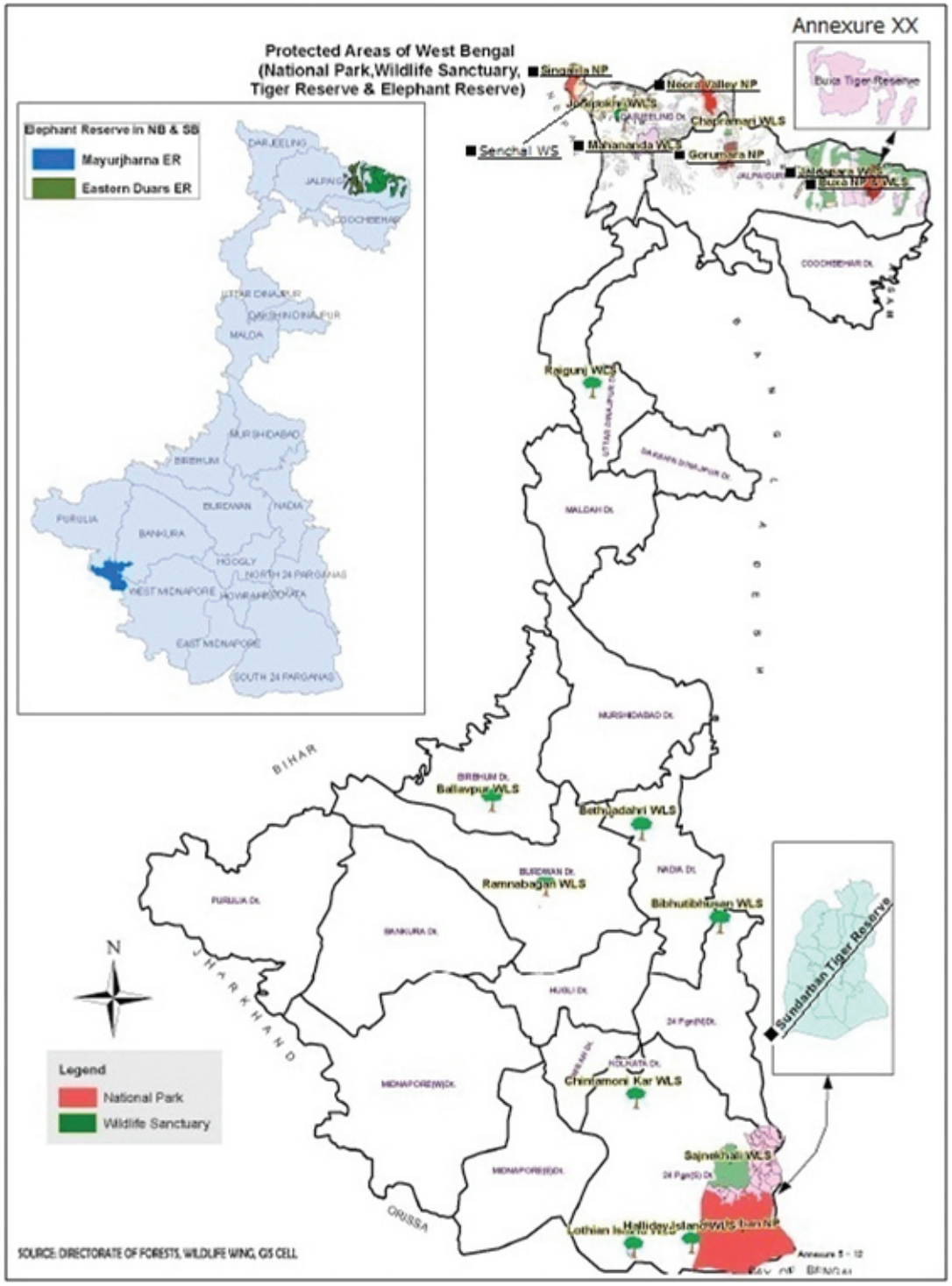
Attachment 1

Location Map

Target Area for Afforestation



Target Protected Area for Biodiversity Conservation



Attachment 2

Time-Bound Action Plan

Area	Agreed Action	Responsible Person (Agency)	Target Date		Revised Date (as of)	Actual Completion	Indicators
			Start	Complete			
	Budgetary Sanction for FY 2012	WBFD		December 2011			Approval by State Gov., Budget notice
Preparatory Works	Selection and Appointment of Consultants	WBFD	April 2012	December 2012			Progress report
	Establishment of High Power Committee (HPC)	WBFD	February 2012	March 2012			Notice of establishment by WBFD
	Establishment of Project Management Unit (PMU) Under Society Mode	WBFD	February 2012	March 2012			Registration of PMU under Society Mode
	Consolidation of Legal System for Institutionalization of HPC, PMU	WBFD	January 2012	March 2012			Progress report
	Deployment of staff from Forest Dept. to PMU	WBFD	April 2012	May 2012			Notice of deployment by WBFD
	Recruitment of contractual staff from the open market to PMU/DMU	WBFD	May 2012	September 2012			Employment agreement/contract
Selection of Target Village	Preparation of site selection criteria (JFMC, EDC)	WBFD	June 2012	August 2012			Progress report
	Selection of target villages	PMU	October 2012	December 2012			Progress report
	Finalization of target villages	PMU	December 2012	March 2013			Progress report
Customization of Standard Management Manual	Standard management manual/guidelines for PMU, JFMCs/EDCs, Preparation of Micro plan and Forest Dwellers Development Plan, TPOF, SHG, procurement of NGOs, Monitoring and evaluation manuals etc	PMU	June 2012	December 2012			Progress report
	Finalization of Manuals/Guidelines	PMU	January 2013	March 2013			Progress report/manuals and guidelines

Area	Agreed Action		Responsible Person (Agency)	Target Date		Revised Date (as of)	Actual Completion	Indicators
				Start	Complete			
Preparation of Programme and Tender Documents	Preparation of Programme and Tender Documents for Base line Survey and Training & Capacity Building		PMU	February 2013	April 2013			Progress report/Contract Documents
	Preparation of Programme and Tender Documents for Mid-term Monitoring & Evaluation		PMU	July 2014	September 2014			Progress report/Contract Documents
	Preparation of Programme andTender Documents for End-term Monitoring and Evaluation		PMU	July 2016	September 2016			Progress report/Contract Documents
Afforestation and Allied Works	Afforestation of Degraded Forest Land	Site Demarcation, survey and mapping 1	PMU	January 2014	February 2014			Progress report
		Advance Soil Works and Creation Works 1	PMU	February 2014	August 2014			Progress report
		Maintenance of Plantation-Weeding, Cleaning, Mulching, Infilling Forking and Hand Weeding etc. 1	PMU	July 2014	May 2015			Progress report
		Site Demarcation, survey and mapping 2	PMU	January 2015	February 2015			Progress report
		Advance Soil Works and Creation Works 2	PMU	February 2015	August 2015			Progress report
		Maintenance of Plantation-Weeding, Cleaning, Mulching, Infilling Forking and Hand Weeding etc. 2	PMU	July 2015	May 2016			Progress report
		Site Demarcation, survey and mapping 3	PMU	January 2016	February 2016			Progress report
		Advance Soil Works and Creation Works 3	PMU	February 2016	August 2016			Progress report

Area	Agreed Action		Responsible Person (Agency)	Target Date		Revised Date (as of)	Actual Completion	Indicators
				Start	Complete			
		Maintenance of Plantation-Weeding, Cleaning, Mulching, Infilling Forking and Hand Weeding etc. 3	PMU	July 2016	May 2017			Progress report
	Tree Planting Outside Forest Area (Social Forestry)	Selection of candidate site	PMU	April 2013	July 2013			Progress report
		planting 1	PMU	July 2014	August 2014			Progress report
		Selection of candidate site	PMU	April 2014	July 2014			Progress report
		planting 2	PMU	July 2015	August 2015			Progress report
		Selection of candidate site	PMU	April 2015	July 2015			Progress report
		planting 3	PMU	July 2016	August 2016			Progress report
	Soil & Moisture Conservation in Forestry Treatment Areas		PMU	April 2014	March 2017			Progress report
	Production of Quality Planting Material		PMU	October 2012	March 2017			Progress report
Biodiversity Conservation	Habitat Management		PMU	March 2013	December 2019			Progress report
	Man-Animal conflict mitigation		PMU	March 2013	March 2019			Progress report
	Research	Consultation by Research Advisory Committee	WBFD/PMU	January 2012	March 2012			Progress report
		Selection of Research Item and preparation of Tender Documents	PMU	October 2012	December 2013			Progress report
		Research activities	PMU	April 2014	March 2019			Progress report/research paper

Area	Agreed Action		Responsible Person (Agency)	Target Date		Revised Date (as of)	Actual Completion	Indicators
				Start	Complete			
Community Development	Finalization of TOR for NGOs		PMU	April 2012	March 2013			Progress report
	Selection of NGOs for micro planning		PMU	March 2013	July 2013			Progress report
	Selection of NGOs for Micro Finance		PMU	March 2013	August 2013			Progress report
	Micro plan 1		PMU	August 2013	January 2014			Progress report
	Micro plan 2		PMU	August 2014	January 2015			Progress report
	Income Generation Activities		PMU	November 2014	March 2017			Progress report
	Community Infrastructure Development for JFMC		PMU	April 2014	March 2017			Progress report
Institutional Capacity Development	Base line survey of the state's forest resources at the start of project		PMU	June 2013	March 2014			Base line survey report
	Training & Capacity Building of Project Implementing Officials, Field & Office Staffs and Other Stakeholders	Selection of execution Institution / Firm by Open Tender	PMU	November 2012	January 2013			Progress report /Contract Documents
		Implementation of Package-I for Senior Officers	PMU	July 2013	December 2015			Progress report
		Implementation of Package-II for Middle and junior level officers	PMU	July 2013	December 2015			Progress report
		Implementation of Package III- For Junior level Officers and FRs	PMU	July 2013	December 2015			Progress report
		Implementation of Package-IV Frontline staff and JFMC/EDC/SHG 1	PMU	April 2013	September 2013			Progress report
		Implementation of Package-IV Frontline staff and JFMC/EDC/SHG 2	PMU	April 2014	September 2014			Progress report
	Construction of Administrative Buildings		PMU	April 2013	March 2015			Progress report

Area	Agreed Action	Responsible Person (Agency)	Target Date		Revised Date (as of)	Actual Completion	Indicators
			Start	Complete			
	Equipment for GIS/MIS Pilot Project	PMU	August 2013	June 2015			Progress report
	Purchase of Vehicles including motorbikes for better mobility of staff and officers	PMU	August 2013	March 2014			Progress report
	Forestry Research Activities	PMU	July 2012	December 2019			Progress report/research paper
	Mid-term Monitoring & Evaluation including periodic biodiversity & community development studies	PMU	April 2015	September 2015			Monitoring & Evaluation report
	End-term Monitoring and Evaluation	PMU	July 2019	December 2019			Monitoring & Evaluation report
Consulting Services		PMU/Consultant	January 2013	December 2019			Progress report /Contract Documents
Completion	Preparation for Project Completion Report	PMU/Consultant	January 2020	March 2020			Project Completion Report

Attachment 3

Detailed Scope of Work

1.1 Components of the Project

This Project will be implemented by 4 components. Each component consists of multiple sub-components as shown in the following table. Then, detailed contents of each component shall be described in the following section.

Table 1: Components and Sub-Components of the Project

No	Components	Sub-Components	
1	Afforestation and Allied Works	1A	Afforestation of Degraded Forest Land in Recorded Forest Area
		1B	Tree Planting Outside Forest (Social Forestry)
		1C	Soil & Moisture Conservation in Forestry Treatment Areas
		1D	Production of Quality Planting Material
2	Biodiversity Conservation	2A	Improvement of Wildlife Habitat in Protected Areas
		2B	Mitigation of Man-Animal Conflict
		2C	Research on Wildlife and Biodiversity
3	Community Development	3A	Community Mobilization
		3B	Micro Planning
		3C	Income Generation Activities
		3D	Community Development Infrastructure
4	Institutional Capacity Development	4A	Base line Survey of the State's Forest Resource at the Start of the Project
		4B	Training & Capacity Building of Project Implementing Officials, Field & Office Staffs and Other Stakeholders
		4C	Infrastructure Development for TPOFA (Social forestry), Training, Research, GIS, Forest Protection etc including Building, Equipment & Vehicle
		4D	Forestry Research Activities
		4E	Mid-term Monitoring & Evaluation including periodic biodiversity & community development studies
		4F	End-term Monitoring and Evaluation

1.2 Project Target Area and Selection Criteria of JFMC/EDC

The overall project target area is the entire State. Project target area for each Project Component is as follows:

Table 2: Component-wise Project Target Area

Component	Project Target Area
Afforestation	30 Division
Biodiversity Conservation	17 Division, 8 Protected Areas
Community Development	550 JFMCs/50EDCs in 23 Divisions
Institutional Capacity Development	Entire State

Identification of Project Area and Selection of JFMCs/EDCs will be determined through following steps at the preparation stage of the Project:

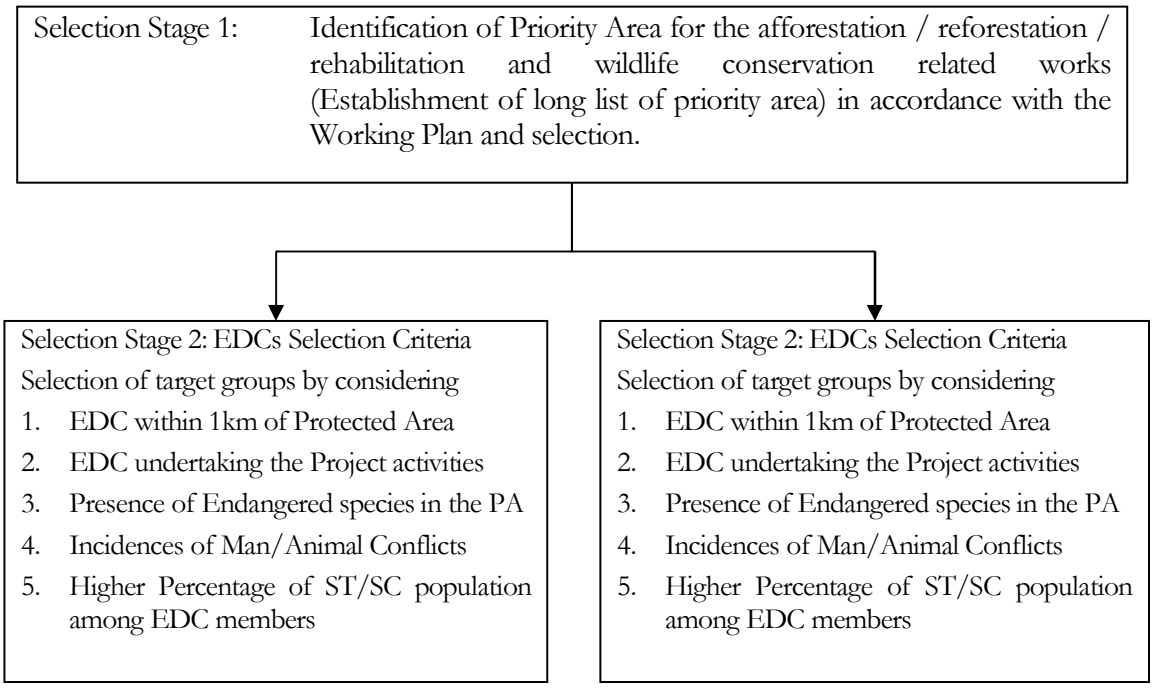


Figure 1: Steps of Target Area Selection

Detail of target area selection is described in 1.5 Component 3: Community Development.

After above-mentioned selection, selected groups shall be examined by social & environmental point of view described separately in the later section.

1.3 Component 1: Afforestation and Allied Works

This Component 1 "Afforestation and Allied Works" consists of four sub-components and their physical target is set as following; Details of each plantation model is as per Annex 1.

Table 3: Contents and Physical Target of Afforestation and Allied Works Components

No	Component	Sub-Component		Physical Target
1	Afforestation and Allied Works	1A	Afforestation of Degraded Forest Land in Recorded Forest Area	18,970 ha
		1B	Tree Planting Outside Forest (Social Forestry)	2,800 ha

No	Component	Sub-Component		Physical Target
		1C	Soil & Moisture Conservation in Forestry Treatment Areas	-
		1D	Production of Quality Planting Material (QPM)	▫ New Modern Nurseries: 20 ▫ Capacity expansion: 20 ▫ 22,940,000 QPM Production

This is the major component of the Project and about a half of the project cost has been allocated to this component.

Under this component, there are four sub-components namely, 1A) Afforestation of Degraded Forest Land in Recorded Forest Area, 1B) Tree Planting Outside Forest Area (Social Forestry), 1C) Soil & Moisture Conservation in Forestry Treatment Areas, 1D) Production of Quality Planting Material.

Target area of Component 1A is degraded forest areas (Recorded Forest Area) and Component 1B is non-forest area.

Quality Planting Materials (QPM) will be used for all plantation model except "A4 - Enrichment by Coppice Re-generation" and B1 & B2 model (where seedlings from field nursery will be used). Component 1D is for production of those QPM as described later. The activities and target area under the Afforestation component is as per Annex 1.

1.3.1 Component 1A: Afforestation of Degraded Forest Land in Recorded Forest Area

This component will be implemented by following 6 activities:

Table 4: Component 1A: Afforestation of Degraded Forest Land in Recorded Forest Area

No.	Activities	Areas	Physical Target (ha)
A1	Planting with High Yielding Eucalyptus Clones	South West	450
A2	Plantation of Sal and Associate in South West Bengal	South West	3,430
A3	Plantation of Quick Growing Small Timber, Fuel & Fodder Species	South West	6,000
A4	Enrichment of Degraded Forests of South West Bengal through Coppice Regeneration	South West	7,500
	(i) Rehabilitation of Degraded Forest (RDF)		*7,500*
	(ii) Multiple Shoot Cutting (MSC)		*7,500*
A5	Miscellaneous Plantation in North Bengal	North Bengal	1,050
A6	Plantation of Sal and Associate Species in North Bengal	North Bengal	540
		Total	**18,970**

Above-mentioned proposed plantation models are designed, taking into account certain parameters such as soil, climate, community preference, working plan prescription etc. Besides, as per JICA guidelines, cluster approach and JFMC/EDC proximity need to be looked into in the matter of area selection and finally there should be expressed stake of the community, manifested in the form of Micro plan.

Model wise area selection criteria are furnished below.

1.3.1.1 A1: High Yielding Eucalyptus Hybrid Clones Plantation in South West Bengal

Objective: Production of industrial pulpwood.

General Description: These will be mono crop multi-clonal plantations of high yielding Eucalyptus hybrid clones raised in modern nurseries. Red lateritic soil having deep soil depth without Pan is ideal for this type of plantation.

Minimum Target Management Area per JFMC: 10 ha

Maximum Target number of JFMC: 45

Area: This plantation model will be raised in 8 Forest Division covered by 3 districts.

Table 5: Target Area: A1 High Yielding Eucalyptus Hybrid Clones Plantation

Afforestation Model	Area Proposed (ha)	Minimum viable area (ha)	District to be covered	Division
A1: Planting with High Yielding Eucalyptus clones in South West Bengal	450	10	Paschim Medinipur	Medinipur
				Kharagpur
				Rupnarayan
			Bankura	Panchet
				Bankura N
				Bankura S
			Burdwan	Burdwan
				Durgapur

Soil & Climate: Red lateritic soil, deep reddish-yellow loamy to clayey soil low in organic matter and available minerals. Hot dry summer, moderate winter, rainfall- 900 to 1500 mm spread over 150 to 180 days. Where soil condition is not favourable for any other tree species, Eucalyptus shall be selected preferentially for this model.

Species: High yielding Hybrid clones of Eucalyptus, producing 30 to 35 MT per ha of pulp wood which is necessary to meet the ever increasing national demand of pulp wood.

Extent: 450 ha of degraded forest area have been proposed for afforestation under this model.

Technique: 1 year + ramets (clones), raised and tended in modern nursery will be planted in pits of size (0.60 m + 0.45 m) /2 x 0.45 m x 0.45 m (refer to Figure 3) at a spacing of 2.5 m x 2.5 m (1,600 plants /ha) (refer to Figure 2). Normal tending and application of manure will be done after 20-25 days of planting. Two (2) more tending will be done at 2nd and 3rd year of planting after the onset of monsoon.

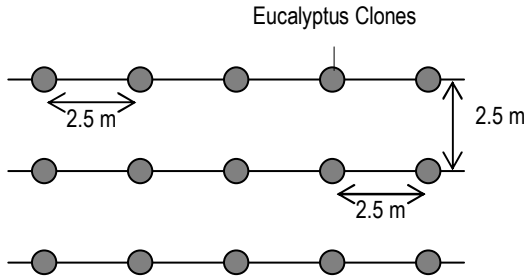


Figure 2: A1 High Yielding Eucalyptus Clones Plantation

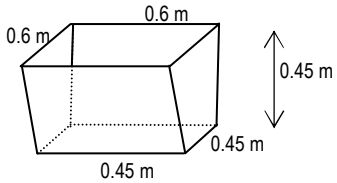


Figure 3: Pit for A1 High Yielding Eucalyptus Clones Plantation

Management: Mechanical thinning[1] will be done at 3rd year and final felling will be done as per Working Plan prescription. Revenue will be shared as per the extant rules.

Survival Rate (target): The survival rate for this model may be fixed as follows:

1st year: 90% 3rd year: 85% 5th year: 80%

1.3.1.2 A2: Plantation of Sal and Associate Species in South West Bengal

Objective: Production of mining timber like poles, posts, cogging sleepers and production of timber, small timber, firewood and NTFPs like myrobalans[2], nuts, and other edibles.

General Description: This is an eco-friendly (mixed plantation by various indigenous species), habitat restoring model, which is likely to provide livelihood support to the JFMC members in the long run from the wealth of NTFPs available from regenerated tree species as well as from ground flora that will eventually come up.

Minimum Target Management Area per JFMC: 20 ha

Maximum Target number of JFMC: 170

Area: This plantation model will be raised in 12 Forest Divisions covered by 4 districts.

Table 6: Target Area: A2 Plantation of Sal and Associate Species

Afforestation Model	Area Proposed (ha)	Minimum viable area (ha)	District to be covered	Division
A2: Plantation of Sal & Associate Species in South West Bengal	3,430	20	Paschim Medinipur	Medinipur
				Rupnarayan
				Kharagpur
				Jhargram
			Bankura	Panchet
				Bankura N

[1] Mechanical thinning: removes trees within a fixed spacing interval or removes all trees in strips with fixed distances between them.

[2] Fruit bearing plants, viz.*Emblica officinalis, Terminalia bellerica, Terminalia chebula.*

Afforestation Model	Area Proposed (ha)	Minimum viable area (ha)	District to be covered	Division
				Bankura S
			Burdwan	Burdwan
				Durgapur
			Purulia	Purulia
				Kangsawati N
				Kangsawati S

Soil & Climate: Red lateritic soil- deep reddish-yellow loamy to clayey soil together with Alluvium of Damodar, Kangsawati, Ajoy, Rupnarayan rivers. Well drained, low in organic matter and also in K and P. Hot dry summer, moderate winter, rainfall- 900 to 1500 mm spread over 150 to 180 days.

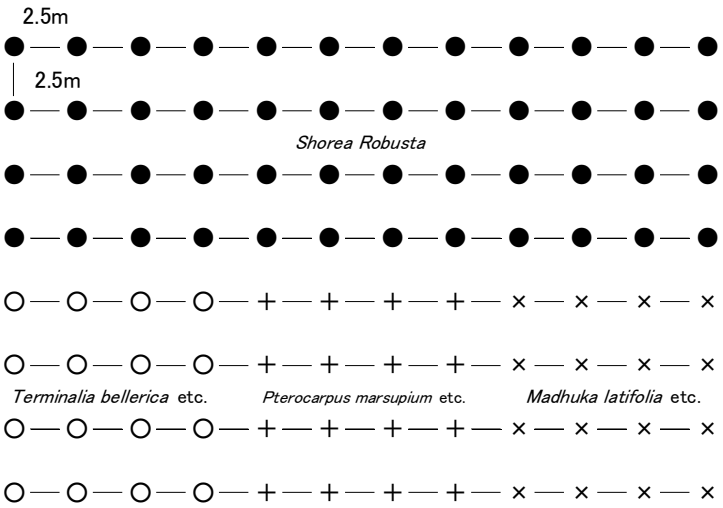
Proposed Species: Sal with associates like *Pterocarpus marsupium, Ougeinia oojeinensis, Dalbergia latifolia, Symplocos racemosa, Madhuca latifolia, Terminalia bellerica Terminalia chebula, Anogeissus latifolia, Schleichera oleosa, Buchanania lanzan*, *Semecarpus anacardium, Soymida febrifuga* etc. Choice of species, however, will be guided by the community preference, subject to the fulfilment of silvicultural requirements.

These are endemic species having community preference fulfilling much of their livelihood needs. Sizable numbers of JFMCs are functioning in the area in manageable clusters and as a result older plantations in the area are growing remarkably well. Such forest areas are allocated to Sal Working Circle of the Working Plan prescription.

Extent: 3,430 ha of degraded forest land have been proposed under this model.

Technique: This will be a mixed plantation, *Shorea robusta* being the main constituent (50%), with other natural associates. Planting interval is 2.5 x 2.5 m (1,600 plants /ha) (refer to Figure 4).

The species mixture will be in alternating strips of Sal and miscellaneous hardwood species. In miscellaneous strips, blocks of 100 m^2 having 16 plants of the same species in each block will be planted. Each strip will comprise of 4 lines. Pit size is (0.75 + 0.6) / 2 x 0.6 x 0.6 m^3 (refer to Figure 5).



Note: Planting species will be determined through discussion with JFMC

Figure 4: A2 Sal and Associate Species Plantation

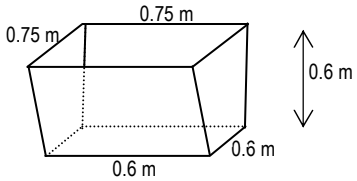


Figure 5: Pit for A2 Sal and Associate Species Plantation

Management: Silvicultural operations and final felling will be done as per Working Plan prescription. Revenue will be shared as per the extant rules.

Survival Rate (target): The survival rate for this model may be fixed as follows:

1st year: 90% 3rd year: 85% 5th year: 75%

1.3.1.3 A3: Quick Growing Small Timber, Fuel & Fodder Plantation in South West Bengal

Objective: Production of pulpwood, small wood, firewood and some NTFPs.

General Description: This plantation model is supposed to cater to the needs of the people, particularly the JFMC members. Species chosen for this model are fast growing and will fetch early return to the JFMC members from thinning operations. Besides, the plantation will improve the potential of NTFP production in the long run, providing livelihood support to the JFMC/EDC members.

Minimum Target Management Area per JFMC: 20 ha

Maximum Target number of JFMC: 300

Area: This plantation model will be raised in 13 Forest Divisions covered by 5 districts.

Table 7: Target Area: A3 Quick Growing Small Timber, Fuel & Fodder Plantation

Afforestation Model	Area Proposed (ha)	Minimum viable area (ha)	District to be covered	Division
A3: Quick Growing & Small Timber species Plantation in South West Bengal	6,000	20	Paschim Medinipur	Medinipur
				Rupnarayan
				Kharagpur
				Jhargram
			Bankura	Panchet
				Bankura N
				Bankura S
			Burdwan	Burdwan
				Durgapur
			Purulia	Purulia
				Kangsawati N
				Kangsawati S
			Birbhum	Birbhum

Soil & Climate: Red lateritic soil- deep reddish-yellow loamy to clayey soil together with Gneiss gravely soil- undulating topography with low soil depth, poor capacity for rain water retention,

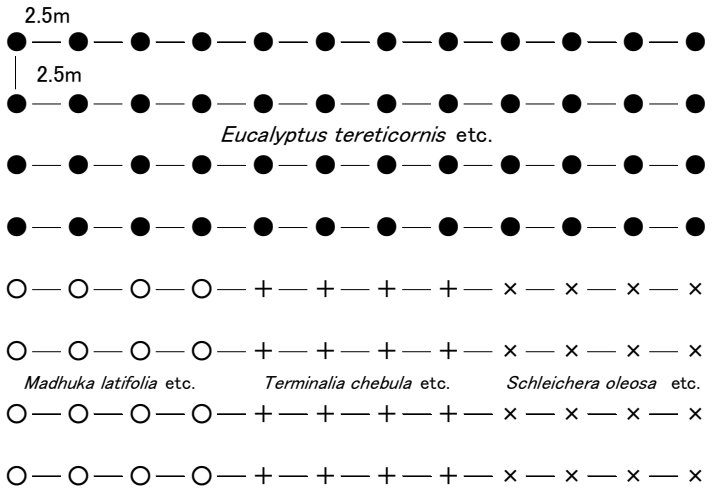
prone to severe soil erosion. Hot dry summer, moderate winter, rainfall- 900 to 1500 mm spread over 150 to 180 days.

Species proposed: Miscellaneous species of economic importance like *Madhuca latifolia*, *Schleichera oleosa, Terminalia bellerica, Terminalia chebula, Pterocarpus marsupium* etc and others with fast growing species producing fuel, fodder and small wood such as *Acacia auriculiformis, Eucalyptus tereticornis, Terminalia arjuna, Anogeissus latifolia, Sapindus laurifolius, Schleichera oleosa, Buchanania lanzan, Azadirachta indica, Phyllanthus emblica, Haldina cordifolia,* etc.

This component has a strong social basis as well as a silvicultural basis. The species chosen can survive on fairly dry soil and will also fulfil the demand of fuel, fodder and small wood of the society. Most JFMCs will derive benefit and therefore will be instrumental in protection of the plantations. Such areas are allocated to Miscellaneous Working Circle of the Working Plan prescription.

Extent: 6,000 ha of degraded forest land will be planted up under this model.

Technique: Seedlings will be planted in pits of size (0.60 m + 0.45 m) /2 x 0.45 m x 0.45 m (refer to Figure 3) at a spacing of 2.5 m x 2.5 m (1,600 plants / ha) (refer to Figure 6). The species mixture will be in alternating strips of Eucalyptus and miscellaneous hardwood species. In miscellaneous strips, blocks of 100 m^2 having 16 plants of the same species in each block will be planted. Each strip will comprise of 4 lines.



Note: Planting species will be determined through discussion with JFMC

Figure 6: A3 Quick Growing Small Timber, Fuel & Fodder Plantation

Management: The area treated through this model will fall under the category of Miscellaneous Working Circle of the Working Plan. Mechanical thinning, Silvicultural thinning[3] and final felling shall be carried out as prescribed in relevant Working Plan. Harvested produce shall be disposed of as per the extant benefit sharing mechanism.

Survival Rate (target): The survival rate for this model may be fixed as follows

1st year: 85% 3rd year: 80% 5th year: 75%

[3] Silvicultural thinning is to be done by way of removing the suppressed and defective trees from the lower crown classes. So long as no co-dominant trees are removed, low thinning result in little more than salvage of trees which will inevitably die; competition among the remaining trees shall be alleviated only to the extent the root competition is reduced. The greatest merit of low thinning lies in its inherent, logical simplicity and its close relationship to the natural course of development of the stand.

1.3.1.4 A4: Enrichment of Degraded Sal Coppice Forests of South West Bengal through Coppice Regeneration

Sal coppice forests are degraded because of repeated coppicing on a very short rotation of 2-3 years by head loaders. The situation worsens in some of the areas because of grazing by free ranging animals. In some pockets adjoining interstate borders, organized gangs operate to pilfer timber, poles and posts.

This model is based on the prescription of the Working Plans and cover Sal Coppice forests, degraded or otherwise. This has a large cover of the Forest Divisions of South West Bengal.

Objective: Production of poles, posts, cogging sleepers to make the demand of coal mining companies in the public sector and production of small timber and firewood for local communities.

General Description: This forest type has been and presently also, is the life line of the tribal population residing around such forest. The proposed model is a rehabilitation program to convert the degraded Sal forest of South West Bengal into luxurious Sal Coppice Forest through Silvicultural Operation.

Minimum Target Management Area per JFMC: 25 ha

Maximum Target number of JFMC: 300

This model is very popular with the local people who derive maximum of their livelihood needs from this type of forests. JFMCs exist in close proximity of these forests and the villagers are primarily responsible for both preservations as well as for degradation of the same. As mentioned, the model is within the prescription of the Working Plan.

Area: 13 Forest Divisions covered by 5 districts.

Table 8: Target Area: A4 Enrichment of Degraded Sal Coppice Forests

Afforestation Model	Area Proposed (ha)	Minimum viable area (ha)	District to be covered	Division
A4. Enrichment of Degraded Sal Coppice forests of South West Bengal	7,500	25	Paschim Medinipur	Medinipur
				Rupnarayan
				Kharagpur
				Jhargram
			Bankura	Panchet
				Bankura N
				Bankura S
			Burdwan	Burdwan
				Durgapur
			Purulia	Purulia
				Kangsawati N
				Kangsawati S
			Birbhum	Birbhum

Soil & Climate: Red lateritic soil- deep reddish-yellow loamy to clayey soil and alluvium of Damodar, Kangsawati, Ajoy, Rupnarayan rivers together with Gneiss gravelly soil- undulating topography with low soil depth, poor capacity for rain water retention, prone to severe soil erosion.

This forest type provided major income opportunity to the villagers and has the unique capacity of resilience to survive in spite of frequent coppicing.

Extent: Two (2) Silvicultural Operations have been proposed namely:

(i) Rehabilitation of Degraded Forest (RDF) and

(ii) Multiple Shoot Cutting (MSC).

Technique:

(i) Rehabilitation of Degraded Forest (RDF)

Sal has the exceptional quality to regenerate through coppicing. Taking advantage of this attribute, Sal stumps are cut flush to the ground with sharp cutting instrument to induce coppice regeneration. The operation known as Rehabilitation of Degraded Forest (RDF) is carried out in the month of February - March. Profuse coppice shoots start coming up within 20-25 days of stump cutting which is commonly termed as Coppicing. These shoots are to be protected from trampling by cattle in the initial stage.

Such rehabilitated areas also are treated at the 7th year through thinning. No other silvicultural operation is necessary till final felling. Such regenerated areas stand allocated to the Sal Coppice Working Circle. Rotation for the Rehabilitated Sal Coppice Forest will be fixed as per Working Plan prescription.

(ii) Multiple Shoot Cutting (MSC)

At the 3rd year of RDF operation, multiple shoots coming out of the stumps are thinned out by retaining 2-3 strong and healthy shoots per stump and removing the rest.

Cut stumps coming out of RDF operation is distributed to the JFMC/EDC members. Similarly, thinned out coppice shoots coming out of MSC operation are also distributed to the JFMC/EDC members.

1.3.1.5 A5: Miscellaneous Plantation in North Bengal

Objective: Production of Industrial wood for meeting the requirements of wood based industries like plywood, veneering, saw mills and also to meet the demand of timber for construction. Smallwood, poles and firewood production will also be augmented.

General Description: In North Bengal, plains and hills, on account of grazing, damage due to floods, change of river courses, infestation by weeds, landslides, encroachments, illicit felling, etc, there are sizable extent of blanks and degraded lands, though in small pockets. Such areas shall be afforested under this model.

Minimum Target Management Area per JFMC: 10 ha

Maximum Target number of JFMC: 105

Area: 8 Forest Divisions under 3 districts

Table 9: Target Area: A5 Miscellaneous Plantation in North Bengal

Afforestation Model	Area Proposed (ha)	Minimum viable area (ha)	District to be covered	Division
A5: Miscellaneous Plantation in North Bengal	1,050	10	Darjeeling	Kurseong
				Darjeeling
			Jalpaiguri	Baikunthapur
				Jalpaiguri
				Wildlife-III
				BTR East
				BTR West
			Malda	Malda

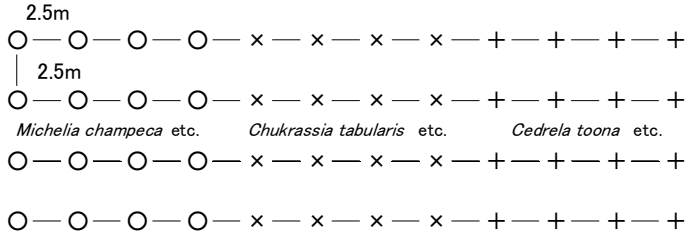
Soil & Climate: Alluvial plains of Teesta, Torsha, Mahananda. Deep to moderate alluvial deposit of course to fine loamy texture with problems of water logging and Terai soil of the Himalayan foot hills having moderately deep alluvium deposit, faces severe flood hazards.

Species: Schima wallichii, Michelia champaca, Amoora rohituka, Amoora wallichii, Gmelina arborea, Cedrela toona, Terminalia tomentosa, Terminalia myriocarpa, Chukrassia tabularis, Kigelia pinnata, Duabanga sonneritoides, Cinnamomum cecidodaphne etc. Sites prone to water logging may be planted with *Bischoffia javanica, Terminalia arjuna etc.*

In the middle hills the principal species will include *Machilus spp., Michelia spp., Alnus nepalensis, Betula alnoides, Engelhardia spp., Bucklandia populnea etc.*

Extent: 1,200 ha of such land have been proposed for afforestation under this model.

Technique: Endemic species as mentioned above are proposed for planting under this model. The planting area has to be cleaned thoroughly. Planting pits of size (0.60 m x 0.45 m)/2 x 0.45 m x 0.45 m (refer Figure 3) will be dug at a spacing of 2.5 m x 2.5 m (1,600 plants / ha) (refer Figure 7). Soil work has to be completed by early May at the latest. 1 year+ seedlings raised and tended in Central/ Modern Nursery (QPM) will be planted in pits to be completed by the last week of May. The creation cost provides for 4 tending operations. Subsequently 3 tending operations will be done in 1st year maintenance. 2nd and 3rd year has provisions for two tendings.



Note: Planting species will be determined through discussion with JFMC

Figure 7: A5 Miscellaneous Plantation in North Bengal

Management: Silvicultural operations and final felling will be done as per Working Plan prescription. Revenue will be shared as per the extant rules.

Survival Rate (target): The survival rate for this model may be fixed as follows

1st year: 85% 3rd year: 80% 5th year: 75%

1.3.1.6 A6: Plantation of Sal and Associate Species in North Bengal

Objective: Production of quality construction timber by using endemic species like Sal (*Shorea robusta*) mainly and other associates like Pakasaj (*Terminalia crenulata*), Panisaj (*Terminalia myriocarpa*) etc. and mixed hard wood timber for plywood / saw mills and veneering industries. This will also augment production of small timber, poles, posts and firewood.

General Description: In North Bengal, plains and foothills, on account of grazing, damage due to floods, change of river courses, infestation by weeds, encroachment, illicit felling, etc, there are sizable extent of blanks and degraded lands though in small pockets. Such areas shall be afforested under this model.

Minimum Target Management Area per JFMC: 10 ha

Maximum Target number of JFMC/EDCS: 54

Area: 7 Forest Divisions covered by 2 districts

Table 10: Target Area: A6 Plantation of Sal and Associate Species in North Bengal

Afforestation Model	Area Proposed (ha)	Minimum viable area (ha)	District to be covered	Division
A6: Plantation of Sal & Associate Species in North Bengal	540	10	Darjeeling	Darjeeling
				Kurseong
			Jalpaiguri	Baikunthapur
				Jalpaiguri
				Wildlife-III
				BTR East
				BTR West

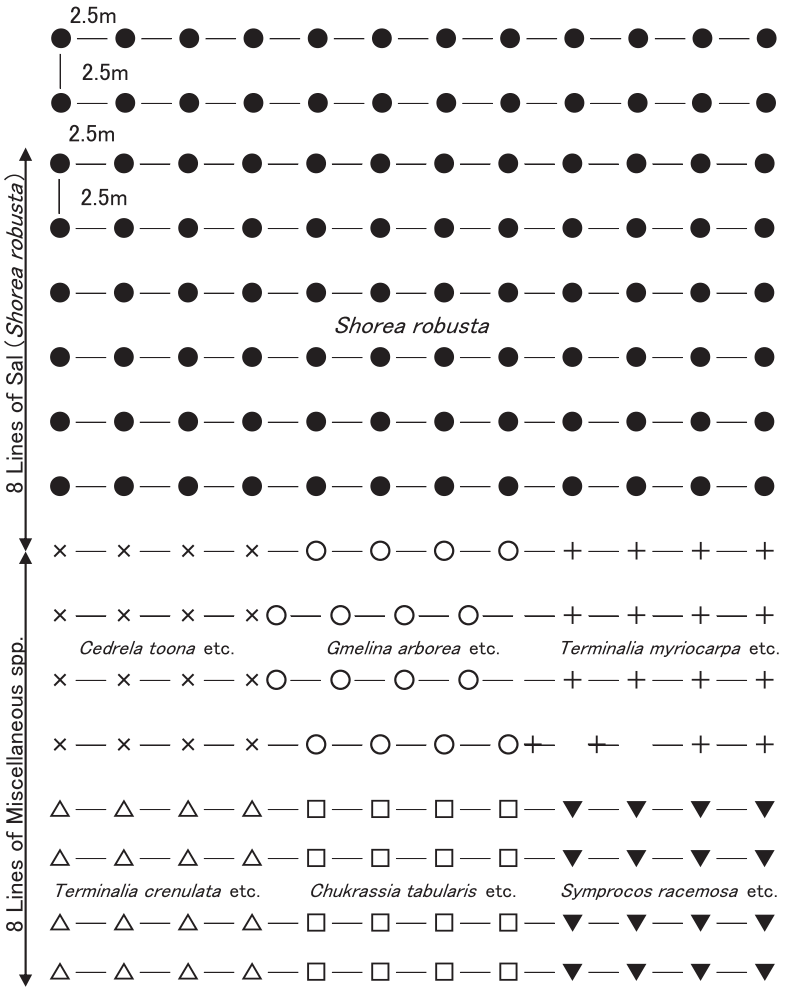
Soil & Climate: Alluvial plains of Teesta, Torsha, Mahananda. Deep to moderate alluvial deposit of course to fine loamy texture with problems of water logging and Terai soil of the Himalayan foot hills having moderately deep alluvium deposit, faces severe flood hazards.

Species: Sal and its associate species such as *Schima wallichii, Symplocos racemosa, Chukrassia tabularis, Cedrela toona, Gmelina arborea, Amoora rohituka, Amoora wallichii, Terminalia myriocarpa, Terminalia crenulata,* etc.

Plantation areas under this model will be available mostly near the Forest Village JFMC/EDCs and benefit will go to the members. This will ensure protection and maintenance of the plantation and also will be in consonance with the Working Plan prescription.

Extent: 600 ha of such land are proposed for afforestation under this model.

Technique: Endemic species as specified above are proposed for planting in this model. The planting area has to be cleaned thoroughly. Planting pits of size (0.60 m + 0.45 m)/2 x 0.45 m x 0.45 m (refer Figure 3) will be dug at a spacing of 2.5 m x 2.5 m (1,600 plants / ha) (refer Figure 8). Soil work has to be completed by early May at the latest. 1 year+ seedlings raised and tended in Central/ Modern Nursery (QPM) will be planted in pits to be completed by the last week of May. The creation cost provides for 4 tending operations. Subsequently 3 tending operations will be done in 1st year maintenance. 2nd and 3rd year has provisions for two tendings.



Note: Sal associate species will be determined through discussion with JFMC

Figure 8: A6 Plantation of Sal and Associate Species in North Bengal

Management: Mechanical thinning will be carried out at 5th year. 1st silvicultural thinning will be done at 15th year and the 2nd one at 30th year. Rotation may be fixed at 60 years or as may be prescribed under Working Plan. The area will come under the Sal Working Circle of the Working Plan.

Survival Rate (target): The survival rate for this model may be fixed as follows:

1st year: 85% 3rd year: 80% 5th year: 75%

1.3.2 Component 1B: Tree Plantation Outside Forest Area (TPOFA) (Social Forestry)

Plantations in models A1 to A6 will be confined to recorded forest lands while the models presented in this component will cover non-forest areas under the control of Government or Community.

General Description: There is ample scope of increasing green cover through tree farming in land outside forests. Under the Project, the land owned by government or communities shall be targeted for the plantation area. Individual land, however, is out of the target.

Selection criteria for non-forest area shall be determined separately from that of the forest land because this component will be implemented outside forest area. Yet candidate sites will be identified by PMU in the preparatory stage of the Project and the long list will be developed.

The area will be selected by considering location of land, land availability and flexibility of West Bengal Forest Department (WBFD), strong willingness and motivation of *Gram Panchayat* and dependency on forest resources of communities. These non-forest lands shall be community or governmental land and private land is out of scope.

Two activities have been envisaged for the purpose i.e. (i) Strip Plantation and (ii) Block Plantation.

Table 11: Component 1B: Physical Target of Tree Planting Outside Forest

No.	Activities	Physical Target (ha)
1B1	Strip Plantation in Road side / Canal side / Railway side	1,400
1B2	Block plantation in Non-Forest land	1,400
	Total	**2,800**

1.3.2.1 B1: Strip Plantation in Road side / Canal side / Railway side

The State has extensive network of roads and canals. Long stretches of flanks of railway tracks, embankments are yet to be planted up. These will primarily be the target area for this model. Areas where beneficiaries will show an interest for protection will be preferred.

Area: 13 Forest Divisions covered by 15 Districts

Table 12: Component 1B: Target Area of Strip Plantation

Afforestation Model	Area Proposed (ha)	Minimum viable area (ha)	Maximum number of Village	District to be covered	Division
Strip Plantation	1,400	5	280	Paschim Medinipur	Kharagpur
				Nadia	Nadia-Murshidabad
				Murshidabad	
				Howrah	Howrah
				Hoogly	
				Birbhum	Birbhum
				Burdwan	Durgapur
				Purulia	Purulia Extn Forestry Div.
				24 Parganas N.	24 Parganas N.
				24 Parganas S.	24 Parganas S.
				N. Dinajpur	Raigunj
				S. Dinajpur	
				Malda	Malda
				Jalpaiguri	Siliguri SF Division
					Jalpaiguri SF Division
				Cooch Bihar	Cooch Bihar

Survival Rate (target) - The survival rate for this model may be fixed as follows:

1st year: 80% 3rd year: 70% 5th year: 65%

1.3.2.2 B2: Block plantation in Non-Forest land

Area: 12 Forest Divisions covered by 12 Districts

Table 13: Component 1B: Target Area of Block Plantation

Afforestation Model	Area Proposed (ha)	Minimum viable area (ha)	Maximum number of Village	District to be covered	Division
Block Plantation	1,400	5	280	Paschim Medinipur	Kharagpur
				Nadia	Nadia-Murshidabad
				Murshidabad	
				Howrah	Howrah
				Hoogly	
				Birbhum	Birbhum
				Burdwan	Durgapur
				Purulia	Purulia Extn Forestry Div.
				24 Parganas S.	24 Parganas S.
				N. Dinajpur	Raigunj
				S. Dinajpur	
				Malda	Malda
				Jalpaiguri	Siliguri SF Division
					Jalpaiguri SF Division
				Cooch Bihar	Cooch Bihar

Soil & Climate: On account of the wide range of variation in soil and climate, species will have to be chosen accordingly. Such species are to be chosen to match favourably with the soil and climatic variation.

Survival Rate (target) - The survival rate for this model may be fixed as follows:

1st year: 80% 3rd year: 75% 5th year: 70%

1.3.2.2.1 Selection of Species, Technique and Management for Strip and Block Plantation

Species will be selected by identified beneficiaries in consultation with WBFD during the preparation stage of the Project. Species for this model should have either one of the following attributes at least (i) Browse hardy, (ii) Fast growing, (iii) Shade providing, (iv) Aesthetically attractive and (v) Useful for communities. Several species may be mixed in response from *Panchayat* and availability of seedlings.

Table 14: Species Proposed by Region for Strip and Block Plantation

Region	Species	Local Name
Species for South Bengal	*Eucalyptus tereticornis*	Eucalyptus
	Acacia auriculiformis	Akasmoni
	Dalbergia sissoo	Sissoo
	Cassia siamea	Minjiri
	Terminalia arjuna	Arjun
	Albizzia procera	Sada Sirish
	Anthocephalus cadamba	Kadam
	Peltoforum feruginum	Radhachura
	Ailanthus excelsa	Gokul
	Delonix regia	Krishnachura
	Syzigium cuminii	Jam
	Lagerstroemia flosreginae	Jarul
Species for North Bengal	*Chukrassia tabularis*	Chikrasi
	Albizzia lebbek	Kala Sirish
	Anthocephalus cadamba	Kadam
	Dalbergia sissoo	Sissoo
	Melia azedirach	Ghora-neem
	Cassia siamea	Minjiri
	Syzigium cuminii	Jam
	Cassia fistula	Amaltas
	Cassia nodosa	-
	Cassia javanica	-
	Swietenia macrophylla	Mahogany
Species for Central Bengal	*Eucalyptus tereticornis*	Eucalyptus
	Dalbergia sissoo	Sissoo
	Cassia siamea	Minjiri
	Anthocephalus cadamba	Kadam
	Cassia fistula	Amaltas
	Cassia nodosa	-
	Cassia javanica	-
	Swietenia macrophylla	Mahogany
	Acacia auriculiformis	Akasmoni

Technique- Planting and tending procedure will be the same as has already been described against miscellaneous plantation for South-West and North Bengal respectively, only difference being that seedlings for these models of plantations will be raised in field nurseries.

1.3.2.2.2 Steps of TPOFA

This model of plantation will be raised on Road side, Canal bank, Railway embankment and community owned land etc. Although these lands belong to different Government Departments or communities yet for effective management, usufructs may be vested with the

local *Panchayat* who will manage the asset involving the local people and in a sustainable manner so that the area may be replanted after final felling. Necessary dialogue has to be made with the concerned stake holders and a suitable mechanism in this regard has to be developed prior to undertaking plantation activities.

Steps involved:

1. Plantation sites for TPOFA in available government land and beneficiary villages shall be selected based on the criteria such as accessibility of WBFD, strong willingness and motivation of *Gram Panchayat* and dependency on forest resources of communities by *Ban-o-Bhumi Sanskar Sthayee Samiti.*
2. Executive Committee (EC) shall be formulated in each selected beneficiary village, comprising of the following members as per WBFD's notification No.: 2204-For/D/1/6M-7/93;
    a. *Sabhapati* or any member of *Bon-o-Bhumi Sanskar Sthayee Samiti* (Forest and Land Reforms Standing Committee) nominated by the Sabhapati
    b. *Gram Pradhan* (chief) or any member of local *Gram Panchayat(s)* as may be nominated by the *Pradhan(s)*
    c. Elected representatives of beneficiaries (not exceeding 6)
    d. Beat Officer - Member Secretary
3. Individual beneficiaries shall be selected for protection of plantation by Executive Committee in view of including the people that fall under the following categories as stipulated in GO 2204-For/D/1/6M-7/93. In general cases, the number of individual beneficiaries in one village are 15-30 people.
    - Economically backward people
    - Schedule Caste and Tribe
4. Consent letter shall be signed between WBFD, *Gram Panchayat* and individual beneficiaries after selection of BC.
5. Consultation with individual beneficiaries and Executive Committee regarding selection of species and sites for field nursery.
6. Each beneficiary village shall have a TPOFA Implementation Plan to be prepared by FMUs in consultation with individual beneficiaries/EC, and approved by Divisional Management Units (DMUs). The Plan shall include the basic information such as tree species for plantation, time of harvesting, and the system of harvesting/selling/benefit sharing including the roles of individual beneficiaries, DMU, *Gram Panchayat* and other stakeholders if any.
7. Plantations shall be undertaken by WBFD. Duty of individual beneficiaries shall be protection and maintenance of plantation till harvesting. The beneficiary shall be allowed to collect fallen leaves, twigs, fruits, flowers etc including thinning as per the existing provisions.
8. At the time of harvesting, DMUs shall arrange for harvesting, bear labor cost and sell as per prescribed procedures.
9. The required replanting cost shall be secured from harvesting revenue into DMU's account. Total sale proceed, after deducting actual cost of plantation and harvesting, and the cost of replantation, shall be allocated among WBFD (50%), BC (25%) and *Gram Panchayat* (25%) as stipulated in GO No. 2098-For.14/05/2010. Usage of net sale proceeds allocated for WBFD is restricted only to the purpose of greening outside the recorded forest area.

Management- After establishment will be handed over to the *Gram Panchayat*. Beneficiaries will have the right to collect grass, fuel, fodder from the plantation including produce obtained through mechanical thinning; the plantations will be harvested at maturity by the Forest Department in consultation with the *Panchayat*. The Forest Officer shall arrange distribution of the pre-specified percentage of harvested produce to the selected beneficiaries at confessional rate or free of cost in consultation with the Forest and Land Reforms Standing Committee (*Ban-o-Bhumi Sanskar Sthayee Samiti*[4]). However the direct cost of establishment protection and maintenance of plantation will stand recoverable to meet the cost for raising future plantations.

1.3.3 Benefit Sharing Mechanism with JFMCs/EDCs

Benefit sharing mechanism with JFMCs/EDCs is governed by existing governmental resolutions. This sharing mechanism is one of very important factor for success of JFM. Next table shows sharing mechanism by forest products.

Table 15: Benefit Sharing Mechanism

Item	Benefit Sharing	Responsibility		
		Harvesting & Collecting	Store	Process
Timber /Small timber/mining timber /pulpwood /poles /firewood	North Bengal: 25% of net sale proceeds from thinning and cultural operations. 15% of the sale proceeds of timber at final harvest. South West Bengal: 25% of poles and fuel wood harvested during thinning, cultural operation and final harvest of coppice coupes.	By the WBFD in association with the WBFDC Ltd. taking help of JFMCs	In Depots located at Range or Beat Headquarter under the control of WBFD and WBFDC Ltd.	WBFD /WBFDC sell timber and other forest produce through auctions and tender. Mining timber and pulpwood are sold to coal mining companies in the public sector through allotments. Some pulpwood companies also receive allotments of pulpwood. These are sold at prices determined by the Price Fixation

[4] Forest and Land Reforms Standing Committee is a Committee of representatives of people at the level of Panchayat Samiti (Block level) and Zilla Parishad (District level). These Samities decide on execution of plan and non-plan schemes related to forests and other forms of landuse within their jurisdiction.

Item	Benefit Sharing	Responsibility		
		Harvesting & Collecting	Store	Process
				Committee of the State Govt.
	In case of strip plantations, plantations are handed over to Gram Panchayat at the end of the third year. Only a specified % of the harvested produce is distributed amongst beneficiaries in consultation with Ban-o-Bhumi Sanskar Sthayee Samiti.	WBFD in consultation with Gram Panchayat	WBFD in depots selected in consultation with Gram Panchayat	No mechanism of sharing of produce harvested from lands of private persons. No resolution in private land
Fallen twigs, grass, fruits, flowers, mushrooms, leaves and medicinal plants	100%	JFMC under guidance of WBFD	JFMC under guidance of WBFD	JFMC under guidance of WBFD
Bamboo	Resolution does not specify bamboos. In case this is interpreted as NTFP, JFMCs may have claim to 100%, less harvesting costs. Bamboo if interpreted as poor man's timber, JFMCs will have right to 25% of share	WBFD with the assistance of JFMC	WBFD at depot sites selected in consultation with JFMC	Usufructs may be shared in cash or kind
Sal leaves	100 % for JFMC	Private traders contracted with the help of WBFD. JFMC members are free to choose their clientele and the price at which they will sell. Sal leaves are generally made into plates /cups before selling	Private traders contracted with or without the assistance of WBFD	Private traders contracted with WBFD
Honey	Honey from Sundarban	JFMC/EDC	In depots	WBFDC Ltd

Item	Benefit Sharing	Responsibility		
		Harvesting & Collecting	Store	Process
	is collected by WBFDC Ltd. with the help of WBFD and marketed after filtration and packaging. Honey from other forest areas is treated as NTFP. There is no sharing mechanism under the existing resolution. A proposal has been mooted for sharing and this is under the consideration of the State Govt.	members are used in collection wherever possible	under the control of WBFD.	markets through their agents and retail sale centers
Other NTFPs including medicinal plants, Mahua (*Madhuca indica*) seeds and other oil bearing seeds etc.	100% for JFMC as per existing regulation. Usufruct sharing will be subject to restrictions imposed on account of silvicultural and management requirements.	JFMC	JFMC	JFMC

1.3.4 Component 1C: Soil & Moisture Conservation in Forestry Treatment Areas

All degraded areas treated through activities A1 to A4 will have a sub-component of soil and moisture conservation activities. Such activities will include digging Contour trenches, which involve simple earth work that may be undertaken by the villagers/ JFMC/EDC members under the guidance of Forest Officer. Contour trenches are used both on hill slopes as well as on degraded and barren waste lands for soil and moisture conservation and afforestation purposes. The trenches break the slope and reduce the velocity of surface runoff. It can be used in all slopes irrespective of rainfall conditions (i.e., in both high and low rainfall conditions), varying soil types and depths.

As has already been mentioned the soil type of most of the forest areas in South West Bengal, covering the Districts of Purulia, Bankura, Paschim Medinipur, Birbhum and western part of Burdwan are highly vulnerable to different degrees of soil erosion. Such erosion is common to areas under Red Lateritic soil and Gneissic gravely soil with low to medium soil depth, poor capacity of water retention and have frequently occurring surface encrustations. This unstable character of the soil coupled with undulating terrain of the tract often lead to severe run off and intense soil erosion. Therefore it is imperative that all afforestation activities must be effectively safeguarded with suitable soil conservation measures.

Afforestation and reforestation activities will be confined to degraded forest areas with signs of sheet erosion and rill erosion of different intensities. There is a need therefore to adopt simple soil and moisture conservation measures in the form of Contour trenches.

Accordingly, the component of soil conservation activities has been provided in respect of the following Afforestation Models chosen for South West Bengal.

- A1. Plantation with High Yielding Eucalyptus Clones in South West Bengal
- A2. Plantation of Sal and Associate Species in South West Bengal
- A3. Quick Growing Small Timber, Fuel & Fodder Plantation in South West Bengal
- A4. Enrichment of Degraded Sal Coppice Forests of South West Bengal

Details of the above soil and moisture conservation measures are given below.

Contour trench: Trenches of 5.0 m length and 0.45 m x 0.45 m size are dug all over the plantation area 5.0 m apart in contour lines, in a staggered manner, the lines being at 10.0 m interval. This is done to check run off, arrest soil and conserve moisture.

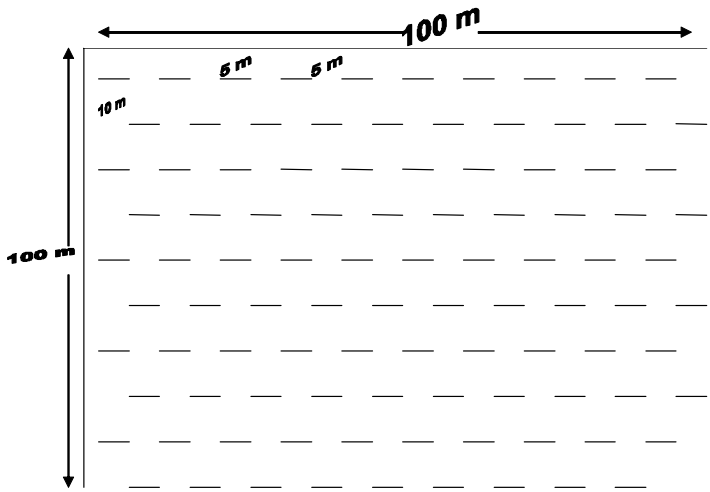


Figure 9: Spacing of Contour Trench

1.3.5 Component 1D: Production of Quality Planting Material

1.3.5.1 General Description

Plantation creation programs, now-a-days, are largely dependent on seedlings raised in Central Nurseries where seedlings are better looked after and healthier than those raised in Field Nurseries. Besides, in Central Nurseries older seedlings may be available for planting and this is essential requirement for slow growing species, viz. *Shorea robusta* (Sal), *Madhuca indica* (Mahua), *Schleichera triiuga* (Kusum) etc. It has been seen that extra investments made for Central Nurseries are more than compensated by the performance of saplings in the plantation, in respect of survival, growth and health.

Seedling quality is primarily controlled by collecting seeds from seed trees /seed stands and from clonal orchards maintained for a variety of clones for Eucalyptus hybrid. Use of agro-sheds and production of seedlings in root trainers (Hycopots) in mist chambers have greatly improved the quality of seedlings.

With this understanding, it has been proposed that all the afforestation models in South West & North Bengal except Enrichment of Sal Degraded Forest (A4) will be provided with Quality Planting Materials (QPM).

In this component, four activities are proposed such as 1) Capital cost of setting up hi-tech 20 modern central nurseries, 2) Capacity expansion of existing 20 hi-tech nurseries, 3) Production

of 1 year old quality Eucalyptus clone: 900,000 seedlings, 4) Production of 1 year old quality seedlings: 22,040,000 plants, 22,940,000 seedlings in total.

1.3.5.2 Capacity Expansion of Nurseries

As the plantation models A1 to A3 and A5 to A6 will require Quality Planting Materials (QPM), 20 new Modern (hi-tech) Central Nurseries and 20 expansions of existing Modern Nurseries have been proposed under the project. By these constructions, production capacity of nursery can be expanded at least 20 million (200 lakh) seedlings per year. The details of production of seedlings and the nurseries proposed to be created are furnished in the table below.

Table 16: Required Number of Nursery by Area and Production Capacity

Type of Nursery	Number of Nursery	Production Capacity will be raised (seedlings / year)
New Modern Nursery	20	10,000,000
Expansion of existing Modern Nurseries	20	10,000,000
Total	40	20,000,000

1.3.5.2.1 Capital cost of setting up Hi-tech Central Nursery

For the purpose of meeting the requirement of QPM, 20 new Modern Nurseries will be established by installing necessary mist chambers, raised beds with structures for shade cloth (agronets), root trainers (Hycopots) supplemented with associated civil works.

1.3.5.2.2 Capacity expansion of existing Hi-tech Central Nursery

Capacity expansion of 20 existing Central Nurseries will be will be undertaken through acquisition of additional mist chambers, adequate number of raised bed, provision of sheds with shade cloth (agronets) and supply of root trainers (Hycopots) etc.

1.3.5.3 Production of Seedlings

1 year Quality Planting Material seedlings raised and tended in Central/Modern Nurseries are to be provided in all plantation models, except models B1 and B2, necessary provision for the same has been made in the project proposal. The requirement of QPMs for different afforestation models are furnished below model wise on the basis of which seedlings will be raised and maintained in Central /Modern Nurseries that will be established /upgraded.

Table 17: Number of Seedlings (QPM) Required

Model no.	Number of seedlings (QPM) required			
A1	450	ha x	2,000 plants / ha =	900,000
A2	3,430	ha x	2,000 plants / ha =	6,860,000
A3	6,000	ha x	2,000 plants / ha =	12,000,000
A5	1,050	ha x	2,000 plants / ha =	2,100,000
A6	540	ha x	2,000 plants / ha =	1,080,000
Total				22,940,000

1.3.5.3.1 Production of 1 year old quality clone

All plantations shall be raised at spacing of 2.5 m x 2.5 m. Against the actual requirement of 1,600 clones, an additional 200 seedlings will be raised to beat casualties during the year of

creation and another 200 seedlings will be prepared for replanting. Totally, 2,000 plants / ha is needed to meet the requirement.

1.3.5.3.2 Production of 1 year old quality seedlings

In a planting pattern of 2.5 m x 2.5 m spacing, 1,600 seedlings are required and an additional 200 seedlings will be raised to beat casualties during the year of creation and another 200 seedlings will be prepared for replanting. Totally, 2,000 plants / ha is needed to meet the requirement.

1.3.5.4 About Quality Planting Materials (QPM)

QPM means healthy seedlings of different species proposed to be used against each plantation models which should originate from properly established seed orchards, clonal orchards, plus trees and produced in an environment of hi-tech nurseries. A hi-tech nursery (modern nursery) is characterized by the following:

- UV plastic covered chambers with mist irrigation and fogging facilities. Such chambers are provided with 50% or 60% shade netting on the roof and 30% or 40% on the sides. The irrigation pipe generally have 2.5 cm outlet and rated at 3 horse power capable of generating 30-40 lbs psi of pressure. Irrigation lines are made of threaded PVC pipe.
- The nursery will have 360 degree fine spray nozzles with an effective radius of 2 m. Structural members are of galvanized pipe and angle iron.
- The shade house (for the Hardening Chamber) generally has shade netting rated at 30% to 40% on the sides.
- Root trainers (Hycopots) are used for raising seedlings in the hardening chamber. Size of such Hycopots varies on the requirement of species. These are made of hard plastic in the shape of cones with ridges on the inner surface for guiding the tap roots vertically down and adding to the growth of fibrous root.
- Raised beds are generally used for storing seedlings in the hardening chambers.

QPM should have proven track record of high survival percentage in the field ensuring improvement in productivity of the plantations, faster growth, higher yield, resistance to pest and diseases, adaptability to local bio-physical, climatic and socio-economic conditions, and with high market demand. Those are the advantage of QPM and the disadvantage is high initial cost of modern nursery that demands various equipments.

1.4 Component 2: Biodiversity Conservation

To strengthen biodiversity conservation in West Bengal with focus on the main issues, the following sub-components are included in this component: A) Improvement of wildlife habitat in protected areas, B) Mitigation of man-animal conflict, and C) Research on wildlife and biodiversity. By implementing these in combination, it is expected that man-animal conflict will be alleviated, conservation of key animal species be enhanced, and unique/diverse ecosystems be restored and developed.

Table 18: Contents of Biodiversity Conservation

No	Component	Sub-Components	
2	Biodiversity Conservation	2A	Improvement of Wildlife Habitat in Protected Areas
		2B	Mitigation of Man-animal Conflict
		2C	Research on Wildlife and Biodiversity

For sub-component A), three types of habitat improvement are proposed in seven protected areas in the north: 1) grass and fodder tree plantation in the plains; 2) bamboo under-planting in Mahananda; and 3) fodder tree plantation after removal of Maling bamboo in the hills.

For sub-component B), various mitigation measures are proposed for five types of conflict: 1) elephant and gaur in the north; 2) elephant in the south-west; 3) leopard in the north; 4) tiger in Sundarban; and 5) smaller animals in the central.

For sub-component C), total five research subjects are proposed to be carried out for inventory and status survey, ecological study for conservation/management, and impact assessment for habitat management. The activities and target area under the Biodiversity Conservation component is as per Annex 2.

1.4.1 Improvement of Wildlife Habitat in Protected Areas

To sustain the healthy populations of large herbivores, particularly rhinoceros, elephant and gaur, in the protected areas in the North Bengal and reduce the possible man-animal conflict, the WBFD has been conducting wildlife habitat management through the creation and restoration of grassland with/without planting bamboos, fruit trees and other fodder trees, which increase the food basis for those animals. The methodology has been consolidated as a sort of guidelines and the plots for this scheme are confined to Habitat Improvement Zone in the protected areas, contained in their management plans. It is an accepted management practice to thin out the overhead canopy by cutting down old plantation stock, such as Teak and Simul, and by girdling (i.e. cutting up to phloem layer). After that, grass slips of desirable species are planted and the grassland is maintained by eradicating climbers/weeds and cutting/burning the old stalks in the fourth year after planting. In the seventh year, the old grasses are uprooted and the area is replanted with fresh grass slips.

However, this scheme has not been fully implemented in the protected areas mainly due to the lack of funds. By this project, it is proposed to enhance the current scheme in seven protected areas: Gorumara NP, Jaldapara WS, Buxa TR, Mahananda WS, Neora Valley NP, Singhalila NP and Senchal WS. The total target area shall be 335 ha in six years: 200 ha for grass and fodder tree plantation, 60 ha for bamboo under-planting and 75 ha for fodder tree plantation after bamboo removal.

Table 19: Proposed Activities for Habitat Improvement

Type of Work	PA (Division)	Area (for each PA)	Area (sub-total)	Duration
Grass and fodder tree plantation in the plains	Gorumara NP (WII) Jaldapara WS (WIII) Buxa TR (BTR-E/W)	40 ha (20 ha/year) 60 ha (30 ha/year) 100 ha (50 ha/year)	200 ha	5 years (3-7th year)
Bamboo under-planting in Mahananda	Mahananda WS (WI)	60 ha (10 ha/year)	60 ha	5 years (3-7th year)
Fodder tree plantation after bamboo removal in the hills	Singhalila NP (WI) Senchal WS (WI) Neora Valley NP (WII)	15 ha (5 ha/year) 45 ha (15 ha/year) 15 ha (5 ha/year)	75 ha	6 years (3-8th year)
Total	7 PAs	335 ha	335 ha	

Note: WI: Wildlife Division I, WII: Wildlife Division II, WIII: Wildlife Division III, BTR-E: Buxa Tiger Reserve (East), BTR-W: Buxa Tiger Reserve (West)

Divisional Forest Officers (DFOs) responsible for each protected area will supervise all the activities for habitat improvement, including the site selection, under their jurisdiction. The field works will be planned and implemented by Range Officers (ROs) and Beat Officers (BOs) following the command structure. Monitoring of the plantation will be made by the Monitoring (North) Division in line with the protocol. Most of the labour required for the field works will be hired from the members of EDC/JFMC that are located around the protected areas through the JFM approach.

1.4.1.1 Grass and Fodder Tree Plantation in the Plains

The plains of Gorumara NP, Jaldapara WS and Buxa TR provide the suitable foraging ground for large herbivores. In the first two protected areas, which are relatively small in size, restoring the open grasslands is critically important to sustain the population of rhinoceros in particular. However, many such areas have been getting shrunk due to the natural succession with the rapid growth of colonizing tree species. At the same time, the numbers of the threatened species have been increasing due to the success of conservation effort by the WBFD for the past decade. Thus, the shortage of open grasslands has become more serious management issue for recent years. In the case of Buxa TR, recovering the original habitat on old teak plantation sites is also useful in facilitating the reintroduction of rhinoceros and maintaining the elephant population.

After canopy opening of plantation areas, grass slips will be put at 1 m x 1 m spacing (10,000 plants/ha) and in some plots, fodder tree seedlings will be planted at 10 m x 10 m spacing (100 plants/ha). The grass species planted are: Dhadda, Chepti, Malsa, Madhua, Ekra (*Saccharum* sp.), Nal (*Arundo donax*), Khagra (*Pharagmites karka*), Bhutta ghash (*Coix lachrymajobi*), Banspati (*Setaria* sp.), Purundi (*Alpinia alughas*), etc. The tree species planted are: Sissoo (*Dalbergia sissoo*), Chapalish (*Artocarpus chaplasha*), Kumbi (*Careya arborea*), Chalta (*Dillenia indica*), Jogdumur (*Ficus hispida*), etc. In addition, old grassland of over seven years old will be revitalized by similar operation only in Jaldapara WS. The plot size of one plantation is 1 ha in minimum.

1.4.1.2 Bamboo Under-planting in Mahananda

Mahananda Sanctuary is located in a key area for elephant conservation. Herds of elephant stay in the foothills longer than other areas along migration routes before crossing to Nepal and after coming back to West Bengal. During the stay, they raid paddy fields or maize farms, damaging crops and house properties seriously. It was reported by a department officer that bamboo under-planting was so effective that it can keep the herds inside the forests one to two weeks longer than the area without bamboo stands; which reduced the time of elephant spent in the agricultural land.

After canopy-opening of plantation areas, bamboo seedlings will be planted at 4 m x 4 m spacing (625 plants/ha) and in some plots, fruit tree seedlings will be planted at 10 m x 10 m spacing (100 plants/ha). The bamboo species planted are all indigenous: Bhalu bans (*Dendrocalamus sikkimensis*), Choya bans (*Dendrocalamus hamiltonii*), Mala bans (*Bambusa nutans*), Kalai makla (*Bambusa vulgaris*) and Muli bans (*Melocana baccifera*). The plot size of one plantation is 1 ha in minimum.

1.4.1.3 Fodder Tree Plantation after Removal of Maling Bamboo in the Hills

In the hill areas over 2000 m in altitude, hill forests are grown consisting of wet hill forest, wet temperate forest, moist temperate forest and sub-alpine forest; a part of which is included in the biodiversity hotspot of Himalaya. The hill forests, however, have been facing undesirable habitat conversion due to prolific invasive spread of Maling bamboo (*Arundinaria maling*) in degraded forests mainly due to the past illegal logging and frequent forest fire.

To recover the original flora and fauna in the hills, Maling bamboo will be replaced by fodder trees, such as Khaniu (*Ficus cunia*), Gogun (*Ficus nepalensis*), Lepcha kowla (*Machilus edulis*), Buk (*Quercus lamellosa*), Pipli (*Bucklandia populnea*), Kapasi (*Acer campbelli*), etc. Maling bamboo will be thoroughly cleaned from plantation sites and seedlings raised at field nurseries will be planted out at 2.5 m x 2.5 m spacing (1600 plants/ha). The minimum plot size is 1 ha for one plantation.

1.4.2 Mitigation of Man-animal Conflict

With increasing human population and wildlife population, and with limited wildlife habitat, man-animal conflict has become a major problem for biodiversity conservation in the state. In terms of damage and compensation (human, livestock, hut and crop), conflict with elephant is the most serious, followed by that with gaur, tiger and leopard. For this project, five types of man-animal conflict have been identified as priority for mitigation needs, which are: 1) elephant and gaur in the north; 2) elephant in the south-west; 3) leopard in the north; 4) tiger in Sundarban; and 5) smaller animals in the central. Most of the mitigation measures are referred in the relevant management plans.

1.4.2.1 Elephant and Gaur Conflict in the North and South-West

To reduce damage by elephants, alleviate distress of affected people and rescue wounded elephants, different strategies will be taken for the two populations in the north and the south-west, considering the patterns of forest distribution, land use and elephant movement as well as the perception of local people.

a) Northern Population

The northern population of elephants is restricted to Jalpaiguri and Darjeeling Districts, moving between Assam, West Bengal and Nepal. There is a series of large tracts of forest and many small villages are located adjacent to and sometimes in the forests. In this region, electric fences are quite effective to protect the villages and farms from elephant raiding if properly maintained. According to a field manager, no persons have been killed by elephants after installing electric fences for five years in some village, while 14 persons killed in a nearby village with no electric fence during the same period. In this region, it is proposed to take the following mitigation measures:

- Erection of proper electric fences with iron angle or wooden posts (40 km) and improvement of old ones (30 km).
- Creation of a fully-equipped mobile squad for elephant/gaur rescue and translocation, provided with a vehicle with transport cage, vehicles for patrolling and various field equipment. The base of the mobile squad will be set up at Mal or Khunia in Wildlife Division II.
- Engagement of skilled labour for driving off elephants, provided with *hulla* (burning torches), crackers and search-lights.

Priority areas to implement these activities is given to those along the major elephant migration route, particularly around Mahananda WS, Gorumara NP, Jaldapara WS and Buxa TR, which provide the core habitat for elephants. The location of electric fencing will be identified by: 1) extent/frequency of damage; 2) adjacency to the protected areas or recorded forest areas; 3) request by villagers with their prior commitment for maintenance; and 4) no obstruction for major elephant migration and corridors. To fix the actual sites for the erection, it needs to consider the topography, the direction of elephant movement, straying habits of elephants and the traffic of villagers through assessment by ROs/BOs and consultation with villagers. They may be erected along the forest edge or surrounding the villages/farms depending on the situation.

As for conflict with gaur, a main mitigation measure is to tranquilize and translocate strayed animals from villages/farms back to forests. This will be taken along with the mitigation measures for elephant conflict, particularly by using the mobile squad.

b) South-Western Population

The south-western populations of elephants, originating from Dalma area in Jharkhand State, come seasonally to West Medinipur, Purulia and Bankura Districts, covering very large area of about 1500 km^2, and extend to farther north and east in recent years. Some of them became resident in the region. The patchy distribution of forests in the vast cultivation area forces elephants to roam through the large tract to search food, water and cover. This makes it difficult to effectively protect villages/farms from elephant that stray into the areas on all sides by electric fences. Furthermore, local people in the region have senses of aversion for electric fences as nuisance. They keep elephant herds in one place, where crop raiding becomes very serious, and interrupt people's traffic in their surroundings. In fact, a length of electric fences was erected in this region in 1980's but all were destroyed and removed by the local people. Because of these reasons, it is difficult to adopt electric fencing and then, only driving off elephants is regarded as a practical and effective measure in this region. Therefore, it is proposed that skilled labour be engaged for driving off elephants, provided with *hulla* (burning torches), crackers and search-lights.

All the above operations in the both ranges will be supervised by DFOs who are responsible in the project sites and implemented by ROs/BOs according to the work level. Skilled and non-skilled labour will be hired from EDC/JFMC members in the project sites for electric fencing, constructing watch towers and driving off elephants from villages/farms (not from their own areas but from other areas upon request). The operations will be supported for five years by the project.

1.4.2.2 Leopard Conflict in the North

Conflict with leopard often occurs along a tea garden belt in Hashimara-Birpara-Nagrakata region in the North Bengal. Leopards sometimes cause serious injury to people, being required to be captured for their safety and treatment. On the other hand, leopard cubs, which are left by a mother while escaping from people, are often captured and handed over to the WBFD. To improve capturing and transporting such animals by the WBFD, it is proposed to provide DFOs covering the jurisdiction of Mahananda WS, Gorumara NP, Jaldapara WS, Buxa TR and nearby recorded forest areas with necessary equipment, such as small truck hiring, light-weight cages, nylon nets and skilled labour. They will be hired from EDC/JFMC members in the project sites. The operations will be supported for five years by the project.

1.4.2.3 Tiger Conflict in Sundarban

In Sundarban TR, tigers sometimes come out of mangrove forests to search prey and stray into inhabited villages, killing livestock and frightening people. Tiger straying into villages has been a serious issue for tiger protection, which makes it difficult to get understanding and support from the local people. To mitigate man-tiger conflict, two strategies are adopted for the project: 1) to prevent tigers coming out of the forests; and 2) to respond quickly to capture, transport and release tigers back to the forests.

For the first strategy, the WBFD has been investing to erect nylon net fencing around Sundarban TR, which is well-reputed by nearby villagers; in some hearing by the department officer, more than 90% of respondents considered it very useful or useful. The department also has been attempting to increase the prey base for tiger by releasing chital (spotted deer). For the second strategy, it requires to establish a system to make fast response possible to reach the affected villages and to capture the problem animal and its return to the wild after veterinary check and treatment. In line with these strategies, the following measures are proposed to be supported by the project:

- Erection and replacement of nylon net fences along the forest fringe outside Sundarban TR: 16 km for new erection with RCC posts and 20 km for replacement with wooden posts. The location of fencing will be identified later at the sites where tigers are prone to stray, in consultation with the relevant villagers. It needs to have prior commitment from villagers for the maintenance of fences.
- Creation of two fully-equipped mobile squads for tiger protection and rescue, provided with launch hiring, speedboats and various capturing and field equipment. The base of the squads will be set up at Sajnekhali and Jharkhali.

The Field Director of Sundarban TR and DFO of 24 Parganas-South will cooperate to implement all the work related to create the mobile squads. The tiger rescue operation will be supervised by the same officers and implemented by ROs/BOs for the both jurisdictions respectively in the field. The nylon net fencing will be supervised by DFO and implemented by ROs/BOs of 24 Parganas-South. Skilled and non-skilled labour will be hired from EDC/JFMC members in the project sites for erecting and replacing the fences and assisting the tiger rescue operation. The operations will be supported for five years by the project.

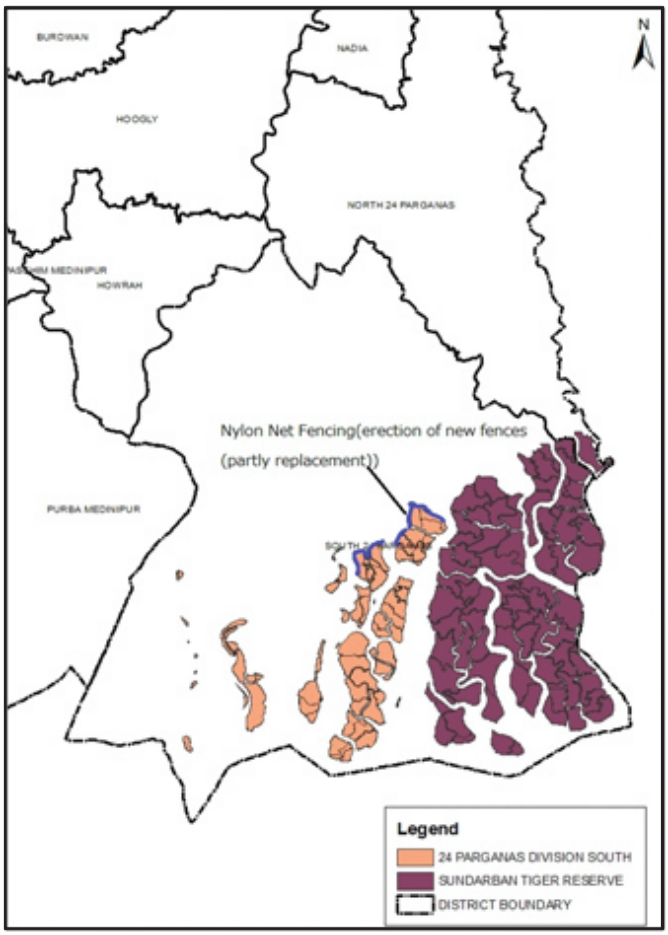


Figure 10: Target Area for Nylon Net Fencing in Sundarban

1.4.2.4 Conflict with Smaller Animals in the Central

Incidents by monkeys (macaque and langur) in raiding houses/shops and injuring people are common in Kolkata and other cities in Howrah, Hooghly, Nadia, Burdwan and 24 Parganas-North Districts in the central Bengal. There are similar problems by other small animals, such as fishing cats, leopard cats, civets and snakes, killing poultry, injuring people and sometimes killed by people. Some of these nuisance animals are also regarded as a component of local biodiversity to be protected under the Wildlife Protection Act (1972): fishing cat (*Prionailurus*

viverrinus) and leopard cat (*Prionailurus bengalensis*) belonging to Schedule I of the Act and classified as vulnerable by ZSI (2005). The WBFD is obliged to capture, rescue and transport the animals for their survival. However, the dispersed nature of such incidents, generally occurring far away from the department offices, makes it difficult to respond timely to meet public demand for interventions; which aggravates the situation at the sites.

It is, therefore, proposed that competent NGOs or the Honorary Wildlife Wardens (HWW: a civil society member appointed by the Chief Wildlife Warden) in the above six districts be contracted as focal points to deal with the incidents of animal conflict so that they can move to the sites and handle the problems quickly before the department officers arrive at the sites. Five DFOs responsible to the six districts will supervise the activities of NGOs or HWWs. ROs/BOs will keep liaison with them, providing each focal point with transport and various equipment necessary for the operation. A set of treatment chamber, post mortem room and quarantine as well as veterinary assistance will be provided to all the DFOs. The operations will be supported for five years by the project.

Table 20: Proposed Activities for Man-animal Conflict Mitigation

Species/Range	Division	Activity	Facility/Equipment/ Labour	Duration
Elephant/gaur in the north	WI, WII, WIII, BTR-W, BTR-E	Electric fencing	Erection of new fences (40 km), Improvement of old fences (30 km)	5 years (3-7th year)
	WI, WII, WIII, BTR-W, BTR-E	Mobile squad & driving-off	Vehicle for transporting animals (1), Vehicle for patrolling (2), Van/truck hiring, PA system (5), Radio com. (5), Search light (25), Walkie-talkie (25), Night vision (5), Watch tower (5), Field gear & driving tools, Skilled labour (1200 MD /division / year)	6 years (2-7th year)
Elephant in the south-west	Rupnarayan, Kharagpur, Bankura-N, Purulia	Driving-off	Van/truck hiring, PA system (5), Radio com. (5), Search light (25), Walkie-talkie (25), Night vision (5), Watch tower (5), Field gear & driving tools, Skilled labour (1200 MD /division/ year)	6 years (2-7th year)
Leopard in the north	WI, WII, WIII, BTR-W, BTR-E	Rescue & transport	Truck hiring, Transport cage (10), Nylon net, Protective gear (50), Field gear, Skilled labour (150 MD / division / year)	6 years (2-7th year)
Tiger in Sundarban	24 Parganas-S	Nylon net fencing	Erection of new fences (16 km), Replacement of old fences (20 km)	5 years (3-7th year)

	24 Parganas-S, STR	Mobile squad	Launch hiring (2), Speed boat (2), Cages (2), Radio com. (2), PA system (2), Search light (30), Nylon net, Protection gear (30), Skilled labour (1200 MD / year)	6 years (2-7th year)
Smaller animals in the central	Kolkata (HQs), Howrah, Nadia-Murshidabad, Burdwan, 24 Parganas-N	Rescue, transport & treatment	Van hiring, Treatment chamber/ quarantine (5), Trap cage (18), Bird cage (12), Snake stick (12), Fridge (10), Trap net, Skilled labour (300 MD /district /year), Veterinary assistance, NGO support	6 years (2-7th year)

Note: WI: Wildlife Division I, WII: Wildlife Division II, WIII: Wildlife Division III, W (HQs): Wildlife Wing (HQs), BTR-E: Buxa Tiger Reserve (East), BTR-W: Buxa Tiger Reserve (West).

1.4.3 Research on Wildlife and Biodiversity

A main objective of research by the Wildlife Wing of the WBFD is to obtain better understanding and knowledge of wildlife, ecosystems and biodiversity, of which information is vital for taking appropriate conservation and management actions in/around the protected areas. However, there is a paucity of information on biological, ecological and socio-economic subjects for the protected areas because of no institutional setup and resources for research and lack of budget and coordination with research institutes. By this project, therefore, it needs to generate such critical information through undertaking basic and applied research on the relevant areas with high priority.

1.4.3.1 Priority Areas for Research

The priority areas for research to be conducted by the project are determined as follows:

- Inventory and status of flora/fauna species of conservation concerns to have basic knowledge for the population, distribution, habitat and threats.
- Biology and ecology of key species (threatened, keystone, umbrella, etc.) to improve conservation and management: population, distribution, habitat preference, prey-predator relationship, breeding biology, genetic identity, etc.
- Habitat management and impact assessment to review and improve the current practice: habitat degradation, regeneration, restoration, species composition, nutrient cycling, carrying capacity, etc.
- Man-animal conflict and mitigation measures to review the current practice and develop alternative measures, including interaction between human activities and protected area management.

1.4.3.2 Criteria for Research Selection

The following are criteria used to select research subjects for the project:

- Research to addresses subjects related to other sub-components of the wildlife management and habitat improvement.
- Research to address information critical to the long-term management of wildlife and protected areas.

- Research to establish benchmark for the long-term monitoring of biodiversity status.
- Research to address information critical to the conservation of threatened, rare and other key species.
- Research that aims to develop species conservation plans/strategies or provide scientific basis for protected area management plans.

1.4.3.3 Proposed Research Subject

To select research subjects to be undertaken by the project, firstly a long list was prepared based on a proposal by the Wildlife Wing (HQs), hearing from field managers and management plans for the relevant protected areas. In reference to the above selection criteria, five research subjects are proposed as shown as per Annex 3.

1.4.3.4 Research Advisory Committee

Although the research subjects were selected through the Preparatory Survey, it is proposed that the subject will be reviewed for approval by the Research Advisory Committee (RAC) set under the Wildlife Wing. It is considered better to do so because of the following reasons: 1) broad and professional advice from prominent scientists and field managers are essential; 2) availability of research institutes to be contracted for each subject may be changed with their convenience; and 3) there might be some change of research priority before the project implementation, affected by the third party's plan and work.

The current committee, chaired by the Chief Wildlife Warden, was set in line with *Guidelines for Scientific Research in the Wildlife Protected Areas* prepared by the Ministry of Environment and Forests. For the sake of the project, the committee will be requested to have six members in maximum, which consists of reputed scientists from research institutes, such as Wildlife Institute of India and Zoological Society of India. Subject-matter specialists and/or field managers may be invited to discuss the relevant subjects.

It is proposed that RAC be given the following responsibility for the project purpose:

- To review and approve the research subjects in reference to the existing information.
- To review scientific and academic capability for research institutes to be contracted.
- To review interim reports for quality control, providing comment and advice.
- To evaluate final reports in terms of output.
- To confirm application of the research outputs into conservation/management actions.

1.4.3.5 Research Arrangement

In consideration of advice by RAC, the Chief Wildlife Warden will authorize the research subjects to be carried out by the project. To select research executors, an open tendering system will be adopted to ensure fair selection and accountability. The Wildlife Wing (HQs) will serve as the secretariat for the sub-component of research to ensure smooth implementation, including collection of the existing information, preparation of the tender documents, review of the research reports, and coordination between researchers and field managers.

Each contracted researcher will be responsible for planning and arranging the research work and may be requested to stay in the field for some period and engage qualified research assistants. EDC/JFMC members will be involved in the field work whenever appropriate.

1.5 Component 3: Community Development

1.5.1 General Description

Community development component is indispensable component of the Project in order to achieve the Project purpose through the JFM approach. There are close relationship between forest degradation and high population pressure of forest dwellers who depend highly on forest resource and live at the poverty level.

The Project aims at strengthening JFM movement to enable JFMC to improve their level of performance by involving their communities not only in afforestation / reforestation activities but also creating an environment of trust and confidence between them and forest personnel on the frontline. Moreover, community assets inputs can create immediate interest of the people to participate in the project activities.

Under this component, physical target number of the JFMCs/EDCs is set as 600 approximately. Of the total, 550 are JFMCs and 50 are for EDCs. JFMCs/EDCs will be selected from already existing JFMCs/EDCSs and no new formulation of JFMCs/EDCs is required. Target group will be selected as previously noted and micro plan will be made up during the preparation phase of the project for all JFMCs/EDCs.

1.5.2 Selection of Target Group (JFMC)

First of all, for selection of JFMCs, village based cluster approach shall be adopted, where a group of several villages in close proximity shall be selected under the Project to increase effectiveness of activities by taking advantage of scale, as well as to encourage efficient implementation and monitoring of the Project.

There must be a link between this Community Development component and Afforestation component. In order to select target group, criteria are set as following:

- **Working Plan** (Establishing a long list of target area)

  Each working models proposed in the Project within the recorded forest area will obviously need to conform to the working plan prescriptions to which such degraded areas are allocated. These efforts as far as possible will be made in areas where functioning JFMCs already exist on ground and they are willing to participate within the framework of existing JFM resolutions of the State Government.

  Therefore, long list of target area as priority area for the afforestation / rehabilitation and wildlife conservation related works shall be developed by PMU according to the Working Plan during the early stage of the preparation period of the Project.

- **Extraction of target area**

  Then, target area shall be extracted in accordance with requirement area and relevant natural conditions for each plantation model or requirement of wildlife conservation activities.

- **Proximity of target group to forest**

  Proximity of target group to the forest should be within 1 km.

- **Higher percentage of SC/ST population among JFMC members**

- **Other considerations**
  - Poverty and dependency on forest resource

    It is necessary to consider that economically disadvantaged community shall be selected as target village / groups. However, there is no existing poverty data for each group. Dependency on forest resource is linked to poverty and it should also be considered as one criterion to select the target. These parameters should be investigated by baseline survey.

1.5.3 Selection of Target Group (EDC)

There must be a link between this component and Biodiversity Conservation. In order to select target group, 5 criteria shall be set as following:

- Proximity to forest: EDC within 1km of Protected Area
- EDC undertaking the Project Activities
- Presence of Endangered Species in the Protected Area
- Incidences of Man/Animal Conflicts
- Higher percentage of SC/ST population among EDC members

1.5.4 Mobilization and Making of Micro Plan

- **Mobilization**

  After selection stage, contact with target JFMC/EDCs and procedure for micro plan making shall be started. Mobilization will be done as first contact and adequate explanation on the Project and working condition under the JFM should be done from the Project to the selected groups. Then, Micro Plan shall be promoted only after reaching their adequate and voluntary consensus to the Project.

- **Micro planning**

  Micro planning is a backbone of all kind of activities for the Project. Micro plan lists out all activities required for proper integrated socio-economic development of the village and its inhabitants taking into account the natural, ecological, social, human, animal and skill based resources of the village. The preparation of micro plan shall be undertaken in all project villages by NGO with the participation of village members. Participatory Rural Appraisal (PRA) methodologies shall be used to identify and prioritize the various needs of the communities. The approved micro plans shall form the basis of the implementation of the project in the village.

  In brief, a micro plan typically shall include:

  - Comprehensive profile of the village detailing the natural resources, ecological conditions, social conditions, poverty situation, physical infrastructure as well as human resources and skill sets available in the village.
  - Analysis of past interventions in protection and management of forests, status of forests, fodder and fuel wood requirements as well as typology of land available for afforestation.
  - Identification and prioritization of problems could be addressed either directly through the Project or through convergence with other agencies and line departments.
  - Selection of entry point activities to be undertaken in the village.
  - Selection and mapping of different categories of land available for treatment under various afforestation models (biodiversity conservation activities in fringe villages). Ground survey using Geographical Positioning System (GPS) shall be conducted for the entire JFM area and shall not be restricted only to area selected for treatment.
  - Selection of activities and areas to be covered under soil and moisture conservation (Water development plan).
  - Identification of poor and forest dependent communities for poverty alleviation and livelihood interventions.
  - Phasing and budgeting of activities.

- Indicators for monitoring and evaluation.

The process of micro planning shall be as below:

- Preparation of a micro plan shall be undertaken by an NGO with involvement of majority of village members in attendance of FMU officers after extensive Participatory Rural Appraisal and Rapid Assessment and Situation Analysis.
- Micro Planning shall be followed in the process of Community Problem Analysis, Visioning, Goal setting, SWOT Analysis, and Resources Planning.
- A micro plan of a village shall be finalized and approved by the General Body and Executive Committee of the JFMC/EDC and approved by the concerned Deputy Conservator of Forests.
- Based on the approval and scrutinized Micro Plan, budget allotment shall be made to DMU, which shall further forward to JFMC/EDC.
- Prior to initiation of the Project activities, each JFMC/EDC and DMU will sign a registration on the implementation of all activities based on approved micro plan for the village. Registration includes sharing benefits and usufructs, sharing of returns from intermediary and final harvests, various rights, duties and obligation of each party concerned.

A budget of Rs 10,000 per village shall be provided to each JFMC/EDC for conducting micro planning in their respective villages. NGO shall be responsible for facilitation and documentation of micro plans.

1.5.5 Community Infrastructure Development

Community infrastructure development will be implemented for the purpose of facilitating smooth implementation of forest management activities by involving a whole local community.

WBFD has, through implementation of JFM, very successfully built up good rapport with fringe and forest dwellers through formation of JFMCs/EDCs. These groups have come forward for protection and regeneration of the forest resources resulting in remarkable regeneration of forests in the tracts of South-West Bengal. Changes in the attitudes of communities involved in JFM and the forest personnel working on the ground have been perceptible, creating a congenial environment of mutual faith and trust. This environment needs to be sustained and strengthened.

Each JFMC/EDC shall undertake community development infrastructure with an allocated amount. Amount to be allocated to each JFMC and EDC shall be determined based on its social situation in prepared categorization mechanism by WBFD. Tentative list of the infrastructures is agreed between JICA and WBFD as per Annex 4, but final selection of infrastructure will be determined only after preparation of micro-planning. The design and cost estimates of the selected infrastructure shall be prepared by the FMUs and approved by the DMUs.

Table 21: Number of JFMCs /EDCs per each Category

Numbers	Fund to be allocated
Top 100 JFMCs/EDCs	Rs. 600,000.00
Next 200 JFMCs/EDCs	Rs. 450,000.00
Rest 300 JFMCs/EDCs	Rs. 200,000.00

Through the proposed community support activities a variety of assets will be created. Such assets have to be maintained for sustainability through a mechanism of sharing responsibilities by the WBFD and the communities involved in JFMCs/EDCs.

1.5.6 Income Generation Activity (IGA)

Income Generation Activities are implemented by Self Help Group (SHG) to create alternative sources of livelihood for forest dependent people in order to wean them away from dependency on forests.

Guidelines for IGA and Self Help Groups (SHGs) shall be prepared by the PMU. A revolving fund would be created at each JFMC/EDC level to promote IGA in the project villages. JFMCs/EDCs shall use the funds to provide loans to SHGs in the village as per the guidelines for livelihood improvement activities. An amount of Rs 100,000 per village shall be provided as seed fund to each JFMC and EDC for promoting IGA.

- **Selection of target Self Help Group (SHG)**

  IGA will be implemented by SHGs. Minimum two SHGs up to five will be selected from one JFMC/EDC and if there are no existing SHGs, new SHG should be established cooperating with Rural Development Department, NGOs and other related agencies. In case that there are more than two SHGs in the village, JFMC which has JFMC/EDC members in the group shall be preferentially selected as a target SHG. Forest dependent people, landless farmers, poor and women shall be main target for SHGs.

- **Mobilization of SHGs**

  Specialized NGOs for micro finance shall be hired in the preparatory period in the Project with help of experts related to ODA as well as Project Management Consultant. Specialized NGOs for micro finance shall be involved in orienting and building capacities of SHGs members on saving and credit activities, record keeping and other management aspects of the SHG. NGOs shall also support SHGs in developing linkages with banks and financial institutions to sustain their activities even after the Project completes.

- **Proposal of IGA**

  Specialized NGOs for micro finance shall guide the SHG in identifying and developing proposals for IGA by conducting feasibility of activities on the basis of investment requirements, local availability of resources, skill sets or potential of skill upgradation, technology requirements and market access. SHGs shall submit proposals for loans for undertaking IGA to their respective JFMC/EDC. The proposal shall be reviewed and approved by JFMC/EDC and the JFMC/EDC may also impose certain interest on the loan amount and determine the repayment period.

- **Business planning**

  Business plan shall be prepared by specialized NGOs for micro finance, and approved by JFMCs/EDCs/DMUs. After sanctioning of business plan, the fund will be allocated.

- **Activities of SHG**

  The use of NTFP such as Sal leaves, medicinal plants, seed oil crops should be considered preferentially since NTFPs are used in a sustainable way (with proper forest management systems), providing economic incentives for forest conservation. The economic value of NTFPs is highly significant to rural and national economies in terms of the provision of material needs, cash income and employment.

Following activities may be proposed as income generation activities for SHGs although they will be proposed through the micro planning:

Table 22: Indicative List of IGA

No.	Name of Activities	Required Equipment	Indicative Unit Cost (Rs)
1	Sal plate making	sewing machine, sal plate making machine	30,000
2	Pump set	pump set minimum 5HP	50,000
3	Paddy thrasher	thrasher machine	10,000
4	Cloth stitching machine	sewing machine	10,000
5	Poultry	shed, 100 chicks	50,000
6	Duckery	hut, 20 ducks	20,000
7	Apiculture	Apiary box, fumigator, honey extractor	10,000
8	Incense stick	stick making machine, bamboo splitting machine	30,000
9	Piggery	10 pigs, shed	20,000
10	Fishery	spawn, fodder	25,000
11	Rope making	rope making machine	10,000
12	Handloom	shed, machine	100,000

- **Capacity development for SHGs and introduction of Seed Fund**

  This will be done as an IGA by maximum use of NTFP such as Sal leaves, medicinal plants. Moreover, various activities can be developed through these activities in order to create new income resource.

  When new income resource comes to SHG, it is necessary to manage their fund. Therefore, book keeping capacity enhancement shall be executed by extension workers who will be hired by the Project. In order to keep sustainability of SHG's activities, this book keeping capacity enhancement is essential because proper book keeping technique can keep financial transparency.

  Business plan development and marketing of their income generation activities shall be supported by NGOs in cooperation with related line agencies such as rural development department.

- **Technical training/skill upgradation for SHG members**

  Technical training and skill upgradation program on IGA for SHG members shall be organized in partnership with various institutions. SHGs shall identify the training needs of the SHG members on the basis of IGA selected by the SHGs.

  A wide range of training options shall be identified under the project. This shall, inter alia, include vocational trainings (such as tailoring, weaving, carpentry) as well as training on

value addition minor forest produce (MFP). Training programs to enhance the productivity of agriculture and allied activities shall also be organized in partnership with other agencies. Training on marketing and micro-enterprise management shall also be offered and organized based on the specific needs of the SHGs. Training shall be organized on a cluster approach to ensure representation of members of 4-5 SHGs in each training.

1.6 Component 4: Institutional Capacity Development

This Institutional Capacity Development component consists of six components as following:

Table 23: Component 4: Institutional Capacity Development

No	Components	Sub-Components	
4	Institutional Capacity Development	4A	Base line Survey of the State's Forest Resource at the Start of the Project
		4B	Training & Capacity Building of Project Implementing Officials, Field & Office Staffs and Other Stakeholders
		4C	Infrastructure Development for TPOFA (Social Forestry), Training, Research, GIS, Forest Protection etc including Building, Equipment &Vehicle
		4D	Forestry Research Activities
		4E	Mid-term Monitoring & Evaluation including periodic Biodiversity & Community Development Studies
		4F	End-term Monitoring and Evaluation

1.6.1 Baseline Survey of the State's Forest Resource at the Start of the Project

In the past projects no effort was put in direction creating a benchmark for the resource targeted for improvement and socio-economic conditions of the people and communities proposed to be covered under such projects. Achievements were assessed only on physical parameters against different component activities. There was no way to measure the success of projects with reference to changes in the growing stock, both qualitative or quantitative, or changes in socio-economic conditions of the people involved in the regeneration/ resuscitation of forests in target areas including their behavioral pattern to sustainably manage such resources.

The present project wants to make a departure in this regard. Creation of a baseline, therefore, has been made imperative during the first two years of the preliminary phase. In order to evaluate effect of the Project, same survey will be implemented in the end of the Project also. Therefore, survey will be implemented two times in total. Following two types of survey shall be implemented:

1.6.1.1 Baseline Survey of the Forest Growing Stock, Soil & Water quality, NTFP Working Circle, M.F.P. Div. & Research Circle and Soil nutrient in about 2 lakh ha forest area covered under the JFMC

The project is designed to consolidate the benefits derived from past projects and strengthening JFM has been accepted as a tool to carry out the program of building up forest cover through afforestation, reforestation in degraded forest lands through adoption of

different models with due consideration of working plan prescriptions and rehabilitation of degraded Sal forests through coppicing.

The project also intends to use the provision under community support activities to raise the level of motivation and commitment amongst targeted communities through and provide alternate livelihood. Provisions under this component though not adequate to meet the aspiration of communities, but this if wisely used can affect some changes in the economic level of economically disadvantaged communities of JFMCs/EDCs. This will also create an atmosphere of mutual trust and confidence between forest fringe communities and forest dwellers in areas of project execution. The baseline survey will concentrate on the following:

- Study of growing stock in general both in natural forests and plantations, quality of forest cover under different canopy density classes and distribution of major tree species of timber in plantations. Such study will also cover about 200,000 (2 lakh) ha of forests and plantations brought under the cover of JFM.
- NTFP content of plantations and natural forests including rehabilitated Sal coppice forests of South-West Bengal and assessment of potential production of important NTFPs, the collection and processing of which can significantly add to the enhancement of income beyond the project period. This will also identify areas for preservation of gene pool of medicinal herbs and shrubs in different forest types distributed in this tract.

1.6.1.2 Baseline Survey in Socio-Economic Conditions of the Target Population by NGO/ Governmental Agencies over about 2 lakh ha forest area covered under JFMC

Conducting a baseline survey to ascertain socio-economic status of communities involved in JFMCs/EDCs covering areas of execution of project components. Following modules and items should be covered by baseline survey:

- Household level
  - General information about the household: (identification of the household, basic information on its composition and main characteristics including family composition, proximity to roads and markets, education, member of what kind of group or cooperative etc.)
  - Income (per household)
  - Structure of Income (Agriculture, Off-farm income, income from Forest Products and NTFP, Labour income, and debt etc.)
  - Household assets (it can be one of the indicators of income)
  - Income distribution of house hold
  - Perception of the status of forest by comparing past and present
- Community (or JFMC/EDC) level
  - Review and collection of all available information and sources
  - Number of SHG or organizations which are active and their status of activities (Total transaction of last one year, actual deposit amount etc.)

Such studies may be conducted through agencies of reputed institutes or competent NGOs. This component will be supervised by the PMU with the help of the GIS cell at HQ and Monitoring and Evaluation Unit of the WBFD. Sample survey procedures have to be determined keeping in view of the quality of output.

1.6.2 Training and Capacity Building

The existing organization has the requisite training and skill for execution of projects of this nature as officers and staffs have the exposure and experience in handling externally aided projects during last three decades. Stakeholders including officers and staff included in JFMCs/ EDCs have also been trained in specific areas relevant for them during WB projects on West Bengal Social Forestry, West Bengal Forestry Project and the India Eco-development Project. However each project throws new challenges and opportunities and this necessitates building up a capacity development plan for achieving the desired degree of success during execution of project components.

Capacity development programs have to be designed for different target groups in the context of demands both from the project and the need for updating of knowledge and skill in relevant areas of forest and wildlife management. Modules and areas suggested are as per Annex 5.

Trainings for senior / middle level /junior level officers will be organized through reputed International and Indian institutes. Training for frontline staff and members of JFMC/EDC will be organized through induction of NGOs/CBOs working at the district level. Such organizations will be selected through a prescribed procedure in conformity with JICA guidelines.

1.6.3 Infrastructure Development

1.6.3.1 Administrative Building Construction

Expansion of existing administrative building 'Aranya Bhawan' in Kolkata, two floors will be added to accommodate a strengthened GIS cell, an Information Centre on forest resources and biodiversity, a library and a conference room.

Construction of an Administrative Building at Siliguri with the object to bring in all the offices of CCFs, CFs and DFOs under one roof for better communication, coordination amongst the officers of different wings and establishment of proper GIS cell . This will also have conferencing and training facilities.

A building at Salt Lake to accommodate an Archive and a Research Laboratory for knowledge enhancement and to facilitate undertaking collaborative research with Universities/Institutes.

36 front line officers' office complex shall be constructed in the Project Area.

All this will enhance the internal efficiency of the organization and contribute to the quality of execution. Sites for construction of administrative building and archive are in possession of the WBFD.

Site selection for frontline office complex will be decided upon during the 1st phase keeping in view the requirements of the project.

Floor plans for the administrative building at Siliguri have been suggested. But this may require some revision with reference to the site at the preparatory stage of the project. It will be better to have the architectural design and then go for preparation of the estimate. The present estimate is on the basis of floor space and specifications suggested.

For the archive the site is located at Salt Lake with an approximate floor area of 5000 sft. Aranya Bhawan (existing WBFD building) has sanctioned plan for expansion (two more floors will be added on the existing building).

All Offices Complex have been estimated on basis of the floor area, floor plans and specifications.

Table 24: Tentative List of Construction of Buildings for Forest Directorate

	Name of Work	No of Unit	Location	Floor Area (Sq.ft)	Composition	Purpose of Construction	Remark
1	Beat Office Complex (1)	15	To be identified during the preparatory stage of the Project	375	4 Rooms	Effective support of JFM, wildlife conservation activities and the Project	New construction
2	Beat Office Complex (2)	10		475	4 Rooms		New construction
3	Range office Complex	5		670	3 Rooms		New construction
4	Expansion of existing administrative building	1	Aranya Bhawan (HQ. West Bengal Forest Dept.)	7200 x 2 floors =14,400	GIS & Image Processing Lab (2500Sq.ft) ICT Training Centre (2000Sq.ft) Information Centre on Forest Resources and Biodiversity (4000Sq.ft) Library (2500 Sq.ft) Conference Room (2500Sq.ft)	Effective support of JFM and Project Effective management and monitoring of the Project and whole activities of the directorate Capacity Development of personnel	Two floors will be added on the existing building
5	Building at Salt Lake	1	AE-391, Salt Lake	5,000	Archive (1800Sq.ft) Research Laboratory (1800 Sq.ft)	Effective management and monitoring of the Project and whole activities in Wildlife Wing HQ.	New construction

	Name of Work	No of Unit	Location	Floor Area (Sq.ft)	Composition	Purpose of Construction	Remark
6	Administrative Building at Siliguri	1	Siliguri Divisional Forest Office	20,000	GIS Room (1500 Sq.ft) Space for offices of CCFs CFs, DFOs (18000 Sq.ft), Conference room (2000 Sq.ft) Library (2000Sq.ft) Training Hall (1500 Sq.ft)	Effective management and monitoring of the Project and whole activities in North Bengal	New construction

Note: No need of land acquisition for all the above works.

1.6.3.2 Equipment for GIS/ MIS Project:

Here the infrastructure is allocated keeping in mind the imminent development of FMIS (Forest Management Information System) through e-Governance. The remaining infrastructure would be built up in near future.

1.6.3.2.1 Proposed GIS Setup and Inter-unit Connectivity

The process of data transfer between the Central GIS Cell and 2 sub-units (Wildlife Wing at Salt Lake and one sub-unit in North Bengal (Siliguri) and one sub-unit in South West Bengal) may be through internet while keeping in mind data security. Physical transfer of paper maps and bulk data would be required from time to time between the Central GIS Cell and 2 sub-units. Internet access is available even at the Division level, but should be extended to all Range Offices. Data transfer from Beat to Range may be through mobile phones and GPS enabled. GPS data may be directly sent to the Central GIS Cell or sent via nearest Range or Division Office.

As data standardization and seamless integration is required in the creation of a large GIS database it is suggested that spatial data is prepared only in the Central GIS Cell.

1.6.3.2.2 Locations of GIS Infrastructure Development (A1, A2 & B as mentioned below)

- **A1: GIS & Image Processing Lab** at WBFD HQ, Aranya Bhawan
- **A2: ICT Training Centre** at WBFD HQ, Aranya Bhawan
- **B: GIS subsidiary data collection units** at Siliguri (to look after GIS work in North Bengal) and existing Wildlife sub-unit at Bikash Bhawan

1.6.3.2.3 GIS related Hardware & Software Requirement at the respective locations

(Required numbers at the end of the items includes the number of existing software & hardware)

- **A1: Advanced GIS & Image Processing Lab at Head Office, Aranya Bhawan, Salt Lake Kolkata**
    1) Arc GIS Server 1 license

2) Arc GIS Workstation/Desktop 1 license
3) Arc View 4 nos
4) ERDAS Professional 2 nos
5) Computers total 10 nos (4 with 4 GB RAM, rest of 2GB RAM) & UPS
6) Light tracing table 1
7) A0 Scanner 1
8) A1 Colour Plotters 2 nos
9) A3 Colour Printer 1
10) A4 BW Printers 2
11) Server for LAN connectivity and Internet in few computers
12) GPS Data download and conversion facility

The GIS Lab in Aranya Bhawan already has a setup. Hence required adjustments in procurement have to be made accordingly.

- **A2: Infrastructure for ICT Training Centre in Salt Lake**

1) Computers 20 nos
2) Wi-Fi Connectivity
3) LCD Screen 1

- **B: Self Sufficient GIS Lab and subsidiary data collection units at Bikash Bhawan (Wildlife Unit in Salt Lake), in North Bengal stationed at Siliguri - 2 sub-units in West Bengal**

Items required at each unit -

1) Arc View 2 nos
2) ERDAS 1 no
3) Light tracing table 1
4) A1 Colour Plotter 1
5) A4 BW Laser Printer 1
6) Computers total 4 nos (1 with 4 GB RAM, rest of 2 GB RAM)
7) A0 Colour Scanner 1 (or may be outsourced if available)
8) Server for LAN connectivity and Internet in few computers
9) GPS handset and GPS Data download and conversion facility

The GIS Lab for Wildlife has a small setup in Bikash Bhawan, Salt Lake, and Kolkata; hence required adjustments in procurement have to be made. Later this unit may be integrated into the main GIS Centre at Aranya Bhawan so as to effectively use the resources.

- **C: Internet and GPS data down load and GIS viewing facility at Division level (at all DFO Offices), at present the 31 territorial Division Offices have been considered**

1) Computer total 2 nos with 1 large screen (at least 1 with 4GB RAM)
2) A4 Colour Laser Printer 1
3) A3 Colour Scanner 1
4) Internet connectivity in 2 computers
5) GPS handset 1 set

- D: Internet and GPS data collection facility at Range level

1) PDA with GPS function 1 set

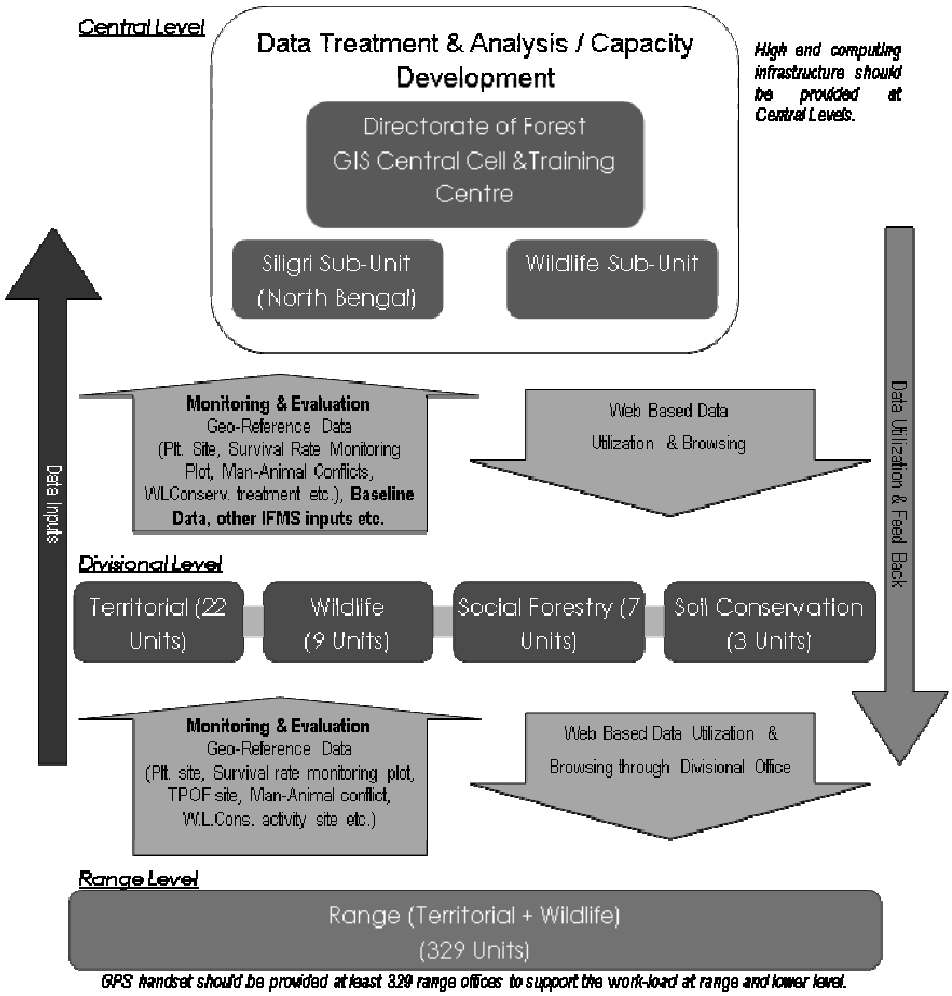


Figure 11: Image of GIS/MIS services

1.6.3.3 Provisions of Vehicles for Mobility of Officers and Staff

It has been proposed to go in for procurement of 10 vehicles and 100 motor bikes to give mobility to the inspecting/supervising officers and the frontline staff like Range Officers and Beat Officers during the project period. Most of the vehicles and motor bikes will be deployed in the field.

1.6.3.4 Miscellaneous management inputs

The project recommends one post of Addl. PCCF and 2 posts of CCFs. For smooth implementation of the Project, incremental organizational staff will be required during the Project on contractual basis.

- Creation of posts of Addl. PCCF and CCF to man the posts of the Project Director.
- 200 personnel in skilled staff in DMU to be located in Divisional and Range units. They will be recruited on contractual basis from 2nd year to 7th year of the Project period.
- 100 personnel in semi-skilled staff in DMU to be located in Divisional and Range units. They will be recruited on contractual basis from 2nd year to 7th year of the Project period.

- 4 personnel in skilled staff in PMU. They will be recruited on contractual basis from 1st year to 8th year of the Project period.
- 2 personnel in semi-skilled staff in PMU. They will be recruited on contractual basis from 1st year to 8th year of the Project period.
- 120 personnel as forest extension workers to assist territorial DFOs for the preparation of TPOFA related activities basically.
- Necessary Management Cost for PMU shall be kept.

1.6.3.5 Forestry Research Activities

Forestry research in West Bengal focuses on standardization of nursery techniques, plantation management techniques through appropriate tending and a thinning regime, production of quality planting material, introduction of new species / varieties both in raising plantations in recorded forest areas and non-forest areas. These all have the singular objective of enhancing the productivity of forests.

The research wing is also in charge of maintenance of preservation plots and linear sample plots under the guidance of ICFRE (Indian Council of Forestry Research & Education) and also participates in co-coordinated research program in collaboration with IFP (Institute of Forest Productivity) located at Ranchi.

The research wing carries out tree improvement program through selection / maintenance of candidate plus trees, seed stands and supply of certified seeds, QPM in the form of seedlings and ramets[5]. 21 species of broadleaved / conifers have been covered under seed tree program and in recent years seed stands of four species have been added.

During the project it is intended to carry forward such activities through the project and expanded in specified areas to meet the requirements of different project components. Activities proposed are: 1) Tree Breeding Research and 2) Field Research on Nursery Technique.

Detailed TOR of these researches shall be developed by PMU during the preparation stage of the Project immediately.

1.6.3.5.1 Forest Tree Breeding Research

Forest Tree Breeding Research including expansion of seed certification procedure, establishment of candidate plus trees, seed stands, seed orchards and clonal trials will be implemented. Selection of new seed trees and stands will focus on species proposed under different models of plantations.

Objective: Enhancing the forest productive through improvement of forest tree species.

Output of Survey: Plus Trees holding superior characteristics on growth, wood quality, tolerance, and/or adaptability are selected on five species under mentioned.

Table 25: Five Species for Forest Tree Breeding Research

Species	Brief Description of the Species
1. *Casuarina equisetifolia*	Exotic species from Australia adopted and introduced mainly on sandy soils of coastal area. Excellent firewood and soil improvement, NTFP (the bark extract is used in local medicine to treat chronic diaorrhea and dysentery. Fresh leaf decoction is used to treat colic pain, dried leaves as fuel).

[5] A single cloned organism such as one produced by tissue culture

Species	Brief Description of the Species
2. *Acacia auriculiformis*	Excellent firewood and soil improvement. Fast growing.
3. *Pterocarpus marsupium*	Indian Kino Tree, Medicinal Plant. The leaves, bark and gum is used for curing a number of ailments. Because of its medicinal properties, the plant species is cultivated for commercial purpose in many parts of the world.
4. *Eucalyptus tereticornis*	Excellent firewood and soil improvement. Fast growing.
5. *Melina arborea*	Fast growing and good quality wood for constructions, furniture, musical instruments and artificial limbs, etc.

Contents of Survey:

i. Selection of Candidate Plus Trees
ii. Trial of identified clones
iii. Trial of F1 generation in multi-location
iv. Trial of F2 generation in multi-location
v. Trial of F3 generation in multi-location
vi. Identification of seed production area
vii. Evaluation of seed production area

Implementation period: from 1st year to 8th year.

1.6.3.5.2 Field Research in Nursery

Objective:

- Field research on nursery techniques, spacing of plantation species, multi locational trials for species including rooting trials.

Output of Survey:

- Nursery protocols on 10 species are developed
- Plantation model protocols on 10 species are developed

Contents of Survey:

i. Experiments of germination
ii. Rooting of cuttings
iii. Pest and disease control
iv. Soil
v. Potting mixture, container size

Implementation period: 1st year to 8th year

Annex 1

List of Afforestation Activities (Model-Wise)

Afforestation Model		Objective (specially pointed out from various functions of forest)	Target Figure (ha)	Forest Division	Cost (Rs/ha) (Base Cost; Adv. & Creation Works)			Density (/ha)	Species	Thinning (year)	Harvest-ing (year)	Method of regeneration	Seedl-ing	Characteristic of planting area (wet/dry, soil nutrient, etc)	Benefit for dwellers etc	Target survival rate (1st-yr/3rd-yr/5th-yr)
					Labour	Material	Total									
A	**Afforestation of Degraded Forest Land in Recorded Forest Area**															
A1	Planting with High Yielding Eucalyptus clones in South West Bengal	Production of industrial pulpwood Soil conservation Water conservation and water table recharging	450	8 Forest Divisions: Medinipur, Kharagpur, Rupnarayan, Panchet, Bankura N., Bankura S., Burdwan, Durgapur	26,400	4,700	31,100	1,600	High yielding Hybrid clones of Eucalyptus		7	Re-plantation	QPM	Red lateritic soil, deep reddish-yellow loamy to clayey soil low in organic matter and available minerals. Hot dry summer, moderate winter, rainfall-900 to 1500mm spread over 150 to 180 days. Where soil condition is not favourable for any other tree species except eucalyptus shall be selected preferentially for this model	Revenue from sales of timber	90/85/80
A2	Plantation of Sal & Associate Species in South West Bengal	Production of mining timber like Poles, Posts, Cogging sleepers and production of timber, small timber, firewood and NTFPs like Myrobalans , Nuts, and other edibles Restoration of Biodiversity through plantation of indigenous species	3,430	12 Forest Divisions;: Medinipur, Rupnarayan, Kharagpur, Jhargram, Panchet, Bankura N., Bankura S., Burdwan, Durgapur, Purulia, Kangsawati N., Kangsawati S.	47,280	18,640	65,920	1,600	*Shorea robusta* (50%) with associates like *Pterocarpus marsupium, Ougeinia oojeinensis Dalbergia latifolia, Symplocos racemosa, Madhuka latifolia, Terminalia bellerica,T. chebula, Anogeissus latifolia, Schleichera oleosa*, etc	5/15/35	50-60	Re-plantation	QPM	Red lateritic soil- deep reddish-yellow loamy to clayey soil together with Alluvium of Damodar, Kangsawati, Ajoy, Rupnarayan rivers. Well drained, low in organic matter and also in K and P. Hot dry summer, moderate winter, rainfall- 900 to 1500 mm spread over 150 to 180 days	Revenue from sales of timber, Sal leaves and other NTFP from misc. spp.	90/85/75
A3	Quick growing & small timber spp. plantation in South West Bengal	Production of pulpwood, small wood, firewood and some NTFPs Restoration of Biodiversity through plantation of indigenous species	6,000	13 Forest Divisions: Medinipur, Rupnarayan, Kharagpur, Jhargram, Panchet, Bankura N., Bankura S., Burdwan, Durgapur, Purulia, Kangsawati N., Kangsawati S., Birbhum	26,400	5,300	31,700	1,600	*Acacia auriculiformis, Eucalyptus tereticornis, Terminalia arjuna, T. bellerica, T. chebula, Anogeissus latifolia, Sapindus laurifolius, Schleichera oleosa, Azadirachta indica, Phyllanthus emblica, Madhuka latifolia, Pterocarpus marsupium* etc.		12	Re-plantation	QPM	Red lateritic soil- deep reddish-yellow loamy to clayey soil together with Gneiss gravely soil- undulating topography with low soil depth, poor capacity for rain water retention, prone to severe soil erosion. Hot dry summer, moderate winter, rainfall-900 to 1500 mm spread over 150 to 180 days	Revenue from sales of timber, firewood. NTFP	85/80/75

Afforestation Model		Objective (specially pointed out from various functions of forest)	Target Figure (ha)	Forest Division	Cost (Rs/ha) (Base Cost; Adv. & Creation Works)			Density (/ha)	Species	Thinning (year)	Harvest-ing (year)	Method of regeneration	Seedl-ing	Characteristic of planting area (wet/dry, soil nutrient, etc)	Benefit for dwellers etc	Target survival rate (1st-yr/3rd-yr/5th-yr)
					Labour	Material	Total									
A4	Enrichment of Degraded forests of South West Bengal	Restoration of Biodiversity Production of poles, posts, cogging sleepers to meet the demand of coal mining companies in the public sector and production of small timber and firewood for local communities	7,500	13 Forest Divisions: Medinipur, Rupnarayan, Kharagpur, Jhargram, Panchet, Bankura N., Bankura S., Burdwan, Durgapur, Purulia, Kangsawati N., Kangsawati S., Birbhum	4,680	2,220	6,900	-	*Shorea robusta*	7	15-20	Coppice	-	Red lateritic soil- deep reddish-yellow loamy to clayey soil and Alluvium of Damodar, Kangsawati, Ajoy, Rupnarayan rivers together with Gneiss gravelly soil- undulating topography with low soil depth, poor capacity for rain water retention, prone to severe soil erosion	Revenue from sales of timber, NTFP (Sal leaves), extracted shoots from MSC.	
A5	Misc Plantation in North Bengal	Restoration of Biodiversity Production of Industrial wood for meeting the requirements of wood based industries like plywood, veneering, saw mills and also to meet the demand of timber for construction. Smallwood, poles and firewood production will also be augmented Prevention of landslides in hills and control of floods	1,050	8 Forest Divisions: Kurseong, Darjeeling, Baikunthapur, Jalpaiguri, Wildlife-III, BTR East, BTR West, Malda,	29,760	5,180	34,940	1,600	*Schima wallichii, Michelia champaca, Amoora wallichii, Gmelina arborea, Cedrela toona, Terminalia tomentosa, T. myriocarpa, Chukrassia tabularis, Kaigelia pinnata, Cinnamomum cecidodaphne* etc. Sites prone to water logging may be planted with *Bischofia javanica, Terminalia arjuna* etc.	5/15/25 /35	50-60	Re-plantation	QPM	Alluvial plains of Teesta, Torsha, Mahananda. Deep to moderate alluvial deposit of course to fine loamy texture with problems of water logging and Terai soil of the Himalayan foot hills having moderately deep alluvium deposit, faces severe flood hazards	Revenue from sales of timber, NTFP from misc. spp.	85/80/75

Afforestation Model		Objective (specially pointed out from various functions of forest)	Target Figure (ha)	Forest Division	Cost (Rs/ha) (Base Cost; Adv. & Creation Works)			Density (/ha)	Species	Thinning (year)	Harvest-ing (year)	Method of regeneration	Seedl-ing	Characteristic of planting area (wet/dry, soil nutrient, etc)	Benefit for dwellers etc	Target survival rate (1st-yr/3rd-yr/5th-yr)
					Labour	Material	Total									
A6	Sal & Associate Plantation in North Bengal	Production of quality construction timber by using endemic species like Sal (*Shorea robusta*) mainly and other associates like Pakasaj (*Terminalia crenulata*), Panisaj (*Terminalia myriocarpa*) etc. and mixed hard wood timber for plywood / saw mills and veneering industries. This will also augment production of small timber, poles, posts and firewood. Restoration of Biodiversity through plantation of indigenous species	540	7 Forest Divisions: Darjeeling, Kurseong, Baikunthapur, Jalpaiguri, Wildlife-III, BTR East, BTR West	30,240	5,300	35,540	1,600	*Shore robusta* (50%) with associates like *Schima wallichii Symplocos racemosa, Chukrassia tabularis, Cedrela toona, Gmelina arborea, Amoora rohituka, Amoora wallichii, Terminalia myriocarpa, Terminalia crenulata,* etc	5/15/25 /35	50-60	Re-plantation	QPM	Miscellaneous Working Circle under the working plan prescriptions	Revenue from sales of timber, Sal leaves and other NTFP from misc. spp.	85/80/75
B	**Social Forestry in non recorded forest area**															
B1	Strip Plantation	Increasing green cover through tree farming in land outside forests. Under the Project, the land owned by government or communities shall be targeted for the plantation area. Individual land, however, is out of the target	1,400	13 Forest Divisions: Kharagpur, Nadia-Murshidabad, Howrah, Birbhum, Purulia Extn Forestry Div., 24Parganas S, 24 Parganas N., Raigunj, Malda, Siliguri SF Division, Jalpaiguri SF Division, Cooch Bihar, Durgapur	58,680	5,320	64,000	1,600	(South)*Eucalyptus tereticornis, Acacia auriculiformis, Dalbergia sissoo, Cassia siamea, Terminalia arjuna*, etc. (North) *Chukrassia tabularis, Albizzia lebbek, Anthocephalus cadamba, Dalbergia sissoo, Cassia siamea* etc. (Central) *Eucalyptus tereticornis, Dalbergia sissoo, Cassia siamea, Anthocephalus cadamba, Cassia fistula* etc.	5	15-20	Re-plantation	Field nursery	Area will be selected by considering location of land, land availability and flexibility of Forest Department. These non forest lands shall be community or governmental land and private land is out of scope.	Revenue from sales of timber. Collect grass, fuel, fodder from the plantation including produce obtained through mechanical thinning	80/70/65
B2	Block Plantation		1,400	12 Forest Divisions: Kharagpur, Birbhum, Nadia-Murshidabad, Purulia Extn Forestry Div., 24 Parganas N., Raigunj, Malda, Cooch Bihar, Siliguri SF Division, Jalpaiguri SF, 24Parganas S, Howrah	50,040	5,320	55,360	1,600				Re-plantation	Field nursery			80/75/70
Total			21,770	31												

Annex 2

List of Biodiversity Conservation Activities

Zone	District	Division	Number of EDC	Habitat Improvement						Man-Animal Conflict Mitigation							Research
				Grassland Recreation & Fodder Tree Planting		Bamboo under-planting		Fodder Tree Planting after Removal of Maling Bamboo		Elephant (Gaur) in N & SW			Leopard	Tiger		Smaller Animals	
				200 ha in 3 PAs in North	EDC	60 ha in 1WS in North	EDC	75 ha 3PAs in Hills	EDC	Electric Fencing 70km North & South West	Mobile Squad & Driving-off North	Elephant Squad & Driving-off South West	North	Nylon Net Fencing 36km Estuary	Mobile Squad Estuary	Central Bengal	
NBH	Darjeeling	Wildlife-I	10			Mahananda WS	6	Singhalila NP (15 ha) Senchal WS (45 ha)	4	X	Vehicle SL, OI		X				
NBH NBP	Jalpaiguri, Darjeeling	Wildlife-II	6	Gorumara NP (40 ha)	6			Neora Valley NP (15 ha)		X	Vehicle SL, OI		X				
NBP	Jalpaiguri	Wildlife-III	11	Jaldapara WS (60 ha)	11					X	Vehicle SL, OI		X				
NBP	Jalpaiguri	Buxa Tiger Reserve (W)	15	Buxa Tiger Reserve (in total 100 ha)	15					X	SL, OI		X				
NBP	Jalpaiguri	Buxa Tiger Reserve (E)	8		8					X	SL, OI		X				
SW	Purba Medinipur	Rupnarayan										SL, OI					
SW	Purba Medinipur	Kharagpur										SL, OI					
SW	Purba Medinipur	Jhargram										SL, OI					
SW	Bankura	Bankura (N)										SL, OI					
SW	Purulia	Purulia										SL, OI					
SC	Kolkata	Kolkata HQs														X	
SC	Howrah, Hooghly	Howrah														X	
SC	Nadia	Nadia-Murshidabad														X	
SC	Burdwan	Burdwan														X	
E	24-Parganas (N)	24-Parganas (N)														X	
E	24-Parganas (S)	24-Parganas (S)												X	X		
E	24-Parganas (S), (N)	Sundarban Tiger Reserve													X		
TOTAL			50		40		6		4								

NBH: North Bengal Hills
NBP: North Bengal Plains
SC: South Central
SW: South Western
E: Estuarine

SL: Skilled Labour for Driving
OI: Other Items

Annex 3

Research Projects

Sr	Survey Area	Purpose of Survey	Utility of the Outcome	Timing of Commencement & Required Duration	Estimated cost Rs. in million
1	Inventory and status survey for butterflies in the North Bengal	Butterflies are the one of the most important animals in West Bengal. Being small animals, not much attention is paid to these animals by the staff. Yet there is high international demand for butterfly specimens. Consequently, national and international poachers have often been found involved in the illegal collection of this micro fauna. The poachers invariably took advantage of the fact that most of these butterflies were not mentioned in the Schedules of the Wildlife (Protection) Act, 1972. Although these species are now covered under the Biological Diversity Act, 2002, yet the awareness of the staff is very little on this subject. This makes the task of the poachers much easier. The proposed study will therefore cover the following aspects: 1. Status survey of the butterflies in North Bengal. 2. Develop awareness among the staff and people. 3. Create a database for revising the wildlife schedules. The status survey will include identification of existing butterflies in the North Bengal for creating inventory. The inventory so created through this study will include compilation of the book "Butterflies of North Bengal-Past and Present Distribution and Status". The compilation shall include conservation value of the butterflies. A concise translation of this book will be provided to the staff in local language for their awareness and use in the field. The study would also cover the changes occurring in the population of butterflies and habitat preferences.	This study will generate general awareness among the staff and the people about the presence of the butterflies and their ecological importance. The study will create a base of existing butterfly resources in North Bengal. The continuation of the study will give information about the population dynamics of the butterfly fauna and will thus form a base for suitable measures to be taken for the conservation of this animal. This study will equip the staff with reference material in dealing with cases of illegal butterfly collection and will thus reduce or stop the illegal collection of butterfly fauna from the region. The survey will also be utilized to replenish the lost/and decreased butterfly population in nature.	3 years	3.5

Sr	Survey Area	Purpose of Survey	Utility of the Outcome	Timing of Commencement & Required Duration	Estimated cost Rs. in million
2	Status survey (population, distribution and habitat) of gaur and leopard in North Bengal foot hills	The population of gaur has been increasing in North Bengal at an alarming rate. The animal, which was rarely seen inside the forest a couple of decade back, is often encountered out of the forest areas throughout the foot hills of North Bengal from Kurseong Division in the Western Duars to the Buxa Tiger Reserve in the Eastern Duars. The study is proposed to cover the population dynamics and habitat preference of gaurs. The leopard is an animal of open forests. Tea Gardens of North Bengal in the fringe of forests, due to proper drainage, bushy vegetation, and open area for clear visibility, provide ideal breeding ground for this animal. This animal avoids conflict with man in general. But the approach of the Garden labours during silent picking of leaves often surprise the leopardess, busy in feeding the babies. The scared mother, in order to defend the cubs, sometimes pounces upon to attack the unwary labours and gets killed in the process. The babies if found are then handed over to the forest staff. At present there is little study on the habits and habitat of this animal in North Bengal. The study is proposed to cover the survey of leopards and identification of their preferred habitats.	The study of gaur will indicate the population dynamics and the straying pattern. The study will give information about the carrying capacity of forests for sustenance of the existing population of gaurs. Thus this study will help in taking measures through management initiatives for maintaining sustainable population of gaurs in the forest. The study on leopards will help in surveying the population dynamics of the animal and identification of preferred habitats and the reasons for choosing such habitat. The study will help in creating inviolate areas in and around forests on the basis of such studies and will thus help in reducing the man-leopard conflict.	4 years	3.0

Sr	Survey Area	Purpose of Survey	Utility of the Outcome	Timing of Commencement & Required Duration	Estimated cost Rs. in million
3	Population dynamics, actual niche, distribution, and seasonal variability (including DNA fingerprinting and gene mapping) of tigers in North Bengal	The tiger is the Apex species in the food chain. Survival of tiger is the indicator of the survival of all the flora and fauna in the food web. Unrestricted hunting of the tiger and its prey animals in the past has resulted in the reduction of the tiger population to the extent of extermination. The reduction of tiger habitat is also responsible for such reduction. To ensure survival of the tiger species, it is essential to study the population dynamics, actual niche of the tiger, its distribution, and seasonal variability in its distribution. A lot of studies have been conducted by the biologists on the tiger population dynamics, and its behaviour in the field. The population of tigers has always been the subject of controversy. Various methods have been experimented. The time tested method of pug mark tracking, which was used by the hunters in the past in identifying individual man-eating tigers, has always been questioned when applied for tiger census. Camera trapping method got restricted to confirm the presence of tiger at particular spots. The latest comprehensive method used by the Wildlife Institute of India, which in addition to above methods, was based on the combination of prey base, sighting, movement pattern and the outcome of the radio collaring studies, has also been questioned. In the meantime, studies based on Radio Collaring were conducted in Sundarban and Buxa Tiger Reserves. While the studies of Sundarban was inconclusive, the analysis has provided vital information on the minimum population of tigers in Buxa, where many biologists thought this species extinct. The study needs further exploration for a comprehensive study of tigers. Therefore, DNA finger printing study will be taken up in the forests of North Bengal with special emphasis in the areas of Neora Valley National Park and Mahananda and Jaldapara Wildlife Sanctuaries.	There is little information of tigers in North Bengal. The tiger in this area has not even been photographed for more than half century. Many biologists ruled out the possibility of the presence of tiger in this area. Some even suggested to de-reserve the Tiger Reserve. Only after the results obtained from DNA fingerprinting, the critics could be silenced. However, the results, do not give any information other than the presence of a few tigers. This study will result in the identification of individual tigers, habitat preference, their interrelationship, population dynamics, population distribution pattern and minimum population of the tigers in the forests. The information obtained from this study will form the base for future management of tigers and their habitats.	4 years	4.0

Sr	Survey Area	Purpose of Survey	Utility of the Outcome	Timing of Commencement & Required Duration	Estimated cost Rs. in million
4	Impact of canopy manipulation and grassland restoration on habitat utilization pattern & carrying capacity of herbivores in Jaldapara, Gorumara and Mahananda Wildlife Sanctuaries	Every year during rains, meandering rivers of North Bengal bring boulders, sands and other river bed materials from the hills. In the hills, the speeding flow of water carries this material along. But the moment the river reaches in the plains, the speed slows down drastically and the material gets deposited in the river bed. This forces the rivers to change course. Grasslands are automatically created in these the old courses abandoned by the rivers. With time, the forests were cleared for human habitation and embankments were created to streamline the flow of these rivers. This stopped creation of natural grasslands. Moreover, with commercialization of forests, the grasslands were converted into tree forests. Consequently, with the reduction in grassland coverage, wild buffalo, swamp deer and various other animals got extinct from the forests. The population of Indian rhino and gaurs also reduced drastically. For the last few decades, through management intervention, new grasslands were created and with protection measures, there was a substantial increase in the population of existing animals. The population has swelled to an extent that the rhinos and gaurs have started exploring new areas as habitats in spite of increasing grass cover. The proposed study will concentrate on the utilization of habitat and habitat preference of different animals. The study will also focus on the impact of creation of grasslands on the carrying capacity of the habitat.	Grasslands are being created in the Protected Areas of North Bengal through human intervention. While this step has created positive impact on the ungulate population, there is lack of scientific planning on the need of grassland coverage. The study will result in finding out the impact of creation grasslands on the animal habitat. The study will help in finding out the needs for creating or stop creating the grasslands, their impact on the existing forests in regards to biodiversity conservation. This study may become a bench mark for future management plans.	5 years	4.0

Sr	Survey Area	Purpose of Survey	Utility of the Outcome	Timing of Commencement & Required Duration	Estimated cost Rs. in million
5	Population dynamics, movement pattern and habitat utilization of elephants in North Bengal and South West Bengal	North Bengal plains were thick forests more than a century ago. Those days, there were only a few human habitations. The elephants used to roam freely in these forests without any hindrance. First, forests were cleared for Tea Gardens. With this started human-elephant conflict. With time, the elephants adjusted and explored new movement routes. Then came railway line, followed by more human habitations, road network, military cantonment, and barrage. The elephants could not cope up with this loss of habitat because this affected the natural habit of elephants to move from one place to other place. Thick forests in North Bengal still exists, The need of the time in view of existing circumstances is to streamline elephant movement through human intervention. In South West Bengal, on the other hand the elephants were virtually non-existent just a half century back. The elephants showed their presence in the forest patches in Medinipur, Purulia and Bankura, but kept away from human habitation. About two decades back, the elephants started exploring new areas. Now the elephants move through Burdwan, Birbhum and various other districts. The absence of big forest patches has forced the elephants to explore large coverage through human habitations. Thus in spite of lower elephant population, there is large scale depredation in South West Bengal. The study is proposed to cover population dynamics, habitat preference and habitat utilization pattern of elephants in North Bengal. The study will also explore the possibility of minimization of man-elephant conflict during movement of elephants outside the forest patches.	The study in North Bengal will explore the possibility of proper utilization of habitat, so the elephant movement remain confined to the selected forest patches. The study will also explore the possibility of alternative crop pattern in elephant depredation areas. The study in South West Bengal will explore the possibility of creating suitable habitat to restrict the movement in forest patches. The two studies although similar in nature are likely to different pattern of management initiatives in future.	4 years	4.0

Annex 4

Indicative List of Community Infrastructure Development

No.	Name of Infrastructure	Outline of Contents	Purpose	Required Maintenance	Indicative Unit Cost in Rs.
1	Drinking water tube well	50m cylinder tube well	water for drinking or irrigation	5% of the installation cost	50,000
2	Drinking water tube well	100m cylinder tube well	water for drinking or irrigation	5% of the installation cost	100,000
3	Drinking water tube well	200m cylinder tube well	drinking or irrigation	5% of the installation cost	200,000
4	Solar power light	Solar panel, main post, battery, CFL/LED lamp	light	10% of the installation cost	40,000
5	Culverts	Box culvert or hume pipe up to 4m span	road communication	nil	150,000
6	Culverts	Box culvert up to 10m span	road communication	nil	350,000
7	Community hall	400 sft	local meeting and functions	5% of construction cost	350,000
8	Water harvesting structure	Earthen dams, in running meter length with minimum 5m rmt	water for irrigation and local use	5% of construction cost	1,500
9	Water harvesting structure	Ponds, minimum 1000m^3	water for irrigation and local use	5% of construction cost	75,000
10	Village road construction	3m width with minimum 1km length	road communication	75,000 per year	150,000
11	Sanitary latrines	10 users	Providing sanitary facility to community	5% of construction cost	50,000

12	Ring well	minimum 15m depth including platform	drinking water	5% of construction cost	100,000
13	Irrigation channel	minimum 500 running meter length	irrigation water	5% of construction cost	350,000
14	Jetty	2 level minimum 6 running meter length	water transport communication	5% of construction cost	350,000
15	Market shed	6m x 4m	local market	5% of construction cost	200,000
16	Bus shed	with minimum 4m length and sitting arrangement	waiting shed for passengers	5% of construction cost	125,000
17	Brick path	400 running meter	road communication	5% of construction cost	350,000
18	Drainage (road side)	100m running meter	drainage	5% of construction cost	150,000
19	Watch Tower	Shed, tower	monitoring of wildlife animals	5% of construction cost	100,000

Rate are subject to variation according to field conditions.

Priority of items will be on the basis of micro-plan.

Annex 5

Tentative List of Training Program

Level	Name of Training	Outline of Contents	Duration	Quantity	Target	Institutions
Exposure Visit						
Exposure Visit	Exposure visit to other states in India for Project Personnel	Visiting Other States whether JICA Forestry Project are undertaken	2-3days	5 Tours	Project Personnel	Not Applicable
				10 Tours	JFMCs/EDCs	
Training						
Senior Level	Training in Foreign Institute	Carbon sequestration, resource survey, Climate change and adaptation, Tropical Forest Management, Clonal Plantations Management, Tissue Culture Technology and its application in forestry, Remote Sensing and GIS, Management of Wildlife Sanctuaries and Parks, Timber certification.	(10days-3week)	30 officers	DFO level & above DFO level (Up to PCCF)	Will be identified later on in consultation with the JICA authorities.
Middle and Junior level officers*	Long-term training themes	GIS-Remote sensing, Wildlife and biodiversity management	6 month	15 officers	Range Officer or DFO	1. Indian Institute of Remote Sensing, Dehradun. 2. Karnataka State Remote Sensing Application Centre, Bangalore. 3. Indian Institute of Surveying & Mapping (Forest Survey of India, Govt. of India), Hyderabad. 4. GIS Institute, Noida 5. Institute of Geo-Informatics and Remote Sensing, Kolkata. 6. Wildlife Institute of India, Dehradun
	Short term themes:	Soil and water conservation , Tropical Forest management, Wildlife biodiversity management, Nursery Development	10-15 days	15 officers	Range Officer or DFO	1. Central Soil & Water Conservation Research and Training Institute, Dehradun. 2. Soil Conservation Training Centre, Damodar

						Valley Corpn., Hajaribag. 3. Indian Institute of Soil Sciences, Bhopal 4. ICFRE, Dehradun (with their number of institutes all over the country. 5. Wildlife Institute of India, Dehradun
Range Officer Beat Officer, and other relevant frontline staff	Training for GIS	Instruction how to use PDA&GPS Outline of GIS etc Collecting and reporting data for GIS(geo-referencing)	3 days (2 days in the beginning and 1 day after a gap of six month)	500 Officer (20 officers X 25 times)	Range Officer or DFO	West Bengal Forest Department
Junior level Officers and FRs		Designing of soil conservation structures; QPM & containerized nursery management, seed technology and certification	10-15days	40 officers	Junior level Officers and FRs (Foresters and Forest Guards)	In house training at Forest Training Centre, Jhargram / Rajabhatkhawa and B.F. School. Specialized training can be organized in Forest Rangers College, Kurseong, in vernacular languages.
Frontline staff and JFMC/EDC/ SHGs	Training of frontline staff, JFMC, EDC in micro planning and PRA	micro planning and PRA	2-3 day workshop /Group	30,000 numbers (50 numbers X 600 times)	frontline staff, JFMC, EDC	NGOs at district level under the guidance of NGOs at the regional level
	Micro finance, Accounting, Capacity Building for frontline staff ,JFMC,EDC	Micro finance, Accounting, Capacity Building	1 day workshop /Group	30,000 numbers (50numbers X 600 times)	frontline staff, JFMC,EDC	NGOs at district level under the guidance of regional level
Total	**Total 60600** **Forest Officer: 600** **JFMCs/EDCs/SHGs: 600,00**					

Attachment 4

Terms of Reference for Consulting Services

[DRAFT]

1. Objectives

The objective of the consulting services is to assist the Project Management Unit (PMU) in the improvement of processes and procedures for the Project implementation in the state at different levels.

2. Scope of the Consulting Services

The scope of the services of the Project consultant is as follows:

A. Project Management

The Project consultant is expected to provide services for overall management of the Project in particular, including:

a) Assist the PMU in consultation with High Powered Committee in other related work to the Project required within their responsibilities.

b) Liaison with JICA for the purpose of Project Monitoring.

c) Assist the PMU in preparation of annual action plan for the Project implementation and consolidation of Project annual work schedule.

d) Assist the PMU in supervision and providing guidance to DMUs/FMUs/JFMCs/EDCs/SHGs, resource organizations such as Vocational Training Institutions/NGOs/Micro Finance institution etc.

e) Assist the PMU in review, updating, formulation of management and technical manuals/guidelines/handbooks/modules and protocols related to the Project.

f) Assist the PMU/DMUs/FMUs in strengthening implementation mechanism for various components of the Project.

g) Assist the PMU in implementation, Operation & Maintenance, and establishing a proper monitoring and evaluation system for the Project.

h) Assist the PMU in designing participatory monitoring and evaluation methods enabling JFMCs/EDCs/SHGs in assessing their progress, tracking the impact of their actions and revising their monitoring strategies accordingly.

i) Assist the PMU in designing a list of quantitative and qualitative indicators, along with suitable methodology and tools for recording each one of them, for performance monitoring of the Project field activities consistent with the Project objectives.

j) Assist the PMU/DMUs/FMUs in preparation and development of appropriate monitoring and reporting system, management information system, including financial (budget flow) and physical achievements.

k) Assist the PMU in designing training modules and schedules for DMUs/FMUs/JFMCs/EDCs and SHGs.

l) Assist the PMU in designing overseas training programs and in making logistic arrangements.

m) Assist the PMU in undertaking periodical and mid- term evaluation and reviews.

n) Assist the PMU in preparation of reimbursement claims based on Statement of Expenditure (SoE) procurement.

B. *Project Implementation in the field level*

a) Provide assistance and guidance to DMUs/FMUs on community mobilization and development, formation of peoples' bodies like JFMCs/EDCs/SHGs and facilitate Income Generation Activities (IGA) including establishment of financial and market linkages.

b) Assist PMU in selecting specialized NGOs for Micro Finance by utilizing the results of the surveys conducted by the "Experts related to ODA loans", to be dispatched by JICA.

c) Assist PMU/DMUs in monitoring the performance of NGOs and organizations involved in the Project.

d) Provide technical assistance to PMU/DMUs/FMUs for supervision and management of the Project components such as Afforestation, Biodiversity Conservation and Community Development Activities etc.

C. *National and International training/workshops/exposure programmes*

a) Provide guidance and suggestion on training programmes, training organizations/suitable destination/institutes/persons for the capacity building of WBFD, NGOs and JFMCs/EDCs

3. Expertise Required

Expected total man-month (M/M) input is: 42 M/M of international consultants, 121 M/M of local consultants and 166 M/M of supporting staff over the Project period from the beginning of the Project implementation. The following professionals should be included in the consultant team:

Required Experts and Man-Months

Experts	**MM**
International	
1. Team Leader / Forestry Specialist	28
2. Biodiversity Conservation Specialist	14
Sub Total	**42**
Local	
1. Community Development and SHG Supporting Expert	36
2. Tree Plantation Outside Forest Facilitator	18
3. Monitoring & Evaluation Expert	24
4. Capacity Building Expert	18
5. GIS and MIS Expert	25
Sub Total	**121**
Supporting Staff	
1. Office Manager	59
2. Accountant	27
3. Computer operator	21
4. Driver	33
5. Utility Man	26
Sub Total	**166**
Grand Total	**329**

4. Scope of Work of Specialists

International Consultants

1 Team Leader and Forestry Specialist (International)

1.1 Take overall responsibility in providing consultancy services to the Project in line with Minutes of Discussion of the Project and the Final Report of Preparatory Survey Report on West Bengal Integrated Forestry Development and Biodiversity Conservation Project.

1.2 Undertake responsibilities for preparation of work schedule for the consulting services, preparation and updation of detailed plan of operation for the consulting services, human resources management, accounting and general affairs of the consultant team.

1.3 Supervise activities of all experts in the consultant team.

1.4 Bring to the notice of PMU, the international standards in all kinds of activities.

1.5 Prepare annual action plan for Project implementation as required by PMU.

1.6 Assist PMU in analyzing, and recommending improvement of relevant policies of the state government based on the results of Project activities and international trend.

1.7 Assist PMU in formulating the various guidelines, manuals and handbooks.

1.8 Assist PMU in monitoring progress of the Project and preparation of progress reports including monitoring sheet for Micro Planning and Forest Dwellers Development Plan and documents required by WBFD and JICA.

1.9 Assist PMU in organizing oversees training including short listing of training institutions, finalization of programs and facilitating visits.

1.10 Assist PMU in organizing exposure visit to other states where the past JICA forestry Projects have been undertaken in order to share lessons learnt from the past experience.

1.11 Assist PMU in holding the workshop and seminar for NGOs hired for the Project in order to enhance their technical capacity.

1.12 Assist PMU in building inter-sector cooperation and convergence with other governmental agencies.

1.13 Assist PMU in enhancing Public Relations activities for the Project and dissemination of WBFD work at both national and international levels.

1.14 Assist PMU and DMUs in procuring and supervising the various resource organizations including NGOs, contractors for baseline survey, construction contractors and other contractors that may be needed for the Project.

2 Biodiversity Conservation

2.1 Prepare annual action plan for Project implementation as required by PMU.

2.2 Assist PMU in reviewing and revising Management Plans of Protected Area where Project activities are undertaken and provide guidance as per international standard if required.

2.3 Assist PMU in preparing (if necessary), implementing and monitoring output of research activities on Biodiversity Conservation.

2.4 Assist PMU in collecting information on policy and measurements related to Biodiversity Conservation in neighboring states and nations, if required.

2.5 Assist PMU in monitoring the work of Biodiversity Conservation for ensuring quality outputs.

2.6 Assist PMU in compiling outputs of resource organizations such as Vocational Training Institutions/NGOs/Micro Finance Institution etc.

2.7 Assist PMU in implementing Project interventions related to Biodiversity Conservation.

2.8 Assist Team Leader in his/her work relating to Biodiversity Conservation.

Local Consultants

3 Community Development and SHG Supporting Experts

3.1 Assist PMU in preparing, reviewing and updating the guidelines designed for JFMs/EDCs/SHGs.

3.2 Assist PMU in developing guidelines for preparation of business plan for SHGs.

3.3 To assist PMU in formulation of selection criteria of suitable Extension Workers for JFMCs/EDCs.

3.4 Assist DMUs/FMUs and NGOs in preparing Micro Plan and Forest Dwellers Development Plans required for the Project for each JFMC/EDC in line with "JICA Guidelines for Environmental and Social Considerations" dated April 2010.

3.5 Assist PMU/DMUs/FMUs in holding workshops/seminars to be held at each level.

3.6 Make suggestion to PMU and DMUs on coordinating with NGOs in mobilization of JFMCs/EDCs/SHGs, in preparation of village Micro Plan and undertaking Community Development activities in selected villages.

3.7 Suggest on the basis of baseline survey and other related researches and studies including the socio-economic conditions of the local people, their dependence on limited natural resource available locally, the IGA which can be taken up on a sustainable basis.

3.8 In collaboration with Capacity Building Expert, assist PMU/DMUs/FMUs in preparation of capacity building programs such as technical training, accounting, marketing, and recording for JFMCs/EDCs/SHGs.

3.9 In collaboration with Capacity Building Expert, assist PMU in monitoring and evaluating the impact of capacity building of JFMCs/EDCs/SHGs.

3.10 Participate in training of Project staff and communities as a resource person.

3.11 Assist PMU in identification and procurement of Vocational Training Institutions/NGOs/Micro Finance Institution for IGA preparation.

3.12 Assist PMU/DMUs/FMUs in reviewing and appraising business plan prepared for SHG's IGA envisaged to be taken up under the Project.

3.13 Guide NGOs working with DMUs in constituting SHGs, to take up IGA and building market linkages.

3.14 Assist PMU/DMUs/FMUs in building inter-sector cooperation and convergence with other governmental agencies such as Rural Development Department, Animal Husbandry Department etc, for enhancing and scaling up of SHG activities.

3.15 Assist PMU/DMUs/FMUs in monitoring the SHGs activities to ensure understanding, appropriate mechanism and sustainability of activities.

3.16 Assist PMU and DMUs in monitoring the works of NGOs for SHGs supporting activities.

3.17 Assist the Team Leader in his/her work relating Community Development and IGA.

4 Tree Plantation Outside Forest (TPOF) Facilitator

4.1 Assist PMU in preparation and review of manual and guidelines, if any, for TPOF implementation.

4.2 Assist PMU and DMUs in facilitating community consultation, formulating Beneficiary Committee and planning for TPOF implementation.

4.3 Assist PMU/DMUs in monitoring TPOF activities.

4.4 Assist the Team Leader in his/her work relating to TPOF.

5 Capacity Building Expert

5.1 Assist PMU in preparation of overall and annual training programmes for PMU/DMUs/JFMCs/EDCs/SHGs and the concerned staff of division/range offices.

5.2 Assist and advise PMU and the concerned staff of DMU/FMU in preparing plan for overseas training program.

5.3 Assist PMU in deciding the programmes and selection of resource persons for training of Project staff and communities and also make suggestions as a resource person.

5.4 In collaboration with Community Development and SHG Supporting Expert, prepare overall and annual training programmes for JFMCs/EDCs/SHGs.

5.5 Assist PMU in organizing oversees training including short listing of training institutions.

5.6 Assist and advise PMU in facilitating arrangement and implementation of the training programmes for PMU and the concerned staff of division/range offices.

5.7 In collaboration with Community Development and SHG Supporting Expert, assist PMU in selecting /hiring the resource organization such as Vocational Training Institutions/NGOs/Micro Finance Institution etc.

5.8 In collaboration with Community Development and SHG Supporting Expert, assist PMU and the concerned DMUs in supervising performance of the resource organizations such as Vocational Training Institutions/NGOs/Micro Finance Institution etc.

5.9 In collaboration with Community Development and SHG Supporting Expert, assist PMU in monitoring and evaluating capacity building programs of JFMCs/EDCs/SHGs.

5.10 Assist the Team Leader in his/her work relating to Capacity Building.

6 Monitoring & Evaluation (M&E) Expert

6.1 Assist PMU in designing, reviewing, and devising a list of Project performance indicators for monitoring and evaluation and developing methodologies for evaluation of each indicator.

6.2 Assist PMU in preparing guidelines and manuals for M&E.

6.3 Assist PMU in monitoring and evaluating the progress and outputs of Project activities including baseline, mid-term surveys.

6.4 Participate in training of Project staff and make suggestions as a resource person.

6.5 Assist PMU in enhancing Public Relations activities and dissemination of WBFD work experience not only locally in the country but also internationally, in particular, relating to establishment of the M&E mechanism of Forestry Projects.

6.6 Assist the Team Leader in his/her work relating to M&E.

7 Geographical Information System and Management Information System Expert

7.1 Assist PMU in designing, planning and establishment of upgraded GIS cell.

7.2 Assist PMU in designing, planning and establishment of MIS.

7.3 Assist PMU in procuring necessary accessories for upgraded GIS cell and development of MIS.

7.4 Assist PMU and related field implementing offices such as DMUs/FMUs for ground surveying, preparation of data collection and data input in GIS and MIS.

7.5 Assist PMU in operation of the upgraded GIS cell and MIS, and give necessary guidance to PMU and relevant field implementing offices of WBFD such as geo-referencing.

7.6 Assist PMU in monitoring and give necessary guidance to PMU and DMUs in utilizing the Project database in GIS and MIS.

7.7 Assist PMU in preparation of training program for the purpose of explaining usage of GPS etc, for DMUs/FMUs

7.8 Assist the Team Leader in his/her work relating to GIS/MIS.

Consultant Man-month Schedule

		Position	BillingRate F/C Yen	BillingRate LC/ Rs	2012 4	5	6	7	8	9	10	11	12	1	2	3	2013 4	5	6	7	8	9	10	11	12	1	2	3	2014 4	5	6	7	8	9	10	11	12	1	2	3	2015 4	5	6	7	8	9	10	11	12	1	2	3
A	1	Team Leader/ Afforestation Specialist (International)	2591000	0										1	1	1	1	1					1	1	1	1	1	1	1	1	1						1	1	1									1	1			
A	2	Biodiversity Conservation (International)	2591000	0										1	1	1	1	1											1	1											1	1											
B	1	Community Development and SHG Supporting Expert	0	280000										1	1	1	1	1					1	1	1	1	1	1	1	1	1	1	1	1			1	1	1	1								1	1	1	1
B	2	Tree Plantation Outside Forest Facilitator	0	280000											1	1								1	1	1	1	1							1	1	1	1	1							1	1	1	1	1
B	3	Monitoring & Evaluation Expert	0	280000																	1	1	1	1	1	1	1	1					1	1	1	1	1	1	1						1	1				
B	4	Capacity Building Expert	0	280000										1	1	1	1	1	1	1	1						1	1	1	1	1							1	1	1	1	1	1									
B	5	GIS and MIS Expert	0	280000														1	1	1	1	1	1	1					1	1	1				1	1	1				1	1	1				1	1	1			
		[Total of Pro-A]			6												10											9												4											
		[Total of Pro-B]			8												35											33												20											
		[Total of Pro-A+Pro-B]			14												45											42												24											
		Total Cost of FC for Each Month(Pro-A)			1,55,46,000												2,59,10,000											2,33,19,000												1,03,64,000											
		Total Cost of FC for Each Month(Pro-B)			0												0											0												0											
		Total Cost of LC for Each Month(Pro-A)			0												0											0												0											
		Total Cost of LC for Each Month(Pro-B)			22,40,000												98,00,000											92,40,000												56,00,000											
C	1	Office Manager	0	50000										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				1	1	1	1	1	1
C	2	Accountant	0	50000										1	1	1	1	1					1	1	1	1	1	1	1	1	1							1	1										1	1
C	3	Computer operator	0	50000										1	1	1	1	1					1	1	1	1	1	1	1	1	1						1	1	1									1	1	
C	4	Driver	0	50000										1	1	1	1	1					1	1	1	1	1	1	1	1	1						1	1	1	1	1							1	1	
C	5	Utility Man	0	50000										1	1	1	1	1					1	1	1	1	1	1	1	1	1						1	1	1	1	1							1	1	
		[Total of Supporting Staff]			15												44											40												21											
		Total Cost of LC for Each Month(SS)			7,50,000												22,00,000											20,00,000												10,50,000											
		Grand Total			29												89											82												45											

		Position	BillingRate		2016												2017												2018												2019												Total
			F/C Yen	LC/Rs	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
A	1	Team Leader/ Afforestation Specialist (International)	2591000	0										1	1											1	1											1	1											1	1		28
A	2	Biodiversity Conservation (International)	2591000	0						1	1											1	1																													1	14
B	1	Community Development and SHG Supporting Expert	0	280000									1	1	1	1										1	1	1										1	1	1												1	36
B	2	Tree Plantation Outside Forest Facilitator	0	280000																																															1	18
B	3	Monitoring & Evaluation Expert	0	280000							1	1											1	1										1	1																1	24
B	4	Capacity Building Expert	0	280000																																																18
B	5	GIS and MIS Expert	0	280000	1	1	1				1	1	1																																							25
		[Total of Pro-A]			4												4												2												3												42
		[Total of Pro-B]			12												5												5												3												121
		[Total of Pro-A+Pro-B]			16												9												7												6												163
		Total Cost of FC for Each Month(Pro-A)			1,03,64,000												1,03,64,000												51,82,000												77,73,000												10,88,22,000
		Total Cost of FC for Each Month(Pro-B)			0												0												0												0												0
		Total Cost of LC for Each Month(Pro-A)			0												0												0												0												0
		Total Cost of LC for Each Month(Pro-B)			33,60,000												14,00,000												14,00,000												8,40,000												3,38,80,000
C	1	Office Manager	0	50000	1	1	1			1	1	1	1	1	1	1						1	1	1		1	1	1							1	1		1	1	1										1	1	59
C	2	Accountant	0	50000											1	1											1	1											1	1											1	1	27
C	3	Computer operator	0	50000																																															1	21
C	4	Driver	0	50000						1	1			1	1							1	1			1	1											1	1													1	33
C	5	Utility Man	0	50000							1												1																													1	26
		[Total of Supporting Staff]			17												13												9												7												166
		Total Cost of LC for Each Month(SS)			8,50,000												6,50,000												4,50,000												3,50,000												83,00,000
		Grand Total			33												22												16												13												329

Schedule for Employment of Consultant

Action	Timing	Standard Duration Required	Relevant Provision of L/A	Remarks
Issuance of EOI	Dec 2011	1.5 months (including 15 days for press)	NIL	Procurement can be started after the Prior Notification by GOJ to GOI as per OECD rules (in principle).
Submission of SL, TOR and RFP for JICA's review and concurrence	Feb 2012	0.8 months	Section 4 (1) of Schedule 4	TOR in addition to manning schedule and cost estimation should be agreed between DJB and JICA at the time of JICA's Appraisal Mission (Section 3.03 of the GL).
JICA's concurrence	Mar 2012	0.2 months		If JICA has no comments on it, its concurrence is issued in 2weeks.
Issuance of RFP to short listed firms	Mar 2012	2.5 months (1.5 months for bid period + 1 months for analysis)	NIL	At least 45 days should be provided to consulting firms to prepare their proposals (Section 3.05(3) of the GL).
Submission of result of analysis of technical proposals for JICA's review and concurrence	Jun 2012	1 month	Section 4 (2) of Schedule 4	Quality and Cost Based Selection is adopted and proportion between Quality and Cost is 80:20 (Section 3.02 of the GL).
JICA's concurrence	Jul 2012	1 month		If JICA has no comment on it, its concurrence is issued in 2 weeks.
Submission of result of evaluation of proposals of the highest-ranked consultant for JICA's review and concurrence	Aug 2012	1 month	Section 4 (3) of Schedule 4	Before initiating contract negotiations, it should be submitted.
JICA's concurrence	Sep 2012	1 month		If JICA has no comment on it, its concurrence is issued in 2weeks.
Conclusion of contract	Oct 2012	1 month	NIL	
Submission of a duly copy of contract for JICA's review and concurrence	Nov 2012	1 month	Section 4 (6) of Schedule 4	
JICA's concurrence	Dec 2012			If JICA has no comment on it, our concurrence is issued in 2weeks.
Total		**12 months** (11 months till awarding the contract)		

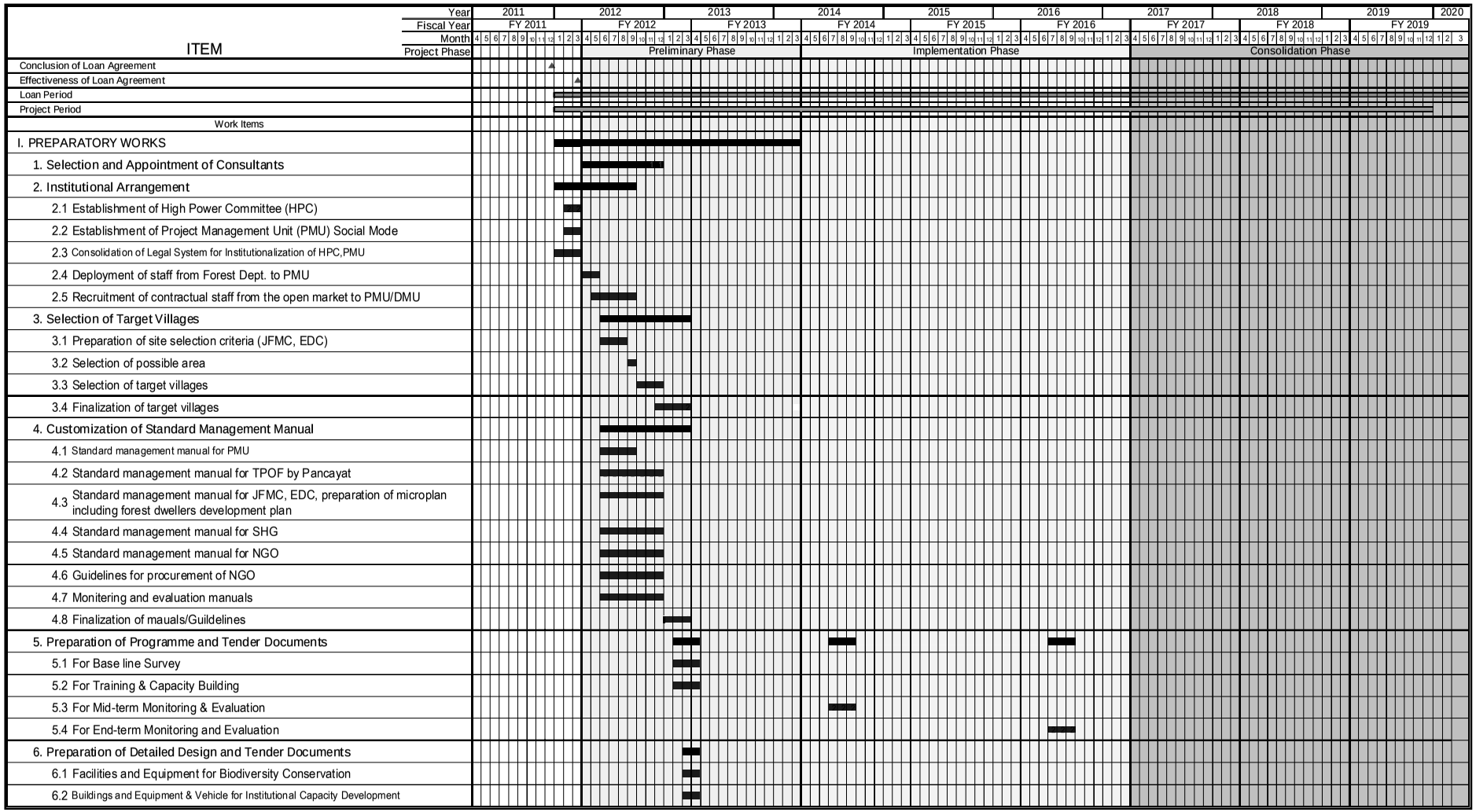
Applicable Guidelines: Guidelines for the Employment of Consultants under Japanese ODA Loans (March 2009)

Applicable Sample Bidding Document: Sample Request for Proposals under Japanese ODA Loans (September 2009)

Other Applicable Document: Guide for Evaluation Procedures for Employment of Consultants under Japanese ODA Loans (December 2006, Amended December 2009)

Attachment 5

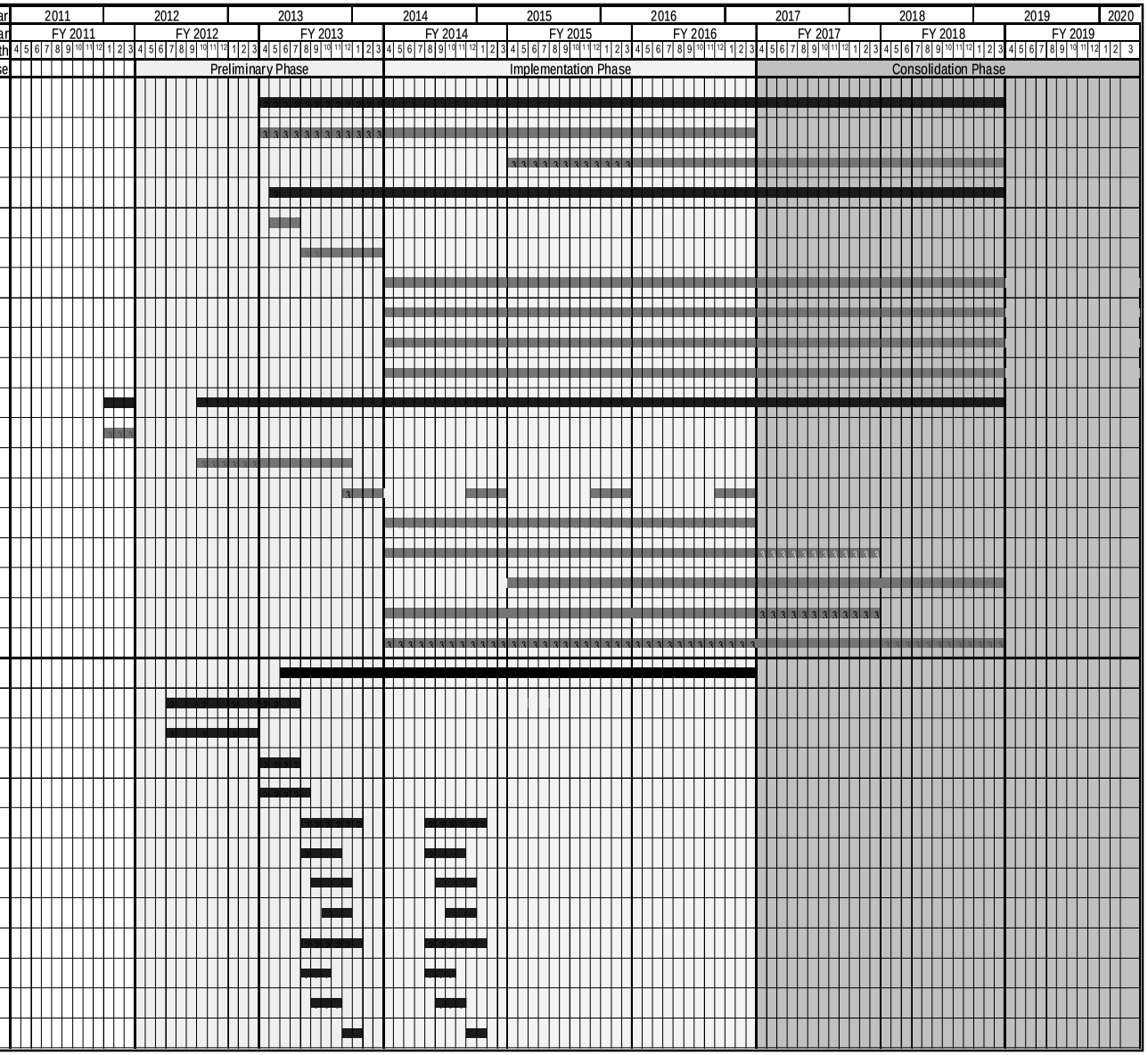
Detailed Implementation Schedule



ITEM	Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Fiscal Year	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	
	Month	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	
	Project Phase		Preliminary Phase		Implementation Phase			Consolidation Phase			
II. IMPLEMENTATION OF COMPONENTS	Component										
1. Afforestation and Allied Works	1.										
1.1 Afforestation of Degraded Forest Land	1.A										
(1) Site Demarcation, survey and mapping (JFMC)											
1) Site demarcation in the field											
2) Ground Survey and Mapping											
(2) Advance Soil Works and Creation Works											
1) Initial Cleaning											
2) Alignment & Staking											
3) Digging Pits (0.6x 0.45)/2 x 0.45 x 0.45 cu.m (1600 Nos)											
4) Pit filling											
5) Transplanting including Carriage of seedling (until 1st week of August)											
6) Inspection Path											
(3) Maintenance of Plantation-Weeding, Cleaning, Mulching, Infilling Forking and Hand Weeding etc.											
1) 1st Cleaning including Casualty Replacement & application of fertilizer											
2) 2nd Cleaning & Mulching											
3) 3rd Cleaning											
4) 4th Cleaning											
5) Watch & Ward including Fire & Grazing Control											
6) Watering during dry season											
(4) 1st Year Maintenance											
1) 1st Cleaning including Casualty Replacement & application of fertilizer (within July)											
2) 2nd Cleaning & Mulching											
3) 3rd Cleaning											
4) Watch & Ward including Fire & Grazing Control											
5) Watering during dry season (February - May)											
(5) 2nd Year Maintenance											
1) 1st Cleaning including Casualty Replacement & application of fertilizer											
2) 2nd Cleaning & Mulching											
3) Watch & Ward including Fire & Grazing Control (From July to March) & regular Maintenance of sal & Misc. line.											
4) Watering during dry season											

ITEM	Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Fiscal Year	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	
	Month	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3
	Project Phase		Preliminary Phase		Implementation Phase			Consolidation Phase			
(6) 3rd Year Maintenance											
1) 1st Cleaning including Casualty Replacement & application of fertilizer											
2) 2nd Cleaning & Mulching											
3) Watch & Ward including Fire & Grazing Control (From July to March) & regular Maintenance of sal & Misc. line.											
4) Watering during dry season (February - March)											
1.2 Tree Planting Outside Forest Area (Social Forestry)	1.B										
(1) Selection of candidate site											
(2) Formulation of Executive Commiitee and Identification of Beneficiaries											
(3) Site Demarcation, survey and mapping (SF)											
1) Site demarcation in the field											
2) Ground Survey and Mapping											
3) Field nursely preperation											
(4) Soil work--pit digging/trenching etc											
(5) Planting											
(6) Mulching/Infilling etc											
(7) Maintenance											
1) Maintenance-1											
2) Maintenance-2											
3) Maintenance-3											
1.3 Soil & Moisture Conservation in Forestry Treatment Areas	1.C										
1.4 Production of Quality Planting Material	1.D										
(1) Capital cost of setting up Hi-tech Central Nursery	1.D1										
(2) Capacity expansion of existing Hi-tech Central Nursery	1.D2										
(3) Prodcn. of 1 yr old qlty clone @2000/ha	1.D3										
(4) Prodcn of 1 yr old glty seedling@ 2000/ha	1.D4										
2. Biodiversity Conservation	2										
2.1 Habitat Management	2.A										
(1) Grassland restoration and fodder tree planting in PAs in the north Bengal	2.A1										
1) Advance Work and Creation and Fencing											
2) Maintenance											
(2) Bamboo under-planting in Mahananda WS	2.A2										
1) Advance Work and Creation and Fencing											
2) Maintenance											

ITEM	Project Phase
(3) Fodder tree planting after removal of maling bamboo in PAs in the hills	2.A3
1) Advance Work and Creation and Fencing	
2) Maintenance	
2.2 Man-Animal conflict mitigation	2.B
(1) Tender and Evaluation for procurement of Equipment	
(2) Procurement of equipment	
(3) Implementation of Elephant (gaur) in the north and south-west Bengal	2.B1
(4) Implementation of Leopard in the north Bengal	2.B2
(5) Implementation of Tiger in Sunderbans	2.B3
(6) Implementation of Smaller animals in the central Bengal	2.B4
2.3 Research	2.C
(1) Consultation by Research Advisey Commity	
(2) Selection of Research Item and preparation of Tender Documents	
(3) Selection of Research Firm by Open Tender	
(4) Inventory and status survey for butterflies in the north Bengal	2.C1
(5) Status survey of gaur and leopard in the north Bengal foot hills	2.C2
(6) Study of tiger ecology for conservation	2.C3
(7) Study of elephant ecology for management	2.C4
(8) Impact assessment for habitat management	2.C5
3. Community Development	3.
3.1 Selection of NGOs	
(1) Finalization of TOR of NGOs and listing of candidate NGOs	
(2) Selection of NGOs for microplanning	
(3) Selection of NGOs for microfinance	
3.2 Meeting	3.A
(1) General Meeting about Microplanning	
(2) Meeting with women, landless, SC/ST.	
(3) Participatory Survey (Baseline data collection)	
3.3 Microplan	3.B
(1) Formation of PRA Team	
(2) Implementation of PRA,Meeting for Microplanning	
(3) Checking by DFO	



ITEM	Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	Fiscal Year	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	
	Month	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3	4 5 6 7 8 9 10 11 12 1 2 3
	Project Phase		Preliminary Phase		Implementation Phase			Consolidation Phase			
3.4 Income Generation Activities	3.C										
(1) Selection of SHG											
(2) Mobilization of SHGs											
(3) Technical and managerial Training to SHG Members											
(4) Support for marketing and value addition											
3.5 Community Infrastructure Development for JFMC	3.D										
4. Institutional Capacity Development	4.										
4.1 Base line survey of the state's forest resources at the start of project	4.A										
(1) Selection of Survey Firm by Open Tender											
(2) Implementation of Base line survey of the Forest growing stock	4.A1										
(3) Implementation of Base line survey of the Socio-economic Conditions	4.A2										
4.2 Training & Capacity Building of Project Implementing Officials, Field &Office Staffs and Other Stakeholders	4.B										
(1) Selection of execution Institution / Firm by Open Tender											
(2) Implementation of Package-I for Senior Officers	4.B1										
(3) Implementation of Package-II for Middle and junior level officers	4.B2										
(4) Implementation of Package III- For Junior level Officers and FRs	4.B3										
(5) Implementation of Package-IV Frontline staff and JFMC/EDC/SHG	4.B4										
4.3 Infrastructure Development for Social forestry, training, research, GIS, forest protection etc including Building, Equipment &Vehicle	4.C										
(1) Selection of Contractor/Supplier by Open Tender											
(2) Construction of Administrative Buildings	4.C1										
(3) Equipment for GIS/MIS Pilot Project	4.C2										
(4) Purchase of Vehicles including motorbikes for better mobility of staff and officers	4.C3										
(5) Miscellaneous management inputs	4.C4										
4.4 Forestry Research Activities	4.D										
(1) Selection of execution Institution / Firm by Open Tender											
(2) Research work in Tree Improvement programme (Tree breeding)	4.D1										
(3) Field Research on Nursery and Plantation techniques and plantation models to improve productivity	4.D2										
4.5 Mid-term Monitoring & Evaluation including periodic biodiversity & community development studies	4.E										
4.6 End-term Monitoring and Evaluation	4.F										
III. Consulting Services											

Attachment 6

Annual Fund Requirement

Base Year for Cost Estimation: May 2011 — FC & Total : million JPY
Exchange Rates: Rs. =Yen 1.85 — LC : million Rs
Price Escalation: 10%
Physical Contingency: 10%

Item		Total				2012			2013			2014			2015			2016			2017			2018			2019		
		FC	LC	Total		FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
A. ELIGIBLE PORTION				Rs	Yen																								
Ⅰ)	**Procurement / Construction**	**0**	**3,259**	**3,259**	**6,030**	**0**	**9**	**17**	**0**	**431**	**798**	**0**	**596**	**1,103**	**0**	**762**	**1,410**	**0**	**698**	**1,290**	**0**	**356**	**658**	**0**	**266**	**491**	**0**	**142**	**263**
1.	**Afforestation and Allied Works**	0	1,362	1,362	2,521	0	0	0	0	96	177	0	255	472	0	328	607	0	364	674	0	161	298	0	102	189	0	56	104
1.A	Afforestation of Degraded Forest Land in Recorded Forest Area	0	779	779	1,440	0	0	0	0	0	0	0	133	247	0	184	340	0	229	423	0	116	215	0	74	137	0	43	79
1.B	Tree Planting Outside Forest Area (Social Forestry)	0	258	258	478	0	0	0	0	0	0	0	38	71	0	58	107	0	75	139	0	45	83	0	28	52	0	14	26
1.C	Soil & Moisture Conservation in Forestry Treatment Areas	0	124	124	229	0	0	0	0	0	0	0	38	70	0	41	76	0	45	84	0	0	0	0	0	0	0	0	0
1.D	Production of Quality Planting Material	0	202	202	373	0	0	0	0	96	177	0	46	84	0	46	84	0	15	28	0	0	0	0	0	0	0	0	0
2.	**Biodiversity Conservation**	0	158	158	292	0	0	0	0	17	32	0	24	44	0	30	55	0	31	58	0	30	56	0	23	43	0	2	4
2.A	Habitat Management	0	31	31	57	0	0	0	0	0	0	0	2	3	0	8	14	0	9	17	0	8	15	0	3	5	0	1	2
2.B	Man-Animal conflict mitigation	0	109	109	201	0	0	0	0	17	32	0	17	31	0	17	32	0	18	34	0	19	35	0	19	36	0	1	2
2.C	Research	0	19	19	34	0	0	0	0	0	0	0	5	9	0	5	9	0	4	7	0	3	6	0	2	3	0	0	0
3.	**Community Development**	0	312	312	577	0	0	0	0	9	16	0	111	205	0	140	259	0	40	74	0	5	9	0	5	9	0	3	5
3.A	Meeting	0	6	6	11	0	0	0	0	3	6	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.B	Microplan	0	6	6	11	0	0	0	0	3	6	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.C	Income Generation Activities	0	90	90	167	0	0	0	0	3	5	0	35	65	0	35	65	0	5	9	0	5	9	0	5	9	0	3	5
3.D	Community Development Infructracture Development for JFMC*	0	210	210	389	0	0	0	0	0	0	0	70	130	0	105	194	0	35	65	0	0	0	0	0	0	0	0	0
4.	**Institutional Capacity Development**	0	417	417	771	0	8	14	0	224	414	0	58	107	0	38	71	0	25	46	0	24	45	0	24	44	0	16	30
4.A	Base line survey of the State's forest resources at the start of Project	0	9	9	17	0	0	0	0	5	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	8
4.B	Training & Capacity Building of Project Implementing Officials, Field & Office Staffs and Other Stakeholders	0	58	58	106	0	0	0	0	25	47	0	26	48	0	6	12	0	0	0	0	0	0	0	0	0	0	0	0
4.C	Infrastructure Development for TPOF (Social Forestry), training, research, GIS, forest protection etc including Building, Equipment & Vehicle	0	316	316	585	0	6	10	0	189	351	0	27	50	0	22	40	0	22	40	0	22	40	0	22	40	0	7	12
4.D	Forestry Research Activities	0	23	23	42	0	2	4	0	5	8	0	5	8	0	2	4	0	3	6	0	3	5	0	2	3	0	1	2
4.E	Mid-term Monitoring & Evaluation including periodic biodiversity & community develpment studies	0	8	8	15	0	0	0	0	0	0	0	0	0	0	8	15	0	0	0	0	0	0	0	0	0	0	0	0
4.F	End-term Monitoring and Evaluation	0	4	4	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	7
	Base cost	0	2,249	2,249	4,161	0	8	14	0	345	638	0	447	828	0	536	992	0	461	852	0	220	408	0	154	286	0	77	143
	Price escalation	0	714	714	1,320	0	1	1	0	47	87	0	95	175	0	156	289	0	173	321	0	103	191	0	87	161	0	52	96
	Physical contingency	0	296	296	548	0	1	2	0	39	73	0	54	100	0	69	128	0	63	117	0	32	60	0	24	45	0	13	24
Ⅱ)	**Consulting services**	128	115	185	341	18	8	32	30	29	84	27	29	81	12	18	46	13	13	36	13	7	26	6	6	18	10	5	19
	Base cost	110	84	143	265	16	7	28	26	23	70	24	22	64	11	13	34	11	8	26	10	4	18	5	4	12	8	3	13
	Price escalation	7	21	25	45	0	0	1	1	3	7	1	5	10	1	4	8	1	3	7	1	2	5	1	2	4	1	2	4
	Physical contingency	12	10	17	31	2	1	3	3	3	8	2	3	7	1	2	4	1	1	3	1	1	2	1	1	2	1	0	2
Total (Ⅰ+Ⅱ)		128	3,374	3,444	6,371	18	17	49	30	461	882	27	625	1,184	12	780	1,455	13	710	1,326	13	363	684	6	272	509	10	147	282
B. NON ELIGIBLE PORTION				0																									
a	**Procurement / Construction**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Contingency & Administrative Expenditure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Base cost for JICA financing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Price escalation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Physical contingency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b	**Land Acquisition**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Base cost	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Price escalation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Physical contingency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c	**Administration cost**	0	363	363	672	0	3	5	0	50	93	0	68	125	0	83	154	0	76	140	0	39	72	0	29	54	0	16	30
d	**VAT**	0	128	128	236	0	1	2	0	18	33	0	24	44	0	29	54	0	27	49	0	14	25	0	10	19	0	6	10
e	**Import Tax**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total (a+b+c+d+e)		0	491	491	908	0	4	7	0	68	126	0	91	169	0	112	207	0	102	189	0	53	97	0	39	73	0	22	40
TOTAL (A+B)		128	3,865	3,935	7,279	18	21	56	30	529	1,008	27	717	1,353	12	892	1,663	13	812	1,515	13	415	781	6	311	582	10	169	322
C. Interest during Construction		181	0	98	181	0	0	0	5	0	5	12	0	12	22	0	22	30	0	30	34	0	34	38	0	38	39	0	39
	Interest during Construction (Const.)	180	0	98	180	0	0	0	5	0	5	12	0	12	22	0	22	30	0	30	34	0	34	37	0	37	39	0	39
	Interest during Construction (Consul.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D. Commitment Charge		51	0	28	51	6	0	6	6	0	6	6	0	6	6	0	6	6	0	6	6	0	6	6	0	6	6	0	6
GRAND TOTAL (A+B+C+D)		360	3,865	4,060	7,511	24	21	62	42	529	1,019	46	717	1,372	40	892	1,691	49	812	1,552	53	415	822	50	311	626	55	169	367
E. JICA finance portion (A)		128	3,374	3,444	6,371	18	17	49	30	461	882	27	625	1,184	12	780	1,455	13	710	1,326	13	363	684	6	272	509	10	147	282

Administration Cost: = 10.55%
Service Tax: = 3.35% of the expenditure of the eligible portion (Total service tax is estimated 129 million Rs)
Import Tax: = 0.0%

Attachment 7

Detailed Cost Estimation

Components	Outlay of the Component			2012		2013		2014		2015		2016		2017		2018		2019	
	FC	LC	Total (Rs)	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC
I. Procurement / Construction																			
1. Afforestation and Allied Works																			
1.A Afforestation of Degraded Forest Land in Recorded Forest Area																			
1.A1 Plantation of High Yielding Eucalyptus hybrid clones in South West Bengal	0	2,06,25,000	2,06,25,000	0	0	0	0	0	37,95,000	0	52,05,000	0	64,35,000	0	27,75,000	0	16,35,000	0	7,80,000
1.A2 Plantation of Sal and Associate in South West Bengal	0	32,47,49,000	32,47,49,000	0	0	0	0	0	4,89,90,000	0	7,19,94,000	0	9,35,05,000	0	5,63,38,000	0	3,55,68,000	0	1,83,54,000
1.A3 Plantation of Quick Growing Small Timber, Fuel & Fodder Species	0	27,86,00,000	27,86,00,000	0	0		0	0	5,18,00,000	0	7,06,00,000	0	8,70,00,000	0	3,70,00,000	0	2,18,00,000	0	1,04,00,000
1.A4 Enrichment of Degraded Forests of South West Bengal through Coppice Regeration	0	7,22,50,000	7,22,50,000	0	0	0	0	0	1,35,00,000	0	1,45,00,000	0	1,57,50,000	0	87,50,000	0	95,00,000	0	1,02,50,000
1.A5 Economic Plantation of Miscellaneous Species in North Bengal	0	5,40,75,000	5,40,75,000	0	0	0	0	0	99,40,000	0	1,40,35,000	0	1,70,80,000	0	73,85,000	0	38,15,000	0	18,20,000
1.A6 Plantation of Sal and Associates Species in North Bengal	0	2,82,42,000	2,82,42,000	0	0	0	0	0	52,38,000	0	73,62,000	0	89,46,000	0	37,98,000	0	19,62,000	0	9,36,000
Subtotal of 1.A	0	77,85,41,000	77,85,41,000	0	0	0	0	0	13,32,63,000	0	18,36,96,000	0	22,87,16,000	0	11,60,46,000	0	7,42,80,000	0	4,25,40,000
1.B Tree Planting Outside Forest Area (Social Forestry)																			
1.B1 Strip Plantation	0	13,93,02,000	13,93,02,000	0	0	0	0	0	2,01,16,000	0	3,05,97,000	0	4,01,46,000	0	2,47,81,000	0	1,57,96,000	0	78,66,000
1.B2 Block Plantation	0	11,89,23,000	11,89,23,000	0	0	0	0	0	1,82,83,000	0	2,73,07,000	0	3,50,70,000	0	2,00,21,000	0	1,22,62,000	0	59,80,000
Subtotal of 1.B	0	25,82,25,000	25,82,25,000	0	0	0	0	0	3,83,99,000	0	5,79,04,000	0	7,52,16,000	0	4,48,02,000	0	2,80,58,000	0	1,38,46,000
1.C Soil & Moisture Conservation in Forestry Treatment Areas																			
1.C1 Plantation of High Yielding Eucalyptus hybrid clones in South West Bengal	0	32,10,000	32,10,000	0	0	0	0	0	9,75,000	0	10,65,000	0	11,70,000	0	0	0	0	0	0
1.C2 Plantation of Sal and Associate in South West Bengal	0	2,44,61,000	2,44,61,000	0	0	0	0	0	74,75,000	0	80,94,000	0	88,92,000	0	0	0	0	0	0
1.C3 Plantation of Quick Growing Small Timber, Fuel & Fodder Species	0	4,28,00,000	4,28,00,000	0	0	0	0	0	1,30,00,000	0	1,42,00,000	0	1,56,00,000	0	0	0	0	0	0
1.C4 Enrichment of Degraded Forests of South West Bengal through Coppice Regeration	0	5,35,00,000	5,35,00,000	0	0	0	0	0	1,62,50,000	0	1,77,50,000	0	1,95,00,000	0	0	0	0	0	0
Subtotal of 1.C	0	12,39,71,000	12,39,71,000	0	0	0	0	0	3,77,00,000	0	4,11,09,000	0	4,51,62,000	0	0	0	0	0	0
1.D Production of Quality Planting Material																			
1.D1 Capital cost of setting up Hi-tech Central Nursery	0	5,00,00,000	5,00,00,000	0	0	0	5,00,00,000	0	0	0	0	0	0	0	0	0	0	0	0
1.D2 Capacity expansion of existing Hi-tech Central Nursery	0	1,50,00,000	1,50,00,000	0	0	0	1,50,00,000	0	0	0	0	0	0	0	0	0	0	0	0
1.D3 Prodcn. of 1 yr old qlty clone @ 2000/ha	0	45,00,000	45,00,000	0	0	0	12,00,000	0	15,00,000	0	15,00,000	0	3,00,000	0	0	0	0	0	0
1.D4 Prodcn of 1 yr old qlty seedling @ 2000/ha	0	13,22,40,000	13,22,40,000	0	0	0	2,94,40,000	0	4,40,80,000	0	4,40,40,000	0	1,46,80,000	0	0	0	0	0	0
Subtotal of 1.D	0	20,17,40,000	20,17,40,000	0	0	0	9,56,40,000	0	4,55,80,000	0	4,55,40,000	0	1,49,80,000	0	0	0	0	0	0
Total of 1.	0	1,36,24,77,000	1,36,24,77,000	0	0	0	9,56,40,000	0	25,49,42,000	0	32,82,49,000	0	36,40,74,000	0	16,08,48,000	0	10,23,38,000	0	5,63,86,000
2. Biodiversity Conservation																			
2.A Habitat Management																			
2.A1 Grassland restoration and fodder tree planting in PAs in the North Bengal	0	1,67,16,000	1,67,16,000	0	0	0	0	0	8,89,000	0	43,47,000	0	52,11,000	0	45,09,000	0	12,74,000	0	4,86,000
2.A2 Bamboo under-planting in Mahananda WS	0	58,10,000	58,10,000	0	0	0	0	0	3,54,000	0	14,86,000	0	17,92,000	0	16,16,000	0	4,00,000	0	1,62,000
2.A3 Fodder tree plantinng after removal of maling bamboo in PAs in the hills	0	80,17,500	80,17,500	0	0	0	0	0	6,35,000	0	17,17,500	0	22,47,500	0	20,32,500	0	8,95,000	0	4,90,000
Subtotal of 2.A	0	3,05,43,500	3,05,43,500	0	0	0	0	0	18,78,000	0	75,50,500	0	92,50,500	0	81,57,500	0	25,69,000	0	11,38,000
2.B Man-Animal conflict mitigation																			
2.B1 Elephant Gaur in the North and South West Bengal	0	5,99,53,197	5,99,53,197	0	0	0	92,00,000	0	90,91,600	0	95,70,760	0	1,00,97,836	0	1,06,77,620	0	1,13,15,382	0	0
2.B2 Leopard in the North Bengal	0	28,33,325	28,33,325	0	0	0	8,25,000	0	3,35,475	0	3,65,423	0	3,98,365	0	4,34,601	0	4,74,461	0	0
2.B3 Tiger in Sunderbans	0	3,00,65,320	3,00,65,320	0	0	0	41,40,000	0	49,79,160	0	50,27,076	0	50,79,784	0	51,37,762	0	47,01,538	0	10,00,000
2.B4 Smaller animals in the Central Bengal	0	1,60,45,980	1,60,45,980	0	0	0	29,58,000	0	24,58,740	0	25,30,614	0	26,09,675	0	26,96,643	0	27,92,307	0	0
Subtotal of 2.B	0	10,88,97,821	10,88,97,821	0	0	0	1,71,23,000	0	1,68,64,975	0	1,74,93,873	0	1,81,85,660	0	1,89,46,626	0	1,92,83,688	0	10,00,000
2.C Research																			
2.C1 Inventory and status survey for butterflies in the North Bengal	0	35,00,000	35,00,000	0	0	0	0	0	14,00,000	0	10,50,000	0	10,50,000	0	0	0	0	0	0
2.C2 Status survey of Gaur and Leopard in the North Bengal foothills	0	30,00,000	30,00,000	0	0	0	0	0	9,00,000	0	9,00,000	0	6,00,000	0	6,00,000	0	0	0	0
2.C3 Study of Tiger ecology for conservation	0	40,00,000	40,00,000	0	0	0	0	0	8,00,000	0	8,00,000	0	8,00,000	0	8,00,000	0	8,00,000	0	0
2.C4 Study of Elephant ecology for management	0	40,00,000	40,00,000	0	0	0	0	0	12,00,000	0	12,00,000	0	8,00,000	0	8,00,000	0	0	0	0
2.C5 Impact assessment for habitat management	0	40,00,000	40,00,000	0	0	0	0	0	8,00,000	0	8,00,000	0	8,00,000	0	8,00,000	0	8,00,000	0	0
Subtotal of 2.C	0	1,85,00,000	1,85,00,000	0	0	0	0	0	51,00,000	0	47,50,000	0	40,50,000	0	30,00,000	0	16,00,000	0	0
Total of 2.	0	15,79,41,321	15,79,41,321	0	0	0	1,71,23,000	0	2,38,42,975	0	2,97,94,373	0	3,14,86,160	0	3,01,04,126	0	2,34,52,688	0	21,38,000

3. Community Development																		
3.A Meeting	0	60,00,000	60,00,000	0	0	0	30,00,000	0	30,00,000	0	0	0	0	0	0	0	0	0
3.B Microplan	0	60,00,000	60,00,000	0	0	0	30,00,000	0	30,00,000	0	0	0	0	0	0	0	0	0
3.C Income Generation Activities	0	9,00,00,000	9,00,00,000	0	0	0	25,00,000	0	3,50,00,000	0	3,50,00,000	0	50,00,000	0	50,00,000	0	50,00,000	0	25,00,000
3.D Community Development Infructracture Development for JFMC*	0	21,00,00,000	21,00,00,000	0	0	0	0	0	7,00,00,000	0	10,50,00,000	0	3,50,00,000	0	0	0	0	0
Total of 3.	0	31,20,00,000	31,20,00,000	0	0	0	85,00,000	0	11,10,00,000	0	14,00,00,000	0	4,00,00,000	0	50,00,000	0	50,00,000	0	25,00,000
4. Institutional Capacity Development																		
4.A Base line survey of the State's forest resources at the start of Project																		
4.A1 Base line survey of the Forest growing stock, soil & water quality, NTFP Working Plan Circle, M.F.P. Div & Research Circle and soil nutrient in about 2 lac ha forest area covered under the Forest Protection Committee	0	60,00,000	60,00,000	0	0	0	30,00,000	0	0	0	0	0	0	0	0	0	0	30,00,000
4.A2 Base line survey of the Socio-economic conditions of the target population by NGO/Govt Agencies over about 2 lacs ha forest area covered under the Forest Protection Committee	0	30,00,000	30,00,000	0	0	0	15,00,000	0	0	0	0	0	0	0	0	0	0	15,00,000
Total of 4.A	0	90,00,000	90,00,000	0	0	0	45,00,000	0	0	0	0	0	0	0	0	0	0	45,00,000
4.B Training & Capacity Building of Project Implementing Officials, Field & Office Staffs and Other Stakeholders																		
4.B1 Package-I for Senior Officers	0	1,50,00,000	1,50,00,000	0	0	0	50,00,000	0	50,00,000	0	50,00,000	0	0	0	0	0	0	0
4.B2 Package-II for Middle and Junior level Officers	0	22,50,000	22,50,000	0	0	0	7,50,000	0	7,50,000	0	7,50,000	0	0	0	0	0	0	0
4.B3 Package-III for Junior level Officers and FRs	0	42,50,000	42,50,000	0	0	0	16,00,000	0	20,50,000	0	6,00,000	0	0	0	0	0	0	0
4.B4 Package-IV for Frontline staff and FPC/EDC/SHG	0	3,60,00,000	3,60,00,000	0	0	0	1,80,00,000	0	1,80,00,000	0	0	0	0	0	0	0	0	0
Total of 4.B	0	5,75,00,000	5,75,00,000	0	0	0	2,53,50,000	0	2,58,00,000	0	63,50,000	0	0	0	0	0	0	0
4.C Infrastructure Development for TPOF (Social Forestry), training, research, GIS, forest protection etc including Building, Equipment & Vehicle																		
4.C1 Construction of Administrative Buildings	0	10,76,75,000	10,76,75,000	0	0	0	10,21,25,000	0	55,50,000	0	0	0	0	0	0	0	0	0
4.C2 Equipment for GIS/MIS Pilot Project	0	5,00,00,000	5,00,00,000	0	0	0	5,00,00,000	0	0	0	0	0	0	0	0	0	0	0
4.C3 Purchase of vehicles including motorbikes for better mobility of staff and officers	0	1,50,00,000	1,50,00,000	0	0	0	1,50,00,000	0	0	0	0	0	0	0	0	0	0	0
4.C4 Miscellaneous management inputs	0	14,32,88,000	14,32,88,000	0	55,36,000	0	2,23,36,000	0	2,17,36,000	0	2,17,36,000	0	2,17,36,000	0	2,17,36,000	0	2,17,36,000	0	67,36,000
Total of 4.C	0	31,59,63,000	31,59,63,000	0	55,36,000	0	18,94,61,000	0	2,72,86,000	0	2,17,36,000	0	2,17,36,000	0	2,17,36,000	0	2,17,36,000	0	67,36,000
4.D Forestry Research Activities																		
4.D1 Research work in Tree Improvement Programme (Tree Breeding)	0	1,35,00,000	1,35,00,000	0	13,50,000	0	27,00,000	0	27,00,000	0	13,50,000	0	20,25,000	0	16,20,000	0	10,80,000	0	6,75,000
4.D2 Field Research on Nursery and Plantation techniques and plantation models to improve productivity	0	90,00,000	90,00,000	0	9,00,000	0	18,00,000	0	18,00,000	0	9,00,000	0	13,50,000	0	10,80,000	0	7,20,000	0	4,50,000
Total of 4.D	0	2,25,00,000	2,25,00,000	0	22,50,000	0	45,00,000	0	45,00,000	0	22,50,000	0	33,75,000	0	27,00,000	0	18,00,000	0	11,25,000
4.E Mid-term Monitoring & Evaluation including periodic biodiversity & community develpment studies																		
Base Cost	0	80,00,000	80,00,000	0	0	0	0	0	0	0	80,00,000	0	0	0	0	0	0	0	0
4.F End-term Monitoring and Evaluation																		
Base Cost	0	40,00,000	40,00,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,00,000
Total of 4.	0	41,69,63,000	41,69,63,000	0	77,86,000	0	22,38,11,000	0	5,75,86,000	0	3,83,36,000	0	2,51,11,000	0	2,44,36,000	0	2,35,36,000	0	1,63,61,000
Total of I. Procurement / Construction	0	2,24,93,81,321	2,24,93,81,321	0	77,86,000	0	34,50,74,000	0	44,73,70,975	0	53,63,79,373	0	46,06,71,160	0	22,03,88,126	0	15,43,26,688	0	7,73,85,000
Price escalation	0	71,35,61,255	71,35,61,255	0	5,13,876	0	4,70,52,910	0	9,45,54,314	0	15,62,49,971	0	17,34,57,012	0	10,30,05,473	0	8,70,75,648	0	5,16,52,050
Physical contingency	0	29,62,94,258	29,62,94,258	0	8,29,988	0	3,92,12,691	0	5,41,92,529	0	6,92,62,934	0	6,34,12,817	0	3,23,39,360	0	2,41,40,234	0	1,29,03,705
Total	0	3,25,92,36,834	3,25,92,36,834	0	91,29,864	0	43,13,39,601	0	59,61,17,818	0	76,18,92,278	0	69,75,40,989	0	35,57,32,959	0	26,55,42,570	0	14,19,40,755
5. Consulting Services	11,02,22,000	8,36,91,500	14,32,70,959	1,56,66,245	65,55,405	2,62,96,503	2,34,60,230	2,36,79,736	2,19,36,215	1,05,70,135	1,27,62,123	1,05,01,423	82,84,748	1,04,41,301	43,42,046	52,42,123	36,32,702	78,24,534	27,18,031
Price escalation	65,32,966	2,09,98,346	2,45,29,679	2,50,660	4,32,657	8,48,220	31,98,943	11,54,910	46,36,340	6,92,898	37,17,670	8,67,431	31,19,465	10,43,325	20,29,395	6,16,063	20,49,677	10,59,458	18,14,200
Physical contingency	1,16,75,497	1,04,68,985	1,67,80,064	15,91,691	6,98,806	27,14,472	26,65,917	24,83,465	26,57,255	11,26,303	16,47,979	11,36,885	11,40,421	11,48,463	6,37,144	5,85,819	5,68,238	8,88,399	4,53,223
Total	12,84,30,462	11,51,58,831	18,45,80,702	1,75,08,596	76,86,868	2,98,59,195	2,93,25,091	2,73,18,111	2,92,29,810	1,23,89,337	1,81,27,772	1,25,05,740	1,25,44,635	1,26,33,088	70,08,585	64,44,004	62,50,618	97,72,391	49,85,454
Total of Eligible Portion	11,02,22,000	2,33,30,72,821	2,39,26,52,281	1,56,66,245	1,43,41,405	2,62,96,503	36,85,34,230	2,36,79,736	46,93,07,190	1,05,70,135	54,91,41,495	1,05,01,423	46,89,55,908	1,04,41,301	22,47,30,172	52,42,123	15,79,59,391	78,24,534	8,01,03,031
Price escalation	65,32,966	73,45,59,601	73,80,90,934	2,50,660	9,46,533	8,48,220	5,02,51,853	11,54,910	9,91,90,654	6,92,898	15,99,67,641	8,67,431	17,65,76,477	10,43,325	10,50,34,868	6,16,063	8,91,25,326	10,59,458	5,34,66,249
Physical contingency	1,16,75,497	30,67,63,242	31,30,74,321	15,91,691	15,28,794	27,14,472	4,18,78,608	24,83,465	5,68,49,784	11,26,303	7,09,10,914	11,36,885	6,45,53,239	11,48,463	3,29,76,504	5,85,819	2,47,08,472	8,88,399	1,33,56,928
Total	12,84,30,462	3,37,43,95,665	3,44,38,17,536	1,75,08,596	1,68,16,731	2,98,59,195	46,06,64,692	2,73,18,111	62,53,47,628	1,23,89,337	78,00,20,049	1,25,05,740	71,00,85,624	1,26,33,088	36,27,41,544	64,44,004	27,17,93,188	97,72,391	14,69,26,208

1. Afforestation and Allied Works

1.A Afforestation of Degraded Forest Land in Recorded Forest Area

Base Year: 2011

Price Escalation: Labour 10.00%, Material 0.00%

	2012	2013	2014	2015	2016	2017	2018	2019
Labour	1.1000	1.2100	1.3310	1.4641	1.6105	1.7716	1.9487	2.1436
Material	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Price Escalation: 6.60%

Physical Contingency: 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
0.0660	0.1364	0.2114	0.2913	0.3765	0.4674	0.5642	0.6675

1.A1 Plantation of High Yielding Eucalyptus hybrid clones in South West Bengal

Items of Work		UNIT COST (per Ha)									PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total (Rs)
		Base year Cost	2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
Soil work & Creation	Labour	16,440	18,000	19,800	21,800	24,000	26,400	29,100	32,000	35,200	0	0	150	150	150	0	0	0	450	0	0	32,70,000	36,00,000	39,60,000	0	0	0	1,08,30,000
	Material	3,560	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	0	0	150	150	150	0	0	0	450	0	0	5,25,000	5,25,000	5,25,000	0	0	0	15,75,000
Maint YI	Labour	4,440	4,800	5,300	5,900	6,500	7,100	7,800	8,600	9,500	0	0	0	150	150	150	0	0	450	0	0	0	9,75,000	10,65,000	11,70,000	0	0	32,10,000
	Material	760	700	700	700	700	700	700	700	700	0	0	0	150	150	150	0	0	450	0	0	0	1,05,000	1,05,000	1,05,000	0	0	3,15,000
Maint Y2	Labour	3,120	3,400	3,700	4,100	4,500	5,000	5,500	6,000	6,600	0	0	0	0	150	150	150	0	450	0	0	0	0	7,50,000	8,25,000	9,00,000	0	24,75,000
	Material	280	200	200	200	200	200	200	200	200	0	0	0	0	150	150	150	0	450	0	0	0	0	30,000	30,000	30,000	0	90,000
Maint Y3	Labour	2,400	2,600	2,900	3,100	3,500	3,800	4,200	4,600	5,100	0	0	0	0	0	150	150	150	450	0	0	0	0	0	6,30,000	6,90,000	7,65,000	20,85,000
	Material	100	100	100	100	100	100	100	100	100	0	0	0	0	0	150	150	150	450	0	0	0	0	0	15,000	15,000	15,000	45,000
																		Base Cost		0	0	37,95,000	52,05,000	64,35,000	27,75,000	16,35,000	7,80,000	2,06,25,000
																		Price Escalation		0	0	8,02,094	15,16,242	24,22,978	12,96,985	9,22,515	5,20,625	74,81,440
																		Physical Contingency		0	0	4,59,709	6,72,124	8,85,798	4,07,199	2,55,752	1,30,063	28,10,644
																		Total Cost		0	0	50,56,804	73,93,367	97,43,775	44,79,184	28,13,267	14,30,688	3,09,17,084

1.A2 Plantation of Sal and Associate in South West Bengal

Items of Work		UNIT COST (per Ha)									PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total (Rs)
		Base year Cost	2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
Soil work & Creation	Labour	22,800	25,000	27,500	30,300	33,300	36,700	40,300	44,400	48,800	0	0	1,150	1,140	1,140	0	0	0	3,430	0	0	3,48,45,000	3,79,62,000	4,18,38,000	0	0	0	11,46,45,000
	Material	12,300	12,300	12,300	12,300	12,300	12,300	12,300	12,300	12,300	0	0	1,150	1,140	1,140	0	0	0	3,430	0	0	1,41,45,000	1,40,22,000	1,40,22,000	0	0	0	4,21,89,000
Maint YI	Labour	10,440	11,400	12,600	13,800	15,200	16,800	18,400	20,300	22,300	0	0	0	1,150	1,140	1,140	0	0	3,430	0	0	0	1,74,80,000	1,91,52,000	2,09,76,000	0	0	5,76,08,000
	Material	2,280	2,200	2,200	2,200	2,200	2,200	2,200	2,200	2,200	0	0	0	1,150	1,140	1,140	0	0	3,430	0	0	0	25,30,000	25,08,000	25,08,000	0	0	75,46,000
Maint Y2	Labour	7,440	8,100	9,000	9,900	10,800	11,900	13,100	14,400	15,900	0	0	0	0	1,150	1,140	1,140	0	3,430	0	0	0	0	1,36,85,000	1,49,34,000	1,64,16,000	0	4,50,35,000
	Material	2,060	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	0	0	0	0	1,150	1,140	1,140	0	3,430	0	0	0	0	23,00,000	22,80,000	22,80,000	0	68,60,000
Maint Y3	Labour	6,600	7,200	7,900	8,700	9,600	10,600	11,600	12,800	14,100	0	0	0	0	0	1,150	1,140	1,140	3,430	0	0	0	0	0	1,33,40,000	1,45,92,000	1,60,74,000	4,40,06,000
	Material	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	0	0	0	0	0	1,150	1,140	1,140	3,430	0	0	0	0	0	23,00,000	22,80,000	22,80,000	68,60,000
																		Base Cost		0	0	4,89,90,000	7,19,94,000	9,35,05,000	5,63,38,000	3,55,68,000	1,83,54,000	32,47,49,000
																		Price Escalation		0	0	1,03,54,306	2,09,72,209	3,52,07,539	2,63,31,375	2,00,68,510	1,22,50,717	12,51,84,656
																		Physical Contingency		0	0	59,34,431	92,96,621	1,28,71,254	82,66,937	55,63,651	30,60,472	4,49,93,366
																		Total Cost		0	0	6,52,78,736	10,22,62,830	14,15,83,793	9,09,36,312	6,12,00,161	3,36,65,188	49,49,27,021

1.A3 Plantation of Quick Growing Small Timber, Fuel & Fodder Species

Items of Work	UNIT COST (per Ha)										PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total (Rs)
	Base year Cost		2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
Soil work & Creation	Labour	16,440	18,000	19,800	21,800	24,000	26,400	29,100	32,000	35,200	0	0	2,000	2,000	2,000	0	0	0	6,000	0	0	4,36,00,000	4,80,00,000	5,28,00,000	0	0	0	14,44,00,000
	Material	4,160	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	0	0	2,000	2,000	2,000	0	0	0	6,000	0	0	82,00,000	82,00,000	82,00,000	0	0	0	2,46,00,000
Maint Y1	Labour	4,440	4,800	5,300	5,900	6,500	7,100	7,800	8,600	9,500	0	0	0	2,000	2,000	2,000	0	0	6,000	0	0	0	1,30,00,000	1,42,00,000	1,56,00,000	0	0	4,28,00,000
	Material	760	700	700	700	700	700	700	700	700	0	0	0	2,000	2,000	2,000	0	0	6,000	0	0	0	14,00,000	14,00,000	14,00,000	0	0	42,00,000
Maint Y2	Labour	3,120	3,400	3,700	4,100	4,500	5,000	5,500	6,000	6,600	0	0	0	0	2,000	2,000	2,000	0	6,000	0	0	0	0	1,00,00,000	1,10,00,000	1,20,00,000	0	3,30,00,000
	Material	280	200	200	200	200	200	200	200	200	0	0	0	0	2,000	2,000	2,000	0	6,000	0	0	0	0	4,00,000	4,00,000	4,00,000	0	12,00,000
Maint Y3	Labour	2,400	2,600	2,900	3,100	3,500	3,800	4,200	4,600	5,100	0	0	0	0	0	2,000	2,000	2,000	6,000	0	0	0	0	0	84,00,000	92,00,000	1,02,00,000	2,78,00,000
	Material	100	100	100	100	100	100	100	100	100	0	0	0	0	0	2,000	2,000	2,000	6,000	0	0	0	0	0	2,00,000	2,00,000	2,00,000	6,00,000
																		Base Cost		0	0	5,18,00,000	7,06,00,000	8,70,00,000	3,70,00,000	2,18,00,000	1,04,00,000	27,86,00,000
																		Price Escalation		0	0	1,09,48,215	2,05,66,130	3,27,58,204	1,72,93,139	1,23,00,200	69,41,672	10,08,07,561
																		Physical Contingency		0	0	62,74,821	91,16,613	1,19,75,820	54,29,314	34,10,020	17,34,167	3,79,40,756
																		Total Cost		0	0	6,90,23,036	10,02,82,743	13,17,34,025	5,97,22,453	3,75,10,220	1,90,75,840	41,73,48,317

1.A4 Enrichment of Degraded Forests of South West Bengal through Coppice Regeration

Items of Work	UNIT COST (per Ha)										PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total (Rs)
	Base year Cost		2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
RDF	Labour	3,120	3,400	3,700	4,100	4,500	5,000	5,500	6,000	6,600	0	0	2,500	2,500	2,500		0	0	7,500	0	0	1,02,50,000	1,12,50,000	1,25,00,000	0	0	0	3,40,00,000
	Material	1,380	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	0	0	2,500	2,500	2,500	0	0	0	7,500	0	0	32,50,000	32,50,000	32,50,000	0	0	0	97,50,000
MSC	Labour	1,560	1,700	1,800	2,000	2,200	2,500	2,700	3,000	3,300	0	0	0			2,500	2,500	2,500	7,500	0	0	0	0	0	67,50,000	75,00,000	82,50,000	2,25,00,000
	Material	840	800	800	800	800	800	800	800	800	0	0	0	0	0	2,500	2,500	2,500	7,500	0	0	0	0	0	20,00,000	20,00,000	20,00,000	60,00,000
																		Base Cost		0	0	1,35,00,000	1,45,00,000	1,57,50,000	87,50,000	95,00,000	1,02,50,000	7,22,50,000
																		Price Escalation		0	0	28,53,299	42,23,922	59,30,365	40,89,594	53,60,179	68,41,552	2,92,98,910
																		Physical Contingency		0	0	16,35,330	18,72,392	21,68,036	12,83,959	14,86,018	17,09,155	1,01,54,891
																		Total Cost		0	0	1,79,88,629	2,05,96,314	2,38,48,401	1,41,23,553	1,63,46,197	1,88,00,707	11,17,03,801

1.A5 Economic Plantation of Miscellaneous Species in North Bengal

Items of Work	UNIT COST (per Ha)										PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total (Rs)
	Base year Cost		2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
Soil work & Creation	Labour	18,360	20,100	22,200	24,400	26,800	29,500	32,500	35,700	39,300	0	0	350	350	350	0	0	0	1,050	0	0	85,40,000	93,80,000	1,03,25,000	0	0	0	2,82,45,000
	Material	4,040	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	0	0	350	350	350	0	0	0	1,050	0	0	14,00,000	14,00,000	14,00,000	0	0	0	42,00,000
Maint Y1	Labour	5,880	6,400	7,100	7,800	8,600	9,400	10,400	11,400	12,600	0	0	0	350	350	350	0	0	1,050	0	0	0	30,10,000	32,90,000	36,40,000	0	0	99,40,000
	Material	760	700	700	700	700	700	700	700	700	0	0	0	350	350	350	0	0	1,050	0	0	0	2,45,000	2,45,000	2,45,000	0	0	7,35,000
Maint Y2	Labour	3,120	3,400	3,700	4,100	4,500	5,000	5,500	6,000	6,600	0	0	0	0	350	350	350	0	1,050	0	0	0	0	17,50,000	19,25,000	21,00,000	0	57,75,000
	Material	280	200	200	200	200	200	200	200	200	0	0	0	0	350	350	350	0	1,050	0	0	0	0	70,000	70,000	70,000	0	2,10,000
Maint Y3	Labour	2,400	2,600	2,900	3,100	3,500	3,800	4,200	4,600	5,100	0	0	0	0	0	350	350	350	1,050	0	0	0	0	0	14,70,000	16,10,000	17,85,000	48,65,000
	Material	100	100	100	100	100	100	100	100	100	0	0	0	0	0	350	350	350	1,050	0	0	0	0	0	35,000	35,000	35,000	1,05,000
																		Base Cost		0	0	99,40,000	1,40,35,000	1,70,80,000	73,85,000	38,15,000	18,20,000	5,40,75,000
																		Price Escalation		0	0	21,00,874	40,88,465	64,31,151	34,51,617	21,52,535	12,14,793	1,94,39,434
																		Physical Contingency		0	0	12,04,087	18,12,347	23,51,115	10,83,662	5,96,754	3,03,479	73,51,443
																		Total Cost		0	0	1,32,44,961	1,99,35,812	2,58,62,266	1,19,20,279	65,64,289	33,38,272	8,08,65,878

1.A6 Plantation of Sal and Associates Species in North Bengal

Items of Work	UNIT COST (per Ha)										PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total (Rs)
	Base year Cost		2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
Soil work & Creation	Labour	18,840	20,700	22,700	25,000	27,500	30,300	33,300	36,700	40,300	0	0	180	180	180	0	0	0	540	0	0	45,00,000	49,50,000	54,54,000	0	0	0	1,49,04,000
	Material	4,160	4,100	4,100	4,100	4,100	4,100	4,100	4,100	4,100	0	0	180	180	180	0	0	0	540	0	0	7,38,000	7,38,000	7,38,000	0	0	0	22,14,000
Maint Y1	Labour	5,880	6,400	7,100	7,800	8,600	9,400	10,400	11,400	12,600	0	0	0	180	180	180	0	0	540	0	0	0	15,48,000	16,92,000	18,72,000	0	0	51,12,000
	Material	760	700	700	700	700	700	700	700	700	0	0	0	180	180	180	0	0	540	0	0	0	1,26,000	1,26,000	1,26,000	0	0	3,78,000
Maint Y2	Labour	3,120	3,400	3,700	4,100	4,500	5,000	5,500	6,000	6,600	0	0	0	0	180	180	180	0	540	0	0	0	0	9,00,000	9,90,000	10,80,000	0	29,70,000
	Material	280	200	200	200	200	200	200	200	200	0	0	0	0	180	180	180	0	540	0	0	0	0	36,000	36,000	36,000	0	1,08,000
Maint Y3	Labour	2,400	2,600	2,900	3,100	3,500	3,800	4,200	4,600	5,100	0	0	0	0	0	180	180	180	540	0	0	0	0	0	7,56,000	8,28,000	9,18,000	25,02,000
	Material	100	100	100	100	100	100	100	100	100	0	0	0	0	0	180	180	180	540	0	0	0	0	0	18,000	18,000	18,000	54,000
																			Base Cost	0	0	52,38,000	73,62,000	89,46,000	37,98,000	19,62,000	9,36,000	2,82,42,000
																			Price Escalation	0	0	11,07,080	21,44,587	33,68,447	17,75,117	11,07,018	6,24,751	1,01,27,000
																			Physical Contingency	0	0	6,34,508	9,50,659	12,31,445	5,57,312	3,06,902	1,56,075	38,36,900
																			Total Cost	0	0	69,79,588	1,04,57,246	1,35,45,892	61,30,429	33,75,920	17,16,826	4,22,05,900

1.A : Afforestation of Degraded Forest Land in Recorded Forest Area

Type A1: Plantation of High Yielding Eucalyptus hybrid clones in South West Bengal

Spacing 2.5 m x 2.5 m
No. of Plants = 1600 Nos/ha

Description	Unit	Quantity/ha		Unit Price		Cost (Rs./ha)		
		Labour	Material	Labour	Material	Labour	Material	Total
I. Advance Soil Works								
1. Survey and demarcation of the plantation area	man-day	1		120		120	0	120
2. Advance Soil works by digging planting pits of size (0.60+0.45)/2 x 0.45 x0.45 m3 including site cleaning	man-day	18		120		2,160	0	2,160
3. Cost of insecticide, fertilizer including carriage	L.S		1		320	0	320	320
Sub Total of I		19				2,280	320	2,600
II. CREATION WORKS--Miscellaneous Plantation								
4. Digging of pits of size (0.6+0.45)/2 x 0.45 x 0.45	man-day	20		120		2,400	0	2,400
5. Filling up of planting pits with dug up pulverized soil	man-day	15		120		1,800	0	1,800
6. Cleaning the plantation area before planting	man-day	4		120		480	0	480
7. Transplanting of ramets including carriage from field nursery to planting site and staking	man-day	26		120		3,120	0	3,120
8. Infilling of vacancy created due to field mortality including carriage	man-day	4		120		480	0	480
9. 1st mulching by digging earth around pits and cleaning, weeding and application of fertilizer	man-day	14		120		1,680	0	1,680
10. 2nd mulching, cleaning, weeding including application of 2nd dose of fertilizer	man-day	12		120		1,440	0	1,440
11. Cutting firelines 3 m wide to prevent accidental fire	man-day	4		120		480	0	480
12. Cutting trenches of size 0.60m x 0.45m inside the plantation area and boundary where necessary @ 100 m per hectare	man-day	8		120		960	0	960
13. Watering of seedlings and watch and ward	man-day	8		120		960	0	960
14. Making livehedge fencing	man-day	3		120		360	0	360
16. Cost of insecticide, fertilizer including carriage	L.S					0	2,000	2,000
17. Cost of materials like Ipomoea sp for live hedge fence	L.S					0	500	500
18. Cost of Bamboo for live hedge fencing - 3 nos	nos		3		60	0	180	180
19. Contingencies rope/tin/watering can/thatch/carriage of ramets etc	L.S					0	560	560
Sub Total of II		118				14,160	3,240	17,400
Sub Total of I+II		137				16,440	3,560	20,000
III. 1st YEAR MAINTENANCE --Miscellaneous Plantation								
20. Vacancy filling /Beating up operation	man-day	3		120		360	0	360
21. Mulching with fertilizers including weeding and cleaning over the entire area--two times	man-day	26		120		3,120	0	3,120
22. Maintenance of the fire lines by cutting grasses /bushes	man-day	6		120		720	0	720
23. Repairing of live hedge fencing	man-day	2		120		240	0	240
24. Cost of fertilizers, fencing materials etc.	LS		1		760	0	760	760
Sub Total of III		37				4,440	760	5,200
IV. 2nd YEAR MAINTENANCE --Miscellaneous Plantation								
25 Mulching without fertilizers including hoeing the base over the entire area--two times	man-day	26		120		3,120	0	3,120
26 Cost of fencing materials including repairs etc.	LS		1		280	0	280	280
Sub Total of IV		26				3,120	280	3,400
V. 3rd YEAR MAINTENANCE --Miscellaneous Plantation								
27. Mulching without fertilizers including hoeing the base over the entire area--two times	man-day	20		120		2,400	0	2,400
28. Cost of fencing materials including repairs etc.	LS		1		100	0	100	100
Sub Total of IV		20				2,400	100	2,500
Grand Total		220				26,400	4,700	31,100

Type A2: Plantation of Sal and Associate in South West Bengal

Spacing 2.5 m x 2.5 m
No. of Plants = 1600 Nos/ha

Description	Unit	Quantity		Unit Price		Cost (Rs./ha)		
		Labour	Material	Labour	Material	Labour	Material	Total
I. Advance Soil Works								
1. Survey and demarcation of the plantation area	man-day	2		120		240	0	240
2. Alignment of planting lines and staking the pit positions	man-day	2		120		240	0	240
3. Advance Soil works by digging planting pits of size (0.90+0.60)/2 x 0.60 x0.60 m3 at 2.5.x 2.5 m spacing (1600 nos)	man-day	40		120		4,800	0	4,800
4. Cost of supply of cowdung manure	L.S		1		600	0	600	600
5. Cost of Polybags--10" x 6"	L.S		1		350	0	350	350
6. Cost of supply of good earth	L.S		1		500	0	500	500
7. Supply of Bamboo @ Rs 60 each	nos		6		60	0	360	360
8. Supply of thatch	L.S		1		300	0	300	300
9. Supply of galvanised wire, rope etc	L.S		1		200	0	200	200
10. Cost of carriage of the materials to field nursery	L.S		1		410	0	410	410
Sub Total of I		44				5,280	2,720	8,000
II. CREATION WORKS--Sal Plantation								
11 Filling up of planting pits with dug up pulverized soil	man-day	3		120		360	0	360
12 Staking the seedlings for plantation	man-day	2		120		240	0	240
13 Transplanting of potted seedlings in pits, including carriage	man-day			120		0	0	0
14 From field nursery to planting site	man-day	25		120		3,000	0	3,000
15 Vacancy infilling including application of insecticide, fertilizer etc	man-day	3		120		360	0	360
16 Sowing Arhar seeds for raising nurse crop	man-day	4		120		480	0	480
17 1st mulching, weeding, cleaning and application of fertilizer	man-day	18		120		2,160	0	2,160
18 2nd mulching, weeding, cleaning and application of fertilizer	man-day	16		120		1,920	0	1,920
19 3rd mulching, cleaning, weeding	man-day	10.00		120		1,200	0	1,200
20 4th mulching, cleaning, weeding	man-day	10.00		120		1,200	0	1,200
21 Making 3m wide inspection path and cutting firelines	man-day	4		120		480	0	480
22 Erection of barbed wire fencing including carriage of fencing posts	man-day	6		120		720	0	720
23 Making trenches across the coutour of size 2.0m x (0.60+0.45)/2 x 0.45 m of appropriate running metre	man-day	5		120		600	0	600
24 Watering , weeding, cleaning of 1yr old nursery seedlings	man-day	10		120		1,200	0	1,200
25 Watering the seedlings in the field during dry spell with 15 days interval, as and when required	man-day	30		120		3,600	0	3,600
26 Cost of fencing post	L.S		1		1,500	0	1,500	1,500
27 Cost of barbed wire along with plain wire all complete with appropriate running metre	L.S		1		5,300	0	5,300	5,300
28 Cost of Arhar seeds	L.S		1		150	0	150	150
29 Digging dug well/shallow tube well including labour	L.S		1		1,550	0	1,550	1,550
30 Cost of carriage of manure, insecticide, post, fencing materials and other contingencies	L.S		1		1,080	0	1,080	1,080
Sub Total of II		146				17,520	9,580	27,100
Sub Total of I+II		190				22,800	12,300	35,100

III.	1st YEAR MAINTENANCE --Sal Plantation							
	31. Cost of weeding, cleaning, mulching and manuring--three times	man-day	38	120		4,560	0	4,560
	32. Cost of infilling including digging pit, carriage of plants (150 no/ha)	man-day	5	120		600	0	600
	33. Cutting of firelines 3 m wide for protection against fire	man-day	4	120		480	0	480
	34. Watering planted seedlings every 15 days for 6 times during April to June	man-day	40	120		4,800	0	4,800
	35. Cost of fertilizers @50gm/plant & Organic manure including carriage upto the site	L.S	1		1,800	0	1,800	1,800
	36. Cost of insetcide and pesticide etc	L.S	1		480	0	480	480
	Sub Total of III		87			10,440	2,280	12,720
IV.	2nd YEAR MAINTENANCE --Sal Plantation							
	37. Cost of weeding, cleaning, mulching and application of fertilizer	man-day	14	120		1,680	0	1,680
	38. Fireline cutting to prevent from accidental fire destruction	man-day	6	120		720	0	720
	39. Watering planted seedlings every 18 days for 5 times during April to June	man-day	42	120		5,040	0	5,040
	40. Cost of fertilizer @ 100 kgs/ha	kg	100		16	0	1,600	1,600
	41. Contingency, i.e; repairing offence etc	L.S	1		460	0	460	460
	Sub Total of IV		62			7,440	2,060	9,500
V.	3rd YEAR MAINTENANCE --Sal Plantation							
	42. Cost of weeding, cleaning, mulching and application of fertilizer	man-day	8	120		960	0	960
	43. Fireline cutting to prevent from accidental fire destruction	man-day	5	120		600	0	600
	44. Watering planted seedlings every 18 days for 5 times during April to June	man-day	42	120		5,040	0	5,040
	45. Cost of fertilizer @ 100 kgs/ha	kg	100		16	0	1,600	1,600
	46. Contingency, i.e; repairing offence etc	L.S	1		400	0	400	400
	Sub Total of IV		55			6,600	2,000	8,600
	Grand Total		332			47,280	18,640	65,920

Type A3: Plantation of Quick Growing Small Timber, Fuel & Fodder Species

Spacing 2.5 m x 2.5 m
No. of Plants = 1600 Nos/ha

Description	Unit	Quantity		Unit Price		Cost (Rs./ha)		
		Labour	Material	Labour	Material	Labour	Material	Total
I. Advance Soil Works--Labour Component								
1. Survey and demarcation of the plantation area	man-day	1		120		120	0	120
2. Advance Soil works by digging planting pits of size (0.60+0.45)/2 x 0.45 x 0.45 m3 including site cleaning	man-day	18		120		2,160	0	2,160
3. Cost of insecticide, fertilizer including carriage	LS		1		300	0	300	300
4. Cost of Rope/tin/watering can/bamboo/thatch etc	LS		1		400	0	400	400
5. Contingencies	LS		1		120	0	120	120
Sub Total of I		19				2,280	820	3,100
II. CREATION WORKS--Miscellaneous Plantation								
6. Digging of pits of size (0.6+0.45)/2 x 0.45 x 0.45	man-day	20		120		2,400	0	2,400
7. Filling up of planting pits with dug up pulverized soil	man-day	15		120		1,800	0	1,800
8. Cleaning the plantation area before planting	man-day	4		120		480	0	480
9. Transplanting of potted seedlings including carriage from field nursery to planting site and staking	man-day	26		120		3,120	0	3,120
10. Infilling of vacancy created due to field mortality including carriage	man-day	4		120		480	0	480
11. 1st mulching by digging earth around pits and cleaning, weeding and application of fertilizer	man-day	14		120		1,680	0	1,680
12. 2nd mulching, cleaning, weeding including application of 2nd dose of fertilizer	man-day	12		120		1,440	0	1,440
13. Cutting firelines 3 m wide to prevent accidental fire	man-day	4		120		480	0	480
14. Cutting trenches of size 0.60m x 0.45m inside the plantation area and boundary where necessary @ 100 m per hectare	man-day	8		120		960	0	960
15. Watering of seedlings and watch and ward	man-day	8		120		960	0	960
16. Making livehedge fencing	man-day	3		120		360	0	360
17. Cost of insecticide, fertilizer including carriage	LS		1		2,000	0	2,000	2,000
18. Cost of materials like Ipomoea sp for live hedge fence	LS		1		500	0	500	500
19. Cost of Bamboo for live hedge fencing - 3 nos	nos		3		60	0	180	180
20. Contingencies Rope/tin/watering can/thatch & carriage of seedling etc	LS		1		660	0	660	660
Sub Total of II		118				14,160	3,340	17,500
Sub Total of I+II		137				16,440	4,160	20,600
III. 1st YEAR MAINTENANCE --Miscellaneous Plantation								
21. Vacancy filling /Beating up operation	man-day	3		120		360	0	360
22. Mulching with fertilizers including weeding and cleaning over the entire area--two times	man-day	26		120		3,120	0	3,120
23. Maintenance of the fire lines by cutting grasses /bushes	man-day	6		120		720	0	720
24. Repairing of live hedge fencing	man-day	2		120		240	0	240
25. Cost of fertilizers, fencing materials etc.	LS		1		760	0	760	760
Sub Total of III		37				4,440	760	5,200
IV. 2nd YEAR MAINTENANCE --Miscellaneous Plantation								
26. Mulching without fertilizers including hoeing the base over the entire area--two times	man-day	26		120		3,120	0	3,120
27. Cost of fencing materials including repairs etc.	LS		1		280	0	280	280
Sub Total of IV		26				3,120	280	3,400
V. 3rd YEAR MAINTENANCE --Miscellaneous Plantation								
28. Mulching without fertilizers including hoeing the base over the entire area--two times	man-day	20		120		2,400	0	2,400
29. Cost of fencing materials including repairs etc.	LS		1		100	0	100	100
Sub Total of IV		20				2,400	100	2,500
Grand Total		220				26,400	5,300	31,700

Type A4: Enrichment of Degraded Forests of South West Bengal through Coppice Regeration

Description	Unit	Quantity		Unit Price		Cost (Rs./ha)		
		Labour	Material	Labour	Material	Labour	Material	Total
I. Rehabilitation of Degraded Forest (Thinning, RDF)								
1. Surveying & demarcation area.	man-day	1		120		120	0	120
2. Marking poles to be retained.	man-day	2		120		240	0	240
3. Thinning of the produces (poles) by removing bent, dead and dying trees and conversion of stems in to pole/firewood etc.	man-day	12		120		1,440	0	1,440
4. Convesion of thinned produces to fire-wood, short size poles, including stacking and carriage up to depots	man-day	11		120		1,320	0	1,320
5. Cost for paint etc .for marking and carriage.	LS		1		1,380	0	1,380	1,380
Sub Total of I		26				3,120	1,380	4,500
II. Multiple Shoot Cutting (MSC)								
1. Surveying, demarcation of working site,including coaltaring to pre & dominated classes of leading shoots (4 nos/living stump) Cutting of dead, dying/moribund, bent, suppressed coppice shoots, unwanted coppice shoots excluding pre & dominated leading shoots.	man-day	5		120		600	0	600
2. Hoeing around basal portion of living stumps and putting dug up earth at base of stumps, including application of fertilizers	man-day	5		120		600	0	600
3. Cost of applying hormones for promoting growth.	man-day	3		120		360	0	360
4. Fertilizers	LS		1		360	0	360	360
5. Growth promoting hormones.	LS		1		300	0	300	300
6. Sign board.	LS		1		180	0	180	180
Sub Total of II.		13				1,560	840	2,400
Grand Total		39				4,680	2,220	6,900

Type A5: Economic Plantation of Miscellaneous Species in North Bengal

Spacing 2.5 m x 2.5 m
No. of Plants = 1600 Nos/ha

Description	Unit	Quantity		Unit Price		Cost (Rs./ha)		
		Labour	Material	Labour	Material	Labour	Material	Total
I. Advance Soil Works--Labour Component								
1. Survey and demarcation of the plantation area	man-day	1		120		120	0	120
2. Advance Soil works by digging planting pits of size (0.60+0.45)/2 x 0.45 x0.45 m3 including site cleaning	man-day	18		120		2,160	0	2,160
3. Cost of insecticide, fertilizer including carriage	L.S		1		300	0	300	300
4. Cost of Rope/tin/watering can/bamboo/thatch etc	L.S		1		400	0	400	400
5. Contingencies	L.S		1		120	0	120	120
Sub Total of I		19				2,280	820	3,100
II. CREATION WORKS--Miscellaneous Plantation A 5								
6. Digging of pits of size (0.6+0.45)/2 x 0.45 x 0.45	man-day	20		120		2,400	0	2,400
7. Filling up of planting pits with dug up pulverized soil	man-day	15		120		1,800	0	1,800
8. Cleaning the plantation area before planting	man-day	4		120		480	0	480
9. Transplanting of potted seedlings including carriage from field nursery to planting site and staking	man-day	26		120		3,120	0	3,120
10. Infilling of vacancy created due to field mortality including carriage	man-day	4		120		480	0	480
11. 1st mulching by digging earth around pits and cleaning, weeding and application of fertilizer	man-day	14		120		1,680	0	1,680
12. 2nd mulching, cleaning, weeding including application of 2nd dose of fertilizer	man-day	12		120		1,440	0	1,440
13. 3rd mulching, cleaning, weeding	man-day	10		120		1,200	0	1,200
14. 4th mulching, cleaning, weeding	man-day	10		120		1,200	0	1,200
15. Cutting firelines 3 m wide to prevent accidental fire	man-day	4		120		480	0	480
16. Cutting trenches of size 0.60m x 0.45m inside the plantation area and boundary where necessary @ 100 m per hectare	man-day	6		120		720	0	720
17. Watering of seedlings and watch and ward	man-day	6		120		720	0	720
18. Making livehedge fencing	man-day	3		120		360	0	360
19. Cost of insecticide, fertilizer including carriage	LS		1		1,900	0	1,900	1,900
20. Cost of materials like Ipomoea sp for live hedge fence	LS		1		500	0	500	500
21. Cost of Bamboo for live hedge fencing - 3 nos	nos		3		60	0	180	180
22. Contingencies Rope/tin/watering can/thatch & carriage of seedling etc	LS		1		640	0	640	640
Sub Total of II.		134				16,080	3,220	19,300
Sub Total of I+II		153				18,360	4,040	22,400
III. 1st YEAR MAINTENANCE --Miscellaneous Plantation A 5								
23. Vacancy filling /Beating up operation	man-day	3		120		360	0	360
24. Mulching with fertilizers including weeding and cleaning over the entire area--three times	man-day	38		120		4,560	0	4,560
25. Maintenance of the fire lines by cutting grasses /bushes	man-day	6		120		720	0	720
26. Repairing of live hedge fencing	man-day	2		120		240	0	240
27. Cost of fertilizers, fencing materials etc.	LS		1		760	0	760	760
Sub Total of III.		49				5,880	760	6,640
IV. 2nd YEAR MAINTENANCE --Miscellaneous Plantation A 5								
28. Mulching without fertilizers including hoeing the base over the entire area--two times	man-day	26		120		3,120	0	3,120
29. Cost of fencing materials including repairs etc.	LS		1		280	0	280	280
Sub Total of IV.		26				3,120	280	3,400
V. 3rd YEAR MAINTENANCE --Miscellaneous Plantation A 5								
30. Mulching without fertilizers including hoeing the base over the entire area--two times	man-day	20		120		2,400	0	2,400
31. Cost of fencing materials including repairs etc.	LS		1		100	0	100	100
Sub Total of V.		20				2,400	100	2,500
Grand Total		248				29,760	5,180	34,940

Type A6: Plantation of Sal and Associates Species in North Bengal

Spacing 2.5 m x 2.5 m
No. of Plants = 1600 Nos/ha

	Description	Unit	Quantity		Unit Price		Cost (Rs./ha)		
			Labour	Material	Labour	Material	Labour	Material	Total
I.	Advance Soil Works--Labour Component								
1.	Survey and demarcation of the plantation area	man-day	1		120		120	0	120
2.	Advance Soil works by digging planting pits of size (0.60+0.45)/2 x 0.45 x0.45 m3 including site cleaning	man-day	18		120		2,160	0	2,160
3.	Cost of insecticide, fertilizer including carriage	LS		1		300	0	300	300
4.	Cost of Rope/tin/watering can/bamboo/thatch etc	LS		1		400	0	400	400
5.	Contingencies	LS		1		120	0	120	120
	Sub Total of I		19				2,280	820	3,100
II.	CREATION WORKS--SAL PLANTATION NORTH BENGAL A 6								
6.	Digging of pits of size (0.6+0.45)/2 x 0.45 x 0.45	man-day	20		120		2,400	0	2,400
7.	Filling up of planting pits with dug up pulverized soil	man-day	15		120		1,800	0	1,800
8.	Cleaning the plantation area before planting	man-day	4		120		480	0	480
9.	Transplanting of potted seedlings including carriage from field nursery to planting site and staking	man-day	26		120		3,120	0	3,120
10.	Infilling of vacancy created due to field mortality including carriage	man-day	4		120		480	0	480
11.	1st mulching by digging earth around pits and cleaning, weeding and application of fertilizer	man-day	14		120		1,680	0	1,680
12.	2nd mulching, cleaning, weeding including application of 2nd dose of fertilizer	man-day	12		120		1,440	0	1,440
13.	3rd mulching, cleaning, weeding	man-day	10		120		1,200	0	1,200
14.	4th mulching, cleaning, weeding	man-day	10		120		1,200	0	1,200
15.	Cutting firelines 3 m wide to prevent accidental fire	man-day	4		120		480	0	480
16.	Cutting trenches of size 0.60m x 0.45m inside the plantation area and boundary where necessary @ 100 m per hectare	man-day	8		120		960	0	960
17.	Watering of seedlings and watch and ward	man-day	8		120		960	0	960
18.	Making live hedge fencing	man-day	3		120		360	0	360
19.	Cost of insecticide, fertilizer including carriage	L.S		1		2,000	0	2,000	2,000
20.	Cost of materials like Ipomoea sp for live hedge fence	L.S		1		500	0	500	500
21.	Cost of Bamboo for live hedge fencing - 3 nos	nos		3		60	0	180	180
22.	Contingencies Rope/tin/watering can/thatch & carriage of seedling etc	L.S		1		660	0	660	660
	Sub Total of II.		138				16,560	3,340	19,900
	Sub Total of I+II		157				18,840	4,160	23,000
III.	1st YEAR MAINTENANCE --Miscellaneous Plantation								
23.	Vacancy filling /Beating up operation	man-day	3		120		360	0	360
24.	Mulching with fertilizers including weeding and cleaning over the entire area--three times	man-day	38		120		4,560	0	4,560
25.	Maintenance of the fire lines by cutting grasses /bushes	man-day	6		120		720	0	720
26.	Repairing of live hedge fencing	man-day	2		120		240	0	240
27.	Cost of fertilizers, fencing materials etc.	LS		1		760	0	760	760
	Sub Total of III.		49				5,880	760	6,640
IV.	2nd YEAR MAINTENANCE --Miscellaneous Plantation						0	0	0
28.	Mulching without fertilizers including hoeing the base over the entire area--two times	man-day	26		120		3,120	0	3,120
29.	Cost of fencing materials including repairs etc.	LS		1		280	0	280	280
	Sub Total of IV.		26				3,120	280	3,400
V.	3rd YEAR MAINTENANCE --Miscellaneous Plantation						0	0	0
30.	Mulching without fertilizers including hoeing the base over the entire area--two times	man-day	20		120		2,400	0	2,400
31.	Cost of fencing materials including repairs etc.	LS		1		100	0	100	100
	Sub Total of V.		20				2,400	100	2,500
	Grand Total		252				30,240	5,300	35,540

1. Afforestation and Allied Works

1.B Tree Planting Outside Forest Area (Social Forestry)

Base Year: 2011

Price Escalation: Labour 10.00%, Material 0.00%

	2012	2013	2014	2015	2016	2017	2018	2019
Labour	1.1000	1.2100	1.3310	1.4641	1.6105	1.7716	1.9487	2.1436
Material	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Price Escalation: 6.60%

Physical Contingency: 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
0.0660	0.1364	0.2114	0.2913	0.3765	0.4674	0.5642	0.6675

1.B1 Strip Plantation in Road side/Canal side/Railway side

Items of Work		UNIT COST (per Ha)									PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total (Rs)
		Base year Cost	2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
Advance	Labour	4,680	5,100	5,600	6,200	6,800	7,500	8,200	9,100	10,000			470	470	460				1,400	0	0	29,14,000	31,96,000	34,50,000	0	0	0	95,60,000
	Material	1,320	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	0	0	470	470	460	0	0	0	1,400	0	0	6,11,000	6,11,000	5,98,000	0	0	0	18,20,000
Creation	Labour	24,360	26,700	29,400	32,400	35,600	39,200	43,100	47,400	52,200			470	470	460				1,400	0	0	1,52,28,000	1,67,32,000	1,80,32,000	0	0	0	4,99,92,000
	Material	2,980	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	0	0	470	470	460	0	0	0	1,400	0	0	13,63,000	13,63,000	13,34,000	0	0	0	40,60,000
Maint Y1	Labour	12,360	13,500	14,900	16,400	18,000	19,900	21,800	24,000	26,400				470	470	460			1,400	0	0	0	84,60,000	93,53,000	1,00,28,000	0	0	2,78,41,000
	Material	580	500	500	500	500	500	500	500	500	0	0	0	470	470	460	0	0	1,400	0	0	0	2,35,000	2,35,000	2,30,000	0	0	7,00,000
Maint Y2	Labour	9,360	10,200	11,300	12,400	13,700	15,000	16,500	18,200	20,000					470	470	460		1,400	0	0	0	0	70,50,000	77,55,000	83,72,000	0	2,31,77,000
	Material	200	200	200	200	200	200	200	200	200	0	0	0	0	470	470	460	0	1,400	0	0	0	0	94,000	94,000	92,000	0	2,80,000
Maint Y3	Labour	7,920	8,700	9,500	10,500	11,500	12,700	14,000	15,400	16,900						470	470	460	1,400	0	0	0	0	0	65,80,000	72,38,000	77,74,000	2,15,92,000
	Material	240	200	200	200	200	200	200	200	200	0	0	0	0	0	470	470	460	1,400	0	0	0	0	0	94,000	94,000	92,000	2,80,000
																		Base Cost		0	0	2,01,16,000	3,05,97,000	4,01,46,000	2,47,81,000	1,57,96,000	78,66,000	13,93,02,000
																		Price Escalation		0	0	42,51,627	89,13,058	1,51,16,217	1,15,82,197	89,12,567	52,50,307	5,40,25,973
																		Physical Contingency		0	0	24,36,763	39,51,006	55,26,222	36,36,320	24,70,857	13,11,631	1,93,32,797
																		Total Cost		0	0	2,68,04,390	4,34,61,064	6,07,88,439	3,99,99,516	2,71,79,424	1,44,27,938	21,26,60,770

1.B2 Block Plantation In non-forest land

Items of Work		UNIT COST (per Ha)									PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total (Rs)
		Base year Cost	2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
Advance	Labour	4,680	5,100	5,600	6,200	6,800	7,500	8,200	9,100	10,000			470	470	460				1,400	0	0	29,14,000	31,96,000	34,50,000	0	0	0	95,60,000
	Material	1,320	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	0	0	470	470	460	0	0	0	1,400	0	0	6,11,000	6,11,000	5,98,000	0	0	0	18,20,000
Creation	Labour	21,480	23,600	25,900	28,500	31,400	34,500	38,000	41,800	46,000			470	470	460				1,400	0	0	1,33,95,000	1,47,58,000	1,58,70,000	0	0	0	4,40,23,000
	Material	2,980	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	0	0	470	470	460	0	0	0	1,400	0	0	13,63,000	13,63,000	13,34,000	0	0	0	40,60,000
Maint Y1	Labour	10,440	11,400	12,600	13,800	15,200	16,800	18,400	20,300	22,300				470	470	460			1,400	0	0	0	71,44,000	78,96,000	84,64,000	0	0	2,35,04,000
	Material	580	500	500	500	500	500	500	500	500	0	0	0	470	470	460	0	0	1,400	0	0	0	2,35,000	2,35,000	2,30,000	0	0	7,00,000
Maint Y2	Labour	7,440	8,100	9,000	9,900	10,800	11,900	13,100	14,400	15,900					470	470	460		1,400	0	0	0	0	55,93,000	61,57,000	66,24,000	0	1,83,74,000
	Material	200	200	200	200	200	200	200	200	200	0	0	0	0	470	470	460	0	1,400	0	0	0	0	94,000	94,000	92,000	0	2,80,000
Maint Y3	Labour	6,000	6,600	7,200	7,900	8,700	9,600	10,600	11,600	12,800						470	470	460	1,400	0	0	0	0	0	49,82,000	54,52,000	58,88,000	1,63,22,000
	Material	240	200	200	200	200	200	200	200	200	0	0	0	0	0	470	470	460	1,400	0	0	0	0	0	94,000	94,000	92,000	2,80,000
																		Base Cost		0	0	1,82,83,000	2,73,07,000	3,50,70,000	2,00,21,000	1,22,62,000	59,80,000	11,89,23,000
																		Price Escalation		0	0	38,64,213	79,54,665	1,32,04,945	93,57,458	69,18,580	39,91,462	4,52,91,322
																		Physical Contingency		0	0	22,14,721	35,26,166	48,27,495	29,37,846	19,18,058	9,97,146	1,64,21,432
																		Total Cost		0	0	2,43,61,934	3,87,87,831	5,31,02,440	3,23,16,304	2,10,98,638	1,09,68,608	18,06,35,754

1.B : Tree Planting Outside Forest Area (Social Forestry)

Type B1: Strip Plantation

Spacing 2.5 m x 2.5 m

No. of Plants = 1600 Nos/ha

Description	Unit	Quantity		Unit Price		Cost (Rs.)		
		Labour	Material	Labour	Material	Labour	Material	Total
I. ADVANCE WORKS- of B1 & B2 (Strip & Block Plantation)								
1. Survey and demarcation of the field nursery area	man-day	1		120		60	0	60
2. Cleaning the field nursery site by bush cutting / burning and removing debris	man-day	1		120		60	0	60
3. Preparation of mother beds	man-day	2		120		240	0	240
4. Preparation of Polypot beds	man-day	2		120		240	0	240
5. Collection of seeds	man-day	1		120		120	0	120
6. Sowing of seeds in mother beds	man-day	2		120		240	0	240
7. Pricking out the sprouted seedlings and transplanting to polypot beds	man-day	3		120		360	0	360
8. Watering the seedlings	man-day	3		120		360	0	360
9. Sorting & Shifting of seedlings two times	man-day	2		120		240	0	240
10. Digging of Kutcha well for water source	man-day	2		120		240	0	240
11. Making a temporary field nursery hut of Bamboo, Thatch mudwall etc	man-day	2		120		240	0	240
12. Survey and demarcation of the plantation area	man-day	1		120		120	0	120
13. Advance Soil works by digging planting pits of size (0.60+0.45)/2 x 0.45 x0.45 m3 including site cleaning	man-day	18		120		2,160	0	2,160
14. Cost of insecticide, fertilizer including carriage	L.S		1		300	0	300	300
15. Cost of Polybags	L.S		1		200	0	200	200
16. Cost of transported good earth and cow dung manure for application in the field and nursery	L.S		1		350	0	350	350
17. Cost of Rope/tin/watering can/bamboo/thatch etc	L.S		1		364	0	364	364
18. Contingencies	L.S		1		106	0	106	106
Sub Total of I.		39				4,680	1,320	6,000
II. CREATION WORKS--of B1 & B2 (Strip & Block Plantation)				120		0	0	0
19. Digging of pits of size (0.6+0.45)/2 x 0.45 x 0.45	man-day	20		120		2,400	0	2,400
20. Filling up of planting pits with dug up pulverized soil	man-day	15		120		1,800	0	1,800
21. Cleaning the plantation area before planting	man-day	4		120		480	0	480
22. Transplanting of potted seedlings including carriage from field nursery to planting site and staking	man-day	26		120		3,120	0	3,120
23. Application of insecticide to the planted seedlings	man-day	2		120		240	0	240
24. Pricking out and sorting & shifting of the seedlings in the field nursery	man-day	4		120		480	0	480
25. Infilling of vacancy created due to field mortality including carriage	man-day	4		120		480	0	480
26. 1st mulching by digging earth around pits and cleaning, weeding and application of fertilizer	man-day	14		120		1,680	0	1,680
27. 2nd mulching, cleaning, weeding including application of 2nd dose of fertilizer	man-day	12		120		1,440	0	1,440
28. 3rd mulching, cleaning, weeding	man-day	10		120		1,200	0	1,200
29. 4th mulching, cleaning, weeding	man-day	10		120		1,200	0	1,200
30. Cutting firelines 3 m wide to prevent accidental fire	man-day	8		120		960	0	960
31. Cutting trenches of size 0.60m x 0.45m inside the plantation area and boundary where necessary @ 100 m per hectare	man-day	16		120		1,920	0	1,920
32. Watering of seedlings and watch and ward	man-day	8		120		960	0	960
33. Making live hedge fencing	man-day	4		120		480	0	480
34. Cost of insecticide, fertilizer including carriage	LS		1		2,000	0	2,000	2,000
35. Cost of materials like Ipomoea sp for live hedge fence	LS		1		500	0	500	500
36. Cost of Bamboo for live hedge fencing - 3 nos	nos		3		60	0	180	180
37. Contingencies Rope/tin/watering can/thatch etc	LS		1		300	0	300	300
38. Watch & ward from cattle, fire etc. mandays	man-day	46		120		5,520	0	5,520
Sub Total of II.		203				24,360	2,980	27,340

III.	1st YEAR MAINTENANCE --of B1 & B2 (Strip & Block Plantation)							
	39. Vacancy filling /Beating up operation	man-day	3	120		360	0	360
	40. Mulching with fertilizers including weeding and cleaning over the entire area--three times	man-day	38	120		4,560	0	4,560
	41. Maintenance of the fire lines by cutting grasses /bushes	man-day	6	120		720	0	720
	42. Repairing of live hedge fencing	man-day	2	120		240	0	240
	43. Watch & ward from cattle, fire etc. mandays	man-day	54	120		6,480	0	6,480
	44. Cost of fertilizers, fencing materials etc.	LOS	1		580	0	580	580
	Sub Total of III.		103			12,360	580	12,940
IV.	2nd YEAR MAINTENANCE -of B1 & B2 (Strip & Block Plantation)							
	45. Mulching without fertilizers including hoeing the base over the entire area--two times	man-day	24	120		2,880	0	2,880
	46. Watch & ward from cattle, fire etc. mandays	man-day	54	120		6,480	0	6,480
	47. Cost of fencing materials including repairs etc.	LS	1		200	0	200	200
	Sub Total of IV.		78			9,360	200	9,560
V.	3rd YEAR MAINTENANCE -of B1 & B2 (Strip & Block Plantation)							
	48. Mulching without fertilizers including hoeing the base over the entire area--one times	man-day	12	120		1,440	0	1,440
	49. Watch & ward from cattle, fire etc. mandays	man-day	54	120		6,480	0	6,480
	50. Cost of fencing materials including repairs etc.	LS	1		240	0	240	240
	Sub Total of V.		66			7,920	240	8,160
	Grand Total		489			58,680	5,320	64,000

Type B2: Block Plantation

Spacing 2.5 m x 2.5 m

No. of Plants = 1600 Nos/ha

Description	Unit	Quantity		Unit Price		Cost (Rs.)		
		Labour	Material	Labour	Material	Labour	Material	Total
I. ADVANCE WORKS-of B1 & B2 (Strip & Block Plantation)								
1. Survey and demarcation of the field nursery area	man-day	1		120		60	0	60
2. Cleaning the field nursery site by bush cutting / burning and removing debris	man-day	1		120		60	0	60
3. Preparation of mother beds	man-day	2		120		240	0	240
4. Preparation of Polypot beds	man-day	2		120		240	0	240
5. Collection of seeds	man-day	1		120		120	0	120
6. Sowing of seeds in mother beds	man-day	2		120		240	0	240
7. Pricking out the sprouted seedlings and transplanting to polypot beds	man-day	3		120		360	0	360
8. Watering the seedlingws	man-day	3		120		360	0	360
9. Sorting & Shifting of seedlings two times	man-day	2		120		240	0	240
10. Digging of Kutcha well for water source	man-day	2		120		240	0	240
11. Making a temporary field nursery hut of Bamboo, Thatch mudwall etc	man-day	2		120		240	0	240
12. Survey and demarcation of the plantation area	man-day	1		120		120	0	120
13. Advance Soil works by digging planting pits of size (0.60+0.45)/2 x 0.45 x0.45 m3 including site cleaning	man-day	18		120		2,160	0	2,160
14. Cost of insecticide, fertilizer including carriage	L.S		1		300	0	300	300
15. Cost of Polybags	L.S		1		200	0	200	200
16. Cost of transported good earth and cow dung manure for application in the field and nursery	L.S		1		350	0	350	350
17. Cost of Rope/tin/watering can/bamboo/thatch etc	L.S		1		364	0	364	364
18. Contingencies	L.S		1		106	0	106	106
Sub Total of I.		39				4,680	1,320	6,000
II. CREATION WORKS--of B1 & B2 (Strip & Block Plantation)				120		0	0	0
19. Digging of pits of size (0.6+0.45)/2 x 0.45 x 0.45	man-day	20		120		2,400	0	2,400
20. Filling up of planting pits with dug up pulverized soil	man-day	15		120		1,800	0	1,800
21. Cleaning the plantation area before planting	man-day	4		120		480	0	480
22. Transplanting of potted seedlings including carriage from field nursery to planting site and staking	man-day	26		120		3,120	0	3,120
23. Application of insecticide to the planted seedlings	man-day	2		120		240	0	240
24. Pricking out and sorting & shifting of the seedlings in the field nursery	man-day	4		120		480	0	480
25. Infilling of vacancy created due to field mortality including carriage	man-day	4		120		480	0	480
26. 1st mulching by digging earth around pits and cleaning, weeding and application of fertilizer	man-day	14		120		1,680	0	1,680
27. 2nd mulching, cleaning, weeding including application of 2nd dose of fertilizer	man-day	12		120		1,440	0	1,440
28. 3rd mulching, cleaning, weeding	man-day	10		120		1,200	0	1,200
29. 4th mulching, cleaning, weeding	man-day	10		120		1,200	0	1,200
30. Cutting firelines 3 m wide to prevent accidental fire	man-day	0		120		0	0	0
31. Cutting trenches of size 0.60m x 0.45m inside the plantation area and boundary where necessary @ 100 m per hectare	man-day	0		120		0	0	0
32. Watering of seedlings and watch and ward	man-day	8		120		960	0	960
33. Making livehedge fencing	man-day	4		120		480	0	480
34. Cost of insecticide, fertilizer including carriage	LS		1		2,000	0	2,000	2,000
35. Cost of materials like Ipomoea sp for live hedge fence	LS		1		500	0	500	500
36. Cost of Bamboo for live hedge fencing - 3 nos	nos		3		60	0	180	180
37. Contingencies Rope/tin/watering can/thatch etc	LS		1		300	0	300	300
38. Watch & ward from cattle, fire etc. mandays	man-day	46		120		5,520	0	5,520
Sub Total of II.		179				21,480	2,980	24,460

III.	1st YEAR MAINTENANCE --of B1 & B2 (Strip & Block Plantation)							
	39. Vacancy filling /Beating up operation	man-day	3		120	360	0	360
	40. Mulching with fertilizers including weeding and cleaning over the entire area--three times	man-day	38		120	4,560	0	4,560
	41. Maintenance of the fire lines by cutting grasses /bushes	man-day	6		120	720	0	720
	42. Repairing of live hedge fencing	man-day	2		120	240	0	240
	43. Watch & ward from cattle, fire etc. mandays	man-day	38		120	4,560	0	4,560
	44. Cost of fertilizers, fencing materials etc.	LOS		1	580	0	580	580
	Sub Total of III.		87			10,440	580	11,020
IV.	2nd YEAR MAINTENANCE -of B1 & B2 (Strip & Block Plantation)							
	45. Mulching without fertilizers including hoeing the base over the entire area--two times	man-day	24		120	2,880	0	2,880
	46. Watch & ward from cattle, fire etc. mandays	man-day	38		120	4,560	0	4,560
	47. Cost of fencing materials including repairs etc.	LS		1	200	0	200	200
	Sub Total of IV.		62			7,440	200	7,640
V.	3rd YEAR MAINTENANCE -of B1 & B2 (Strip & Block Plantation)							
	48. Mulching without fertilizers including hoeing the base over the entire area--one times	man-day	12		120	1,440	0	1,440
	49. Watch & ward from cattle, fire etc. mandays	man-day	38		120	4,560	0	4,560
	50. Cost of fencing materials including repairs etc.	LS		1	240	0	240	240
	Sub Total of V.		50			6,000	240	6,240
	Grand Total		417			50,040	5,320	55,360

1. Afforestation and Allied Works

1.C Soil & Moisture Conservation in Forestry Treatment Areas

Base Year: 2011

Price Escalation: Labour 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
1.1000	1.2100	1.3310	1.4641	1.6105	1.7716	1.9487	2.1436

Price Escalation: 6.60%

Physical Contingency: 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
0.0660	0.1364	0.2114	0.2913	0.3765	0.4674	0.5642	0.6675

	Items of Work	Base year Cost	UNIT COST (per Ha)								PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total (Rs)
			2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
1.C1	Plantation of High Yielding Eucalyptus hybrid clones in South West Bengal	4,860	5,300	5,900	6,500	7,100	7,800	8,600	9,500	10,400	0	0	150	150	150	0	0	0	450	0	0	9,75,000	10,65,000	11,70,000	0	0	0	32,10,000
																			Price Escalation	0	0	2,06,072	3,10,240	4,40,541	0	0	0	9,56,853
																			Physical Contingency	0	0	1,18,107	1,37,524	1,61,054	0	0	0	4,16,685
																			Total Cost	0	0	12,99,179	15,12,764	17,71,596	0	0	0	45,83,538

	Items of Work	Base year Cost	UNIT COST (per Ha)								PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total (Rs)
			2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
1.C2	Plantation of Sal and Associate in South West Bengal	4,860	5,300	5,900	6,500	7,100	7,800	8,600	9,500	10,400	0	0	1,150	1,140	1,140	0	0	0	3,430	0	0	74,75,000	80,94,000	88,92,000	0	0	0	2,44,61,000
																			Price Escalation	0	0	15,79,882	23,57,822	33,48,114	0	0	0	72,85,819
																			Physical Contingency	0	0	9,05,488	10,45,182	12,24,011	0	0	0	31,74,682
																			Total Cost	0	0	99,60,371	1,14,97,005	1,34,64,126	0	0	0	3,49,21,501

	Items of Work	Base year Cost	UNIT COST (per Ha)								PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total (Rs)
			2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
1.C3	Plantation of Quick Growing Small Timber, Fuel & Fodder Species	4,860	5,300	5,900	6,500	7,100	7,800	8,600	9,500	10,400	0	0	2,000	2,000	2,000	0	0	0	6,000	0	0	1,30,00,000	1,42,00,000	1,56,00,000	0	0	0	4,28,00,000
																			Price Escalation	0	0	27,47,621	41,36,530	58,73,885	0	0	0	1,27,58,037
																			Physical Contingency	0	0	15,74,762	18,33,653	21,47,388	0	0	0	55,55,804
																			Total Cost	0	0	1,73,22,384	2,01,70,183	2,36,21,273	0	0	0	6,11,13,840

	Items of Work	Base year Cost	UNIT COST (per Ha)								PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total (Rs)
			2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
1.C4	Enrichment of Degraded Forests of South West Bengal through Coppice Regeraton	4,860	5,300	5,900	6,500	7,100	7,800	8,600	9,500	10,400	0	0	2,500	2,500	2,500	0	0	0	7,500	0	0	1,62,50,000	1,77,50,000	1,95,00,000	0	0	0	5,35,00,000
																			Price Escalation	0	0	34,34,527	51,70,663	73,42,356	0	0	0	1,59,47,546
																			Physical Contingency	0	0	19,68,453	22,92,066	26,84,236	0	0	0	69,44,755
																			Total Cost	0	0	2,16,52,979	2,52,12,729	2,95,26,592	0	0	0	7,63,92,301

Contour trench

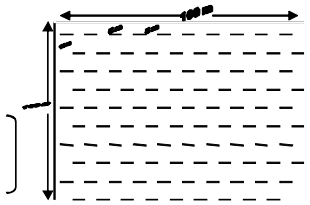
	Width (m)	Depth (m)	Length (m)	Excavation Volume (m3)	Number of trench / ha	Total Excavation volume (m3) / ha
Trench Excavation	0.45	0.45	5	1.0125	100	101.25

Labour output per day = 2.5 m3/day

Required Labour per ha = 40.5 man-day

Cost per ha = 4,860 Rs / ha

At 5..0 m interval, there will be 10 no. of 5m long trenches per line of 100m along length.
Such lines will be spaced at 10m.
There will be 100 trenches per ha (100mx100m)
Specification of trench is 5mx0.45mx0.45m.



1. Afforestation and Allied Works

1.D Production of Quality Planting Material

Base Year: 2011 | Price Escalation: Local 6.60%

Physical Contingency: 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
0.0660	0.1364	0.2114	0.2913	0.3765	0.4674	0.5642	0.6675

Year wise Financial Outlay in Rs lacs

Sl No.	Items of Work	Total FC	Total LC	Total Total	2012 FC	2012 LC	2012 Total	2013 FC	2013 LC	2013 Total	2014 FC	2014 LC	2014 Total	2015 FC	2015 LC	2015 Total	2016 FC	2016 LC	2016 Total	2017 FC	2017 LC	2017 Total	2018 FC	2018 LC	2018 Total	2019 FC	2019 LC	2019 Total
1.D1	Capital cost of setting up Hi-tech Central Nursery	0	5,00,00,000	9,25,00,000	0	0	0		5,00,00,000	9,25,00,000			0		0	0		0	0	0	0	0		0	0		0	0
	Price Escalation	0	68,17,800	1,26,12,930	0	0	0	0	68,17,800	1,26,12,930	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	56,81,780	1,05,11,293	0	0	0	0	56,81,780	1,05,11,293	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Cost	0	6,24,99,580	11,56,24,223	0	0	0	0	6,24,99,580	11,56,24,223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.D2	Capacity expansion of existing Hi-tech Central Nursery	0	1,50,00,000	2,77,50,000	0	0	0		1,50,00,000	2,77,50,000			0		0	0		0	0		0	0		0	0		0	0
	Price Escalation	0	20,45,340	37,83,879	0	0	0	0	20,45,340	37,83,879	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	17,04,534	31,53,388	0	0	0	0	17,04,534	31,53,388	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Cost	0	1,87,49,874	3,46,87,267	0	0	0	0	1,87,49,874	3,46,87,267	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Required Units	Cost per Unit	Total Cost
1.D1	Capital cost of setting up Hi-tech Central Nursery	20 Units	25,00,000	Rs 5,00,00,000
1.D2	Capacity expansion of existing Hi-tech Central Nursery	20 Units	7,50,000	Rs 1,50,00,000

Year wise Financial Outlay in Rs lacs

Sl No.	Items of Work	Total FC	Total LC	Total Total	2012 FC	2012 LC	2012 Total	2013 FC	2013 LC	2013 Total	2014 FC	2014 LC	2014 Total	2015 FC	2015 LC	2015 Total	2016 FC	2016 LC	2016 Total	2017 FC	2017 LC	2017 Total	2018 FC	2018 LC	2018 Total	2019 FC	2019 LC	2019 Total
1.D3	Prodcn. of 1 yr old qlty clone @ 2000/ha	0	45,00,000	83,25,000		0	0		12,00,000	22,20,000		15,00,000	27,75,000		15,00,000	27,75,000	0	3,00,000	5,55,000	0	0	0	0	0	0	0	0	0
	Price Escalation	0	10,30,577	19,06,568	0	0	0	0	1,63,627	3,02,710	0	3,17,033	5,86,512	0	4,36,957	8,08,371	0	1,12,959	2,08,975	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	5,53,058	10,23,157	0	0	0	0	1,36,363	2,52,271	0	1,81,703	3,36,151	0	1,93,696	3,58,337	0	41,296	76,397	0	0	0	0	0	0	0	0	0
	Total Cost	0	60,83,635	1,12,54,725	0	0	0	0	14,99,990	27,74,981	0	19,98,737	36,97,663	0	21,30,653	39,41,708	0	4,54,255	8,40,372	0	0	0	0	0	0	0	0	0
1.D4	Prodcn of 1 yr old qlty seedling @ 2000/ha	0	13,22,40,000	24,46,44,000		0	0		2,94,40,000	5,44,64,000		4,40,80,000	8,15,48,000		4,40,40,000	8,14,74,000	0	1,46,80,000	2,71,58,000	0	0	0	0	0	0	0	0	0
	Price Escalation	0	3,16,87,418	5,86,21,723	0	0	0	0	40,14,321	74,26,493	0	93,16,550	1,72,35,618	0	1,28,29,070	2,37,33,780	0	55,27,476	1,02,25,831	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	1,63,92,742	3,03,26,572	0	0	0	0	33,45,432	61,89,049	0	53,39,655	98,78,362	0	56,86,907	1,05,20,778	0	20,20,748	37,38,383	0	0	0	0	0	0	0	0	0
	Total Cost	0	18,03,20,159	33,35,92,295	0	0	0	0	3,67,99,753	6,80,79,543	0	5,87,36,205	10,86,61,980	0	6,25,55,977	11,57,28,558	0	2,22,28,224	4,11,22,214	0	0	0	0	0	0	0	0	0

	Items of Work	Unit	Unit Cost (Rs)	Quantity	PHYSICAL TARGET S (seedlings) 2012	2013	2014	2015	2016	2017	2018	2019	Total	FINANCIAL OUTLAYS (Rs) 2012	2013	2014	2015	2016	2017	2018	2019	Total	Remarks
1.D3	Prodcn. of 1 yr old qlty clone- 1st yr	seedling	Rs 4 /seedling		0	3,00,000	3,00,000	3,00,000	0	0	0	0	9,00,000	0	12,00,000	12,00,000	12,00,000	0	0	0	0	36,00,000	
1.D3	Prodcn. of 1 yr old qlty clone -2nd y	seedling	Rs 1 /seedling		0		3,00,000	3,00,000	3,00,000	0	0	0	9,00,000	0	0	3,00,000	3,00,000	3,00,000	0	0	0	9,00,000	
	Sub total 1.D3													0	12,00,000	15,00,000	15,00,000	3,00,000	0	0	0	45,00,000	
1.D4	Prodcn of 1 yr old qlty seedling -1st y	seedling	Rs 4 /seedling		0	73,60,000	73,40,000	73,40,000	0	0	0	0	2,20,40,000	0	2,94,40,000	2,93,60,000	2,93,60,000	0	0	0	0	8,81,60,000	
1.D4	Prodcn of 1 yr old qlty seedling-2nd y	seedling	Rs 2 /seedling		0	0	73,60,000	73,40,000	73,40,000	0	0	0	2,20,40,000	0	0	1,47,20,000	1,46,80,000	1,46,80,000	0	0	0	4,40,80,000	
	Sub total 1.D4													0	2,94,40,000	4,40,80,000	4,40,40,000	1,46,80,000	0	0	0	13,22,40,000	

	Afforestation Type	unit	Afforetation plan (ha) Total	2013	2014	2015	2016	2017	2018	2019	Total	Required Seedling 2012	2013	2014	2015	2016	2017	2018	2019	Total
1.A1	Planting with High Yielding Eucalyptus clones in South West Bengal	ha	450	150	150	150	0	0	0	0	450	0	3,00,000	3,00,000	3,00,000	0	0	0	0	9,00,000
1.A2	Plantation of Sal & Associate Species in South Bengal	ha	3,430	1,150	1,140	1,140	0	0	0	0	3,430	0	23,00,000	22,80,000	22,80,000	0	0	0	0	68,60,000
1.A3	Quick growing & small timber spp. plantation in South Bengal	ha	6000	2,000	2,000	2,000	0	0	0	0	6,000	0	40,00,000	40,00,000	40,00,000	0	0	0	0	1,20,00,000
1.A5	Economic Plantation in North Bengal	ha	1050	350	350	350	0	0	0	0	1,050	0	7,00,000	7,00,000	7,00,000	0	0	0	0	21,00,000
1.A6	Sal & associate Plantation in North Bengal	ha	540	180	180	180	0	0	0	0	540	0	3,60,000	3,60,000	3,60,000	0	0	0	0	10,80,000
			11,020	3,680	3,670	3,670	0	0	0	0	11,020	0	73,60,000	73,40,000	73,40,000	0	0	0	0	2,20,40,000

2,000 seedlings / ha

Items of Work	Type		
Prodcn. of 1 yr old qlty clone @ 2000/ha	A1	450 ha	9,00,000 seedlings
Prodcn of 1 yr old qlty seedling@ 2000/ha	A2	3,430 ha	68,60,000 seedlings
	A3	6,000 ha	1,20,00,000 seedlings
	A5	1,050 ha	21,00,000 seedlings
	A6	540 ha	10,80,000 seedlings
		11,470 ha	2,29,40,000 seedlings

2. Biodiversity Conservation

2.A Habitat Management

Base Year: 2011 | Price Escalation: 6.60%

Physical Contingency: 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
0.0660	0.1364	0.2114	0.2913	0.3765	0.4674	0.5642	0.6675

Sl No.	Components	Year wise Financial Outlay in Rs lacs																								
		Total			2012			2013			2014			2015			2016			2017			2018			2019		
		FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
2.A1	Grassland restoration and fodder tree planting in PAs in the North Bengal	0	1,67,16,000	3,09,24,600	0	0	0	0	0	0		8,89,000	16,44,650		43,47,000	80,41,950		52,11,000	96,40,350		45,09,000	83,41,650		12,74,000	23,56,900		4,86,000	8,99,100
	Price Escalation	0	65,66,945	1,21,48,848	0	0	0	0	0	0	0	1,87,895	3,47,606	0	12,66,303	23,42,660	0	19,62,103	36,29,891	0	21,07,426	38,98,738	0	7,18,828	13,29,832	0	3,24,390	6,00,121
	Physical Contingency	0	23,28,295	43,07,345	0	0	0	0	0	0	0	1,07,690	1,99,226	0	5,61,330	10,38,461	0	7,17,310	13,27,024	0	6,61,643	12,24,039	0	1,99,283	3,68,673	0	81,039	1,49,922
	Total Cost	0	2,56,11,240	4,73,80,793	0	0	0	0	0	0	0	11,84,585	21,91,481	0	61,74,633	1,14,23,071	0	78,90,414	1,45,97,266	0	72,78,069	1,34,64,427	0	21,92,111	40,55,405	0	8,91,429	16,49,143
2.A2	Bamboo under-planting in Mahananda WS	0	58,10,000	1,07,48,500		0	0		0	0		3,54,000	6,54,900		14,86,000	27,49,100		17,92,000	33,15,200		16,16,000	29,89,600		4,00,000	7,40,000		1,62,000	2,99,700
	Price Escalation	0	22,71,554	42,02,375	0	0	0	0	0	0	0	74,820	1,38,417	0	4,32,879	8,00,926	0	6,74,744	12,48,276	0	7,55,290	13,97,286	0	2,25,692	4,17,530	0	1,08,130	2,00,040
	Physical Contingency	0	8,08,155	14,95,087	0	0	0	0	0	0	0	42,882	79,332	0	1,91,888	3,54,993	0	2,46,674	4,56,348	0	2,37,129	4,38,689	0	62,569	1,15,753	0	27,013	49,974
	Total Cost	0	88,89,709	1,64,45,962	0	0	0	0	0	0	0	4,71,702	8,72,648	0	21,10,767	39,04,919	0	27,13,418	50,19,823	0	26,08,418	48,25,574	0	6,88,261	12,73,283	0	2,97,143	5,49,714
2.A3	Fodder tree plantinng after removal of maling bamboo in PAs in the hills	0	80,17,500	1,48,32,375	0	0	0	0	0	0		6,35,000	11,74,750		17,17,500	31,77,375		22,47,500	41,57,875		20,32,500	37,60,125		8,95,000	16,55,750		4,90,000	9,06,500
	Price Escalation	0	32,62,780	60,36,142	0	0	0	0	0	0	0	1,34,211	2,48,290	0	5,00,316	9,25,585	0	8,46,254	15,65,569	0	9,49,954	17,57,415	0	5,04,985	9,34,223	0	3,27,060	6,05,060
	Physical Contingency	0	11,28,028	20,86,852	0	0	0	0	0	0	0	76,921	1,42,304	0	2,21,782	4,10,296	0	3,09,375	5,72,344	0	2,98,245	5,51,754	0	1,39,999	2,58,997	0	81,706	1,51,156
	Total Cost	0	1,24,08,308	2,29,55,369	0	0	0	0	0	0	0	8,46,132	15,65,344	0	24,39,598	45,13,256	0	34,03,129	62,95,789	0	32,80,700	60,69,294	0	15,39,984	28,48,970	0	8,98,766	16,62,716
Total		0	7,70,19,398	14,24,85,886		0	0	0	0	0	0	39,47,573	73,03,010	0	1,82,88,300	3,38,33,355	0	2,34,55,164	4,33,92,053	0	2,18,05,474	4,03,40,127	0	66,55,744	1,23,13,126	0	28,67,143	53,04,215

Base Year: 2011

Price Escalation: Labour 10.00%

Material 0.00%

	2012	2013	2014	2015	2016	2017	2018	2019
Labour	1.0000	1.2100	1.3310	1.4641	1.6105	1.7716	1.9487	2.1436
Material	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

2.A1 Grassland restoration and fodder tree planting in PAs in the North Bengal

Items of Work		UNIT COST (per Ha)									PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total
		Base year Cost	2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
Advance	Labour	8,400	9,200	10,100	11,100	12,200	13,500	14,800	16,300	18,000	0	0	70	70	60	0	0	0	200	0	0	7,77,000	8,54,000	8,10,000	0	0	0	24,41,000
	Material	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	0	0	70	70	60	0	0	0	200	0	0	1,12,000	1,12,000	96,000	0	0	0	3,20,000
Creation and Fencing	Labour	18,000	19,800	21,700	23,900	26,300	28,900	31,800	35,000	38,500	0	0	0	70	70	60	0	0	200	0	0	0	18,41,000	20,23,000	19,08,000	0	0	57,72,000
	Material	22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000	22,000	0	0	0	70	70	60	0	0	200	0	0	0	15,40,000	15,40,000	13,20,000	0	0	44,00,000
MaintY1	Labour	6,000	6,600	7,200	7,900	8,700	9,600	10,600	11,600	12,800	0	0	0	0	70	70	60	0	200	0	0	0	0	6,72,000	7,42,000	6,96,000	0	21,10,000
	Material	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0	0	0	0	70	70	60	0	200	0	0	0	0	70,000	70,000	60,000	0	2,00,000
MaintY2	Labour	3,600	3,900	4,300	4,700	5,200	5,700	6,300	7,000	7,700	0	0	0	0	0	70	70	60	200	0	0	0	0	0	4,41,000	4,90,000	4,62,000	13,93,000
	Material	400	400	400	400	400	400	400	400	400	0	0	0	0	0	70	70	60	200	0	0	0	0	0	28,000	28,000	24,000	80,000
Total																				0	0	8,89,000	43,47,000	52,11,000	45,09,000	12,74,000	4,86,000	1,67,16,000

2.A2 Bamboo under-planting in Mahananda WS

(Rs)

Items of Work		UNIT COST (per Ha)									PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total
		Base year Cost	2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
Advance	Labour	8,400	9,200	10,100	11,100	12,200	13,500	14,800	16,300	18,000	0	0	20	20	20	0	0	0	60	0	0	2,22,000	2,44,000	2,70,000	0	0	0	7,36,000
	Material	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	0	0	20	20	20	0	0	0	60	0	0	1,32,000	1,32,000	1,32,000	0	0	0	3,96,000
Creation and Fencing	Labour	22,800	25,000	27,500	30,300	33,300	36,700	40,300	44,400	48,800	0	0	0	20	20	20	0	0	60	0	0	0	6,66,000	7,34,000	8,06,000	0	0	22,06,000
	Material	22,200	22,200	22,200	22,200	22,200	22,200	22,200	22,200	22,200	0	0	0	20	20	20	0	0	60	0	0	0	4,44,000	4,44,000	4,44,000	0	0	13,32,000
MaintY1	Labour	6,000	6,600	7,200	7,900	8,700	9,600	10,600	11,600	12,800	0	0	0	0	20	20	20	0	60	0	0	0	0	1,92,000	2,12,000	2,32,000	0	6,36,000
	Material	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0	0	0	0	20	20	20	0	60	0	0	0	0	20,000	20,000	20,000	0	60,000
MaintY2	Labour	3,600	3,900	4,300	4,700	5,200	5,700	6,300	7,000	7,700	0	0	0	0	0	20	20	20	60	0	0	0	0	0	1,26,000	1,40,000	1,54,000	4,20,000
	Material	400	400	400	400	400	400	400	400	400	0	0	0	0	0	20	20	20	60	0	0	0	0	0	8,000	8,000	8,000	24,000
Total																				0	0	3,54,000	14,86,000	17,92,000	16,16,000	4,00,000	1,62,000	58,10,000

2.A3 Fodder tree plantinng after removal of maling bamboo in PAs in the hills

(Rs)

Items of Work		UNIT COST (per Ha)									PHYSICAL TARGETS (Ha)									FINANCIAL OUTLAYS (Rs)								Total Ha
		Base year Cost	2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
Advance	Labour	8,400	9,200	10,100	11,100	12,200	13,500	14,800	16,300	18,000	0	0	25	25	25	0	0	0	75	0	0	2,77,500	3,05,000	3,37,500	0	0	0	9,20,000
	Material	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	0	0	25	25	25	0	0	0	75	0	0	40,000	40,000	40,000	0	0	0	1,20,000
Complete Nursury Work, Bamboo Removal and Fencing	Labour	8,400	9,200	10,100	11,100	12,200	13,500	14,800	16,300	18,000	0	0	25	25	25	0	0	0	75	0	0	2,77,500	3,05,000	3,37,500	0	0	0	9,20,000
	Material	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	0	0	25	25	25	0	0	0	75	0	0	40,000	40,000	40,000	0	0	0	1,20,000
Creation and Fencing	Labour	24,000	26,400	29,000	31,900	35,100	38,600	42,500	46,700	51,400	0	0	0	25	25	25	0	0	75	0	0	0	8,77,500	9,65,000	10,62,500	0	0	29,05,000
	Material	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	0	0	0	25	25	25	0	0	75	0	0	0	1,50,000	1,50,000	1,50,000	0	0	4,50,000
MaintY1	Labour	8,400	9,200	10,100	11,100	12,200	13,500	14,800	16,300	18,000	0	0	0	0	25	25	25	0	75	0	0	0	0	3,37,500	3,70,000	4,07,500	0	11,15,000
	Material	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	0	0	0	0	25	25	25	0	75	0	0	0	0	40,000	40,000	40,000	0	1,20,000
MaintY2	Labour	8,400	9,200	10,100	11,100	12,200	13,500	14,800	16,300	18,000	0	0	0	0	0	25	25	25	75	0	0	0	0	0	3,70,000	4,07,500	4,50,000	12,27,500
	Material	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	0	0	0	0	0	25	25	25	75	0	0	0	0	0	40,000	40,000	40,000	1,20,000
Total																				0	0	6,35,000	17,17,500	22,47,500	20,32,500	8,95,000	4,90,000	80,17,500

2.B Man-Animal conflict

Sl No.	Components	Year wise Financial Outlay in Rs lacs																										
		Total			2012			2013			2014			2015			2016			2017			2018			2019		
		FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
2.B1	Elephant/ Gaur in the North and South West Bengal	0	5,99,53,197	11,09,13,415		0	0		92,00,000	1,70,20,000		90,91,603	1,68,19,460		95,70,760	1,77,05,906		1,00,97,836	1,86,80,997		1,06,77,620	1,97,53,596		1,13,15,382	2,09,33,456		0	0
	Price Escalation	0	2,11,41,193	3,91,11,207	0	0	0	0	12,54,475	23,20,779	0	19,21,503	35,54,885	0	27,88,010	51,57,818	0	38,02,149	70,33,976	0	49,90,529	92,32,478	0	63,84,470	1,18,11,270	0	0	0
	Physical Contingency	0	81,09,439	1,50,02,462	0	0	0	0	10,45,448	19,34,078	0	11,01,316	20,37,435	0	12,35,877	22,86,372	0	13,89,999	25,71,497	0	15,66,815	28,98,607	0	17,69,985	32,74,473	0	0	0
	Total Cost	0	8,92,03,829	16,50,27,084	0	0	0	0	1,14,99,923	2,12,74,857	0	1,21,14,476	2,24,11,780	0	1,35,94,647	2,51,50,097	0	1,52,89,984	2,82,86,470	0	1,72,34,963	3,18,84,682	0	1,94,69,837	3,60,19,199	0	0	0
2.B2	Leopard in the North Bengal	0	28,33,325	52,41,651		0	0		8,25,000	15,26,250		3,35,475	6,20,629		3,65,423	6,76,032		3,98,365	7,36,975		4,34,601	8,04,012		4,74,461	8,77,753		0	0
	Price Escalation	0	9,10,674	16,84,747	0	0	0	0	1,12,494	2,08,113	0	70,904	1,31,173	0	1,06,449	1,96,931	0	1,49,997	2,77,494	0	2,03,125	3,75,781	0	2,67,705	4,95,254	0	0	0
	Physical Contingency	0	3,74,400	6,92,640	0	0	0	0	93,749	1,73,436	0	40,638	75,180	0	47,187	87,296	0	54,836	1,01,447	0	63,773	1,17,979	0	74,217	1,37,301	0	0	0
	Total Cost	0	41,18,399	76,19,038	0	0	0	0	10,31,243	19,07,800	0	4,47,017	8,26,982	0	5,19,059	9,60,259	0	6,03,198	11,15,916	0	7,01,499	12,97,773	0	8,16,383	15,10,309	0	0	0
2.B3	Tiger in Sunderbans	0	3,00,65,320	5,56,20,841		0	0		41,40,000	76,59,000		49,79,160	92,11,446		50,27,076	93,00,091		50,79,784	93,97,600		51,37,762	95,04,860		47,01,538	86,97,846		10,00,000	18,50,000
	Price Escalation	0	1,07,15,508	1,98,23,689	0	0	0	0	5,64,514	10,44,351	0	10,52,373	19,46,890	0	14,64,412	27,09,163	0	19,12,696	35,38,488	0	24,01,298	44,42,402	0	26,52,746	49,07,580	0	6,67,468	12,34,817
	Physical Contingency	0	40,78,083	75,44,453	0	0	0	0	4,70,451	8,70,335	0	6,03,153	11,15,834	0	6,49,149	12,00,925	0	6,99,248	12,93,609	0	7,53,906	13,94,726	0	7,35,428	13,60,543	0	1,66,747	3,08,482
	Total Cost	0	4,48,58,931	8,29,88,984	0	0	0	0	51,74,965	95,73,686	0	66,34,686	1,22,74,169	0	71,40,637	1,32,10,178	0	76,91,728	1,42,29,697	0	82,92,966	1,53,41,987	0	80,89,712	1,49,65,968	0	18,34,215	33,93,299
2.B4	Smaller animals in the Central Bengal	0	1,60,45,980	2,96,85,062		0	0		29,58,000	54,72,300		24,98,743	45,48,669		25,30,614	46,81,636		26,09,675	48,27,899		26,96,643	49,88,789		27,92,307	51,65,768		0	0
	Price Escalation	0	54,78,678	1,01,35,554	0	0	0	0	4,03,341	7,46,181	0	5,19,668	9,61,386	0	7,37,180	13,63,784	0	9,82,624	18,17,854	0	12,60,363	23,31,671	0	15,75,902	29,14,678	0	0	0
	Physical Contingency	0	21,52,466	39,82,062	0	0	0	0	3,36,134	6,21,848	0	2,97,841	5,51,006	0	3,26,779	6,04,542	0	3,59,230	6,64,575	0	3,95,701	7,32,046	0	4,36,781	8,08,045	0	0	0
	Total Cost	0	2,36,77,123	4,38,02,678	0	0	0	0	36,97,475	68,40,329	0	32,76,249	60,61,061	0	35,94,574	66,49,962	0	39,51,529	73,10,329	0	43,52,706	80,52,507	0	48,04,990	88,88,491	0	0	0

Base Year	2011
Price Escalation	10.00%

2012	2013	2014	2015	2016	2017	2018	2019
1.1000	1.2100	1.3310	1.4641	1.6105	1.7716	1.9487	2.1436

2.B Man-Animal conflict

Items of Work	Unit	UNIT COST	Quantity	Unit Labour Cost by Year								PHYSICAL TARGETS									FINANCIAL OUTLAYS (Rs)								Total
				2012	2013	2014	2015	2016	2017	2018	2019	2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
2.B1. Elephant/Gaur in the North and South West Bengal																					0	92,00,000	90,91,600	95,70,760	1,00,97,836	1,06,77,620	1,13,15,382	0	5,99,53,197
a) Electric fencing in the north																					0	0	17,00,000	17,00,000	17,00,000	17,00,000	17,00,000	0	85,00,000
Erection of electric fence with iron angle posts	km	2,00,000	20											4	4	4	4	4		20	0	0	8,00,000	8,00,000	8,00,000	8,00,000	8,00,000	0	40,00,000
Erection of electric fence with wooden posts	km	1,50,000	20											4	4	4	4	4		20	0	0	6,00,000	6,00,000	6,00,000	6,00,000	6,00,000	0	30,00,000
Improvement of old electric fence	km	50,000	30											6	6	6	6	6		30	0	0	3,00,000	3,00,000	3,00,000	3,00,000	3,00,000	0	15,00,000
b) Mobile squad in the north																					0	68,00,000	36,95,800	39,35,380	41,98,918	44,88,810	48,07,691	0	2,79,26,599
Vehicle with remodelling the body and cage for transporting animals	set	28,00,000	1										1							1	0	28,00,000	0	0	0	0	0	0	28,00,000
Vehicle for patrolling	set	8,00,000	2										2							2	0	16,00,000	0	0	0	0	0	0	16,00,000
Mobile van hiring (6 divisions x 5 years)	rent	1,50,000	25											5	5	5	5	5		25	0	0	7,50,000	7,50,000	7,50,000	7,50,000	7,50,000	0	37,50,000
Small truck hiring (5 divisions x 5 years)	rent	60,000	25											5	5	5	5	5		25	0	0	3,00,000	3,00,000	3,00,000	3,00,000	3,00,000	0	15,00,000
Public address system for vehicle and hand held	set	50,000	5										5							5	0	2,50,000	0	0	0	0	0	0	2,50,000
Radio communication set for static and mobile van	set	1,00,000	5										5							5	0	5,00,000	0	0	0	0	0	0	5,00,000
Search light with battery (5 x 5 divisions)	set	4,000	25										25							25	0	1,00,000	0	0	0	0	0	0	1,00,000
Walkie-talkie (5 x 5 divisions)	pcs	6,000	25										25							25	0	1,50,000	0	0	0	0	0	0	1,50,000
Night vision binoculars	pcs	1,00,000	5										5							5	0	5,00,000	0	0	0	0	0	0	5,00,000
Watch tower	set	1,30,000	5										5							5	0	6,50,000	0	0	0	0	0	0	6,50,000
Cracker and burning torch for 5 divisions	year	2,50,000	5											1	1	1	1	1		5	0	0	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000	0	12,50,000
Field gear against rain/cold for staff and contractual labours (25 x 5 divisions)	pcs	2,000	125										125							125	0	2,50,000	0	0	0	0	0	0	2,50,000
Skilled labour for driving: 20 labours x 60 days x 5 divisions total 6,000 mandays a year for 5 years service	manday	300	3,00,000	330	363	399	439	483	531	585	643			6,000	6,000	6,000	6,000	6,000		30,000	0	0	23,95,800	26,35,380	28,98,918	31,88,810	35,07,691	0	1,46,26,599
c) Driving-off operation in the south-west																					0	24,00,000	36,95,800	39,35,380	41,98,918	44,88,810	48,07,691	0	2,35,26,599
Mobile van hiring (6 divisions x 5 years)	rent	1,50,000	25											5	5	5	5	5		25	0	0	7,50,000	7,50,000	7,50,000	7,50,000	7,50,000	0	37,50,000
Small truck hiring (5 divisions x 5 years)	rent	60,000	25											5	5	5	5	5		25	0	0	3,00,000	3,00,000	3,00,000	3,00,000	3,00,000	0	15,00,000
Public address system for vehicle and hand held	set	50,000	5										5							5	0	2,50,000	0	0	0	0	0	0	2,50,000
Radio communication set for static and mobile van	set	1,00,000	5										5							5	0	5,00,000	0	0	0	0	0	0	5,00,000
Search light with battery (5 x 5 divisions)	set	4,000	25										25							25	0	1,00,000	0	0	0	0	0	0	1,00,000
Walkie-talkie (5 x 5 divisions)	pcs	6,000	25										25							25	0	1,50,000	0	0	0	0	0	0	1,50,000
Night vision binoculars	pcs	1,00,000	5										5							5	0	5,00,000	0	0	0	0	0	0	5,00,000
Watch tower	set	1,30,000	5										5							5	0	6,50,000	0	0	0	0	0	0	6,50,000
Cracker and burning torch for 5 divisions	year	2,50,000	5											1	1	1	1	1		5	0	0	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000	0	12,50,000
Field gear against rain/cold for staff and contractual labours (25 x 5 divisions)	pcs	2,000	125										125							125	0	2,50,000	0	0	0	0	0	0	2,50,000
Skilled labour for driving: 20 labours x 60 days x 5 divisions total 6,000 mandays a year for 5 years service	manday	300	3,00,000	330	363	399	439	483	531	585	643			6,000	6,000	6,000	6,000	6,000		30,000	0	0	23,95,800	26,35,380	28,98,918	31,88,810	35,07,691	0	1,46,26,599
2.B2. Leopard in the North Bengal																				0	0	8,25,000	3,35,475	3,65,423	3,98,365	4,34,601	4,74,461	0	28,33,325
Small truck hiring (6 days x 5 years x 5 divisions)	rent	1,200	150											30	30	30	30	30		150	0	0	36,000	36,000	36,000	36,000	36,000	0	1,80,000
Nylon net for capturing (50 x 5 divisions)	m2	500	250										250							250	0	1,25,000	0	0	0	0	0	0	1,25,000
Transport cage (2 x 5 divisions)	pcs	40,000	10										10							10	0	4,00,000	0	0	0	0	0	0	4,00,000
Protective gear for staff (10 x 5 divisions)	pcs	4,000	50										50							50	0	2,00,000	0	0	0	0	0	0	2,00,000
Field gear against rain/cold for staff and contractual labours (10 x 5 divisions)	pcs	2,000	50										50							50	0	1,00,000	0	0	0	0	0	0	1,00,000
Skilled labour: 5 labours x 30 days x 5 divisions total 750 mandays a year for 5 years service	manday	300	3,750	330	363	399	439	483	531	585	643			750	750	750	750	750		3,750	0	0	2,99,475	3,29,423	3,62,365	3,98,601	4,38,461	0	18,28,325
2.B3. Tiger in Sundarbans																				0	0	41,40,000	49,79,160	50,27,076	50,79,784	51,37,762	47,01,538	10,00,000	3,00,65,320
Election of nylon net fence	km	5,00,000	16											3	3	3	3	2	2	16	0	0	15,00,000	15,00,000	15,00,000	15,00,000	10,00,000	10,00,000	80,00,000
Replacement of nylon net fence	km	1,50,000	20											4	4	4	4	4		20	0	0	6,00,000	6,00,000	6,00,000	6,00,000	6,00,000	0	30,00,000
Launch hiring (2 squads x 5 years)	year	12,00,000	10											2	2	2	2	2		10	0	0	24,00,000	24,00,000	24,00,000	24,00,000	24,00,000	0	1,20,00,000
Speed boats with spare engine	set	15,00,000	2										2							2	0	30,00,000	0	0	0	0	0	0	30,00,000
Transport cage, squeeze cage and trap cage	set	2,00,000	2										2							2	0	4,00,000	0	0	0	0	0	0	4,00,000
Radio communication set	set	1,00,000	2										2							2	0	2,00,000	0	0	0	0	0	0	2,00,000
Public address system and eco-gen set	set	50,000	2										2							2	0	1,00,000	0	0	0	0	0	0	1,00,000
Search light with separate battery	set	4,000	30										30							30	0	1,20,000	0	0	0	0	0	0	1,20,000
Nylon net for capturing (200 x 2 squads)	m2	500	400										400							400	0	2,00,000	0	0	0	0	0	0	2,00,000
Protective gear for staff	pcs	4,000	30										30							30	0	1,20,000	0	0	0	0	0	0	1,20,000
Skilled labour: 20 labours x 60 days total 1,200 mandays a year for 5 years service	manday	300	6,000	330	363	399	439	483	531	585	643			1,200	1,200	1,200	1,200	1,200		6,000	0	0	4,79,160	5,27,076	5,79,784	6,37,762	7,01,538	0	29,25,320
2.B4. Smaller animals in the Central Bengal																				0	0	29,58,000	24,58,740	25,30,614	26,09,675	26,96,643	27,92,307	0	1,60,45,980
Mobile van hiring (3 months x 5 years x 6 districts = 90 vehicle-month)	rent	30,000	90											18	18	18	18	18		90	0	0	5,40,000	5,40,000	5,40,000	5,40,000	5,40,000	0	27,00,000
Treatment chamber, post mortem room and quarantine (5 divisions)	set	3,00,000	5										5							5	0	15,00,000	0	0	0	0	0	0	15,00,000
Trap cage for small animals (3 x 6 districts)	pcs	15,000	18										18							18	0	2,70,000	0	0	0	0	0	0	2,70,000
Bird cage (2 x 6 districts)	pcs	20,000	12										12							12	0	2,40,000	0	0	0	0	0	0	2,40,000
Snake trapping stick, fridge and snake enclosure (2 x 6 districts)	set	70,000	12										12							12	0	8,40,000	0	0	0	0	0	0	8,40,000
Net for trapping animals (60 x 6 districts)	m2	300	360										360							360	0	1,08,000	0	0	0	0	0	0	1,08,000
Skilled labour: 5 labours x 60 days x 6 divisions total 1,800 mandays a year for 5 years service	manday	300	9,000	330	363	399	439	483	531	585	643			1,800	1,800	1,800	1,800	1,800		9,000	0	0	7,18,740	7,90,614	8,69,675	9,56,643	10,52,307	0	43,87,980
Veterinary assistance with honorarium: 6 divisions	year	6,00,000	5											1	1	1	1	1		5	0	0	6,00,000	6,00,000	6,00,000	6,00,000	6,00,000	0	30,00,000
Service contract with NGOs: 6 divisions	year	6,00,000	5											1	1	1	1	1		5	0	0	6,00,000	6,00,000	6,00,000	6,00,000	6,00,000	0	30,00,000
Total																					0	1,71,23,000	1,68,64,975	1,74,93,873	1,81,85,640	1,89,46,626	1,92,83,688	10,00,000	10,88,97,821

2.C Research

Sl No.	Components	Year wise Financial Outlay in Rs lacs																										
		Total			2012			2013			2014			2015			2016			2017			2018			2019		
		FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
2.C1	Inventory and status survey for butterflies in the North Bengal	0	35,00,000	64,75,000		0	0		0	0		14,00,000	25,90,000		10,50,000	19,42,500		10,50,000	19,42,500		0	0		0	0		0	0
	Price Escalation	0	9,97,126	18,44,682	0	0	0	0	0	0	0	2,95,898	5,47,411	0	3,05,870	5,65,860	0	3,95,358	7,31,412	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	4,49,713	8,31,969	0	0	0	0	0	0	0	1,69,590	3,13,741	0	1,35,587	2,50,836	0	1,44,536	2,67,391	0	0	0	0	0	0	0	0	0
	Total Cost	0	49,46,838	91,51,650	0	0	0	0	0	0	0	18,65,487	34,51,152	0	14,91,457	27,59,196	0	15,89,893	29,41,303	0	0	0	0	0	0	0	0	0
2.C2	Status survey of Gaur and Leopard in the North Bengal foothills	0	30,00,000	55,50,000		0	0		0	0		9,00,000	16,65,000		9,00,000	16,65,000		6,00,000	11,10,000		6,00,000	11,10,000		0	0		0	0
	Price Escalation	0	9,58,742	17,73,673	0	0	0	0	0	0	0	1,90,220	3,51,907	0	2,62,174	4,85,023	0	2,25,919	4,17,950	0	2,80,429	5,18,794	0	0	0	0	0	0
	Physical Contingency	0	3,95,874	7,32,367	0	0	0	0	0	0	0	1,09,022	2,01,691	0	1,16,217	2,15,002	0	82,592	1,52,795	0	86,043	1,62,879	0	0	0	0	0	0
	Total Cost	0	43,54,617	80,56,041	0	0	0	0	0	0	0	11,99,242	22,18,598	0	12,78,392	23,65,025	0	9,08,511	16,80,744	0	9,66,472	17,91,674	0	0	0	0	0	0
2.C3	Study of Tiger ecology for conservation	0	40,00,000	74,00,000		0	0		0	0		8,00,000	14,80,000		8,00,000	14,80,000		8,00,000	14,80,000		8,00,000	14,80,000		8,00,000	14,80,000		0	0
	Price Escalation	0	15,28,642	28,27,988	0	0	0	0	0	0	0	1,69,084	3,12,806	0	2,33,044	4,31,131	0	3,01,225	5,57,266	0	3,73,906	6,91,726	0	4,51,383	8,35,059	0	0	0
	Physical Contingency	0	5,52,864	10,22,759	0	0	0	0	0	0	0	96,908	1,79,281	0	1,03,304	1,91,113	0	1,10,122	2,03,727	0	1,17,391	2,17,173	0	1,25,138	2,31,506	0	0	0
	Total Cost	0	60,81,507	1,12,50,787	0	0	0	0	0	0	0	10,65,993	19,72,087	0	11,36,348	21,02,244	0	12,11,347	22,40,993	0	12,91,296	23,88,898	0	13,76,522	25,46,565	0	0	0
2.C4	Study of Elephant ecology for management	0	40,00,000	74,00,000		0	0		0	0		12,00,000	22,20,000		12,00,000	22,20,000		8,00,000	14,80,000		8,00,000	14,80,000		0	0		0	0
	Price Escalation	0	12,78,323	23,64,898	0	0	0	0	0	0	0	2,53,627	4,69,209	0	3,49,566	6,46,697	0	3,01,225	5,57,266	0	3,73,906	6,91,726	0	0	0	0	0	0
	Physical Contingency	0	5,27,832	9,76,430	0	0	0	0	0	0	0	1,45,353	2,68,921	0	1,54,957	2,86,670	0	1,10,122	2,03,727	0	1,17,391	2,17,173	0	0	0	0	0	0
	Total Cost	0	58,06,155	1,07,41,328	0	0	0	0	0	0	0	15,98,989	29,58,130	0	17,04,523	31,53,367	0	12,11,347	22,40,993	0	12,91,296	23,88,898	0	0	0	0	0	0
2.C5	Impact assessment for habitat management	0	40,00,000	74,00,000		0	0		0	0		8,00,000	14,80,000		8,00,000	14,80,000		8,00,000	14,80,000		8,00,000	14,80,000		8,00,000	14,80,000		0	0
	Price Escalation	0	15,28,642	28,27,988	0	0	0	0	0	0	0	1,69,084	3,12,806	0	2,33,044	4,31,131	0	3,01,225	5,57,266	0	3,73,906	6,91,726	0	4,51,383	8,35,059	0	0	0
	Physical Contingency	0	5,52,864	10,22,759	0	0	0	0	0	0	0	96,908	1,79,281	0	1,03,304	1,91,113	0	1,10,122	2,03,727	0	1,17,391	2,17,173	0	1,25,138	2,31,506	0	0	0
	Total Cost	0	60,81,507	1,12,50,787	0	0	0	0	0	0	0	10,65,993	19,72,087	0	11,36,348	21,02,244	0	12,11,347	22,40,993	0	12,91,296	23,88,898	0	13,76,522	25,46,565	0	0	0

	Items of Work	Unit	UNIT COST	Quantity	PHYSICAL TARGETS									FINANCIAL OUTLAYS (Rs)								Total
					2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
2.C.1	Inventory and status survey for butterflies in the North Bengal	LS	35,00,000				0.4	0.3	0.3				1.00	0	0	14,00,000	10,50,000	10,50,000	0	0	0	35,00,000
2.C.2	Status survey of Gaur and Leopard in the North Bengal foothills	LS	30,00,000				0.3	0.3	0.2	0.2			1.00	0	0	9,00,000	9,00,000	6,00,000	6,00,000	0	0	30,00,000
2.C.3	Study of Tiger ecology for conservation	LS	40,00,000				0.2	0.2	0.2	0.2	0.2		1.00	0	0	8,00,000	8,00,000	8,00,000	8,00,000	8,00,000	0	40,00,000
2.C.4	Study of Elephant ecology for management	LS	40,00,000				0.3	0.3	0.2	0.2			1.00	0	0	12,00,000	12,00,000	8,00,000	8,00,000	0	0	40,00,000
2.C.5	Impact assessment for habitat management	LS	40,00,000				0.2	0.2	0.2	0.2	0.2		1.00	0	0	8,00,000	8,00,000	8,00,000	8,00,000	8,00,000	0	40,00,000

2.A Habitat Management in Protected Areas
Unit Cost Structure for Fodder Development : Rs. Lakh

Unit = One Hectare

Rate / Personday (Rs.) = 120.00

Component / Activities	Persondays		Material		Total
	Phy	Fin (Rs.)	Phy	Fin (Rs.)	Fin (Rs. lakh)
2.A1 Grass and fodder tree plantation in Gorumara NP, Jaldapara WS and Buxa TR					
Advance Work - Year 1					
Cleaning, tree girdling and control burning of the area	12	1,440			1,440
Preparation of mother beds	8	960			960
Collection of grass seeds / slips and tree seeds	8	960			960
Shifting of slips and seedlings to different beds	10	1,200			1,200
Making of sheds for beds	12	1,440		600.00	2,040
Weeding/ cleaning of beds	8	960			960
Watering of beds	8	960			960
Manuring /application of organic pesticide/fungicides	4	480	set	400.00	880
Cost of implements like measuring tape, ropes, axe, lime powder, sickle etc	0	0	set	600.00	600
Sub total	70	8,400		1600.00	10,000
Creation - Year 2					
Survey and demarcation of area	4	480			480
Removal of woody weeds and climbers and energised fencing	40	4,800		1000	5,800
Burning the site carefully in a controlled manner	5	600			600
Collection of grass slips and seedling from nursery and transportaion	5	600	set	500.00	1,100
Digging of trenches and pits and planting of grass slips and seedlings	30	3,600			3,600
Gap filling and three times weed cleaning	50	6,000			6,000
Watching the plantation against grazing and applying fertiliser	16	1,920	set	500.00	2,420
Electric fence			set/ha	20000.00	20,000
Sub total	150	18,000		22000.00	40,000
Maintenance - Year 3					0
Cleaning of weeds two times and gap filling	40	4,800			4,800
Watching the plantation against grazing and other damage	10	1,200	set	1000.00	2,200
Sub total	50	6,000		1000.00	7,000
Maintenance - Year 4					
Cleaning of weeds two times and gap filling	20	2400.00	set	400.00	2,800
Watching the plantation against grazing and other damage	10	1200.00			1,200
Sub total	30	3600	0	400.00	4,000

2.A2 Bamboo under-planting in Mahananda WS					
Advance Work - Year 1					
Cleaning, tree girdling and control burning of the area	12	1,440			1,440
Preparation of nursery beds	8	960			960
Collection of bamboo offsets and planting in mother beds	8	960		2800.00	3,760
Shifting of culms to other beds	10	1,200			1,200
Making of sheds for beds	12	1,440		1600.00	3,040
Weeding/ cleaning of beds	8	960			960
Watering of beds	8	960			960
Manuring /application of organic pesticide/fungicides	4	480	set	1500.00	1,980
Cost of implements like measuring tape, ropes, axe, lime powder, sickle etc	0	0	set	700.00	700
Sub total	70	8,400		6600.00	15,000
Creation - Year 2					
Survey and demarcation of area	4	480			480
Removal of woody weeds and climbers and energised fencing	40	4,800		1000	5,800
Burning the site carefully in a controlled manner	6	720			720
Collection of bamboo seedling from nursery and transportaion	10	1,200	set	200.00	1,400
Digging of pits, manuring and planting bamboo seedlings	60	7,200		500.00	7,700
Gap filling and three times weed cleaning	50	6,000			6,000
Watching the plantation against grazing and applying fertiliser	20	2,400	set	500.00	2,900
Electric fence			set/ha	20000.00	20,000
Sub total	190	22,800		22200.00	45,000
Maintenance - Year 3					0
Cleaning of weeds two times and gap filling	40	4,800			4,800
Watching the plantation against grazing and other damage	10	1,200	set	1000.00	2,200
Sub total	50	6,000		1000.00	7,000
Maintenance - Year 4					
Cleaning of weeds two times and gap filling	20	2,400	set	400.00	2,800
Watching the plantation against grazing and other damage	10	1,200			1,200
Sub total	30	3,600	0	400.00	4,000

2.A3 Fodder tree plantation after removal of maling bamboo in Neora Valley NP, Singhalila NP and Senchal WS					
Advance Work - Year 1					
Cleaning and control burning of the area	12	1,440			1,440
Preparation of mother beds	8	960			960
Collection of tree seeds	8	960			960
Shifting of seedlings to different beds	10	1,200			1,200
Making of sheds for beds	12	1,440		600.00	2,040
Weeding/ cleaning of beds	8	960			960
Watering of beds	8	960			960
Manuring /application of organic pesticide/fungicides	4	480	set	400.00	880
Cost of implements like measuring tape, ropes, axe, lime powder, sickle etc	0	0	set	600.00	600
Sub total	70	8,400		1600.00	10,000
Advance Work - Year 2					
Shifting of seedlings to different beds	10	1,200			1,200
Repair of sheds for beds	12	1,440		600.00	2,040
Weeding/ cleaning of beds	20	2,400			2,400
Watering of beds	24	2,880			2,880
Manuring /application of organic pesticide/fungicides	4	480	set	400.00	880
Cost of implements like measuring tape, ropes, axe, lime powder, sickle etc	0	0	set	600.00	600
Sub total	70	8,400		1600.00	10,000
Creation - Year 3					
Survey and demarcation of area	4	480			480
Removal of maling bamboo from planting lines and energised fencing	50	6,000		2000.00	8,000
Burning the site carefully in a controlled manner	6	720			720
Collection of seedling from nursery and transportaion	10	1,200	set	1000.00	2,200
Digging of pits, manuring and planting bamboo seedlings	60	7,200		1500.00	8,700
Gap filling and three times weed cleaning	50	6,000			6,000
Watching the plantation against grazing and applying fertiliser	20	2,400	set	1500.00	3,900
Sub total	200	24,000		6000.00	30,000
Maintenance - Year 4					0
Cleaning of weeds two times and gap filling	60	7,200		600.00	7,800
Watching the plantation against grazing and other damage including repair to	10	1,200	set	1000.00	2,200
Sub total	70	8,400		1600.00	10,000
Maintenance - Year 5					
Cleaning of weeds two times and gap filling	60	7,200	set	600.00	7,800
Watching the plantation against grazing and other damage including repair to	10	1,200		1000.00	2,200
Sub total	70	8,400	0	1600.00	10,000

3. Community Development

Base Year: 2011 Price Escalation: 6.60%

Physical Contingency: 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
0.0660	0.1364	0.2114	0.2913	0.3765	0.4674	0.5642	0.6675

Sl No.	Components	Year wise Financial Outlay in Rs lacs																										
		Total			2012			2013			2014			2015			2016			2017			2018			2019		
		FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
3.A	Meeting	0	60,00,000	1,11,00,000		0	0		30,00,000	55,50,000		30,00,000	55,50,000		0	0		0	0		0	0		0	0		0	0
	Price Escalation	0	10,43,134	19,29,799	0	0	0	0	4,09,068	7,56,776	0	6,34,066	11,73,023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	7,04,313	13,02,980	0	0	0	0	3,40,907	6,30,678	0	3,63,407	6,72,302	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Cost	0	77,47,448	1,43,32,779	0	0	0	0	37,49,975	69,37,453	0	39,97,473	73,95,325	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.B	Microplan	0	60,00,000	1,11,00,000		0	0		30,00,000	55,50,000		30,00,000	55,50,000		0	0		0	0		0	0		0	0		0	0
	Price Escalation	0	10,43,134	19,29,799	0	0	0	0	4,09,068	7,56,776	0	6,34,066	11,73,023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	7,04,313	13,02,980	0	0	0	0	3,40,907	6,30,678	0	3,63,407	6,72,302	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Cost	0	77,47,448	1,43,32,779	0	0	0	0	37,49,975	69,37,453	0	39,97,473	73,95,325	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.C	Income Generation Activities	0	9,00,00,000	16,65,00,000		0	0		25,00,000	46,25,000		3,50,00,000	6,47,50,000		3,50,00,000	6,47,50,000		50,00,000	92,50,000		50,00,000	92,50,000		50,00,000	92,50,000		25,00,000	46,25,000
	Price Escalation	0	2,66,43,390	4,92,90,272	0	0	0	0	3,40,890	6,30,647	0	73,97,442	1,36,85,268	0	1,01,95,674	1,88,61,996	0	18,82,655	34,82,913	0	23,36,911	43,23,285	0	28,21,147	52,19,122	0	16,68,671	30,87,042
	Physical Contingency	0	1,16,64,339	2,15,79,027	0	0	0	0	2,84,089	5,25,565	0	42,39,744	78,43,527	0	45,19,567	83,61,200	0	6,88,266	12,73,291	0	7,33,691	13,57,328	0	7,82,115	14,46,912	0	4,16,867	7,71,204
	Total Cost	0	12,83,07,729	23,73,69,299	0	0	0	0	31,24,979	57,81,211	0	4,66,37,187	8,62,78,795	0	4,97,15,241	9,19,73,196	0	75,70,921	1,40,06,204	0	80,70,602	1,49,30,613	0	86,03,261	1,59,16,034	0	45,85,538	84,83,246
3.D	Community Development Infructracture Development for JFMC*	0	21,00,00,000	38,85,00,000		0	0		0	0		7,00,00,000	12,95,00,000		10,50,00,000	19,42,50,000		3,50,00,000	6,47,50,000		0	0		0	0		0	0
	Price Escalation	0	5,85,60,493	10,83,36,913	0	0	0	0	0	0	0	1,47,94,885	2,73,70,537	0	3,05,87,021	5,65,85,988	0	1,31,78,588	2,43,80,388	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	2,68,56,049	4,96,83,691	0	0	0	0	0	0	0	84,79,488	1,56,87,054	0	1,35,58,702	2,50,83,599	0	48,17,859	89,13,039	0	0	0	0	0	0	0	0	0
	Total Cost	0	29,54,16,543	54,65,20,604	0	0	0	0	0	0	0	9,32,74,373	17,25,57,590	0	14,91,45,723	27,59,19,587	0	5,29,96,447	9,80,43,427	0	0	0	0	0	0	0	0	0

* Detail Breakdown will be prepared by Microplan

Items of Work	Unit	Unit Cost	Quantity	PHYSICAL TARGETS									FINANCIAL OUTLAYS (Rs)								Total	Remarks
				2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019		
3.A Meeting	Unit	10,000	600		300	300						600	0	30,00,000	30,00,000	0	0	0	0	0	60,00,000	
3.B Microplan	Unit	10,000	600		300	300						600	0	30,00,000	30,00,000	0	0	0	0	0	60,00,000	
3.C Income Generation Activities	Unit	1,00,000	600			300	300					600	0	0	3,00,00,000	3,00,00,000	0	0	0	0	6,00,00,000	
3.C.2 Procurement (NGO)	Unit	5,00,000	60		5	10	10	10		10	10	5 60	0	25,00,000	50,00,000	50,00,000	50,00,000	50,00,000	50,00,000	25,00,000	3,00,00,000	Procurement of NGO or Professional Micro Finance Institutions
3.C Sub-total													0	25,00,000	3,50,00,000	3,50,00,000	50,00,000	50,00,000	50,00,000	25,00,000	9,00,00,000	
3.D Community Infructracture Development for JFMC	Unit	3,50,000	600			200	300	100				600	0	0	7,00,00,000	10,50,00,000	3,50,00,000	0	0	0	21,00,00,000	
													0	1,10,00,000	14,60,00,000	17,50,00,000	4,50,00,000	1,00,00,000	1,00,00,000	50,00,000	40,20,00,000	

4. Institutional Capacity Development

4.A Base line survey of the State's forest resources at the start of Project

Base Year: 2011 Price Escalation: 6.60%

Physical Contingency: 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
0.0660	0.1364	0.2114	0.2913	0.3765	0.4674	0.5642	0.6675

Sl No.	Components	Year wise Financial Outlay (Rp)																										
		Total			2012			2013			2014			2015			2016			2017			2018			2019		
		FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
4.A1	Base line survey of the Forest growing stock, soil & water quality, NTFP Working Plan Circle, M.F.P. Div & Research Circle and soil nutrient in about 2 lac ha forest area covered under the Forest Protection Committee	0	60,00,000	1,11,00,000	0	0	0	0	30,00,000	55,50,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30,00,000	55,50,000
	Price Escalation	0	24,11,473	44,61,226	0	0	0	0	4,09,068	7,56,776	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20,02,405	37,04,450
	Physical Contingency	0	8,41,147	15,56,123	0	0	0	0	3,40,907	6,30,678	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,00,241	9,25,445
	Total Cost	0	92,52,621	1,71,17,349	0	0	0	0	37,49,975	69,37,453	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55,02,646	1,01,79,895

Items of Work	Unit	Unit Cost	Quantity	PHYSICAL TARGETS									FINANCIAL OUTLAYS (Rs)								Total
				2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019	
600 FPC x 250 ha = 150,000ha	ha	20	3,00,000		1,50,000						1,50,000	3,00,000	0	30,00,000	0	0	0	0	0	30,00,000	60,00,000
													0	30,00,000	0	0	0	0	0	30,00,000	60,00,000

Sl No.	Components	Year wise Financial Outlay (Rp)																										
		Total			2012			2013			2014			2015			2016			2017			2018			2019		
		FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
4.A2	Base line survey of the Socio-economic conditions of the target population by NGO/Govt.Agencies over about 2 lacs ha forest area covered under the Forest Protection Committee	0	30,00,000	55,50,000	0	0	0	0	15,00,000	27,75,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15,00,000	27,75,000
	Price Escalation	0	12,05,737	22,30,613	0	0	0	0	2,04,534	3,78,388	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,01,203	18,52,225
	Physical Contingency	0	4,20,574	7,78,061	0	0	0	0	1,70,453	3,15,339	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,50,120	4,62,723
	Total Cost	0	46,26,310	85,58,674	0	0	0	0	18,74,987	34,68,727	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27,51,323	50,89,948

Items of Work	Unit	Unit Cost	Quantity	PHYSICAL TARGETS									FINANCIAL OUTLAYS (Rs)								Total	Remarks
				2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019		
600 FPC x 250 ha =150,000ha	ha	10	1,50,000		1,50,000						1,50,000	3,00,000	0	15,00,000	0	0	0	0	0	15,00,000	30,00,000	

4.B Training & Capacity Building of Project Implementing Officials, Field & Office Staffs and Other Stakeholders

Base Year : 2011 | Price Escalation: 6.60%

Physical Contingency : 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
0.0660	0.1364	0.2114	0.2913	0.3765	0.4674	0.5642	0.6675

Year wise Financial Outlay in Rs lacs

Sl No.	Components	Total FC	Total LC	Total Total	2012 FC	2012 LC	2012 Total	2013 FC	2013 LC	2013 Total	2014 FC	2014 LC	2014 Total	2015 FC	2015 LC	2015 Total	2016 FC	2016 LC	2016 Total	2017 FC	2017 LC	2017 Total	2018 FC	2018 LC	2018 Total	2019 FC	2019 LC	2019 Total
4.B1	Package-I for Senior Officers	0	1,50,00,000	2,77,50,000	0	0	0	0	50,00,000	92,50,000	0	50,00,000	92,50,000	0	50,00,000	92,50,000	0	0	0	0	0	0	0	0	0	0	0	0
	Price Escalation	0	31,95,082	59,10,902	0	0	0	0	6,81,780	12,61,293	0	10,56,777	19,55,038	0	14,56,525	26,94,571	0	0	0	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	18,19,508	33,66,090	0	0	0	0	5,68,178	10,51,129	0	6,05,678	11,20,504	0	6,45,652	11,94,457	0	0	0	0	0	0	0	0	0	0	0	0
	Total Cost	0	2,00,14,591	3,70,26,992	0	0	0	0	62,49,958	1,15,62,422	0	66,62,455	1,23,25,542	0	71,02,177	1,31,39,028	0	0	0	0	0	0	0	0	0	0	0	0
4.B2	Package-II for Middle and Junior level Officers	0	22,50,000	41,62,500	0	0	0	0	7,50,000	13,87,500	0	7,50,000	13,87,500	0	7,50,000	13,87,500	0	0	0	0	0	0	0	0	0	0	0	0
	Price Escalation	0	4,79,262	8,86,635	0	0	0	0	1,02,267	1,89,194	0	1,58,517	2,93,256	0	2,18,479	4,04,186	0	0	0	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	2,72,926	5,04,914	0	0	0	0	85,227	1,57,669	0	90,852	1,68,076	0	96,848	1,79,169	0	0	0	0	0	0	0	0	0	0	0	0
	Total Cost	0	30,02,189	55,54,049	0	0	0	0	9,37,494	17,34,363	0	9,99,368	18,48,831	0	10,65,327	19,70,854	0	0	0	0	0	0	0	0	0	0	0	0
4.B3	Package-III for Junior level Officers and FRs	0	42,50,000	78,62,500	0	0	0	0	16,00,000	29,60,000	0	20,50,000	37,92,500	0	6,00,000	11,10,000	0	0	0	0	0	0	0	0	0	0	0	0
	Price Escalation	0	8,26,231	15,28,528	0	0	0	0	2,18,170	4,03,614	0	4,33,279	8,01,566	0	1,74,783	3,23,349	0	0	0	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	5,07,623	9,39,103	0	0	0	0	1,81,817	3,36,361	0	2,48,328	4,59,407	0	77,478	1,43,335	0	0	0	0	0	0	0	0	0	0	0	0
	Total Cost	0	55,83,854	1,03,30,131	0	0	0	0	19,99,987	36,99,975	0	27,31,607	50,53,472	0	8,52,261	15,76,683	0	0	0	0	0	0	0	0	0	0	0	0
4.B4	Package-IV for Frontline staff and FPC/EDC/SHG	0	3,60,00,000	6,66,00,000	0	0	0	0	1,80,00,000	3,33,00,000	0	1,80,00,000	3,33,00,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Price Escalation	0	62,58,807	1,15,78,793	0	0	0	0	24,54,408	45,40,655	0	38,04,399	70,38,138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	42,25,881	78,17,879	0	0	0	0	20,45,441	37,84,065	0	21,80,440	40,33,814	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Cost	0	4,64,84,688	8,59,96,672	0	0	0	0	2,24,99,849	4,16,24,720	0	2,39,84,839	4,43,71,952	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Items of Work	Unit	Unit Cost	Quantity	PHYSICAL TARGETS 2012	2013	2014	2015	2016	2017	2018	2019	Total	FINANCIAL OUTLAYS (Rs) 2012	2013	2014	2015	2016	2017	2018	2019	Total	Remarks
4.B1.1	Training in Foreign Institute	head	4,25,000	30		10	10	10					30	0	42,50,000	42,50,000	42,50,000	0	0	0	0	1,27,50,000	Carbon sequestration, resource survey ,Climate change and adaptation, Tropical Forest Management, Clonal Plantations Mnagement, Tissue Culture Technology and its application in forestry ,Remote Sensing and GIS, Management of Wildlife Sanctuaries and Parks, Timber certification, (10 days-3 week)
4.B1.2	Training in other States	times	1,50,000	15		5	5	5					15	0	7,50,000	7,50,000	7,50,000	0	0	0	0	22,50,000	Exposure visit to other States in India for Project Personel
	Total of 4.B1													0	50,00,000	50,00,000	50,00,000	0	0	0	0	1,50,00,000	
4.B2.1	Long-term training	head	1,00,000	15		5	5	5					15	0	5,00,000	5,00,000	5,00,000	0	0	0	0	15,00,000	GIS- Remote sensing, Wildlife and biodiversity management (60-90 days)
4.B2.2	Short term	head	50,000	15		5	5	5					15	0	2,50,000	2,50,000	2,50,000	0	0	0	0	7,50,000	Soil and water conservation , Tropical Forest management, Project formulation & monitoring Wildlife biodiversity management (10-15 days)
	Total of 4.B2													0	7,50,000	7,50,000	7,50,000	0	0	0	0	22,50,000	
4.B3.1	Training in Indian Institute	head	50,000	40		14	14	12					40	0	7,00,000	7,00,000	6,00,000	0	0	0	0	20,00,000	Designing of soil conservation structures; QPM & containerized nursery management, seed technology and certification (10-15 days)
4.B3.2	PDA/GPS instruction, reporting system for DFO, Range officer, Beat officer, other relevant frontline staff	days	30,000	160		30	45						75		9,00,000	13,50,000						22,50,000	3 days (2 days in the beginning and 1 day after a gap of six months) 25times @ 20 persons 500 officer and staff
	Total of 4.B3													0	16,00,000	20,50,000	6,00,000	0	0	0	0	42,50,000	
4.B4.1	Training of frontline staff, JFMC, EDC in micro planning and PRA	days	30,000	600		300	300						600	0	90,00,000	90,00,000	0	0	0	0	0	1,80,00,000	
4.B4.2	Micro finance, Accounting, Capacity Building for frontline staff, JFMC, EDC	days	30,000	600		300	300						600	0	90,00,000	90,00,000	0	0	0	0	0	1,80,00,000	
	Total of 4.B4													0	1,80,00,000	1,80,00,000	0	0	0	0	0	3,60,00,000	

4.C Infrastructure Development for TPOF (Social Forestry), training, research, GIS, forest protection etc including Building, Equipment & Vehicle

Base Year: 2011 | Price Escalation: 6.60%

Physical Contingency: 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
0.0660	0.1364	0.2114	0.2913	0.3765	0.4674	0.5642	0.6675

Sl No.	Components	Year wise Financial Outlay in Rs lacs																										
		Total			2012			2013			2014			2015			2016			2017			2018			2019		
		FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
4.C1	Construction of Administrative Buildings	0	10,76,75,000	19,91,98,750	0	0	0	0	10,21,25,000	18,89,31,250	0	55,50,000	1,02,67,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Price Escalation	0	1,50,98,380	2,79,32,002	0	0	0	0	1,39,25,357	2,57,61,910	0	11,73,023	21,70,093	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	1,22,77,338	2,27,13,075	0	0	0	0	1,16,05,036	2,14,69,316	0	6,72,302	12,43,759	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Cost	0	13,50,50,717	24,98,43,827	0	0	0	0	12,76,55,392	23,61,62,475	0	73,95,325	1,36,81,352	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.C2	Equipment for GIS/MIS Pilot Project	0	5,00,00,000	9,25,00,000	0	0	0		5,00,00,000	9,25,00,000		0	0		0	0		0	0		0	0	0	0	0		0	0
	Price Escalation	0	68,17,800	1,26,12,930	0	0	0	0	68,17,800	1,26,12,930	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	56,81,780	1,05,11,293	0	0	0	0	56,81,780	1,05,11,293	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Cost	0	6,24,99,580	11,56,24,223	0	0	0	0	6,24,99,580	11,56,24,223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.C3	Purchase of vehicles including motorbikes for better mobility of staff and officers	0	1,50,00,000	2,77,50,000	0	0	0		1,50,00,000	2,77,50,000		0	0		0	0		0	0		0	0	0	0	0		0	0
	Price Escalation	0	20,45,340	37,83,879	0	0	0	0	20,45,340	37,83,879	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	17,04,534	31,53,388	0	0	0	0	17,04,534	31,53,388	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Cost	0	1,87,49,874	3,46,87,267	0	0	0	0	1,87,49,874	3,46,87,267	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.C4	Miscellaneous management inputs	0	14,32,88,000	26,50,82,800	0	55,36,000	1,02,41,600		2,23,36,000	4,13,21,600		2,17,36,000	4,02,11,600		2,17,36,000	4,02,11,600		2,17,36,000	4,02,11,600		2,17,36,000	4,02,11,600		2,17,36,000	4,02,11,600		67,36,000	1,24,61,600
	Price Escalation	0	4,94,40,306	9,14,64,567	0	3,65,376	6,75,946	0	30,45,648	56,34,448	0	45,94,023	84,98,943	0	63,31,805	1,17,13,838	0	81,84,280	1,51,40,917	0	1,01,59,018	1,87,94,184	0	1,22,64,089	2,26,88,565	0	44,96,068	83,17,725
	Physical Contingency	0	1,92,72,831	3,56,54,737	0	5,90,138	10,91,755	0	25,38,165	46,95,605	0	26,33,002	48,71,054	0	28,06,780	51,92,544	0	29,92,028	55,35,252	0	31,89,502	59,00,578	0	34,00,009	62,90,017	0	11,23,207	20,77,933
	Total Cost	0	21,20,01,137	39,22,02,103	0	64,91,514	1,20,09,300	0	2,79,19,812	5,16,51,653	0	2,89,63,025	5,35,81,597	0	3,08,74,585	5,71,17,982	0	3,29,12,308	6,08,87,769	0	3,50,84,520	6,49,06,362	0	3,74,00,098	6,91,90,182	0	1,23,55,275	2,28,57,258

Items of Work	Unit	Unit Cost (Rs)	Quantity	PHYSICAL TARGETS									FINANCIAL OUTLAYS (Rs)								Total	Remarks
				2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019		
4.C1.1 Construction of Beat Officer Office Complex (1)	unit	3,75,000	15		9	6						15	0	33,75,000	22,50,000	0	0	0	0	0	56,25,000	New construction of brick work with RCC roof, over 375 sft (Frontline staff quarter type 1)
4.C1.2 Construction of Beat Officer Office Complex (2)	unit	5,00,000	10		6	4						10	0	30,00,000	20,00,000	0	0	0	0	0	50,00,000	New construction of brick work with RCC roof, over 475 sft (Frontline staff quarter type 3)
4.C1.3 Construction of RO's Office Complex	unit	6,50,000	5		3	2						5	0	19,50,000	13,00,000	0	0	0	0	0	32,50,000	New construction of brick work with RCC roof, over 670 sft (Frontline staff quarter type 4)
4.C1.4 Expansion of existing administrative building	Sqft	2,000	14,400		14,400							14,400	0	2,88,00,000	0	0	0	0	0	0	2,88,00,000	Two floors will be added on the existing building. at Aranya Bhavan (WestBengal Forest Dept.) 7200 x 2 floors=14,400 sq.ft
4.C1.5 Building at Salt Lake	Sqft	3,000	5,000		5,000							5,000	0	1,50,00,000	0	0	0	0	0	0	1,50,00,000	New construction of building at Salt Lake 4000 sq. ft
4.C1.6 Administrative Building at Siliguri	Sqft	2,500	20,000		20,000							20,000	0	5,00,00,000	0	0	0	0	0	0	5,00,00,000	New Construction of GIS Room, Space for offices of CCFs CFs, DFOs, Conference room, Library, Training Hall G+3
Total of 4.C1													0	10,21,25,000	55,50,000	0	0	0	0	0	10,76,75,000	
4.C2 Equipment for GIS	LS	5,00,00,000	1.0		1.0							1	0	5,00,00,000	0	0	0	0	0	0	5,00,00,000	Breakdown equipment and software list attached
4.C3.1 Purchase of Vehicles	unit	10,00,000	10		10							10	0	1,00,00,000	0	0	0	0	0	0	1,00,00,000	
4.C3.2 Purchase of Motorcycle	unit	50,000	100		100								0	50,00,000	0	0	0	0	0	0	50,00,000	
Total of 4.C3													0	1,50,00,000	0	0	0	0	0	0	1,50,00,000	
4.C4.1 Incremental staff DMU (Skilled) on contractual basis	MY	2,40,000	200		50	50	50	50	50	50		300	0	1,20,00,000	1,20,00,000	1,20,00,000	1,20,00,000	1,20,00,000	1,20,00,000	0	7,20,00,000	
4.C4.2 Incremental staff DMU (Semi-Skilled) on contractual basis	MY	1,20,000	100		25	25	25	25	25	25		150	0	30,00,000	30,00,000	30,00,000	30,00,000	30,00,000	30,00,000	0	1,80,00,000	
4.C4.3 Incremental staff PMU (Skilled) on contractual basis	MY	2,40,000	32	4	4	4	4	4	4	4	4	32	9,60,000	9,60,000	9,60,000	9,60,000	9,60,000	9,60,000	9,60,000	9,60,000	76,80,000	
4.C4.4 Incremental staff PMU (Semi Skilled) on contractual basis	MY	1,20,000	16	2	2	2	2	2	2	2	2	16	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000	2,40,000	19,20,000	
4.C4.5 Extension Workers	MY	10,000	120	60	120	120	120	120	120	120	120	900	6,00,000	12,00,000	12,00,000	12,00,000	12,00,000	12,00,000	12,00,000	12,00,000	90,00,000	
4.C4.6 Vlue addition of MFP through improved technology (equipments)	LS											0	0	0	0	0	0	0	0	0	0	
4.C4.7 Audit (PMU)	unit	4,000	1	1	1	1	1	1	1	1	1	7	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	32,000	
4.C4.7 Audit (DMU)	unit	4,000	33	33	33	33	33	33	33	33	33	231	1,32,000	1,32,000	1,32,000	1,32,000	1,32,000	1,32,000	1,32,000	1,32,000	10,56,000	31 DMU for afforestation, Wildlief 1, Wildlife 2 (excluded Kolkata HQ & STR)
4.C4.7 Audit (JFMC,EDC)	unit	4,000	600	0	300	600	600	600	600	600	600	3900	0	12,00,000	24,00,000	24,00,000	24,00,000	24,00,000	24,00,000	24,00,000	1,56,00,000	
4.C4.7 PMU operation cost	LS	1,80,00,000	1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	1	36,00,000	36,00,000	18,00,000	18,00,000	18,00,000	18,00,000	18,00,000	18,00,000	1,80,00,000	
Office expenses		1,00,00,000																				
Office equipment		40,00,000																				
Travel expenses		40,00,000																				
Total of 4.C4													55,36,000	2,23,36,000	2,17,36,000	2,17,36,000	2,17,36,000	2,17,36,000	2,17,36,000	67,36,000	14,32,88,000	

4.D Forestry Research Activities

Base Year: 2011 | Price Escalation: 6.60%

Physical Contingency: 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
0.0660	0.1364	0.2114	0.2913	0.3765	0.4674	0.5642	0.6675

Sl No.	Components	Year wise Financial Outlay in Rs lacs																										
		Total			2012			2013			2014			2015			2016			2017			2018			2019		
		FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
4.D1	Research work in Tree Improvement Programme (Tree Breeding)	0	1,35,00,000	2,49,75,000	0	13,50,000	24,97,500	0	27,00,000	49,95,000	0	27,00,000	49,95,000	0	13,50,000	24,97,500	0	20,25,000	37,46,250	0	16,20,000	29,97,000	0	10,80,000	19,98,000	0	6,75,000	12,48,750
	Price Escalation	0	40,00,726	74,01,343	0	89,100	1,64,835	0	3,68,161	6,81,098	0	5,70,660	10,55,721	0	3,93,262	7,27,534	0	7,62,475	14,10,580	0	7,57,159	14,00,744	0	6,09,368	11,27,330	0	4,50,541	8,33,501
	Physical Contingency	0	17,50,073	32,37,634	0	1,43,910	2,66,234	0	3,06,816	5,67,610	0	3,27,066	6,05,072	0	1,74,326	3,22,503	0	2,78,748	5,15,683	0	2,37,716	4,39,774	0	1,68,937	3,12,533	0	1,12,554	2,08,225
	Total Cost	0	1,92,50,799	3,56,13,978	0	15,83,010	29,28,569	0	33,74,977	62,43,708	0	35,97,726	66,55,793	0	19,17,588	35,47,538	0	30,66,223	56,72,513	0	26,14,875	48,37,519	0	18,58,304	34,37,863	0	12,38,095	22,90,476
4.D2	Field Research on Nursery and Plantation techniques and plantation models to improve productivity	0	90,00,000	1,66,50,000	0	9,00,000	16,65,000	0	18,00,000	33,30,000	0	18,00,000	33,30,000	0	9,00,000	16,65,000	0	13,50,000	24,97,500	0	10,80,000	19,98,000	0	7,20,000	13,32,000	0	4,50,000	8,32,500
	Price Escalation	0	26,67,151	49,34,229	0	59,400	1,09,890	0	2,45,441	4,54,065	0	3,80,440	7,03,814	0	2,62,174	4,85,023	0	5,08,317	9,40,386	0	5,04,773	9,33,830	0	4,06,245	7,51,554	0	3,00,361	5,55,668
	Physical Contingency	0	11,66,715	21,58,423	0	95,940	1,77,489	0	2,04,544	3,78,407	0	2,18,044	4,03,381	0	1,16,217	2,15,002	0	1,85,832	3,43,789	0	1,58,477	2,93,183	0	1,12,625	2,08,355	0	75,036	1,38,817
	Total Cost	0	1,28,33,866	2,37,42,652	0	10,55,340	19,52,379	0	22,49,985	41,62,472	0	23,98,484	44,37,195	0	12,78,392	23,65,025	0	20,44,149	37,81,675	0	17,43,250	32,25,012	0	12,38,870	22,91,909	0	8,25,397	15,26,984

	Items of Work	Unit	Unit Cost (Rs)	Quantity	PHYSICAL TARGETS									FINANCIAL OUTLAYS (Rs)								Total	Remarks
					2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019		
4.D1	Research work in Tree Improvement Programme (Tree Breeding) 5 spp.	LS	1,35,00,000	1	0.1	0.2	0.2	0.1	0.15	0.12	0.08	0.05	1.00	13,50,000	27,00,000	27,00,000	13,50,000	20,25,000	16,20,000	10,80,000	6,75,000	1,35,00,000	Trials for Spp. Introduction, SSO, Clonal Trial Area, Selection of CPT, Creation and Maintenance of Seed Stand, thinning of research pltn to open out
4.D2.1	Nursery Technique Protocol (10 spp.)	LS	45,00,000	1	0.1	0.2	0.2	0.1	0.15	0.12	0.08	0.05	1.00	4,50,000	9,00,000	9,00,000	4,50,000	6,75,000	5,40,000	3,60,000	2,25,000	45,00,000	
4.D2.2	Plantation Model Protocol (10 spp.)	LS	45,00,000	1	0.1	0.2	0.2	0.1	0.15	0.12	0.08	0.05	1.00	4,50,000	9,00,000	9,00,000	4,50,000	6,75,000	5,40,000	3,60,000	2,25,000	45,00,000	
	Total of 4.D2													9,00,000	18,00,000	18,00,000	9,00,000	13,50,000	10,80,000	7,20,000	4,50,000	90,00,000	

4.E Mid-term Monitoring & Evaluation including periodic biodiversity & community develpment studies

Base Year: 2011 Price Escalation: 6.60%
Physical Contingency: 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
0.0660	0.1364	0.2114	0.2913	0.3765	0.4674	0.5642	0.6675

Sl No.	Components	Year wise Financial Outlay in Rs lacs																										
		Total			2012			2013			2014			2015			2016			2017			2018			2019		
		FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
4.E	Mid-term Monitoring & Evaluation including periodic biodiversity & community develpment studies	0	80,00,000	1,48,00,000	0	0	0	0	0	0	0	0	0	0	80,00,000	1,48,00,000	0	0	0	0	0	0	0	0	0	0	0	0
	Price Escalation	0	23,30,440	43,11,313	0	0	0	0	0	0	0	0	0	0	23,30,440	43,11,313	0	0	0	0	0	0	0	0	0	0	0	0
	Physical Contingency	0	10,33,044	19,11,131	0	0	0	0	0	0	0	0	0	0	10,33,044	19,11,131	0	0	0	0	0	0	0	0	0	0	0	0
	Total Cost	0	1,13,63,484	2,10,22,445	0	0	0	0	0	0	0	0	0	0	1,13,63,484	2,10,22,445	0	0	0	0	0	0	0	0	0	0	0	0

Items of Work	Unit	Unit Cost (Rs)	Quantity	PHYSICAL TARGETS									FINANCIAL OUTLAYS (Rs)								Total	Remarks
				2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019		
	LS	80,00,000	1				1	0	0			1	0	0	0	80,00,000	0	0	0	0	80,00,000	
							0.20	0.35	0.45													

4.F End-term Monitoring and Evaluation

Base Year: 2011 Price Escalation: 6.60%
Physical Contingency: 10.00%

2012	2013	2014	2015	2016	2017	2018	2019
0.0660	0.1364	0.2114	0.2913	0.3765	0.4674	0.5642	0.6675

Sl No.	Components	Year wise Financial Outlay in Rs lacs																										
		Total			2012			2013			2014			2015			2016			2017			2018			2019		
		FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
4.F	End-term Monitoring and Evaluation	0	40,00,000	74,00,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,00,000	74,00,000
	Price Escalation	0	26,69,874	49,39,267	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26,69,874	49,39,267
	Physical Contingency	0	6,66,987	12,33,927	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,66,987	12,33,927
	Total Cost	0	73,36,861	1,35,73,194	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73,36,861	1,35,73,194

Items of Work	Unit	Unit Cost (Rs)	Quantity	PHYSICAL TARGETS									FINANCIAL OUTLAYS (Rs)								Total	Remarks
				2012	2013	2014	2015	2016	2017	2018	2019	Total	2012	2013	2014	2015	2016	2017	2018	2019		
End-term Monitoring and Evaluation	LS	40,00,000	1								1	1	0	0	0	0	0	0	0	40,00,000	40,00,000	

5 : Consulting Services

Yearly Fund Distribution of Consulting Services

Base Year:	2011	
Price Escalation:	Foregin:	1.60%
	Local:	6.60%
Physical Contingency:	10.00%	

Yearly Fund Distribution of Consulting Services	Total			2012			2013			2014			2015			2016			2017			2018			2019		
	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
	11,02,22,000	8,36,91,500	26,50,51,275	1,56,66,245	65,55,405	2,77,93,744	2,62,96,503	2,34,60,230	6,96,97,929	2,36,79,736	2,19,36,215	6,42,61,733	1,05,70,135	1,27,62,123	3,41,80,062	1,05,01,423	82,84,748	2,58,28,208	1,04,41,301	43,42,046	1,84,74,086	52,42,123	36,32,702	1,19,62,622	78,24,534	27,18,031	1,28,52,890
Price Escalation	65,32,966	2,09,98,346	4,53,79,906	2,50,660	4,32,657	10,51,075	8,48,220	31,98,943	67,66,265	11,54,910	46,36,340	97,32,139	6,92,898	37,17,670	75,70,587	8,67,431	31,19,465	66,38,442	10,43,325	20,29,395	47,97,705	6,16,063	20,49,677	44,07,966	10,59,458	18,14,200	44,15,727
Physical Contingency	1,16,75,497	1,04,68,985	3,10,43,118	15,91,691	6,98,806	28,84,482	27,14,472	26,65,917	76,46,419	24,83,465	26,57,255	73,99,387	11,26,303	16,47,979	41,75,065	11,36,885	11,40,421	32,46,665	11,48,463	6,37,144	23,27,179	5,85,819	5,68,238	16,37,059	8,88,399	4,53,223	17,26,862
Total Cost	12,84,30,462	11,51,58,831	34,14,74,299	1,75,08,596	76,86,868	3,17,29,301	2,98,59,195	2,93,25,091	8,41,10,613	2,73,18,111	2,92,29,810	8,13,93,259	1,23,89,337	1,81,27,772	4,59,25,714	1,25,05,740	1,25,44,635	3,57,13,315	1,26,33,088	70,08,585	2,55,98,970	64,44,004	62,50,618	1,80,07,647	97,72,391	49,85,454	1,89,95,480

2012		2013		2014		2015		2016		2017		2018		2019	
1.0160	1.0660	1.0323	1.1364	1.0488	1.2114	1.0656	1.2913	1.0826	1.3765	1.0999	1.4674	1.1175	1.5642	1.1354	1.6675
0.0160	0.0660	0.0323	0.1364	0.0488	0.2114	0.0656	0.2913	0.0826	0.3765	0.0999	0.4674	0.1175	0.5642	0.1354	0.6675

	ITEMS	Total	2011	2012	2013	2014	2015	2016	2017	2018	2019
FC	Total of FC	11,02,22,000		1,56,66,245	2,62,96,503	2,36,79,736	1,05,70,135	1,05,01,423	1,04,41,301	52,42,123	78,24,534
LC	Total of Local	8,36,91,500		65,55,405	2,34,60,230	2,19,36,215	1,27,62,123	82,84,748	43,42,046	36,32,702	27,18,031

Attachment 8

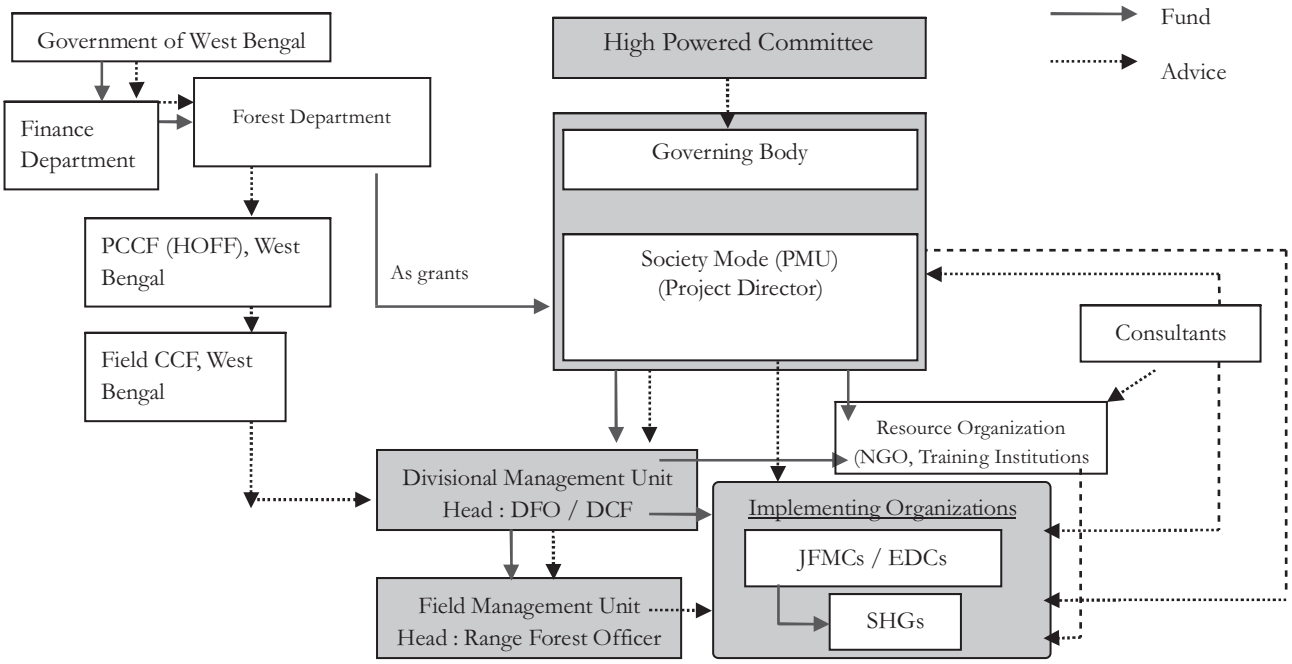
Detailed Organization Structure

Organizational Setup for Project Implementation

1. Overview

The Project will be implemented by the West Bengal Forest Department through an autonomous Society registered under the West Bengal Societies Registration Act, 1961. Various Offices of the West Bengal Forest Department at the Circle, Division and Range levels will implement the Project. The Project Management Unit (PMU) will be in-charge of the overall managerial tasks of the Project. The PMU will collate and consolidate the expenditure statements from Divisional and field offices and prepare documentation for reimbursement claims to JICA.

The figure below shows the detailed institutional arrangement envisaged for the implementation of the Project.



2. Institutional Setup for Project Implementation

(1) High Powered Committee (HPC)

HPC will be constituted within the State Government as the highest decision-making body for the Project. It will meet at-least half-yearly or more often, if the situation demands.

This High Powered Committee (HPC) will have responsibilities as described below:

- Approval and endorsement of the establishment of the PMU and terms of reference of PMU.
- Approval of the management manual of the PMU.
- Approval of annual work plans and budget of the project as prepared by the PMU.
- Coordination amongst related Departments of the State Govt.
- Undertake half-yearly review of the progress of implementation of the project.

- Resolve conflicts problems arising in different regions during implementation program.
- Facilitation of the process of policy change to strengthen JFMCs/ EDCs /SHGs operating in forest areas and their fringes.

The HPC shall include members as follows:

Composition of the High Powered Committee (HPC)

Position	Designated Personnel
Chairperson	Chief Secretary
Member	Secretary, Forest Department
Member	Secretary, Finance Department
Member	Principal Chief Conservator of Forests (HoFF)
Member Secretary	Project Director, West Bengal Forest and Biodiversity Conservation Project

(2) Governing Body

The Governing Body will be constituted as per requirement of the West Bengal Society Registration Act 1961. The Governing Body will be the highest decision-making institution within the society. Role of the Governing Body is to monitor the financial and physical progress of the Project and provide assistance and direction to PMU from time to time. The Governing Body shall include members shown in the table below:

Composition of the Governing body

Position	Designated Personnel
Chairperson	Secretary, Forest Department OR Principal Chief Conservator of Forests (HoFF)
Member	PCCF, Wildlife & Chief Wildlife Warden
Member Secretary	Project Director, West Bengal Forest and Biodiversity Conservation Project

(3) Project Management Unit (PMU)

The PMU will be created by a government order as an autonomous body registered as a society under West Bengal Society Registration Act 1961 with its memorandum of association and bylaws stipulating the following:

i) Name of Society
ii) Location and area of operation
iii) Aims and objectives of the society
iv) List of membership of the society (general body)
v) List of members of the governing body
vi) Executive officers, other officers and their functions
vii) Funds of the society
viii) Audit of accounts

The PMU will have an operation manual, which will prescribe administrative and financial, management and policy instruction for the smooth implementation of the Project.

PMU shall function for the overall project coordination, procurement management, financial management including collating the expenditure statements from field offices and preparation and submission of reimbursement claims to JICA, monitoring and evaluation, and preparation of reports such as Quarterly Progress Reports (QPR) and Project Completion Report (PCR). Chartered Account has to be inducted on contractual basis to take charge of finance and accounts related to the project execution.

Composition of the PMU

Position	Designated Personnel
Chairperson/Project Director	Addl. PCCF / PCCF
Member Secretary/Joint PD Finance	Chief Conservator of Forests
Dy. Project Director Expenditure	Conservator of Forests
Asst. Project Director HRD	Divisional Forest Officer
Joint PD M&E	Chief Conservator of Forests
Dy. Project Director Planning and Research	Conservator of Forests
Asst. Project Director Publicity and Awareness	Divisional Forest Officer

***PMU members shall be dedicated for the Project and work exclusively for the Project**

Roles and functions of the PMU will generally be limited to the following:

- Procurement of consultant teams as required under the guidance of the Governing Body.
- Preparation of annual work plans and budgets.
- Supervision of implementation of the project as per approved work plan and budget.
- Coordination with the Forest Directorate and other stakeholders of the project.
- Monitoring and evaluation of the project.
- Provision of guidance to DMUs/FMUs.
- Supervise technical assistance provided by one or more consultant teams inducted on contractual basis.

PMU will require induction of skilled /semi-skilled supporting staff to facilitate project activities and to work as accountant, computer operator and office assistant. Qualification of supporting staff is as follows:

Qualification of Supporting Staff at PMU

Name of Post	Qualification		Number	Salary/Month (INR)
	Essential	Desirable		
Skilled	Graduate with computer knowledge	Experience of office working	4	20,000
Semi Skilled	VIII pass	Experience of office working	2	10,000

(4) Divisional Management Unit (DMU)

Management set-up for the Project

Type	No. of Unit	Status
PMU	1	Registered Autonomous Society
DMU	33	Office of Deputy Conservator of Forests (DCF)/ Divisional Forest Officer (DFO)/ Assistance Conservator of Forests (ACF)
FMU	Not Fixed	Office of Range Officer/ Foresters/ Forest Guards

The project would be implemented by the DCF /DFO at Divisional level. The DFO shall head the DMU of the Project. DCF /DFO would coordinate and facilitate implementation of project under the guidance of the PMU. DCF /DFO would be supported by ACF and other office staff for day to day office functioning.

This unit may have the following structure:

1. Deputy Conservator of Forests (DCF)/ Divisional Forest Officer (DFO) in the District implementing project activities.
2. Assistance Conservator of Forests (ACF).
3. 2 Supporting Skilled and 1 Semi skilled Staff to be hired under the Project.

All Divisional offices will require induction of skilled /semi-skilled staff to facilitate project activities and to work as accountant, computer operator and office assistant. All such facilitation staff will be recruited on contractual basis and the responsibility of such induction will vest with the DCF/ DFO of the concerned District under the guidance of the PMU. Qualification of supporting staff is as follows:

Qualification of Supporting Staff at DMU

Name of Post	Qualification		Number/DMU	Salary /Month (INR)
	Essential	Desirable		
Skilled	XII pass with computer knowledge	Experience of office working	2	20,000
Semi Skilled	VIII pass	Experience of office working	1	10,000

(Supporting Staff will be required only for DMUs undertaking major afforestation work and community development activities)

DMUs will receive project funds directly from the PMU for the implementation of the Project and disburse it to Project implementers such as JFMCs, EDCs, SHGs and NGOs. The DMUs will supervise the activities of those Project implementers and assist the PMU in planning, fund management, work progress monitoring and documentation at the field level. DMU will report to PMU with copies marked to Conservator of Forests. The detailed working arrangement of the DMU will be included in the Operational Manual of PMU.

(5) Field Management Unit (FMU)

The FMU will be designed in each range to take charge of Project implementation at the range level. FMU will have following major functions: 1) execution of works; 2) technical support to JFMC, EDCs and SHGs etc at the village level. The FMU will make the specific site development plans, hire adequate laborers, prepare necessary materials, undertake the works and document the physical and financial progress. Each FMU generally consists of Range Officer, Forester and Forest Guard.

Attachment 9

Principles of Procurement under the Project

Guidelines

1. Procurement of goods and services for the Project shall be implemented in accordance with "Guidelines for Procurement under Japanese ODA Loans" dated March 2009 and selection of consultants shall be in accordance with "Guidelines for Employment of Consultants under Japanese ODA Loans" dated March 2009. The Executive Agency (EA) may make the use of the domestic procurement rules, but JICA's guidelines should overrule whenever JICA's guidelines and such procurement rules are in conflict.

Consulting Services

2. Whereas requirements of JICA's review and concurrence would be stipulated in the Loan Agreement, JICA's review and concurrence is usually required for (a) Short-list, Terms of Reference, and Letter of Invitation (Request for Proposal), (b) evaluation results of proposals, and (c) contract (ex-post concurrence). EA agreed to start preparation of TOR, Letter of Invitation (Request for Proposal), Short-list right after Government of Japan make prior-notification to the Government of India, without waiting for Exchange of Notes between both Governments and signing of Loan Agreement with JICA. Letter of Invitation may be prepared, with reference to JICA's sample documents. The key features of the JICA's consultant guidelines are as follows:
   (a) Selection procedures of consultants should be Quality- and Cost-Based Selection (QCBS). 20% of the financial proposal, 80% of the technical proposal will be evaluated for selection of international consultant.
   (b) Information on JICA's files on consultants is available, at the request of the Borrower.
   (c) Short list should normally consist of not less than three and not more than five consultants.
   (d) Letter of Invitation should stipulate the details of the selection procedure including technical evaluation categories and the weight for evaluation.
3. However, for cases where QCBS is not the most appropriate, other methods of selection, such as Quality-Based Selection (QBS) or Single-Source Selection (SSS) are applied. QBS is a method based on evaluating only the quality of the technical proposals and the subsequent negotiation of the financial terms and the contract with the highest ranked consultant. QBS should be applied only for the following types of assignments:
   (a) Complex or highly specialized assignments for which it is difficult to define precise TOR and the required input from the consultants;
   (b) Assignments where the downstream impact is so large that the quality of the service is of overriding importance for the outcome of the project (for example, engineering design of major infrastructure);
   (c) Assignments that can be carried out in substantially different ways such that financial proposals maybe difficult to compare; and
   (d) Assignments including supervision of large and complex construction works for which it is particularly important to take safety measures.
4. SSS shall be used only in exceptional cases. SSS may be appropriate only if it presents a clear advantage over competition:
   (a) For tasks that represent a natural continuation of previous work carried out by the firm;

(b) In emergency cases, such as in response to disasters;

(c) For very small assignments; or

(d) When only one firm is qualified or has experience of exceptional worth for the assignment.

5. Letter of Invitation (Request for Proposal) usually includes the following:

(a) Letter;

(b) Project Information including (i) introduction and information about the project background, (ii) project description, (iii) information on the area, and (iv) organization to implement the Project;

(c) Other Relevant Information including (i) technical information, (ii) relevant laws and regulations, and (iii) service provided by the Employer;

(d) Terms of Reference including (i) purpose, (ii) scope of consulting services, (iii) reporting, and (iv) provisions required by JICA;

(e) Information to Consultants in Preparation of Proposal;

(f) Evaluation Criteria; and

(g) Contract Conditions.

Procurement Package and Methods

6. The tender and contract packaging was based on nature of goods and services, and consideration of optimal package size - as large as possible - to attract the maximum participation from capable companies. Packages of procurement of goods and services under Public Awareness Components, which involve many small contracts and are implemented by direct contracting, shopping, LCB or other methods, are not able to be finalized at this stage, but will be determined by EA.

7. According to JICA's Procurement Guidelines, International Competitive Bidding (ICB) is applied in general. When procurement of goods and services is made through small contracts and evidently does not attract foreign companies, National (Local) Competitive Bidding (LCB) may be applied and national and state procurement rules can be applied while abiding by four principles of "Guidelines for Procurement under JICA ODA Loans" dated March 2009: economy, efficiency, non-discrimination among eligible bidders, and transparency. EA agreed to request JICA for prior concurrence in cases of a change in procurement methods.

Sample Documents

8. EA agreed to use JICA's Sample Bidding Documents with necessary modification suitable to needs for each package.

Principles of Procurement of Goods and Services

9. The key principles for procurement of goods and services in the Project are as follows:

(a) Preferential treatment of Indian companies is not acceptable under international competitive bidding.

(b) JICA's Procurement Guidelines do not allow price negotiation in principle. EA may conduct price negotiation with the lowest evaluated bidders only in exceptional cases subject to consultation with JICA, where the lowest evaluated bidder's price is substantially higher than credible estimates, as stipulated in Clause 5.10 of JICA's Procurement Guidelines. JICA is afraid that price negotiation may deteriorate quality of goods and works, and ultimately lead to higher prices including a cushion in bid prices to be given up for negotiation.

(c) Contract documents should have adequate price adjustment mechanism and fair claim and dispute resolution procedure based on international rules.

(d) A list of taxes and duties imposed and exempted should be clearly indicated in the tendering document to avoid any confusion and disputes with bidders.

(e) Submission of alternative bids may be allowed when it is clearly stipulated in the bidding documents, but those of the lowest evaluated bidders alone should be evaluated.

(f) In case of slice and package tendering, while bidders are allowed to participate in more than one package, EA may choose a combination of bidders to obtain the lowest evaluated prices as a whole and evaluate qualification of those bidders through predetermined prequalification criteria stipulated in prequalification and tendering documents.

(g) In cases of two-envelop procedures (with regard to any contract the value of which is estimated to be not less than THREE BILLION Japanese Yen (¥ 3,000,000,000)), EA has to request for JICA's concurrence in evaluation of technical bids before opening financial bids.

(h) Consultant Guidelines introduces the Borrower's debriefing to unsuccessful consultants as follows: "If any consultant who submitted a proposal wishes to ascertain the reasons why its proposal was not selected, such consultant should request an explanation from the Borrower. The Borrower shall promptly provide an explanation as to why its proposal was not selected." In addition, Procurement Guidelines introduces the Borrower's debriefing to unsuccessful bidders as follows: "If any bidder who submitted a bid wishes to ascertain the reasons why its bid was not selected, such bidder should request an explanation from the Borrower. The Borrower shall promptly provide an explanation as to why its bid was not selected."

JICA's Review and Concurrence for Procurement

10. Whereas requirements of JICA's review and concurrence would be stipulated in the Loan Agreement, JICA's review and concurrence is, depending on the estimated contract amount, usually required for (i) prequalification documents, (ii) prequalification evaluation results, (iii) tender documents, (iv) tender evaluation results, and (v) contract (ex-post concurrence).

Table: Requirement of JICA's Review and Concurrence

(subject to the stipulations of the Loan Agreement)

	Less than 1,000 million Yen	Not less than 1,000 million Yen	Not less than 3,000 million Yen
Prequalification Evaluation Criteria	No	No	Required
Prequalification Evaluation Result	No	Required (In case of P/Q)	Required (In case of P/Q)
Tender Document	No	No	Required
Tender Evaluation Result	No	Required	Required
Contract	Required (In case of ICB)	Required	Required

Attachment 10

Indicative Number of JFMC and EDCs

Sl. No.	Division	Number of JFMC	Number of EDC
1	Medinipur	55	
2	Rupnarayan	45	
3	Kharagpur	20	
4	Jhargram	35	
5	Purulia	35	
6	Kangsawati N	30	
7	Kangsawati S	30	
8	Purulia Extn.		
9	Bankura N	55	
10	Bankura S	45	
11	Panchet	45	
12	Burdwan	35	
13	Durgapur	10	
14	Birbhum	10	
15	Nadia-Murshidabad		
16	Kurseong	15	
17	Darjeeling	10	
18	Baikunthapur	15	
19	Jalpaiguri	20	
20	Wildlife III	15	11
21	BTR E	10	8
22	BTR W	10	15
23	Howrah		
24	24 Parganas N		
25	24 Parganas S		
26	Malda	5	
27	Raigunj		
28	Siliguri SF		
29	Jalpaiguri SF		
30	Cooch Bihar		
31	Wildlife I		10
32	Wildlife II		6
	Grand Total	550	50

Attachment 11

Indicative List of Plantation Target (Division-Wise)

		Plantation Target								
Sl. No.	**Division**	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**	**B1**	**B2**	**Total Area**
1	Medinipur	80	500	500	800					**1880**
2	Rupnarayan	80	600	500	600					**1780**
3	Kharagpur	40	200	300	400			120	120	**1180**
4	Jhargram		300	500	600					**1400**
I	**Total Circle**	**200**	**1600**	**1800**	**2400**	**0**	**0**	**120**	**120**	**6240**
5	Purulia		200	500	700					**1400**
6	Kangsawati N		100	500	700					**1300**
7	Kangsawati S		100	500	600					**1200**
8	Purulia Extn.							200	270	**470**
II	**Total Circle**	**0**	**400**	**1500**	**2000**	**0**	**0**	**200**	**270**	**4370**
9	Bankura N	60	500	700	700					**1960**
10	Bankura S	30	250	700	800					**1780**
11	Panchet	80	500	600	600					**1780**
III	**Total Circle**	**170**	**1250**	**2000**	**2100**	**0**	**0**	**0**	**0**	**5520**
12	Burdwan	50	130	400	600					**1180**
13	Durgapur	30	50	140	100			60		**380**
14	Birbhum			160	300			60	110	**630**
15	Nadia-Murshidabad							60	30	**90**
IV	**Total Circle**	**80**	**180**	**700**	**1000**	**0**	**0**	**180**	**140**	**2280**
16	Kurseong					150	60			**210**
17	Darjeeling					120	30			**150**
V	**Total Circle**	**0**	**0**	**0**	**0**	**270**	**90**	**0**	**0**	**360**
18	Baikunthapur					150	75			**225**
19	Jalpaiguri					210	180			**390**
VI	**Total Circle**	**0**	**0**	**0**	**0**	**360**	**255**	**0**	**0**	**615**
20	Wildlife III					120	90			**210**
VII	**Total Circle**	**0**	**0**	**0**	**0**	**120**	**90**	**0**	**0**	**210**
21	BTR E					120	45			**165**
22	BTR W					120	60			**180**
VIII	**Total Circle**	**0**	**0**	**0**	**0**	**240**	**105**	**0**	**0**	**345**
23	Howrah							150	120	**270**
IX	**Total Circle**	**0**	**0**	**0**	**0**	**0**	**0**	**150**	**120**	**270**
24	24 Parganas N							150	45	**195**
25	24 Parganas S							135	240	**375**
X	**Total Circle**	**0**	**0**	**0**	**0**	**0**	**0**	**285**	**285**	**570**
26	Raigunj							120	60	**180**
27	Malda					60		75	45	**180**
28	Siliguri SF							90	90	**180**
29	Jalpaiguri SF							90	120	**210**
30	Cooch Bihar							90	150	**240**
XI	**Total Circle**	**0**	**0**	**0**	**0**	**60**	**0**	**465**	**465**	**990**
	Grand Total	**450**	**3430**	**6000**	**7500**	**1050**	**540**	**1400**	**1400**	**21770**

Note

Total No. of Divisions	30
Models which may overlap	A1 & A3
Models which may overlap	A2 & A4

Attachment 12

Orders relating to Joint Forest Management

Management and Transfer of Strip Plantations

GOVERNMENT OF WEST BENGAL
FOREST DEPARTMENT
FOREST BRANCH

NOTIFICATION

No.2914-For./D/6M-31/S4 Dated: Calcutta, the 22nd July, 1986

1. The Forest Department has taken up a massive Social Forestry Project since 1981 for raising plantation of trees on lands belonging to PWD, I&W Department and Panchayat Bodies along roads and canals which envisages popular participation for successful execution of the Project. One of the Objectives of the aforesaid Project is to share benefits accruing from such plantation with the local people to make it more meaningful socially and also to ensure their active participation, co-operation and support in raising, maintaining and protecting such plantations.

2.(i) Under the scheme the Forest Officer (which includes his successors sub-ordinates and agents) shall establish and maintain plantation on the lands selected by him within his jurisdiction with the project fund placed at his disposal.

(ii) In establishing and maintaining the said plantations, the Forest Officer will employ labours, as far as practicable, from amongst the landless residents and poorer sections of the populations of the concerned Gram Panchayat area contiguous to the said land.

3. Now in exercise of power conferred by clause (K) and clause (O) of sub-section (i) of section 20 of the West Bengal Panchayat Act,1973 (West Bengal Act XLI of 1973), the Governor is pleased hereby to direct that for proper maintenance and protection of such plantations and facilitating sharing of benefits arising out of the plantations with the beneficiaries i.e. local people, management and control of sectors of such strip plantations be transferred to the local Gram Panchayat within whose jurisdiction such strip plantation lie, from the third year of creation (e.g. plantation raised in 1984 shall be handed over in 1986 after first maintenance in 1985) or at the earliest convenience thereafter by an order of the Forest Officer having jurisdiction over such plantations subject to observance of procedure laid down below.

4. In exercise of the powers conferred by section 222 of the said Act, the Governor is pleased hereby to give the following instructions and directions for the guidance of the Gram Panchayats, Samities and the Zilla Parishads in the discharge of their functions;

Instructions and Directions:

A. After a strip plantation is established by the Forest Officer, the Gram Panchayat, on receipt from the Forest Officer, shall by a resolution undertake to -

(i) Protect the said plantation;

(ii) Inform the Forest Officer about any person or persons attempting to trespass or willfully, maliciously damage the said plantation or commit theft thereon;

(iii) Prevent such trespass, mischief, theft or damage; and

(iv) Apprehend or assist in the apprehension of such person or persons.

B. For facilitating the transfer of strip plantations and proper upkeep of the plantations transferred in the 3rd year or conveniently thereafter -

(i) The Bhumi Sanskar Sthayee Samiti of the Panchayat Samiti will work out modalities for post-transfer management, especially the aspect of protection of such plantations and sharing of benefits with local people of behalf of the Panchayat Samiti;

(ii) The beneficiaries shall be identified by the Bhumi Sanskar Sthayee Samiti of the Panchayat Samiti from amongst the economically backward people living in the vicinity of the plantation, preference, however, being given to the members of Scheduled Caste and Scheduled Tribe Communities.

While selecting such beneficiaries for the above purpose, well-defined sectoral allotments may be made to the beneficiaries (individual/ family/ group) for protection and maintenance of such plantations, keeping the numbers of trees the same as far as practicable.

C. After the strip of plantation is transferred by the Forest Officer to the Gram Panchayat on completion above tasks -

(i) The beneficiaries as identified shall be allowed to collect grass fodder, fallen woods and other minor produce from the plantations including thinning & cutting of such plantations, prior to harvesting of the principal crop but without any damages to such crop;

(ii) The beneficiaries will enjoy only the benefits accruing from said plantations without any rights on the land;

(iii) The Forest Officer would continue to monitor the management of the strip plantations even after control and management of the same is transferred to the Gram Panchayat.

(iv) The plantations will be harvested on maturity and disposed of by the Forest Officer in consultation with the Bhumi Sanskar Sthayee Samiti of the Panchayat Samiti;

(v) The Forest Officers shall arrange distribution of the pre-specified percentage of harvested produce, to be decided upon in consultation with the Bhumi Sanskar Sthayee Samiti of the Panchayat Samiti, to the selected beneficiaries at a concessional rate, or free of cost, subject to recovery of the direct cost for establishing, protecting and maintaining the plantation less the cost for seedlings, and transfer of required funds to the Gram Panchayats for raising future plantations;

(vi) The Gram Panchayat shall ensure that the beneficiaries protect and manage such strip plantations without any damage to roads, canals, bridges, culverts, etc. and take every precaution for safety of roads/ canals and traffic movements;

(vii) The Gram Panchayat shall ensure that the first row on either side of road/ canal together with all fruit and ornamental trees are retained;

(viii) The Forest Department may retain any particular strip plantation and also reserves the right to resume any strip plantation transferred to Panchayats for specific public purpose;

(ix) The Panchayat Samiti through the Bhumi Sanskar Sthayee Samiti at the Block Level and Zilla Parishad Bhumi Sanskar Sthayee Samiti at the District Level, will supervise and monitor execution of this scheme for transfer of management and control of strip plantation to Panchayats;

(x) Separate ledger accounts shall be maintained by the Gram Panchayats for the purpose of depositing the net income accruing under the foregoing clause (v) of 'Instruction & Directions';

(xi) The monies standing to the credit of the said account shall be utilized by the Gram Panchayat for the sole purpose of afforestation works and/or creation, establishment and maintenance or plantations/ woodlots within the Gram Panchayat area for the benefit of local people in accordance with the plan as may be advised by the local Forest Officer;

(xii) The Gram Panchayat shall submit periodic reports and return as may be prescribed by the Forest Department to the concerned Forest Officer of the district and send copies thereof to the Zilla Parishad through the Panchayat Samiti;

(xiii) No additional post should be created by the Forest Department, the Panchayat and CD (Panchayat) Department or the Panchayat bodies for implementation of this scheme form transfer of management and control of strip plantation to Panchayats.

By order of the Government,

Sd/-

(J. Sanyal)

Secretary to the Government of West Bengal

1994 Amendments to Notification No. 2914-For.

GOVERNMENT OF WEST BENGAL
FOREST DEPARTMENT
FOREST BRANCH

No. 7534-For/D/I/6M-7/93 Dated, Calcutta the 2nd August, 1994.

From: Officer on Special Duty and Ex-Officio Dy.Secy.to the Govt. of West Bengal.
To: The Principal Chief Conservator of Forests, West Bengal.

Sub: Management and Transfer of strip plantations.
Ref: His Memo No. 302/SFW/2M-22, dated 18.02.1993 and
Unofficial No. 1589/SFW/2M-22 dated 25.07.1994

In partial modification of this Department's Notification No. 2914- For, dated 22.07.1986, the undersigned is directed by order of the Governor to say that the Governor is pleased to direct that contents in clauses (iv), (v), (x) and (xi) of item C below Para 4, thereof may be substituted as stated below seriatim:

Clauses (IV): The Plantation will be harvested on maturity as decided by the Forest Officer and will be disposed of by the Panchayat Samiti. Each sale either by auction or by tender as deemed fit shall be made on the basis of decision of the Bon-O-Bhumi Sanskar Sthayee Samiti of the Panchayat Samiti in which the Forest Officer shall be invited to participate. The formation of felling coupe/ lot in plantation will be done by the Forest Officer;

Clauses (V) On the basis of the requisition of the Forest Officer and the resolution of the Artha Sanstha Unnayan-O-Parikalpana Sthayee Samiti on it, the Panchayat Samiti shall refund to the concerned Forest Officer the direct cost of establishing, protecting and maintaining the harvested plantation(s), the cost of formation of felling coupes/ lots and also transfer required funds for reforestation on the same site;

Clauses (X) Separate ledger account shall be maintained by the Gram Panchayat(s) for the purpose of arriving at the balance income and accruing incidental expenses for holding auction or tender;

Clauses (XI) The balance money standing to the credit of the said account shall be distributed by Panchayat Samiti among selected beneficiaries.

Suitable instruction may be communicated to the concerned Chief Conservator of Forests, Conservator of Forests, and Divisional Forest Officers.

Sd/-
(S.M. Chaki)
Officer on Special Duty and Ex-Officio
Dy. Secy. to the Govt. of West Bengal.

1995 Amendments to Notification No. 2914-For.

GOVERNMENT OF WEST BENGAL
FOREST DEPARTMENT
FOREST BRANCH

No.2204-For/D/1/6M-7/93 Dated, Calcutta the12th May, 1995

From: Officer on Special Duty and Ex-Officio Dy. Secy. to the Govt. of West Bengal.

To: The Principal Chief Conservator of Forests, West Bengal.

Sub: Management and Transfer of strip plantations.

Ref: Chief Conservator of Forests, Social Forestry, West Bengal's Memo No. 57/SFW/2M-22, dated17.01.1995.

In continuation of this Department's G.O. No. 7534-For, dated 02.08.1994 on the subject noted above, the undersigned is directed by order of the Governor to say that the Governor is further pleased to direct that the contents in Para 4B(ii) of this Department Notification No. 2914-For, dated 22.07.1986 may be substituted as stated below:

The beneficiary village shall be identified by the Bhumi Sanskar Sthayee Samiti as are situated nearest to the road sides, canal bank, river bank etc. The individual beneficiaries shall be selected by an executive committee of the beneficiary village, the composition of which shall be as follows:

(a)	Sabhapati or any member of the Bon-O-Bhumi Sanskar Sthayee Samiti as may be nominated by the Sabhadhipati	Member
(b)	Gram Pradhan or any member of local Gram Panchayat(s) as may be nominated by the Pradhan(s)	Member
(c)	Elected representatives of the beneficiaries (not exceeding 6)	Member
(d)	Concerned Beat Officer	Member Secretary

Members of the executive shall elect the president in each meeting.

The above Committee while selecting individual beneficiaries shall give preference to economically backward people and members of Scheduled Caste and Scheduled Tribes Communities.

The strip plantation may be divided into sectors for allotment to the beneficiaries (individual/ family/ groups) for protection and maintenance of such plantation, keeping the number of trees the same as far as practicable in each sector.

2. Suitable instruction may be communicated to the concerned Chief Conservator of Forests, Conservator of Forests and Divisional Forest Officers.

Sd/-
(S.M.Chaki)
Officer on Special Duty and Ex-Officio
Dy. Secy. to the Govt. of West Bengal.

2010 Amendments to Notification No. 2914-For.

GOVERNMENT OF WEST BENGAL
FOREST DEPARTMENT
FOREST BRANCH
WRITERS' BUILDING, KOLKATA-700 001

No.2098-For Dated: 14.05.2010.

NOTIFICATION

In partial modification of this Department's Notification No. 2914-For, dated 22.07.1986 and No.7534-For., dated 02.08.1994, the undersigned is directed by order of the Governor to say that the Governor is pleased to direct that contents in clauses (iv), (v), (x),and (xi) of item C below para 4 thereof may be substituted as stated below seriatim:

Clauses (IV): The Plantations will be harvested and disposed off on maturity by the Forest Officer in consultation with Ban-O-Bhumi Sanskar Sthayee Samiti of the Panchayat Samiti and maintaining normal procedure.

Clauses (V) Forest Officer shall deduct the direct cost of establishing, protection, maintaining, harvesting plantation(s) from total sale proceed and remit the deducted amount to the government treasury as revenue. The cost of harvesting plantation(s) shall be deducted by the Forest Officer for adjustment through CRSP. He shall also deduct the cost of reforestation from total sale proceed and keep it in civil deposit for subsequent reforestation work at the same site.

Clauses (X) Separate ledger account shall be maintained by the Forest Officer for the purpose of arriving at the balance income.

Clauses (XI) The balance money standing to the credit of the said account shall be distributed in following manner:

(a) 25% of the balance money shall be distributed amongst the selected beneficiaries. Where no beneficiaries could be selected the 25% shall be transferred to Panchayat Samiti for taking developmental works in local area;

(b) 25% shall be transferred to Gram Panchayat for taking up developmental works in local area;

(c) Remaining 50% will be used by the Forest Department for taking up greening areas locally where no plantations exist.

By order of the Governor
Sd/-
(Shila Nag)
Joint Secretary to the Govt. of West Bengal.

Attachment 13

Table of Contents of Micro-plan and Forest Dwellers Development Plan

Table of Contents of a Micro-plan

1. Acknowledgement
2. Objectives and Elements of Micro-plan
3. Procedure Adopted for Preparation of Micro-plan
4. Socio-Economic Profile
   - Basic data of village (climate, land use, literacy, income level, etc)
   - Village wise population data
   - Village infrastructure
   - Agriculture crops/Horticulture
   - Crop Production profile of village
   - Fodder availability
   - Water resources facilities
   - Energy consumption
   - Source of income (month wise)
   - Problems associated with villages (gender-wise data should be preferable)
5. Livelihood Opportunity Analysis
   - Agriculture and horticulture
   - Livestock
   - Non Timber Forest Produce
   - Enterprise related special skills
   - Credit facility (Gender-Wise Date should be preferable)
6. JFMC and SHGs
   - Procedure adopted for formation of JFMC/EDC/SHG
   - History of activities
   - Constitution, structure, function
   - JFMC Executive Committee
   - JFMC members' list
   - SHGs member's list and main activities
   - Roles and responsibilities of JFMC and SHGs
   - Structure of women sub-committee group.
7. Forest Development Plan
   - Status of forest areas assigned to JFMC
   - Forest soil type
   - Composition of exiting fauna and flora
   - Domestic requirement of forest produce
   - Collection and marketing of forest products by the villagers
   - Use and marketing of NWFPs

- Forest protection issues/problems
- Reasons of degradation of forest
- Forest protection plan
- Forest improvement plan
- Forest management plan
- Type of operation proposed
- Year wise target of forest improvement
- Nursery development

8. Benefit expected from forests to JFMCs
   - Forest produce related benefit expected
   - Benefit sharing mechanism in JFMC
9. Village Perspective Development Plan
   - Community infrastructure activates
   - Income generating activities
   - SHG consortium activities
   - Livelihood support
   - Awareness creation
   - Capacity building development
   - Exposure visits
10. Findings and Summary of Recommendation
11. Record of Activities Undertaken

Table of Contents of a Forest Dwellers Development Plan

(Forest Dwellers Development Plan shall be prepared as a part of Micro-plan)

1. Basic Information
   - A review on a scale appropriate to the project
   - A review of the legal and institutional framework applicable to the Scheduled Tribes/Castes and forest dwellers
   - Baseline information on the demographic, social, cultural, and political characteristics of the affected Scheduled Tribes/ Castes and forest dwellers' community
   - Baseline information on land and territories traditionally owned or customarily used or occupied, and the natural resources on which they depend
2. Summary of the Social Assessment.
   - Identification of key project stakeholders
   - Elaboration of culturally appropriate process for consulting with the Scheduled Tribes/Castes and forest dwellers
3. A summary of results of the free, prior, and informed consultation with the affected Scheduled Tribes/Castes and forest dwellers' communities during project preparation
   - Assessment of the potential adverse and positive effects of the project
   - Broad community support for the project

4. A framework for ensuring free, prior, and informed consultation with the affected Scheduled Tribes/Castes and forest dwellers' communities during project implementation
5. An action plan of measures to ensure that the Scheduled Tribes/Castes and forest dwellers receive social and economic benefits that are culturally appropriate, including, if necessary, measures to enhance the capacity of the project implementing agencies
6. An appropriate action plan of measures to avoid, minimize, mitigate, or compensate for adverse effects if potential adverse effects on Scheduled Tribes/Castes and forest dwellers are identified
7. The cost estimates and financing plan for the actions plan of measures suggested above.
8. Accessible procedures appropriate to the project to address grievances by the affected Scheduled Tribes/Castes and forest dwellers' communities arising from project implementation.
9. Mechanisms and benchmarks appropriate to the project for monitoring, evaluating, and reporting on the implementation of the Forest Dwellers Development Plan.

Attachment 14

Mechanism for Categorization of JFMCs/EDCs for fund allocation

Criteria for Categorization

No	Criteria	Method of Measurement
1	Area Protected	Office records for the jurisdiction maps
2	No of families in the JFMC/EDC	Office records for formation of JFMC/EDC
3	Percentage of SC/ST population	Office records for formation of JFMC/EDC
4	Man-animal conflict	Office records for the average of last 5 years

Mechanism for Categorization

Category	Qualification	Value Assigned
I	a. Area more than 150 ha b. 50 ha to 150 ha c. Area less than 50 ha	a. 200 b. 120 c. 50
II	a. More than 200 families b. 100 to 200 families c. Less than 100 families	a. 140 b. 100 c. 50
III	a. More than 60% b. 30 to 60% c. Less than 30%	a. 100 b. 80 c. 60
IV	a. Person killed b. Person injured c. Cattle killed d. Cattle injured e. Compensation paid for house damage f. Compensation paid for crop damage	a. Number multiplied by 10 b. Number multiplied by 8 c. Number multiplied by 5 d. Number multiplied by 4 e. 10 for first 200 JFMC/EDC, 8 for next and 6 for rest f. 8 for first 200 JFMC/EDC, 6 for next and 4 for rest

The aggregate of values assigned for each JFMC/EDC on the basis of the above table will form the basis of Unit Cost of Community Development Infrastructure allocated per JFMC/EDC. After calculating the aggregate for each JFMC/EDC, the allotment will be made as follows:

Number of JFMCs/EDCs in each Category

Aggregate value	Unit Cost of Community Development Infrastructure allocated per JFMC/EDC	Total cost for JFMC/EDC in this category
Top 100 JFMC/EDC	Rs. 6,00,000.00	Rs. 6,00,00,000.00
Next 200 JFMC/EDC	Rs. 4,50,000.00	Rs. 9,00,00,000.00
Rest 300 JFMC/EDC	Rs. 2,00,000.00	Rs. 6,00,00,000.00
Total		Rs. 21,00,00,000.00

Attachment 15

Terms of Reference for NGOs

1. Scope of the Work

Two kinds of NGOs shall be hired by the Project to facilitate smooth and effective implementation of the Project.

1) NGOs for preparation of Micro Plan

Field based NGOs shall be selected by Divisional Management Units (DMUs) to assist the West Bengal Forest Department (WBFD) for the preparation of Micro Plans.

2) Specialized NGOs for Micro Finance

Specialized Non Governmental Organizations (NGOs) or Micro Finance Institutions shall be selected by PMU to assist in implementation of Income Generation Activities.

2. Terms of Reference

1) NGOs for preparation of Micro Plan

NGO would assist DMUs/FMUs in the following activities:

- To suitably and adequately mobilize JFMCs/EDCs members for various activities of the project.
- To hold several Participatory Rural Appraisal (PRA) exercises for community consultation for sub groups such as SC/ST, women group etc.
- To prepare Micro Plan including Forest Dwellers Development Plan of the village under the guidance of DMUs after adequate PRA exercises and sufficient sensitization of the JFMCs/EDCs members.
- To develop capabilities among the JFMCs/EDCs members to coordinate, manage and monitor and evaluate the progress of various components and activities of the project against the intended project objectives.
- To assist regular review of the project and updating of Micro Plan

2) Specialized NGOs for Micro Finance

NGO would assist PMU/DMUs/FMUs in the following activities:

- Identification/selection of SHGs and assisting SHGs in preparing plans and properly executing chosen micro enterprise activities.
- To support preparing feasible business plans for SHGs.
- To assist in adequately orienting and sensitizing the other NGOs/ experts, functionaries of various line departments and independent agencies actively working in the project village for establishing effective inter-sectoral linkages.
- To coordinate and liaison with technical and vocational training institutes available in the region for adequate capacity building of the JFMCs/EDCs formed in the project.
- To assist DMUs/FMUs in monitoring the progress of community development activities and IGAs in line with the Project
- To generate adequate skills in the community to realize and sustain the benefits of the project in their lives.
- To explore forward linkages for SHG executed micro-enterprise, identify market avenues and develop suitable interface mechanism.

- To explore possibility of up scaling and linkaging with Micro Finance Institutions/Rural Banks.

3. Eligibility Criteria for NGO for Preparation of Micro Plan

NGOs applying for being selected under the Project must fulfill the following eligibility criteria:

1) Registration:

   NGO should be registered under the Indian Societies Registration Act / Indian Trust Act / Company Act for a minimum of five years and shall present annual reports and audit reports.

2) Experience:

   For NGOs for preparation of Micro Plan

   a. Proven experience of working for two years in Forestry Sector, or in Wildlife Management and Biodiversity Conservation Sectors, or in Social Sectors (e.g. Environment, Natural Resources Management, Women's Empowerment, Micro Finance, Capacity Building, Rural Development). Preferably implemented a Forestry Sector programme for forest dependents.
   b. Scale of operation during the previous two years should be at least 25% of value of the Project Activities proposed to be handled by NGOs.
   c. Field presence for at least two years in the district in which the concerned FMUs are located.
   d. Experience in capacity building, organizing training/workshops in Forestry and other social sectors.
   e. Preferably have experience in preparation of village Micro Plan.
   f. An NGO blacklisted or placed under funding restriction by any Ministry or Government Department, Government Undertaking, shall not be eligible.

   For Specialized NGOs for Micro Finance

   a. Specialized NGOs or Institutions on IGAs or Micro Finance in rural Areas.
   b. Proven experience of working for more than three years in social sectors such as Community Development, Micro Finance, Capacity Building, Rural Development and IGA.
   c. Preferably should have implemented forest programmes and projects.
   d. Scale of operation during the previous two years should be at least 25% of value of the Project Activities proposed to be handled by NGOs.
   e. An NGO blacklisted or placed under funding restriction by any Ministry or Government Department, Government Undertaking, shall not be eligible.

Final TOR, Eligibility, Working Frameworks etc for Specialized NGOs for Micro Finance Activities for supporting IGA shall be finalized by PMU with the support from 'Experts related to ODA Loans' to be dispatched by JICA.

4. Procurement of NGOs

Guidelines for procurement of NGOs shall be prepared by PMU in consultation with PMC by March 2013, and abovementioned NGOs shall be procured in line with the Guideline.

Attachment 16

List of equipment for GIS/MIS

	GIS CENTRE, TRAINING CENTRE & SUB-UNIT										COST @ GIS UNITS		
Sl. No.	Item Description	Suggested Brand	Reqd at Location A1 (1 unit)	Existing at Aranya Bhawan	Actual Reqmt at A1	Reqd at Location A2 (1 unit)	Reqd at each B Sub-Unit	Number of B Unit	Existing at Bikash Bhawan	Actual Reqmt at B	Total Quantity Reqd.	Price (Rs.)	GIS Total Cost (Rs)
	SOFTWARE												
1	Arc GIS Desktop ver. 10 (+ 2 modules)	ESRI	1	1									
2	Arc Server (1licence)	ESRI	1		1						1	40,00,000	40,00,000
3	Arc View ver. 10	ESRI	4	3	1		2	2	1	3	4	2,00,000	8,00,000
4	ERDAS Professional ver.10	ERDAS	2	1	1		1	2	1	1	2	3,50,000	7,00,000
5	Office Software	Microsoft	10		10	20	2	2		4	34	16,000	5,44,000
6	Web-based Integrated Forest Management System	Customized										1,60,00,000	1,60,00,000
	HARDWARE & EQUIPMENTS												
7	Computers (with Intel i3, 4 GB RAM)	HP / Dell	10	1	9		1	2	1	1	10	30,000	3,00,000

	GIS CENTRE, TRAINING CENTRE & SUB-UNIT										COST @ GIS UNITS		
Sl. No.	**Item Description**	**Suggested Brand**	**Reqd at Location A1 (1 unit)**	**Existing at Aranya Bhawan**	**Actual Reqmt at A1**	**Reqd at Location A2 (1 unit)**	**Reqd at each B Sub-Unit**	**Number of B Unit**	**Existing at Bikash Bhawan**	**Actual Reqmt at B**	**Total Quantity Reqd.**	**Price (Rs.)**	**GIS Total Cost (Rs)**
8	Computers (with 2 GB RAM) with UPS	HP / Dell		6		20	3	2	1	5	25	27,000	6,75,000
9	Light Tracing Table (0.8x1m)	Local made Wooden	1		1		1	2		2	3	10,000	30,000
10	A0 Scanner	HP	1	1			1	2		2	2	7,50,000	15,00,000
11	A3 Scanner	HP											
12	A4 Scanner	HP											
13	A1 Colour Plotters	HP	2		2		1	2	1	1	3	3,50,000	10,50,000
14	A3 Colour Deskjet Printer	HP	2		2								
15	A4 BW Laser Printers	HP	2		2		1	2		2	4	10,000	40,000
16	A4 Colour Laser Printers	HP										24,000	
17	LAN connectivity upgrade		10		10							2,00,000	2,00,000
18	Wi-Fi card for PCs					20					20	1,000	20,000
19	Large LCD Screen					1					1	35,000	35,000
20	LAN connectivity (length in feet)		50		50		30	2		60	110	20	2,200
21	Server (Data &		1		1		1	2	1	1	2	2,00,000	4,00,000

	GIS CENTRE, TRAINING CENTRE & SUB-UNIT										COST @ GIS UNITS		
Sl. No.	**Item Description**	**Suggested Brand**	**Reqd at Location A1 (1 unit)**	**Existing at Aranya Bhawan**	**Actual Reqmt at A1**	**Reqd at Location A2 (1 unit)**	**Reqd at each B Sub-Unit**	**Number of B Unit**	**Existing at Bikash Bhawan**	**Actual Reqmt at B**	**Total Quantity Reqd.**	**Price (Rs.)**	**GIS Total Cost (Rs)**
	Application)												
22	Internet Connectivity (1st year)						4	2	2	6	6	6,000	36,000
23	PDA with GPS function						2	2		4	4	30,000	1,20,000
	OTHERS												
24	Furniture for new Set-up (Lump sum)				5,00,000	2,00,000	2,00,000	2	1,00,000	4,00,000			11,00,000
25	Electricals (incl. AC) for new Set-up (Lump sum)				5,00,000	2,00,000	1,00,000	2	1,00,000	1,00,000			8,00,000
26	1st Time Data Entry (MIS & GIS) Outsourced				49,40,800		2,00,000	2		4,00,000			53,40,800
	Total:												3,36,93,000

			DIVISION LEVEL				COST @ DIVISION		RANGE LEVEL				COST @ RANGE		
Sl. No.	**Item Description**	**Suggested Brand**	**Reqd at Division level - C**	**Number of C Units**	**Existing equipmt**	**Total Reqmt at C**	**Unit Price (R)**	**Division Total Cost (Rs)**	**Reqd at each Range -D**	**Number of D Units**	**Existing equipmt**	**Total Reqmt at D**	**Unit Price (Rs)**	**Range Total Cost (Rs)**	**Grand Total (Rs)**
	SOFTWARE														
1	Arc GIS Desktop ver. 10 (+ 2 modules)	ESRI													
2	Arc Server (1licence)	ESRI													**40,00,000**
3	Arc View ver. 10	ESRI													**8,00,000**
4	ERDAS Professional ver.10	ERDAS													**7,00,000**
5	Office Software	Microsoft	1	41		41	16,000	**6,56,000**							**12,00,000**
6	***Web-based Integrated Forest Management System***	Customized													**1,60,00,000**
	HARDWARE & EQUIPMENTS														
7	Computers (with Intel i3, 4 GB RAM)	HP / Dell	2	41		82	30,000	**24,60,000**							**27,60,000**
8	Computers (with 2 GB RAM) with UPS	HP / Dell													**6,75,000**

			DIVISION LEVEL				COST @ DIVISION		RANGE LEVEL				COST @ RANGE		
Sl. No.	**Item Description**	**Suggested Brand**	**Reqd at Division level - C**	**Number of C Units**	**Existing equipmt**	**Total Reqmt at C**	**Unit Price (R)**	**Division Total Cost (Rs)**	**Reqd at each Range -D**	**Number of D Units**	**Existing equipmt**	**Total Reqmt at D**	**Unit Price (Rs)**	**Range Total Cost (Rs)**	**Grand Total (Rs)**
9	Light Tracing Table (0.8x1m)	Local made Wooden													**30,000**
10	A0 Scanner	HP													**15,00,000**
11	A3 Scanner	HP													
12	A4 Scanner	HP													
13	A1 Colour Plotters	HP													**10,50,000**
14	A3 Colour Deskjet Printer	HP													
15	A4 BW Laser Printers	HP													**40,000**
16	A4 Colour Laser Printers	HP	1	41		41	24,000	**9,84,000**							**9,84,000**
17	LAN connectivity upgrade														**2,00,000**
18	Wi-Fi card for PCs														**20,000**
19	Large LCD Screen														**35,000**
20	LAN connectivity (length in feet)														**2,200**
21	Server (Data & Application)														**4,00,000**

			DIVISION LEVEL				COST @ DIVISION		RANGE LEVEL				COST @ RANGE		
Sl. No.	**Item Description**	**Suggested Brand**	**Reqd at Division level - C**	**Number of C Units**	**Existing equipmt**	**Total Reqmt at C**	**Unit Price (R)**	**Division Total Cost (Rs)**	**Reqd at each Range -D**	**Number of D Units**	**Existing equipmt**	**Total Reqmt at D**	**Unit Price (Rs)**	**Range Total Cost (Rs)**	**Grand Total (Rs)**
22	Internet Connectivity (1st year)		2	41		82	6,000	**4,92,000**							**5,28,000**
23	PDA with GPS function		1	41		41	30,000	**12,30,000**	1	329		329	30,000	**98,70,000**	**1,12,20,000**
	OTHERS														
24	Furniture for new Set-up (Lump sum)		1	41		41	5,000	**2,05,000**							**13,05,000**
25	Electricals (incl. AC) for new Set-up (Lump sum)		1	41		41	10,000	**4,10,000**							**12,10,000**
26	1st Time Data Entry (MIS & GIS) Outsourced														**53,40,800**
	Total:							**64,37,000**						**98,70,000**	**5,00,00,000**

Attachment 17

Monitoring Framework

		Implementation	Monitoring			Reporting				Maintenance
		Responsible Entity	Responsible Entity	Periodicity	Method	From whom	To whom	Method	Periodicity	Responsible Entity
Afforestation	Recorded Forest	WBFD/JFMCs	Forest Guard (FG)(100% sites) Beat Officer (100%)	Every day (during planting and up to 2 years after plantation) At least twice a year after 2 year (FG)	Patrolling	FG and other staffs & JFMCs	Beat Officer	Verbal or writing (if anything found adverse)	In time of patrolling and if otherwise necessary	JFMCs/WBFD
						Beat Officer	Range Officer	In writing through diary	Fortnightly	
						Range Officer	DFO	In writing through diary	Fortnightly	
						DFO	CCF/ PMU	In writing through diary	Quarterly	

	Tree Plantation Outside Forest	WBFD/ Individual Beneficiaries	FG Beat Officer	Every day (during planting and up to 2 years after plantation) At least twice a year after 2 year (FG)	Patrolling (Daily watching by beneficiaries)	Same as above	WBFD/ Panchayat/ Individual Beneficiaries
Biodiversity conservation	Grassland plantation/ Bamboo Under-planting/ Fodder tree planting	WBFD	FG Beat Officer	Every day (during planting and up to 2 years after plantation) At least twice a year after 2 year (FG)	Patrolling	Same as above	WBFD
	Electric Fence Erection/ Nylon Fence Erection	WBFD/ Village Members	FG Beat Officer	Weekly	Patrolling	Same as above	WBFD
Community Development	Infrastructure Development	WBFD/JFMCs/EDCs	FG Beat Officer	Daily during execution, Annually after executions	Patrolling, Discussion with SHGs	Same as above	WBFD/JFMCs/EDCs
	SHG Activities	WBFD/ JFMCs/EDCs/SHGs	FG Beat Officer	Quarterly	Discussion with SHGs	Same as above	WBFD/JFMCs/EDCs/SHGs

Attachment 18

Methodology for Examination of survival rate

1. Organization

Survey, monitoring and evaluation of plantations including TPOF are undertaken by the Monitoring Circle headed by a Conservator of Forests. The Circle has two Divisions - Monitoring (North) with HQ at Siliguri and Monitoring (South) with HQ at Kolkata. Monitoring (North) is responsible for all the Divisions in North Bengal while the Monitoring (South) does it for all the Divisions in the South.

2. Methodology

Monitoring of plantations will be done for the 1st year, 3rd year and the 5th year after the plantation. Parameters monitored in the 1st and 3rd year are survival percentage and height of seedlings. In the 5th year, collar girth of seedlings is also measured in addition to these parameters.

Execution of survey and monitoring has three stages namely, Pre-survey works, Field works and Calculation of survival percentage.

(1) Pre-survey works include:

- Copies of regeneration plans along with plantation journal are obtained from respective divisions.
- A grid line is laid over the plan with quadrates of 50 m x 50 m in scale and serially numbered.
- Sample plots are chosen randomly using statistical random tables.
- Selection of plots is done in such a manner so as to have proper representation of the area.

(2) Field works cover the following:

- Identifications of selected plots in the field.
- Corners of these plots are clearly marked with raised earthen mound having a central painted peg.
- Carrying out total enumeration species wise in different height classes.

(3) Calculation of the survival percentage:

This is done on the basis of enumeration at 7.5 % sampling intensity in case of 1st year plantations and 5% sampling intensity in case of 3rd and 5th year plantations. This means that in case of 1st year plantation, three sample plots of 50 m x 50 m are taken for a 10 ha plot whereas for 3rd and 5th year plantations two sample plots of 50 m x 50 m are taken for a 10 ha plot. Survival percentage is found out as the ratio of the actual number to the number prescribed in the regeneration plan. Weighted Survival Percentage (WSP) of total plantations is calculated for a particular Division under each scheme and average WSP for that Division is calculated to rate its performance in plantation activity.

In case of too low survival rate at one plantation area at 5th year, DFO may consider whether replantation will be implemented and appropriate measure will be taken.

Attachment 19

Monitoring Sheet for Micro planning including Forest Dwellers Development Plan

				Step 1		Step 2										
				Mobilization*1		Microplanning										
				(1)		(2)		(3)		(4)		(5)			(6)	(7)
No.	District	Name of community	Registration No.	Date of regestration of JFMC for the projects	Date of completion of Participants List and Agreement of Commencement	Date of Formation of PRA Team and Introduction of Microplanning	Number of PRA Team Members	Date of Baseline Survey in the Micro Plan using PRA (for Social Assessment)	Date of submission of output of PRA Survey* Social Map (*contents of output *Resource Map *Venn Diagram *Seasonal Activities *Forest Related Activities etc.)	Date of Preparation of Wish List with Subproject	Wish List and Subproject Summary	Date of decision of scope and BQ of works on fieasibility, practicality, and Social & Environmental Consideration (the duration)	compliance of Social & Environmental Consideration	Subproject Scope of Work and BQ with Environmental Check List and FDDP	Date of Submission of Micro Plan (the Verification Period)	Date of Presentation of Micro Plan Approved
(Example)	Coochbehar			14-03-2014		21-03-2014		28-03-2014	28-03-2014 *(Resource Map:30-03-2014) *remarks wil be filled in	04-04-2014	*Afforestation *Tube Wells *Rural Roads *School Building *Community Hall *Aquaduct	18-04-2014 (04-04-2014-18-04-2014)	○	* Afforestation (3.5ha) * Tube wells * Rural roads (300m) with Check Lists & FDDPs for each subproject	21-04-2014 (22-04-2014-02-05-2014)	02-05-2014
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																

* Please Submit to JICA every quarter with Project Status Report
* Please Submit one prepared Microplan to JICA every quarter

				Step 3		Step 4						
				Preparation of Subprojects		Implementation of Subprojects						
				(8)		(9)	(10)		(11)		(12)	
No.	District	Name of community	Registration No.	Duration of Procurement and Preparation Period for Commencement	Preparation of Subproject	Date of Commencement	Date of Monitoring	Adjustment of the progress	Date of Completion	Completion of Subproject with Evaluation	Variation (if any)	Reason for variation
(Example)	Coochbehar			03-05-2014-31-05-2014	*Material List *Bidding Documents *Necessary Survey *Detailed Design *Contract Agreement	01-06-2014	01-07-2014 01-08-2014	*Monitoring Report of Subproject including FDDP *Re-scheduling	01-Jun-14	*Completi on Report with Evaluation *Handover		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												

* Please Submit to JICA every quarter with Project Status Report
* Please Submit one prepared Microplan to JICA every quarter

Attachment 20

Calculation of EIRR

EIRR Cash Flow of Cost and Benefit

On Economic Price Basis

Year in Order	Year	Capital Expenses	Maintenance Expenses	Total Cost	Benefits	Net Cash Flow (Benefit - Cost)
1	2012	259	0	259	0	-259
2	2013	4466	0	4466	0	-4466
3	2014	5669	0	5669	0	-5669
4	2015	6582	0	6582	853	-5729
5	2016	5673	0	5673	853	-4821
6	2017	2773	0	2773	853	-1921
7	2018	1953	0	1953	4018	2066
8	2019	1030	0	1030	1426	396
9	2020		775	775	1563	788
10	2021		775	775	976	201
11	2022		775	775	6376	5601
12	2023		775	775	1531	755
13	2024		775	775	976	201
14	2025		775	775	976	201
15	2026		775	775	976	201
16	2027		775	775	976	201
17	2028		775	775	6076	5301
18	2029		775	775	976	201
19	2030		775	775	2563	1788
20	2031		775	775	32509	31733
21	2032		775	775	1384	609
22	2033		775	775	934	159
23	2034		775	775	3934	3159
24	2035		775	775	934	159
25	2036		775	775	1144	369
26	2037		775	775	934	159
27	2038		775	775	6334	5559
28	2039		775	775	1489	713
29	2040		775	775	3675	2899
30	2041		775	775	6034	5259
31	2042		775	775	934	159
32	2043		775	775	934	159
33	2044		775	775	934	159

Year in Order	Year	Capital Expenses	Maintenance Expenses	Total Cost	Benefits	Net Cash Flow (Benefit - Cost)
34	2045		775	775	1384	609
35	2046		775	775	934	159
36	2047		775	775	32509	31733
37	2048		775	775	934	159
38	2049		775	775	934	159
39	2050		775	775	7762	6987
40	2051		775	775	934	159
					EIRR	8.43%
					NPV	(5903)

Case	EIRR (in %)	NPV @12% (Rs lakh)
Base Case	8.43%	-5903
Increase in cost by 15 percent	7.11%	-8974
Decrease in benefits by 15 percent	6.90%	-8089
Increase in cost by 15 percent and decrease in benefits by 15 percent	5.64%	-11160

Calculation of EIRR

Economic Internal Rate of Return (EIRR)

Based on the following assumption, EIRR is calculated as 8.43%. The Project is considered as economically viable. FIRR is not applicable for this Project.

1. Cost:

   Cost of EIRR Calculation:

   Base cost of a) Afforestation and allied works cost; b) Biodiversity Conservation; c) Community Development; d) Institutional Capacity Development; and e) Consulting Services.

2. Benefit:

   Mainly sale of the forest products is considered as the benefit; Timber, Small Timber, Fuelwood, Minor Forest Products (Leaves, Seeds, etc) and Fodder.

3. Standard Conversion Factor (SCF):

   The Conversion Factor to convert the financial price to the economic price, 0.9 is applied.

Attachment 21

Estimated GHG removals by Carbon Sinks

Area A : biomass above and below ground (CO^2)

		Year(Age)	A1		A2				A3				A4		A5				A6				TOTAL	
			Target	450 ha	Target		3430 ha		Target		6000 ha		Target	7500 ha	Target		1050 ha		Target		540 ha		Target	18970 ha
			Eucalyptus		S. robusta		Associates		S. robusta		Associates		S. robusta		Misc. (T.grandis)		Misc.		S. robusta		Misc.			
			Area (ha)	Total (tCO2e)	Area (ha)	Total (tCO2e)	Area (ha)	Total (tCO2e)	Area (ha)	Total (tCO2e)	Area (ha)	Total (tCO2e)	Area (ha)	Total (tCO2e)	Area (ha)	Total (tCO2e)	Area (ha)	Total (tCO2e)	Area (ha)	Total (tCO2e)	Area (ha)	Total (tCO2e)	Area (ha)	Total (tCO2e)
2012	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	4	0	450	0	3,430	0	3,430	0	6,000	0	6,000	0	7,500	0	1,050	0	1,050	0	540	0	540	0	18,970	0
2016	5	1	450	12	3,430	22	3,430	13,640	6,000	39	6,000	23,860	7,500	96	1,050	6	1,050	4,175	540	8	540	2,147	18,970	44,005
2017	6	2	450	632	3,430	20	3,430	27,250	6,000	35	6,000	47,668	7,500	88	1,050	15	1,050	8,342	540	7	540	4,290	18,970	88,348
2018	7	3	450	1,008	3,430	21	3,430	40,890	6,000	37	6,000	71,528	7,500	92	1,050	24	1,050	12,517	540	6	540	6,437	18,970	1,32,560
2019	8	4	450	1,904	3,430	25	3,430	54,500	6,000	43	6,000	95,336	7,500	108	1,050	30	1,050	16,684	540	5	540	8,580	18,970	1,77,215
2020	9	5	450	2,909	3,430	15	3,430	38,607	6,000	27	6,000	67,534	7,500	135	1,050	19	1,050	11,818	540	2	540	6,078	18,970	1,27,145
2021	10	6	450	3,971	3,430	20	3,430	46,325	6,000	35	6,000	81,035	7,500	173	1,050	24	1,050	14,181	540	2	540	7,293	18,970	1,53,058
2022	11	7	450	5,062	3,430	25	3,430	54,044	6,000	44	6,000	94,537	7,500	176	1,050	27	1,050	16,544	540	2	540	8,508	18,970	1,78,969
2023	12	8	450	0	3,430	32	3,430	61,777	6,000	55	6,000	1,08,064	7,500	222	1,050	31	1,050	18,911	540	2	540	9,726	18,970	1,98,819
2024	13	9	450	12	3,430	39	3,430	69,495	6,000	68	6,000	1,21,566	7,500	274	1,050	36	1,050	21,274	540	2	540	10,941	18,970	2,23,707
2025	14	10	450	632	3,430	48	3,430	77,214	6,000	83	6,000	1,35,067	7,500	333	1,050	40	1,050	23,637	540	2	540	12,156	18,970	2,49,211
2026	15	11	450	1,008	3,430	57	3,430	78,716	6,000	99	6,000	1,37,696	7,500	397	1,050	45	1,050	24,097	540	2	540	12,393	18,970	2,54,509
2027	16	12	450	1,904	3,430	67	3,430	85,875	6,000	117	6,000	1,50,218	7,500	468	1,050	49	1,050	26,288	540	2	540	13,520	18,970	2,78,507
2028	17	13	450	2,909	3,430	78	3,430	93,033	6,000	0	6,000	0	7,500	543	1,050	54	1,050	28,480	540	2	540	14,647	18,970	1,39,744
2029	18	14	450	3,971	3,430	89	3,430	1,00,177	6,000	39	6,000	23,860	7,500	623	1,050	58	1,050	30,667	540	2	540	15,771	18,970	1,75,257
2030	19	15	450	5,062	3,430	101	3,430	1,07,336	6,000	35	6,000	47,668	6,000	566	1,050	31	1,050	32,858	540	1	540	16,898	18,970	2,10,557
2031	20	16	450	0	3,430	57	3,430	85,871	6,000	37	6,000	71,528	6,000	0	1,050	33	1,050	26,287	540	2	540	13,519	18,970	1,97,333
2032	21	17	450	12	3,430	63	3,430	91,240	6,000	43	6,000	95,336	6,000	96	1,050	35	1,050	27,931	540	2	540	14,364	18,970	2,29,123
2033	22	18	450	632	3,430	70	3,430	96,609	6,000	27	6,000	67,534	6,000	88	1,050	37	1,050	29,574	540	2	540	15,210	18,970	2,09,784
2034	23	19	450	1,008	3,430	77	3,430	1,01,978	6,000	35	6,000	81,035	6,000	92	1,050	39	1,050	31,218	540	2	540	16,055	18,970	2,31,540
2035	24	20	450	1,904	3,430	84	3,430	1,07,336	6,000	44	6,000	94,537	6,000	108	1,050	42	1,050	32,858	540	3	540	16,898	18,970	2,53,814
2036	25	21	450	2,909	3,430	91	3,430	1,12,705	6,000	55	6,000	1,08,064	6,000	135	1,050	43	1,050	34,502	540	3	540	17,744	18,970	2,76,251
2037	26	22	450	3,971	3,430	99	3,430	1,18,074	6,000	68	6,000	1,21,566	6,000	173	1,050	45	1,050	36,145	540	4	540	18,589	18,970	2,98,733
2038	27	23	450	5,062	3,430	106	3,430	1,23,443	6,000	83	6,000	1,35,067	6,000	176	1,050	46	1,050	37,789	540	4	540	19,434	18,970	3,21,211
2039	28	24	450	0	3,430	114	3,430	1,28,812	6,000	99	6,000	1,37,696	6,000	222	1,050	48	1,050	39,432	540	4	540	20,279	18,970	3,26,707
2040	29	25	450	12	3,430	121	3,430	1,34,170	6,000	117	6,000	1,50,218	6,000	274	1,050	50	1,050	41,072	540	5	540	21,123	18,970	3,47,162
2041	30	26	450	632	3,430	129	3,430	1,11,631	6,000	0	6,000	0	6,000	333	1,050	51	1,050	34,173	540	5	540	17,575	18,970	1,64,529
2042	31	27	450	1,008	3,430	136	3,430	1,15,926	6,000	39	6,000	23,860	6,000	397	1,050	53	1,050	35,488	540	6	540	18,251	18,970	1,95,163
2043	32	28	450	1,904	3,430	144	3,430	1,20,222	6,000	35	6,000	47,668	6,000	468	1,050	54	1,050	36,803	540	6	540	18,927	18,970	2,26,230
2044	33	29	450	2,909	3,430	151	3,430	1,24,517	6,000	37	6,000	71,528	6,000	543	1,050	56	1,050	38,117	540	7	540	19,603	18,970	2,57,467
2045	34	30	450	3,971	3,430	159	3,430	1,28,812	6,000	43	6,000	95,336	6,000	623	1,050	29	1,050	39,432	540	4	540	20,279	18,970	2,88,687
2046	35	31	450	5,062	3,430	166	3,430	1,28,812	6,000	27	6,000	67,534	6,000	566	1,050	29	1,050	39,432	540	4	540	20,279	18,970	2,61,912
2047	36	32	450	0	3,430	173	3,430	1,28,812	6,000	35	6,000	81,035	6,000	0	1,050	30	1,050	39,432	540	4	540	20,279	18,970	2,69,801
2048	37	33	450	12	3,430	180	3,430	1,28,812	6,000	44	6,000	94,537	6,000	96	1,050	30	1,050	39,432	540	5	540	20,279	18,970	2,83,428
2049	38	34	450	632	3,430	187	3,430	1,28,812	6,000	55	6,000	1,08,064	6,000	88	1,050	30	1,050	39,432	540	5	540	20,279	18,970	2,97,586
2050	39	35	450	1,008	3,430	194	3,430	1,28,812	6,000	68	6,000	1,21,566	6,000	92	1,050	31	1,050	39,432	540	5	540	20,279	18,970	3,11,488
2051	40	36	450	1,904	3,430	100	3,430	1,28,812	6,000	83	6,000	1,35,067	6,000	108	1,050	32	1,050	39,432	540	5	540	20,279	18,970	3,25,824
																					TOTAL	40	3,37,672	

Area B : biomass above and below ground (CO^2)

		Year(Age)	B1		B2		TOTAL	
			Strip -Eucalyptus		Block-Eucalyptus			
			Target	1400 ha	Target	1400 ha	Target	2800 ha
2012	1		-	-	-	-	-	-
2013	2		-	-	-	-	-	-
2014	3		-	-	-	-	-	-
2015	4	0	1,400	0	1,400	0	2,800	0
2016	5	1	1,400	38	1,400	38	2,800	75
2017	6	2	1,400	1,968	1,400	1,968	2,800	3,935
2018	7	3	1,400	3,136	1,400	3,136	2,800	6,271
2019	8	4	1,400	5,924	1,400	5,924	2,800	11,848
2020	9	5	1,400	9,049	1,400	9,049	2,800	18,098
2021	10	6	1,400	12,353	1,400	12,353	2,800	24,706
2022	11	7	1,400	15,750	1,400	15,750	2,800	31,500
2023	12	8	1,400	19,188	1,400	19,188	2,800	38,375
2024	13	9	1,400	22,635	1,400	22,635	2,800	45,271
2025	14	10	1,400	26,073	1,400	26,073	2,800	52,147
2026	15	11	1,400	29,489	1,400	29,489	2,800	58,979
2027	16	12	1,400	32,875	1,400	32,875	2,800	65,750
2028	17	13	1,400	36,225	1,400	36,225	2,800	72,451
2029	18	14	1,400	39,537	1,400	39,537	2,800	79,074
2030	19	15	1,400	42,808	1,400	42,808	2,800	85,617
2031	20	16	1,400	0	1,400	0	2,800	0
2032	21	17	1,400	38	1,400	38	2,800	75
2033	22	18	1,400	1,968	1,400	1,968	2,800	3,935
2034	23	19	1,400	3,136	1,400	3,136	2,800	6,271
2035	24	20	1,400	5,924	1,400	5,924	2,800	11,848
2036	25	21	1,400	9,049	1,400	9,049	2,800	18,098
2037	26	22	1,400	12,353	1,400	12,353	2,800	24,706
2038	27	23	1,400	15,750	1,400	15,750	2,800	31,500
2039	28	24	1,400	19,188	1,400	19,188	2,800	38,375
2040	29	25	1,400	22,635	1,400	22,635	2,800	45,271
2041	30	26	1,400	26,073	1,400	26,073	2,800	52,147
2042	31	27	1,400	29,489	1,400	29,489	2,800	58,979
2043	32	28	1,400	32,875	1,400	32,875	2,800	65,750
2044	33	29	1,400	36,225	1,400	36,225	2,800	72,451
2045	34	30	1,400	39,537	1,400	39,537	2,800	79,074
2046	35	31	1,400	42,808	1,400	42,808	2,800	85,617
2047	36	32	1,400	0	1,400	0	2,800	0
2048	37	33	1,400	38	1,400	38	2,800	75
2049	38	34	1,400	1,968	1,400	1,968	2,800	3,935
2050	39	35	1,400	3,136	1,400	3,136	2,800	6,271
2051	40	36	1,400	5,924	1,400	5,924	2,800	11,848

Attachment 22

Component-wise Project Status Sheet

Manual on Component-wise Project Status Sheet
For Forestry Sector Projects in India

JICA India Office
June 2010

1. What is Component-Wise Project Status Sheet (CW-PSS)?

CW-PSS is a sheet that provides a snap shot of the current physical progress, component wise, of the JICA-assisted on-going forestry project in India, which needs to be jointly monitored by Executing Agency (E/A) and JICA (India Office & South Asia Department in the Head Office).

2. Objective of CW-PSS:

The objective of formulating the CW-PSS is:

1) To facilitate a macro level and, in case of certain components, a micro level understanding of the project targets and achievements (both physical and financial), on cumulative basis and present basis (current financial year), so as to facilitate effective planning and monitoring by the Executing Agency and JICA.
2) To further substantiate and supplement the information provided in the Quarterly Project Report (QPR) and Project Status Report (PSR), as CW-PSS would become an integral and mandatory attachment of the aforesaid reports.

3. Time of Update:

April, July, October and January of the Fiscal Year, same as QPR and PSS.

4. Contents of CW-PSS:

CW-PSS shall include the following information:

1. Project Components and Sub-components:
   i) Components: All major components of the Project are included in the sheet.
   ii) Sub-component: Only major sub-components of the Project selected by JICA, based on JICA's monitoring requirements, are included in the sheet after due consultation with each E/A. However, E/A may also request JICA to include any other sub-component that E/A considers important to be monitored.
2. Cumulative Target and Achievement:
   i) Cumulative Physical Target: Component wise, total physical targets, as agreed in the Minutes of Discussion (MOD) for the Project.
   ii) Cumulative Physical Achievement: Component wise physical target achievements from the month/year when L/A was signed until March of the previous financial year. "Date of Update" is noted (for year wise analysis)
   iii) Cumulative Financial Target: Component wise total financial targets, corresponding to the cumulative physical targets as agreed in the MOD for the project.
   iv) Cumulative Financial Achievement: Component wise total financial achievements from the month/year when L/A was signed until March of the precious financial year. "Date of Update" is noted (for year wise analysis).
3. Current Target and Achievement:

i) Current Physical Target: Component wise targets of the current financial year.

ii) Physical Spillover Target (from previous FY): Component wise physical spillover of the previous financial year.

iii) Current Physical Achievement: Component wise physical achievements are updated on quarterly basis (for quarter wise analysis). It needs to be noted that the quarter wise progression would be clubbed with total progress for the year.

iv) Current Financial Target: Component wise financial targets for the ensuing financial year, corresponding with the current physical targets.

v) Financial Spillover Target: Component wise financial spillover of the previous financial year.

vi) Current Financial Achievement: Component wise financial achievements are updated on quarterly basis (for quarter wise analysis). It needs to be noted that the quarter wise progression would be clubbed with total progress for the year.

4. Remarks:

i) Information that supplements /explains the figures filled in the above mentioned 1) and 2) is provided.

ii) Background information is provided if the figures of cumulative physical/ financial targets are changed during the implementation period of the project. However, change of targets should only be done after obtaining prior concurrence/approval from JICA. Any changes made unilaterally by E/A would not be treated as valid and effective unless or until JICA provides its prior concurrence.

iii) Explanation should be provided on the reasons for discrepancy, if any, in figures/ information between the current year financial targets and achievements and also yearly disbursement forecast provided separately by E/A.

5. Notes for updating the PW-PSS:

(e.g. mentioned below are cited from the Attachment which is based on the case of "ID-P162 Tamil Nadu Afforestation Project (II)" as an example.)

1) Project Components and Sub-Components:

i) In the cells of "Components" numbered by "I", "II", the names of the components as per the MOD are to be filled in 3 lines (e.g. "I. Afforestation", "II. Buffer Zone Activities").

ii) In the cells of "Sub-Components" numbered by "1", "2", the names of the major sub-components selected by JICA are to be filled in 3 lines (e.g. "1. Integrated Watershed Development Program", "2. Integrated Tribal Development Program").

2) Cumulative Target and Achievement:

i) In the cell of period, Month/Year of L/A signed and March of the previous fiscal year of update are to be filled. (e.g.: "April 2005-March 2010").

ii) Cumulative Physical Target:

- The information that the component and sub component wise targets agreed at the MOD is to be filled.
- The units for all the sub-component are also to be noted clearly (e.g. "ha" for unit, "177500" for target).
- If no target is agreed in MOD, "No Target" needs to be noted.
- If there is no relevant information to be filled in the cells, for example the financial target is given instead, "N/A" needs to be noted (e.g. "N/A").

iii) Cumulative Physical Achievement:

- The information that the component wise achievement is to be filled.
- The units for all the sub-component are also to be noted clearly (e.g. "ha" for unit, "177500" for achievement).
- Even if no target is agreed in MOD, achievement should be noted (e.g.; I-3 Soil Moisture Conservation work (check dams), Nos 4152 is noted though there was "No Target").
- If there is no relevant information to be filled in the cells, for example the financial achievement is given instead, "N/A" needs to be noted (e.g. "N/A").

iv) Progress (Physical):

- The percentage (%) of the achievement (2)(iii) against the target (2)(ii) of each component and sub-component is noted. If (2)(ii) and (2)(iii) were filled, the percentage is automatically calculated in the sheet.

v) Cumulative Financial Target:

- The information that the component and sub-component wise targets agreed at the MOD is to be filled.
- The units for all the sub component are also to be noted clearly (e.g. "Lakh Rs" for unit, "20727" for target).
- If there is no relevant information to be filled in the cells, for example, the financial target is given instead, "N/A' needs to be noted (e.g. "N/A").

vi) Cumulative Financial Achievement:

- The information that the component-wise achievement is to be filled.
- The units for all the sub-component are also to be noted clearly (e.g. "Lakh Rs" for unit, "19521" for achievement).
- If there is no relevant information to be filled, "N/A" needs to be noted (e.g. "N/A"). However, if the physical achievement is "N/A", at least the financial achievement needs to be filled.

vii) Progress (Financial):

- The percentage (%) of the achievement (2)(iii) against the target (2)(ii) of each component and sub-component is noted. If (2)(ii) and (2)(iii) were filled, the percentage is automatically calculated in the sheet.

3) Current Target and Achievement:

i) In the cell of period, from April till the month of update of the fiscal year (e.g. "April 2010 to March 2011").

ii) Current Physical Target:

- The information that the component and sub-component wise targets of the current fiscal year is to be filled.
- The units for all the sub-component are also to be noted clearly (e.g.: "ha" for unit, "14250 (M)" for target. "(M)" means "maintenance" only).
- If there is no relevant information to be filled in the cells, for example, the financial target is given instead, "N/A" needs to be noted (e.g. "N/A")

iii) Physical Target Spillover (Spill Target):

- The information that the component and sub-component wise spillovers of the previous financial year is to be filled.
- If there is no relevant information to be filled in the cells, for example, the financial target is given instead, "N/A" needs to be noted (e.g. "N/A")

iv) Current Physical Achievement:

- The information that the component-wise achievements is to be filled.
- The units for all the sub component are also to be noted clearly (e.g. "ha" for unit, "0" for achievement).
- Even if no target is agreed in MOD, achievement should be noted (e.g. 1-3 Soil Moisture Conservation work (check dams) Nos "0" is noted though there was "No Target").
- If there is no relevant information to be filled in the cells, "N/A" needs to be noted (e.g. "N/A"). However if the physical achievement is "N/A", at least the financial achievement needs to be filled.

v) Progress (Physical):

- The progress to be shown for the current year should be a sum of (current year target achievement) + (spill over achievements). Correspondingly, the percentage would reflect accordingly.

vi) Current Financial Target:

- The information that the component and sub-component wise targets of the current fiscal year is to be filled.
- The units for all the sub-component are also to be noted clearly (e.g.: "Lakh Rs" for unit, "20727" for target). While preparing financial targets, please ensure that the same are in line with the disbursement projections made for the ensuing year be each executing agency at the beginning of each financial year. In this regard, it needs to be noted that initially the proposed budget for the year may be indicated with a clear description in the "remarks" column that the targets indicated are yet to be approved by the State Government. Thereafter, as and when the approval is granted by the State Government, the financial targets may be altered and the same should be indicated in the "remarks" column and a separate intimation should be provided to JICA.
- If there is no relevant information to be filled in the cells, for example, the financial target is given instead, "N/A" needs to be noted (e.g. "N/A").

vii) Financial Target Spillover (Spill Target):

- The information on the component and sub-component wise spillovers of the previous fiscal year is to be filled.
- If there is no relevant information to be filled in the cells, for example, the financial target is given instead, "N/A" needs to be noted (e.g. "N/A").

viii) Current Financial Achievement:

- The information that the component-wise achievement is to be filled.
- The units for all the sub-component are also to be noted clearly (e.g.: "Lakh Rs" for unit, "19521" for achievement).
- If there is no relevant information to be filled in the cells, "N/A" needs to be noted (e.g. "N/A"). However, if the physical achievement is "N/A", at least the financial achievement needs to be filled.

ix) Progress (Financial):

- The progress to be shown for the current year should be a sum of (current year target achievement) + (spill over achievements). Correspondingly, the percentage would reflect accordingly.

Attachment 23

Environmental Check List: 17. Forestry

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) NA (b) NA (c) NA (d) NA	(a) As per the Ministry of Environment and Forest (MoEF) Notification dated 14 September 2006, no Environmental Clearance (EC) is required for forestry project under 'Category 'B2' and will also not require an Environment Impact Assessment report. (b) NA (c) NA (d) No such permits are required.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Yes (b) Yes	(a) The project has been planned with explanation to the local stakeholders, such as Panchayat institutions and JFMC members that are expected as the main target groups. (b) Local requirements have been considered and the project has been prepared accordingly.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) No	(a) Alternative plans have not been examined because there is little adverse social and environmental impact anticipated by the project. On the other hand, the project will restore forests and improve grasslands with associated biodiversity through afforestation and habitat improvement. The project has been planned to improve local people's livelihoods and living conditions.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
2 Pollution Control	(1) Air Quality	(a) Do air pollutants, such as dust, soot and dust, sulphur oxides (SOx), nitrogen oxides (NOx), and organic chemical substances emitted from various sources, such as logging operations, forest products manufacturing processes, and incinerators comply with the country's emission standards and ambient air quality standards? Are any mitigating measures taken?	(a) Yes	(a) No such kind of activities has been planned. Afforestation will contribute to sequester Carbon, thereby reducing emission of GHGs. The air quality in the area will be improved by afforestation and reforestation.
	(2) Water Quality	(a) Is there a possibility that the use of chemicals, such as fertilizers, and agrochemicals will cause water pollution? (b) Where facilities, such as forest products manufacturing facilities are installed, do effluents from the facilities comply with the country's effluent standards and ambient water quality standards?	(a) No (b) NA	(a) Usage of pesticide and insecticide are minimized for environmental consideration (WBFD explained). It is not likely to increase the pollutant level of the existing water bodies. (b) No such kind of facilities has been planned.
	(3) Wastes	(a) Are wastes properly treated and disposed of in accordance with the country's regulations?	(a) Yes	(a) Wastes produced by the project are almost bio-degradable in nature.
	(4) Soil Contamination	(a) Are adequate measures taken to prevent contamination of soil and groundwater by use of chemicals, such as agrochemicals? (b) Are any agrochemicals management plans prepared? Are any usages or any implementation structures organized for proper use of the plans?	(a) Yes (b) No	(a)Organic fertilizers and agrochemicals, such as fertilizer and insecticide, are used at nurseries and at the time of planting, following the instruction. However, because of the limited quantity and the degradation of agrochemicals, it is unlikely to increase the contamination level of soils. (b) WBFD agreed that In case that pesticide and insecticide are used, proper instruction shall be given to JFMCs/EDCs members for the purpose of safety and further explained that pesticide and insecticide are stored only in Forest Department Range offices and usage of these is allowed only when WBFD officers are present in field.
3 Natural Environment	(1) Protected Areas	(a) Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) Yes/No	(a) National Parks, Wildlife Sanctuaries, Tiger Reserves and Elephant Reserves. It is not anticipated to affect these areas adversely but rather positively since the afforestation and grass management improve the current conditions of environment, ecosystem and biodiversity.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) Is there a possibility that changes in localized micro-meteorological conditions, such as solar radiation, temperature, and humidity due to a large-scale timber harvesting will affect the surrounding vegetation? (d) Is there a possibility that a large-scale timber harvesting will result in loss of breeding and feeding grounds for wildlife? (e) In the case of reforestation projects, is there a possibility that mono-species plantations will adversely affect wildlife habitats? Is there a possibility that mono-species plantations will cause outbreaks of pests? (f) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? (g) Isn't an illegal deforestation associated with the project being carried out, or is an acquisition of the forest certification by the project proponent being carried out?	(a) Yes (b) Yes (c) NA (d) NA (e) No (f) NA g) No	(a) Tropical moist/dry deciduous forest, sub-tropical broadleaved forest, mangrove forest, etc. (b) Habitats for tiger, elephant, rhino, gaur, leopard, estuarine crocodile, etc. (c) No large scale-timber harvesting has been planned. (d) No large scale-timber harvesting has been planned. (e) Mono-culture plantation (Eucalyptus) is carried out in degraded areas, not in wildlife habitats to be conserved. There have been no substantial outbreaks of pests reported in mono-culture plantation in the state. (f) Significant adverse ecological impacts are not anticipated. All the effort to reduce the impacts will be made through the afforestation and habitat management. Rather there will be improvement in micro-climate particularly in the areas where afforestation will be taken up in clusters. (g) No such kind of activities is anticipated since local people, including FPCs/EDCs, are involved in the afforestation and the community support activities that benefits their livelihoods.
	(3) Hydrology	(a) Is there a possibility that alteration of rainwater runoff and runoff characteristics due to a large-scale timber harvesting and access road construction will cause impacts on the hydrology of the surrounding areas? (b) Is there a possibility that decreased water retention capacity due to deforestation will affect the existing drainage patterns of the forest?	(a) NA (b) NA	(a) No such kind of activities has been planned. All development activities are in minimum quantum and will not cause either hydrological imbalance or soil erosion. (b) Afforestation will rather increase the water retention capacity in the proposed sites. No existing drainage pattern will be changed.
	(4) Topography and Geology	(a) Is there a possibility that loss of forest stability due to timber harvesting will cause slope failures or landslides?	(a) NA	(a) No timber harvesting has been planned.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(5) Management of Abandoned Sites	(a) Are adequate restoration and revegetation plans considered for the harvested areas? In particular, are adequate measures taken to prevent soil runoff from the harvested areas? (b) Is a sustainable management system for the harvested areas established? (c) Are adequate financial provisions secured to manage the harvested areas?	(a) NA (b) NA (c) NA	(a) (b) (c) } No timber harvesting has been planned. However, the Forest Dept usually conduct replantation at the harvested areas following Working Plans.
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Is the compensations going to be paid prior to the resettlement? (e) Is the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?	(a) No (b) NA (c) No (d) NA (e) No (f) NA (g) NA (h) No (i) No (j) NA	The project does not have any feature of removing settlements from forest areas and protected areas, where no settlements are permitted basically, by afforestation and habitat improvement. As per the Forest Rights Act (2006), the process of eviction of villagers, who are regarded as encroachers, has not been taken place without finalization of the user right. Social forestry will be executed in strips and blocks on government, private and community lands where no settlements are established.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(2) Living and Livelihood	(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary? Is particular attention paid to the inhabitants whose livelihoods are based on primary industries, such as farming, raising livestock, or hunting and gathering in the forests? (b) Are adequate measures taken to prevent illegal entry into the forestry resource areas from the outside through newly constructed access roads? (c) Is there a possibility that the forest right of common is obstructed? (d) Are considerations given to life of residents before implementation of project?	(a) No/Yes (b) NA (c) No (d) Yes	(a) The project has been planned to alleviate the existing living conditions of local people in the forest fringe by creating job opportunities and reducing dependency to the forest resources. Particular attention will be made for them by preparing the Micro Plan including Forest Dwellers Plan. (b) No new access roads have been planned. (c) The forest right of commons is observed in accordance to the Forest Right Act (2006). (d) The Micro Plan including Forest Dwellers Plan will be prepared to minimize and mitigate the project impact on their lives and to ensure benefit suitable to their cultures.
	(3) Heritage	(a) Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) No	(a) There are no such sites anticipated in the project site which are located in the recorded forests and the protected areas. If found, however, they will be adequately dealt with in consultation with the local communities and Department of Municipal Affairs which is entity to deal with ruins under the West Bengal Heritage Commissions Act (2001).
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) No	(a) The project will rather improve the degraded landscape to the forest landscape including reactivation of flora and fauna in degraded forest areas.
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a) Yes (b) Yes	(a) Since many of residents on forest areas are tribes, the project will contribute to improving the surroundings of indigenous people. In the case of mixed culture (tribe and scheduled caste, or several tribes in a village), consensus shall be made to select members, identify needs and share benefit among villagers. (b) The Indian Forest Act and the Forest Right Act secure the right of indigenous people. The acts are applied to target villages too.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) No (b) No (c) Yes (d) Yes	(a) The Forest Dept. observes the provisions of the Minimum Wages Act (1948) and the Plantations Labour Act (1951). (b) Such equipment and management measures are not generally required for work in the component. (c) General care and instruction are made for labours by the Forest Dept. Compensation for any injury, accident or casualty is payable to the labourers as per the provisions of the Workmen's Compensation Act (1923). (d) The security guards are selected from residents and security network are set up if need arises.
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(a) Yes (b) Yes (c) Yes	(a) Most of works for the afforestation and habitat management are made by manual labour and machine so that there is little impact anticipated on natural and social environment. (b) However, no adverse impact is anticipated. (c) However, no adverse impact is anticipated.
	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a) No (b) NA (c) NA (d) NA	(a) (b) (c) (d) } It is not required by Indian legislations to monitor environmental/ social impact if a project does not need EIA by EIA Notification (2006) of the Ministry of Environment & Forest. The Forest Dept. has its own monitoring unit for afforestation and all forestry works but not for environmental/ social impact. Since the impact is anticipated minimum and manageable, a monitoring programme will not be established.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Agriculture checklist should also be checked.	(a) Yes	(a) Checked.
	Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) NA	(a) NA

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made.

In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).

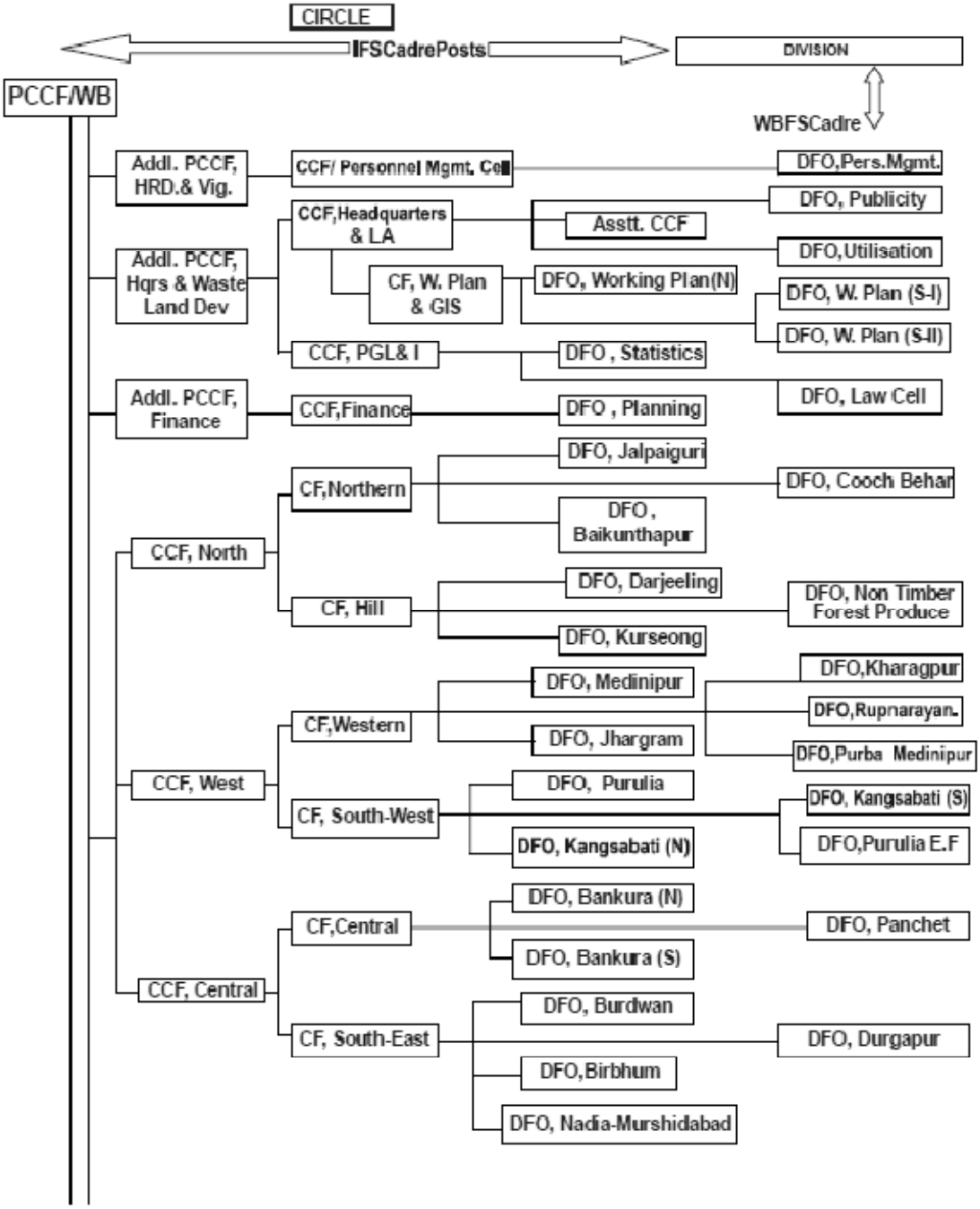
2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which the project is located.

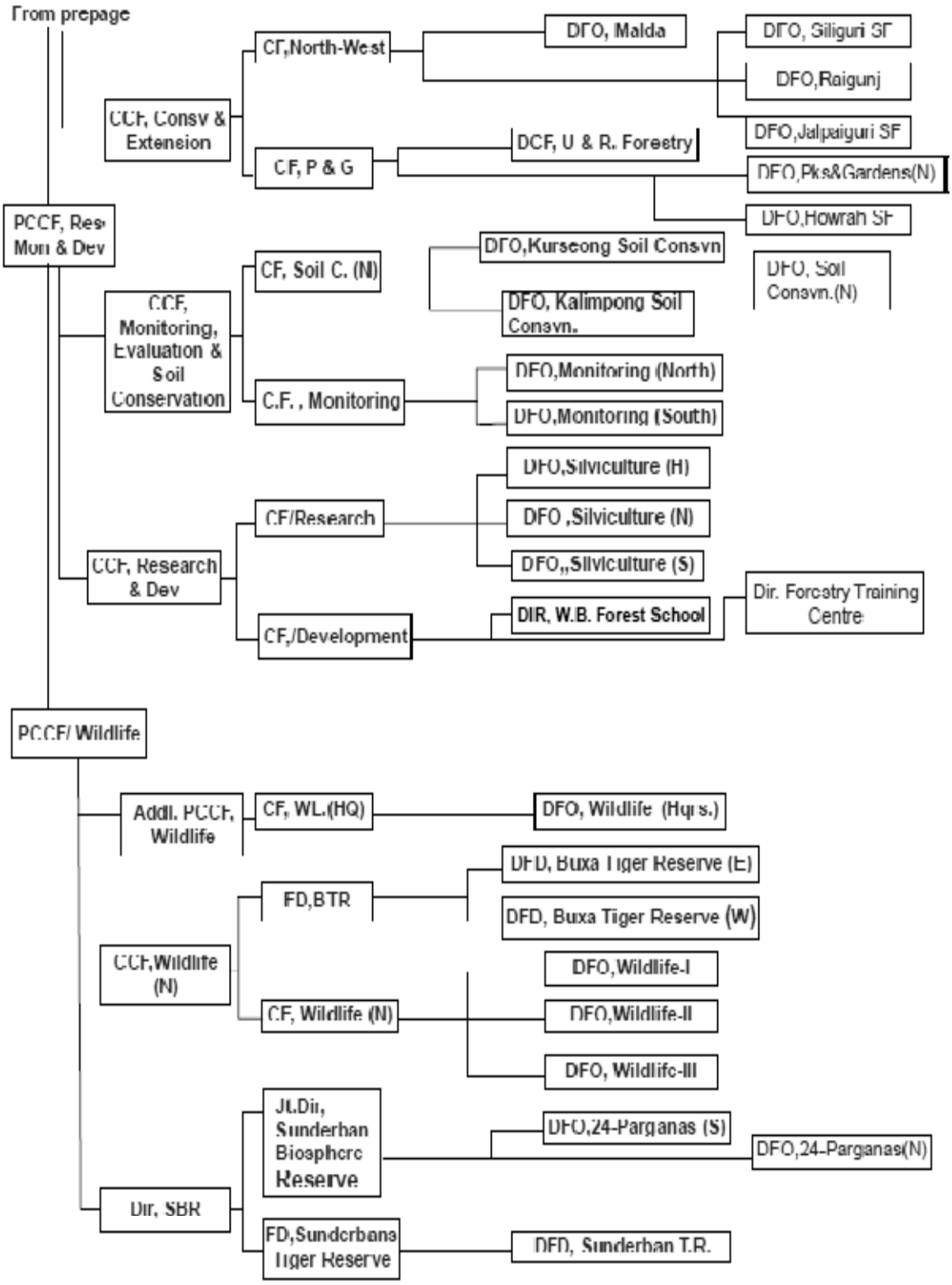
Attachment 24

Operation and Maintenance Structure

The present administrative set up of the Forest Directorate of the State stands as follow:

Organizational Structure of Forest Directorate





Source: West Bengal State Forest Report 2009-2010

Attachment 25

Left Wing Extremist Affected Area

GOVERNMENT OF WEST BENGAL
Development and Planning Department
Poura Bhawan, FD-415 A, Sector –III
Bidhannagar, Kolkata-700106

No. 69(14)/DP/P/P-IS-06/11 Dated, the 1st June, 2011

From: Joint Secretary,
Development and Planning Department,
Government of West Bengal

To: The ACS/Principal Secretary/Secretary,
Health/Power/P&RD/MSSE&T/Backward Classes Welfare/ Water Resources Investigation Development /Forest/Public Health Engineering Technical Education and Training/ PWD/ School Education/ WCD & Social Welfare / Sports / Horticulture Department

Sub: MICs Meeting on Programmes in LWE affected blocks of West Bengal

Sir/Madam,

It may be highlighted at the outset that the following are the 23 LWE affected blocks of 3 districts of West Bengal:

(a) Paschim Medinipur district (11 blocks)- Medinipur Sadar, Garhbeta II, Salboni, Jhargram, Binpur I, Binpur II, Sankrail, Jamboni, Nayagram, Gopiballavpur I and Gopiballavpur II

(b) Bankura district (4 blocks) - Ranbundh, Simlapal, Raipur and Sarenga.

(c) Purulia district (8 blocks) - Arsha, Baghmundi, Balarampur, Barabazar, Bundwan, Jhalda I, Jhalda II and Manbazar II.

The following information will be required for a meeting on LWE affected blocks called by MIC, Development and Planning Department on 06.06.2011 in his chamber at 12 noon:

(1) Departmental funds spent on developmental work in the above 23 LWE blocks in the last two years (activity wise)

(2) Departmental budget provision for 2011-12.

(3) Additional fund required.

I am directed to request you to kindly attend the above meeting of MIC, Development and Planning Department with your departmental reports covering the above information.

Yours faithfully,

Joint Secretary
Development and Planning Department

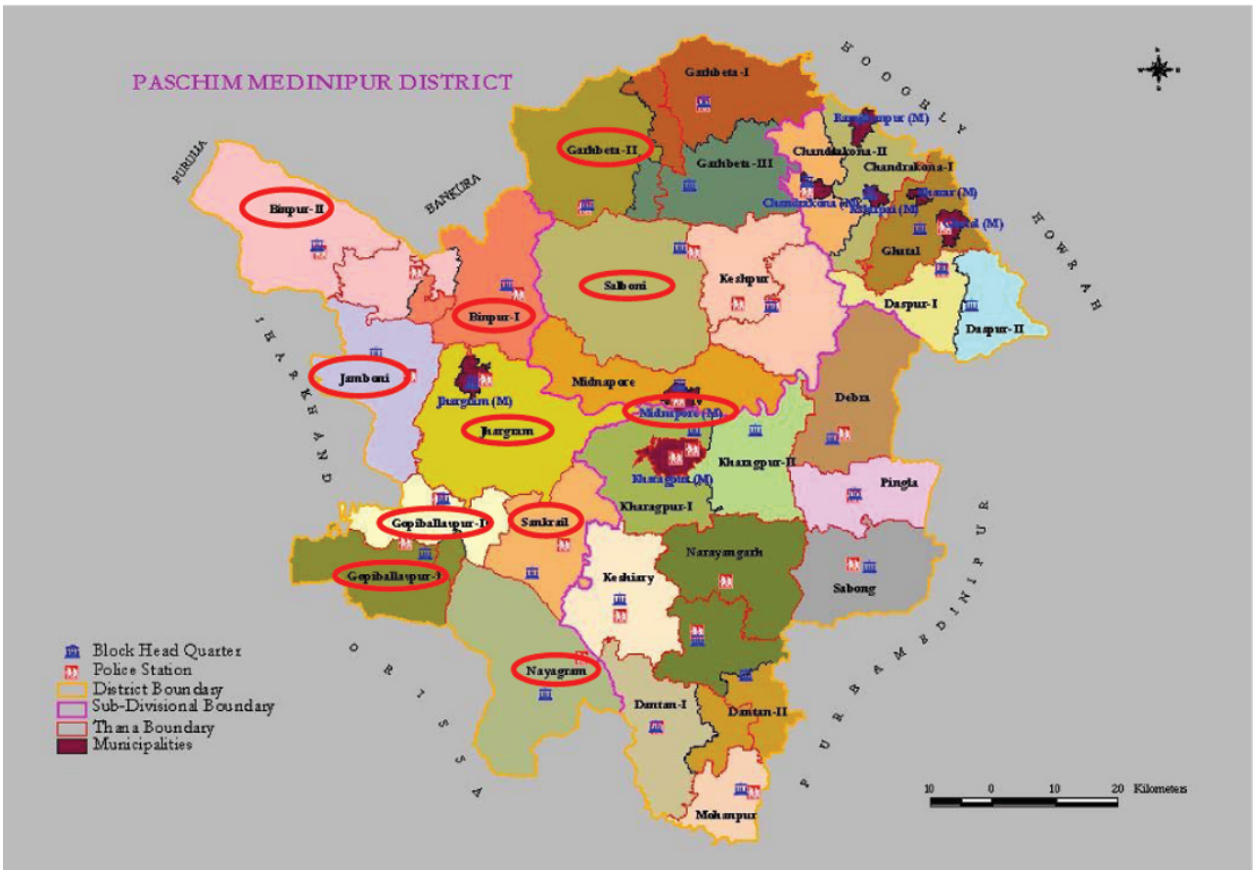
No. 69(14)/DP/P/P-IS-06/11 Dated, the 1st June, 2011

Copy forwarded for information to:

1. P.S to MIC, Development and Planning Department, Govt. of West Bengal
2. P.A to Chief Secretary, Govt of West Bengal

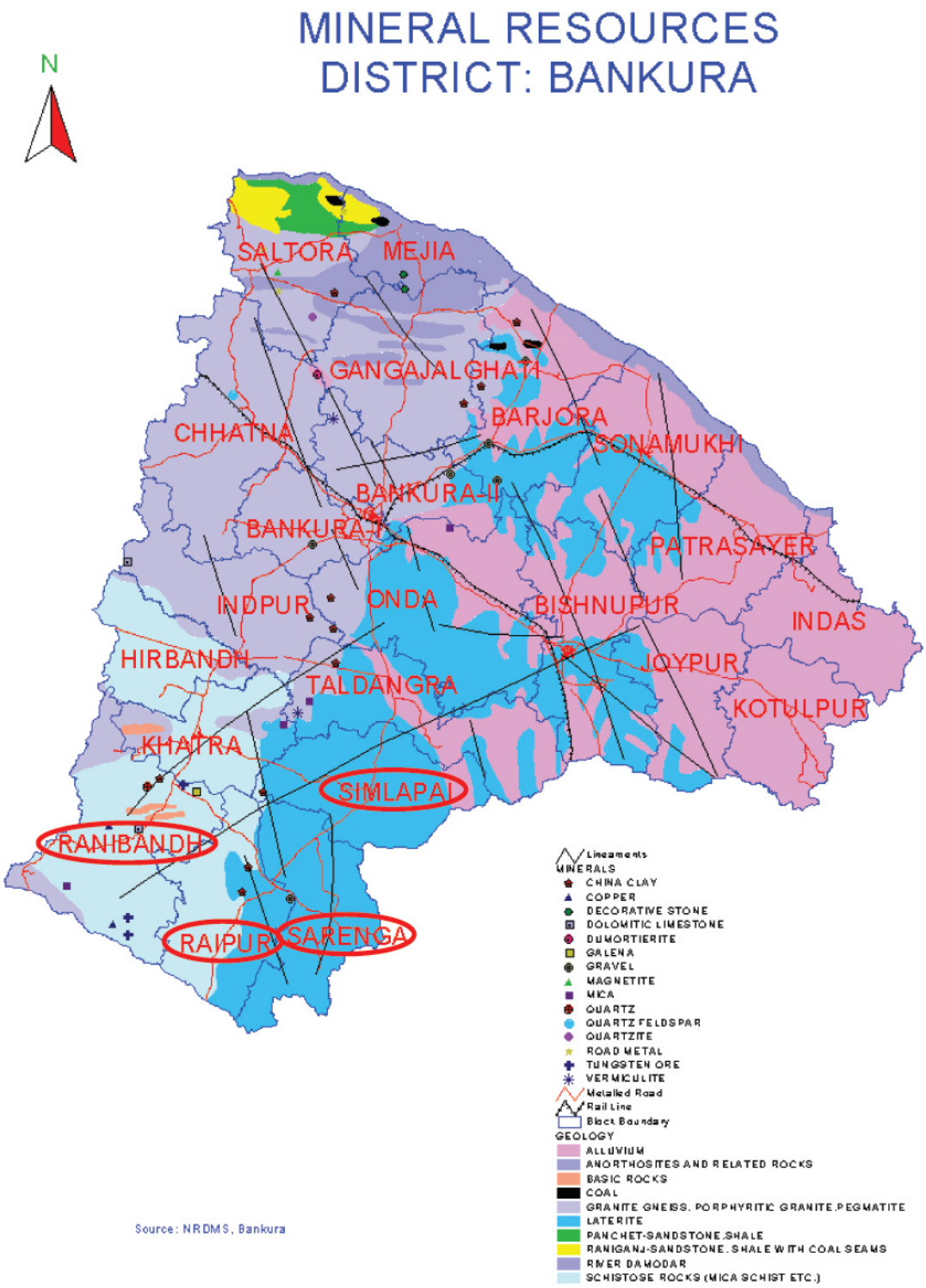
Joint Secretary
Development and Planning Department

Paschim Medinipur (11/30 blocks)



Purulia District (8/20 blocks)

Bankura (4/21 blocks)



Attachment 26

Supplementary Explanation regarding the introduction of Prepayment Premium in Japanese ODA loan scheme

1. Purpose of Prepayment Premium

The purpose of introduction of Prepayment Premium is to ensure financial stability of JICA as a financial institution as well as to sustain Japanese ODA loan scheme and its concessionality.

JICA would have gained interests from remaining balance of the loans without prepayments. In other words, prepayments may affect the financial stability of JICA, which leads to the negative impact on sustainability of Japanese ODA loan scheme itself and as a result, in the medium- and long-term, JICA may need to increase interest rate of Japanese ODA loans. In addition, due to prepayments from borrowers, JICA may need to prepay some of its borrowing funds from Government of Japan. In that case, Prepayment Premium is charged on JICA from Government of Japan. Please refer to Appendix I for financial sources of Japanese ODA loans as per attached hereto.

By introducing Prepayment Premium in Japanese ODA loan scheme, JICA could neutralize the impact of non-accrued interests which may be brought about by prepayments, which in turn enables JICA to maintain its financial soundness and to keep providing concessional loans to the borrowers.

2. Timing of introduction of Prepayment Premium in Japanese ODA loan scheme

Prepayment Premium will be introduced in Japanese ODA loan scheme from Loan Agreements to be signed on and after April 1st, 2011.

3. Calculation method of Prepayment Premium

Prepayment Premium is charged if discounted amount of sum of original principle and interest is larger than actual prepayment amount. Please refer to Appendix II for its concept and Appendix III for results of provisional calculation as examples.

4. Procedural change due to the introduction of Prepayment Premium

Currently, as stipulated in Section 3.02(3) of General Terms and Conditions for Japanese ODA loans, March 2009, a written notice of Prepayment needs to be made thirty (30) days before actual prepayment is made. This necessary procedure period of thirty (30) days will be changed to forty (40) days due to additional procedures such as calculation of Prepayment Premium and communication between borrowers and JICA.

5. Other donors' policy on Prepayment Premium

Multilateral development banks such as World Bank (IBRD), Asian Development Bank (ADB), Inter-American Development Bank (IBD) as well as other bilateral development banks such as KfW (Germany), AFD (France) have already introduced Prepayment Premium in their loan scheme (even though it may not be called as "Prepayment Premium", they have a similar system in their loan scheme). Since their main products are mainly floating-rate loans, actual calculation method of Prepayment Premium may be different from that of JICA. Nevertheless, the concept and purpose of Prepayment Premium is the same across all development banks including JICA.

Calculation of Prepayment Premium

※Assumption: in case of prepayment for remaining period "n" year, remaining principle amount equal P1＋P2＋P3・・・＋Pn

● Amortization Schedule before Prepayment[1]

Remaining period	1st year	2nd year	3rd year・・・・・・・・・・・・・・・・・・・・	n year
Principle	P1	P2	P3・・・・・・・・・・・・・・・・・・・・・・	Pn
Interest	R1	R2	R3・・・・・・・・・・・・・・・・・・・・・・	Rn

● Calculating formula of Prepayment Premium: In case of Prepayment with remaining period n year

$$\left[\frac{(P1+R1)}{(1+r1)} + \frac{(P2+R2)}{(1+r2)^2} \quad \frac{(P_3+R_3)}{(1+r3)^3} \cdots + \frac{(Pn+Rn)}{(1+rn)^n}\right] - (P1+P2+P3 \cdots\cdots\cdots Pn)$$

＝ **Prepayment Premium**

Sum of Discounted amount

calculated by each Original schedule of Principal and interest divide by Discount

Sum of original Principal amount = equal to Prepayment amount.

If the result becomes zero or negative, no Prepayment Premium shall be charged.

- P_n : Original Principal repayment in n years
- R_n : Original interest amount in n years
- r_n : Discount rate which is calculated by using the yield rate of the Japanese Government bond for the term, which is no more than, and the nearest to the period from the Prepayment date to the n year

[1]This is simplified example in order to explain the content of Prepayment Premium.

Attachment 27

Procurement and Implementation Methods

	Proponent/ Owner	Executer/ Contractor	Method
I. PREPARATORY WORKS			
1. Selection and Appointment of Consultants	PMU	PMU	ICB
2. Institutional Arrangement	WBFD	WBFD	Direct Undertaking
2.1 Establishment of High Power Committee (HPC)			
2.2 Establishment of Project Management Unit (PMU) Society Mode			
2.3 Consolidation of Legal System for Institutionalization of HPC, PMU			
2.4 Deployment of staff from Forest Dept to PMU			
2.5 Recruitment of contractual staff from the open market to PMU/DMU	PMU	PMU	
3. Selection of Target Villages			
3.1 Preparation of site selection criteria (JFMC, EDC)	PMU	PMU	Direct Undertaking
3.2 Selection of possible area			
3.3 Selection of target villages			
3.4 Finalization of target villages			
4. Customization of Standard Management Manual			
4.1 Standard Management Manual for PMU	PMU	PMU	Direct Undertaking
4.2 Standard Management Manual for TPOF by Panchayat			
4.3 Standard Management Manual for JFMC, EDC, Preparation of Micro Plan including Forest Dwellers Development Plan			
4.4 Standard Management Manual for SHG			
4.5 Standard Management Manual for NGO			
4.6 Guidelines for procurement for NGO			
4.7 Monitoring and Evaluation Manuals			
4.8 Finalization of Manuals /Guidelines		PMU/PMC	
5. Preparation of Programme and Tender Documents			
5.1 For Base line Survey	PMU	PMU	Direct Undertaking
5.2 For Training & Capacity Building			
5.3 For Mid-term Monitoring & Evaluation			
5.4 For End-term Monitoring & Evaluation			
6. Preparation of Detailed Design and Tender Documents			
6.1 Facilities and Equipment for Biodiversity Conservation	PMU	PMU	Direct Undertaking
6.2 Building and Equipment & Vehicle for Institutional Capacity Development			

	Proponent/ Owner	Executer/ Contractor	Method
II. IMPLEMENTATION OF COMPONENTS			
1. Afforestation and Allied Works			
1.1 Afforestation of Degraded Forest Land	PMU/DMU	DMU/JFMC	MOU
(1) Site demarcation, survey and mapping (JFMC)			
(2) Advance Soil Works and Creation Works			
(3) Maintenance of Plantation-Weeding, Cleaning, Mulching, Infilling, Forking and Hand Weeding etc			
(4) 1st Year Maintenance			
(5) 2nd Year Maintenance			
(6) 3rd Year Maintenance			
1.2 Tree Planting Outside Forest Area (Social Forestry)	PMU/DMU	DMU/JFMC	MOU
(1) Selection of candidate site			
(2) Formulation of Executive Committee and identification of beneficiaries			
(3) Site demarcation, survey and mapping (SF)			
(4) Soil work-pit digging/trenching etc			
(5) Planting			
(6) Mulching /Infilling etc			
(7) Maintenance			
1.3 Soil & Moisture Conservation in Forestry Treatment Areas	PMU/DMU	DMU/JFMC	MOU
1.4 Production of Quality Planting Material	PMU/DMU	PMU/DMU	Direct Undertaking
2. Biodiversity Conservation			
2.1 Habitat Management	PMU	DMU/EDC	Direct Undertaking
(1) Grassland restoration and fodder tree planting in PAs in the North Bengal			
1) Advance Work and Creation and Fencing			
2) Maintenance			
(2) Bamboo underplanting in Mahananda WS			
1) Advance Work and Creation and Fencing			
2) Maintenance			
(3) Fodder tree planting after removal of Maling bamboo in PAs in the hills			
1) Advance Work and Creation and Fencing			
2) Maintenance			
2.2 Man-Animal conflict mitigation	PMU	DMU/EDC	Direct Undertaking
(1) Tender and Evaluation for procurement of equipment			
(2) Procurement of equipment			
(3) Implementation of activities for mitigation of conflict with Elephant & Gaur in the North and Elephant conflict in the South West Bengal			
(4) Implementation of activities for mitigation of conflict with Leopard in North Bengal			
(5) Implementation of activities for mitigation of conflict with Tiger in Sundarban			
(6) Implementation of activities for mitigation of conflict with smaller animals in the Central Bengal			
2.3 Research	PMU	Research Institutions	Local Bidding/ Price Quotation
(1) Consultation by Research Advisory Committee			
(2) Selection of Research Item and preparation of Tender Documents			
(3) Selection of Research Firm by Open Tender			
(4) Inventory and status survey for butterflies in the North Bengal			
(5) Status survey of Gaur and Leopard in North Bengal foothills			
(6) Study of Tiger ecology for conservation			
(7) Study of Elephant ecology for management			
(8) Impact assessment for habitat management			

	Proponent/ Owner	Executer/ Contractor	Method
3. Community Development			
3.1 Selection of NGOs	PMU	PMU/DMU	Local Bidding/ Price Quotation
(1) Finalization of TOR of NGOs and listing of candidate NGOs			
(2) Selection of NGOs for micro planning			
(3) Selection of NGOs for microfinance			
3.2 Meeting	DMU	FMU/NGO	MOU
(1) General Meeting about Micro planning			
(2) Meeting with women, landless, SC/ST			
(3) Participatory Survey (baseline data collection)			
3.3 Micro plan	DMU	FMU/NGO	MOU
(1) Formation of PRA team			
(2) Implementation of PRA, meeting for Microplanning			
(3) Checking by DFO			
3.4 Income Generation Activities	DMU	FMU/JFMC /EDC/SHG /NGO	MOU
(1) Selection of SHG			
(2) Mobilization of SHGs			
(3) Technical and managerial training to SHG members			
(4) Support for marketing and value addition			
3.5 Community Infrastructure Development for JFMC	DMU	FMU/JFMC / EDC	MOU
4. Institutional Capacity Development			
4.1 Baseline survey of the State's forest resources at the start of the project	PMU	NGO	Local bidding/ Price Quotation
(1) Selection of Survey Firm by open tender			
(2) Implementation of baseline survey of the forest growing stock			
(3) Implementation of baseline survey of the socio-economic conditions			
4.2 Training & Capacity Building of Project Implementing Officials, Field and Office staffs and Other Stakeholders	PMU	DMU/ Training Institutions	Direct Undertaking/ Direct Contract / Local Bidding/ Price Quotation
(1) Selection of execution Institution/Firm by open tender			
(2) Implementation of Package-I for Senior Officers			
(3) Implementation of Package –II for Middle and Junior level Officers			
(4) Implementation of Package –III for Junior level Officers and FRs			
(5) Implementation of Package –IV for Frontline staff and JFMC/EDC/SHG			
4.3 Infrastructure Development for Social Forestry, training, research, GIS, forest protection etc including Building, Equipment & Vehicle	PMU	PMU	Direct Undertaking/ Direct Contract / Local Bidding/ Price Quotation
(1) Selection of Contractor/Supplier by open tender			
(2) Construction of Administrative Buildings			
(3) Equipment for GIS/MIS Pilot Project			
(4) Purchase of vehicles including motorbikes for better mobility of staff and officers			
(5) Miscellaneous management inputs			
4.4 Forestry Research Activities	PMU	PMU/PMC	Direct Undertaking
(1) Selection of execution Institution /Firm by Open Tender			
(2) Research work in Tree Improvement Programme (Tree Breeding)			
(3) Field Research on Nursery and Plantation Techniques and Plantation Models to improve productivity			
4.5 Mid-term Monitoring & Evaluation including periodic biodiversity & community development studies	PMU	PMU/PMC	Local Bidding
4.6 End-term Monitoring and Evaluation	PMU	PMU/PMC	Local Bidding
III. Consulting Services	PMU	PMU/PMC	ICB