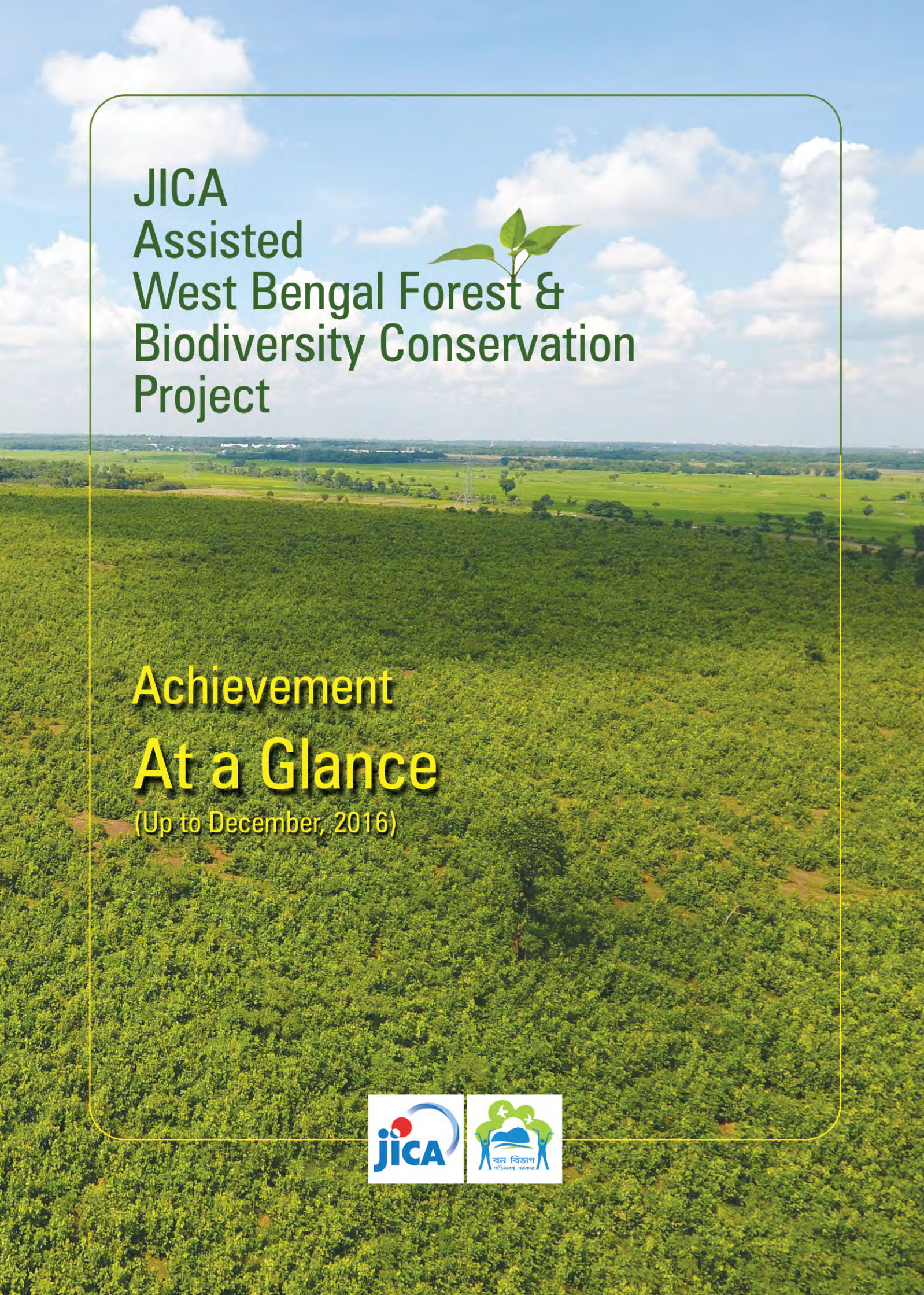


JICA Assisted West Bengal Forest & Biodiversity Conservation Project

Achievement

At a Glance

(Up to December, 2016)

JICA

বন বিভাগ
পশ্চিমবঙ্গ সরকার

CONTENTS

Target & achievements of the West Bengal Forest and Biodiversity Conservation Project till 31st December, 2016

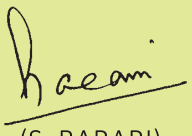
Components	Target	Cumulative achievement
Afforestation		
Within Forest land	20270 ha	11531 ha
Tree Pltn outside Forest Area	1500 ha	947 ha
Establishment of New Central Nursery	24.75 units	24.75 units
Upgrading Existing Central Nursery	15.25 units	15.25 units
Biodiversity Conservation		
Habitat Management	75 ha	30 ha
Grass land Creation	305 ha	200 ha
Research Activities	6 nos	Work in progress
Community Mobilisation		
Microplan preparation	600 JFMCs	600 JFMCs
Community Development Infrastructure	600 JFMCs	Work in progress
Income Generation Activities	600 JFMCs	Work in progress
Institutional Capacity Development		
Capacity Building	Training to JFMCs/ EDCs members 60,000 JFMC members & Frontline staff	36,647
Augmentation of office facilities & equipment	33 Building	31 Buildings completed

FOREWORD

West Bengal Forest and Biodiversity Conservation Project is one of the JICA assisted forestry projects of India having a total outlay of Rs 406 Crores and projected duration of 8 years, i.e; 2012-13 to 2019-20. The five major components of the project are Afforestation, Biodiversity Conservation, Community Development, Institutional Capacity Building and Consultancy, of which Afforestation comprise about 35% of the outlay.

The project aims at strengthening the forest management through improved techniques of afforestation, strengthening institutions at JFMC level to boost Community Development and improving the capacity of staff through training inputs. The project has provided for mitigation measures against man-animal conflict and conservation of protected areas.

This brochure highlights some of the important achievements and measures adopted under the project till December, 2016. Figures and pictures of Afforestation models, central hi-tech nurseries, training, infrastructure development etc. have been included to deliver the essence of the project to the extent possible. We hope this would be of help to the readers.



(S. BARARI)
Chief Project Officer
West Bengal Forest and Biodiversity
Conservation Project

1st January, 2017

The Forest of West Bengal

The state of West Bengal extends from the Himalayas in the north to the Bay of Bengal in the south. It lies between 21° 20' N and 27° 32' N latitude and 85° 50' E and 89° 52' E longitude covering a geographic area of 88,752 sq.km Total recorded forest land in the state is 11,879 sq.km, constituting 13.38% of the geographical area of the state. The forest cover including the forests created outside the recorded forest area is 21.35%

of the geographical area as per latest report published by Forest Survey of India during 2013.

West Bengal has spectacular plant diversity endowed with a flora ranging from those of the littoral forests of Sundarbans to the temperate vegetation of Darjeeling district, coupled with the dry deciduous vegetation of the western stretch of the State. This is the only state in India having both coastal and alpine ecosystems.

Biodiversity of West Bengal

The state of West Bengal is the home of rich and bewildering variety of wildlife. From the famous Royal Bengal tiger that stalks its prey with legendary cunningness in the Gangetic delta, to the one-horned Indian Rhinoceros and the leopard lurking in the foothills of the Himalayas, West Bengal boasts an amazing array of flora and fauna that rivals the finest such collection of species anywhere in the world.

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.

Joint Forest Management

West Bengal is the pioneer state in India in initiating Joint Forest Management. This movement of JFM had its genesis at Arabari in Midnapur District of West Bengal where 618 families of 11 villages were motivated in early 70's to rejuvenate 1,186 ha. of degraded sal forest by roping in their participation through a set of activities of employment generation and sharing of 100 % NTFP from such forests. This was followed by the adoption of the Govt.'s decision in 1989 to share 100% of the NTFP and 25% of the net profit of the final yield respectively. This and subsequent resolutions of Government gave institutional support to the existing participatory system of Forest management. In1996, E.D.Cs were also constituted seeking co-operation of the fringe people in protection and development of Wildlife Protected Areas (Sanctuaries and National Parks).

As on March 2015, there are 4312 FPCs in the State. Comprising of total number of 498171 families protecting the total forest areas over 582470.6 ha. The total number of EDCs in the State are 107 comprising of 22625 families protecting 70127.37 ha. Of Protected Areas. In all FPCs and EDCs, the spouses are joint members.

West Bengal Forest & Biodiversity Conservation Project:

On the basis of exchange of notes between the Government of Japan and Government of India (GOI), Japan International Cooperation Agency (JICA) has extended a loan to implement the "West Bengal Forest and Biodiversity Conservation Project".

The Project was formally inaugurated by the Hon'ble Chief Minister of West Bengal Smt. Mamata Banerjee on 16th December, 2013 at Science City Auditorium, Kolkata.

The Project is of 8 years duration, will end at 2021 as per mid-term review.

The main objectives of the Project are:-

a) To improve Forest eco-system and to conserve biodiversity by undertaking afforestation, regeneration and wildlife management activities through Joint Venture Management approach, including institutional capacity development, thereby contributing to environmental conservation and harmonious socio-economic development of West Bengal.

b) To strengthen the Joint Forest Management, to arrest land degradation and also to enhance the capacity of local people for higher income generation and thereby improving the livelihood of forest dwellers and other forest dependent communities.

c) To adopt an integrated approach for forest and biodiversity conservation.

d) To adopt an integrated approach to implement the objectives noted at a, b & c above.

e) To highlight the necessity of the Institutional Capacity Development of the West Bengal Forest

Development and of the Community Development Component in the Forest Sector of the State of West Bengal.

The activities undertaken in the Project have been put under the following components or Packages:

- Afforestation
- Biodiversity Conservation
- Community Development
- Institutional Capacity Development
- Consultancy Services

Total Project cost is Rs 406 crore

Components	Financial (Rs in million)
Afforestation	1362.00 (39.5%)
Biodiversity Conservation	158.00 (4.5%)
Community Mobilisation/ Development	312.00 (9.1%)
Institutional Capacity Development	417.00 (12.1%)
Consutling Services	185.00 (5.4%)
Price Escalation	714.00 (20.8%)
Physical Contingencies	296.00 (8.6%)

All project activities at the village level have been undertaken in Joint Forest Management (JFM) mode. The 600 targeted FPCs/EDCs have also been identified and selected in batches, based on the stipulated criteria. Services of local NGOs is being sought to catalyze inputs of civil society for long term sustainability of the project activities.

Afforestation Component

Afforestation component is broadly divided into 2 (two) categories: -

a) Within Recorded Forest Area – 6 Models

Model A1: Model A2: Model A3: Model A4: Model A5: Model A6:

b) Outside Forest Area- 2 Models

Model B1: Model B2:

Within Recorded Forest Area

Model A1 Plantation

Plantation of High Yielding Eucalyptus hybrid clones in South West Bengal

Objective: Production of industrial pulpwood, soil conservation, water conservation and water table recharging.

General Description: This model has been selected for those area where the soil condition is not favourable for growing of any other species.

Target & Achievement till 2016-17

Year	Target (Hect)	Achievement (Hect)	% of Achievement
2014-15	141.50	141.50	100
2015-16	166.00	166.00	100
2016-17	143.00	143.00	100
2017-18	--	--	--
2018-19	--	--	--
	451.00	451.00	

A1- PLANTATION IN SOUTH-WEST BENGAL (2014)

A1- PLANTATION IN SOUTH-WEST BENGAL (2015)

A1- PLANTATION IN SOUTH-WEST BENGAL (2016)

Model A2 Plantation

Model A2 Plantation :

Plantation of Sal and Associates in South Bengal

Objective: Production of mining timber like Poles, Posts, Cogging sleepers and production of timber, small timber, firewood and NTFPs like Myrobalans, 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.

Target & Achievement till 2016-17

Year	Target (Hect)	Achievement (Hect)	% of Achievement
2014-15	176.00	176.00	100
2015-16	406.00	406.00	100
2016-17	365.00	365.00	100
2017-18	853.00	--	--
2018-19	700.00	--	--
	2500.00	947	

A2- PLANTATION IN SOUTH-WEST BENGAL (2014) ▼

A2- PLANTATION IN SOUTH-WEST BENGAL (2015)

Model A3 Plantation

Model A3 Plantation:

Plantation of Quick Growing Small timber, Fuel & Fodder Species 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 mechanical thinning out and thinning operations. Besides, the plantation will improve the potential of NTFP production in the long run, providing livelihood support to the JFMC/EDC members.

Target & Achievement till 2016-17

Year	Target (Hect)	Achievement (Hect)	% of Achievement
2014-15	257.00	257.00	100
2015-16	1643.00	1643.00	100
2016-17	1891.00	1891.00	100
2017-18	1809.00	--	--
2018-19	1700.00	--	--
	7300.00	3791	

A3- PLANTATION IN SOUTH-WEST BENGAL (2014) ▼

A3- PLANTATION IN SOUTH-WEST BENGAL (2015) ▼

Model A4 Plantation

Model A4 Plantation:

Enrichment of Degraded Forests through coppice regeneration in South-West Bengal:-

Objective: 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.

Target & Achievement till 2016-17

Year	Target (Hect)	Achievement (Hect)	% of Achievement
2014-15	1129.00	1129.00	100
2015-16	2923.00	2923.00	100
2016-17	2425.00	2425.00	100
2017-18	1953.00	--	--
2018-19	--	--	--
	8430.00	6477.00	

A4- PLANTATION IN SOUTH-WEST BENGAL (2015) ▼

A4- PLANTATION IN SOUTH-WEST BENGAL (2016)

Model A5 Plantation

Model A5 Plantation :

Economic Plantation of Miscellaneous Species in North Bengal

Objective: Production of Industrial wood for meeting the requirements of wood based industries likeplywood, 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.

Target & Achievement till 2016-17

Year	Target (Hect)	Achievement (Hect)	% of Achievement
2014-15	30.00	30.00	100
2015-16	160.00	160.00	100
2016-17	362.00	362.00	100
2017-18	340.00	-	-
2018-19	298.00	-	-
	1190.00	522.00	

A5- PLANTATION IN NORTH BENGAL (2015)

A5- PLANTATION IN NORTH BENGAL ▲

Model A6 Plantation

Model A6 Plantation:

Plantation of Sal and Associates Species in North Bengal.

Objective: Production of quality construction timber by using endemic species like Sal (*Shorearobusta*) mainly and other associates like Pakasaj (*Terminalia-crenulata*), Panisaj (*Terminaliamyriocarpa*) 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

Target & Achievement till 2016-17

Year	Target (Hect)	Achievement (Hect)	% of Achievement
2014-15	20.00	20.00	100
2015-16	110.00	110.00	100
2016-17	135.00	135.00	100
2017-18	95.00	-	-
2018-19	40.00	-	-
	400.00	265.00	

A6- PLANTATION IN NORTH BENGAL

A6- PLANTATION IN NORTH BENGAL ▲

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

Objective: TPOFA is being 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.

Model B1 Plantation

Strip Plantation:-Plantation raised in the strip along road, canal and river side.

Target & achievement upto 2016-17

Year	Target (Hect)	Achievement (Hect)	% of Achievement
2014-15	119.15	119.15	100
2015-16	310.50	310.50	100
2016-17	412.00	412.00	100
2017-18	374.35	--	--
2018-19	184.00	--	--
	1401.65	841.65	Model

Model B1Plantation ▼

Model B2 Plantation

Block Plantation:-Plantation raised in community land i.e. hospital, school campuses etc.

Target & achievement upto 2016-17

Year	Target (Hect)	Achievement (Hect)	% of Achievement
2014-15	45.28	45.28	100
2015-16	19.00	19.00	100
2016-17	36.00	31.00	86.11
2017-18	--	--	--
2018-19	--	--	--
	100.28		

Quality Planting Materials

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.

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

With this understanding, it has been decided 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).

Accordingly Hi-tech Central Nurseries have been raised in different DMUs. Funds have also been provided to the respective DMUs for establishment of the same. The draft guidelines, as prepared by the Afforestation Expert of PMC, in consultation with the PMU and field officers of the Forest Directorate, have also been circulated to the field officers for implementation.

Till end of December, 2016, works of establishment 24.75 units new nurseries and expansion of another 15.25 units nurseries were completed. These nurseries have produced 80 lakhs QPM which are being utilised for raising the plantations 2015-16 onwards.

Biodiversity Conservation

The Biodiversity Conservation component of the project is designed to improve habitats in selected Protected Areas and to address the vexing human wildlife conflict. It also has a research part, conducting research on six important biodiversity topics with practical management implications

1) Habitat Management

- Grassland restoration and fodder tree planting in Gorumara National Park (NP), Jaldapara Wildlife Sanctuary (WS).

Year	Target (Hect)	Achievement (Hect)	% of Achievement
2014-15	-	-	-
2015-16	100.00	100.00	100.00
2016-17	100.00	100.00	100.00
2017-18	105.00	-	-
2018-19	-	-	-
	305.00	200.00	

- Fodder tree planting after removal of Maling bamboo in Singhalila NP, Senchal WS, Neora Valley NP

Year	Target (Hect)	Achievement (Hect)	% of Achievement
2014-15	-	-	-
2015-16	05.00	05.00	100
2016-17	25.00	25.00	100
2017-18	35.00	--	--
2018-19	10.00	-	-
	75.00	30.00	

2) Man-Animal conflict mitigation

- Erection and replacement of electric fencing for elephant and gaur in North Bengal (70km)
- Erection and replacement of nylon net fence (36km) for tiger conflict in Sundarban

3) Research Activities

The following 6 Research programs have been undertaken under the project.

1. Ecology of Elephant *(Elephas maximus)* in South-West Bengal including population dynamics, migratory pattern, feeding habits and human-elephant conflict.
2. Ecology of Elephant (*Elephas maximus*) in North Bengal including population dynamics, migratory pattern, feeding habits and human-Elephant conflicts
3. Ecology of Gaur (*Bos gaurus*) in North Bengal including population dynamics, distribution, habitat use pattern, protected area wise carrying capacity estimation and human-gaur conflict
4. The impact of habitat management practices, especially canopy manipulation and grassland restoration, on the habitat use pattern of herbivores and the herbivores-carrying capacity in Jaldapara NP, Gorumara NP and MahanandaWLS.
5. Leopard (*Panthera pardus*) ecology in north Bengal including population estimation, population dynamics, distribution, habitat use pattern and human-Leopard conflicts.
6. Population dynamics, distribution, breeding behaviour, and predator-prey relationship of Tiger (*Panthera tigris*) in North Bengal.

Community Development

This component has been divided in to 4 categories

1) Meeting

Several meetings have been conducted with the JFMCs and EDCs members to bring 576 JFMCs and 24 EDCs under the project. The process has been successfully completed.

2) Micro Planning

- Micro Planning- Preparation of 600 numbers microplan have been completed in 600 selected FPC/EDC by the active participation of FPC/EDC members.

3) Community Development Infrastructure

- Community Development Infrastructure

4) Income Generation Activities

- Formation and Selecting SHGs (2-5 SHG per JFMC/EDC)
- Orienting and Building Capacity of SHGs
- Income Generation Activities (IGA)

Training and Capacity Building

- The capacity development programme under WBFBCP is designed to upgrade the knowledge and skills of different target groups in various aspects of forest and wildlife management, keeping the needs of project in mind.

- Broadly, different orientation, exposure and training programmes, were planned and are being implemented for four categories of target groups – senior officers (CF and above); middle and junior officers (DFO, ADFO & R.O); field staff (Foresters, Forest Guards & Contractual Project Staff) and Villagers (JFMC / FPC / TPOFA/SHG members).

- Different training programmes was envisaged for each of these groups, employing the in-house training resources of the Project, the WBFD, the PMC as well as by employing outside institutions specializing in different subjects. Officers of different levels have received training from training institutes based both within and outside the state.

1. Overseas Training

    - Middle as well as junior officers to be provided international training together with Senior Officers in tropical countries

    - The overseas training target, both physical and financial, is to be achieved by year 2017 & 2018.

2. Exposure visit to other States & domestic Study Tour

    - Four study tours of 12 to 15 days organized to JICA projects in the states of Odisha, Tamilnadu and Rajasthan

    - Three domestic study tours to be organized in year 2017-18

▼ Exposure visit to State of Odisha

3. Long term training in Indian Training Institutions

    - 6 IFS officer attended skill development training for foresters at IGNFA, Dehradun in 2015-16 & 2016-2017.

4. Short course Training in Indian Institutes or State Level Institutions

Sl.	Name of Institution	Topic	No. and Rank of Officers
1.	Indian Institute of Remote Sensing, Dehradun	GIS mapping	30 ADFOs and ROs in two batches
2.	Indian Institute of Forest Management, Bhopal	Wildlife and Biodiversity management	15 ADFOs and ROs
3.	Kerala Forest Research Institute, Thrissur	Modern nursery practices	12 ADFOs, ROs and Foresters
4.	School of Oceanography, University of Jadavpur Kolkata	GPS and GIS	68 ADFOs , ROs& others
5.	Indian Institute of Soil and Water Conservation, Dehradun	Soil & Water Conservation	27 ADFOs and ROs in two batches

Training at IIRS, Dehradun ▼

Training at IIFM, Bhopal ▼

Training at Jadavpur University, Kolkata ▼

5. GPS/GIS Training- GPS/GIS training has been organized in regular interval

Field training on GPS at Bankura ▼

6. Microplanning & PRA Training :-Training has been organized in regular interval with the FPC/EDC members on microplanning and PRA exercise.

7. Training on Microfinance & Accounting & Other topics

    1. Training on SHG management i.e.Business Development Planning; Revolving fund management; Skill building related to different IGAs etc has been undertaken in BabasahebAmbedkar Institute for Panchayati Raj and Rural Development, Government of WestBengal.

    2. Given the huge requirement of training for villagers, the Project is in the process of developing a group of trainers, amongst the field staff, FPC members and SHG members through the above stated Institute.

Training on accounting procedure at ▼
PMU Office, Kolkata

Target and achievements under different types of training programmes:

Type of training	Target Group	Topic / Purpose	Physical Target		Achievement (upto Dec. 2016)	
			No. of training	No. of Participants	No. of training	No. of Participants
Domestic Study Tour	WBFD Officers and Staff	Exposure to JICA Projects	5	75	4	65
Domestic Study Tour	FPC members	Exposure to FPC and SHG	10	600	0	0
Overseas Training & Study Tour	WBFD Officers	Participatory forest management; Wildlife and Biodiversity conservation	–	60	0	0
Long term training in Indian institutions	Middle and Junior Officers of WBFD	GIS and Remote Sensing; Wildlife management etc.	–	15	2	6
Short term Training in Indian Institutions	Middle, Junior Officers and FRs	Participatory PA mgt; Modern nursery techniques; GPS & GIS mapping; SMC; Wildlife mgt.	–	55	8	152
Field Training on GPS / GIS	Junior Officers and FRs	Usage of GPS and GIS for boundary demarcation and Mapping	25	500	49	831
Other in-house training	WBFD Officers and field staff	Composting, nursery mgt, accounting, community development, MIS, microplanning, Wildlife issues, TPOFA etc.	–	–	160	1868
Training on Microplanning & PRA	Field staff, FPC, EDC	Participatory microplanning techniques	600	30000	57	31597
Training on microfinance, accounting & other issues	Field staff, FPC, EDC, SHG members	SHG management	600	30000	195	5050

Field training on GPS at Shulkapara, Jalpaiguri ▼

Infrastructure Development

Construction of Buildings

Description	Target (No. /sq.ft)	Achievement	% Achievement
Construction of Building at AE-391, Salt Lake	1	1	100%
Group D quarters	15	15	100%
Group C quarters	10	10	100%
ROs quarters/Range office	5	5	100%
Expansion of existing AdmBldg, Aranya Bhawan	14000 Sq. ft	Work in Progress	70%
Administrative Bldg at Siliguri	20000 sq.ft.	Work in initial stage	

Building at AE-391, Salt Lake ▼

Staff quarters under different DMUs ▼

Purchase of Vehicles

Description	Target (No.)	Achievement	% Achievement
Field Vehicles-Mahindra Scorpio to DMUs & HQ	24	24	100%
Hero Super Splendor motor-cycles TO 80 FMUs , 2 TRN Centres & SBR	155	155	100%

Procurement of GIS and Other Equipment

Description	Target (No.)	Achievement	% Achievement
Handheld GPS	280	280	100%
SONY DIGITAL Camera	147	147	100%
Computers	63	63	100%
Printers	51	51	100%
Tally Software	37	37	100%

Geographic Information System (GIS) & Management Information System (MIS)

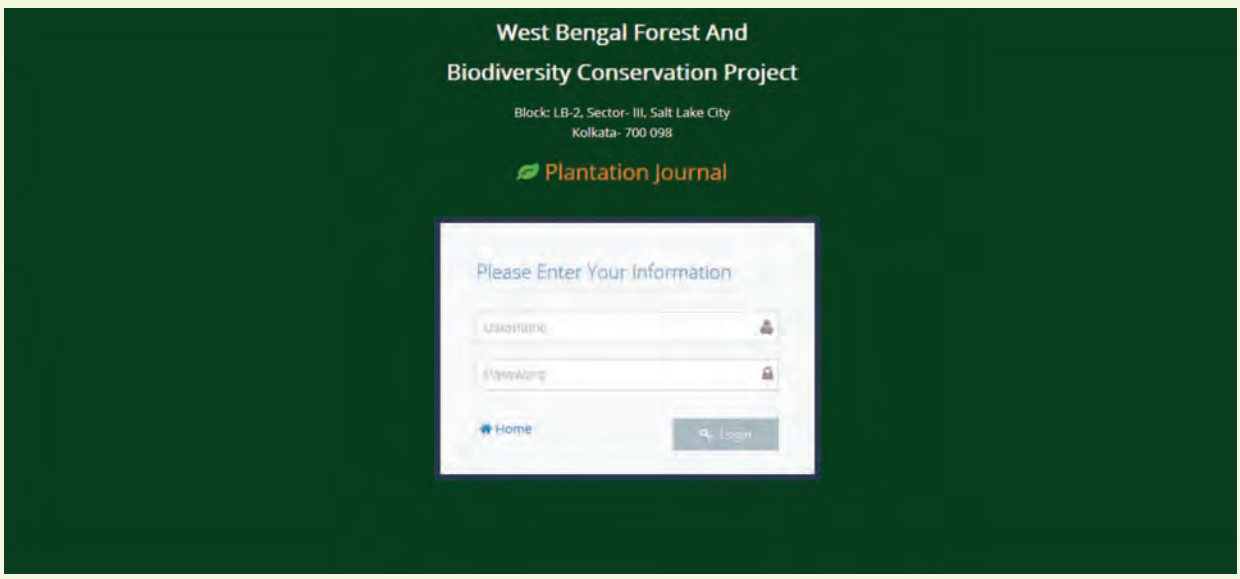
E-PLANTATION JOURNAL

As per MOD, the WBFBCP has adopted a comprehensive GIS based tracking and monitoring system to develop decision support systems to increase the robustness, transparency and accountability of all the project activities.

The followings are the main component of GIS and MIS data base:-

1. *Web-based Plantation Journal:-*

   Generation of spatial dataset on plantation and community development



Challenge:

The details of plantation activities have traditionally been recorded in hardcopies and maintained in form of plantation register (collective) and plantation journal (individual plantation). Nonetheless these documents are always susceptible to damage/loss in addition to being complicated in accessibility and information retrieval.

Automation:

For complete management of plantation operations WBFBCP has taken initiative to digitise all plantation journal using cloud based ERP Forest Management Information System (FMIS). WBFBCP has developed& deployed"FMIS for visualisation and querying of GIS data (of all the plantations created) generated in project" with open source tools.

This MIS has made availability of Plantation Journals and MIS data at fingertips.The online Data Analysis and report generation have also become possible. To reduce the common errors during data entry and to guide the operators inter-linked Master Data set of location, land schedule, models of plantation, species, central nursery locations, soil and moisture

conservation works, soil data, etc. have been digitised and interlinked.

Establishment of link between MIS and GIS data has been also started as a part of this MIS.

Features:

i) It is a web browser based application, accessible from any internet connected smart device. The responsive design made it possible to access from tablet & mobile too.

ii) This application has the capability to create a plantation journalefficiently withall the information from Location to Land Schedule to Plantation Details with financial data.

iii) The facility to tag &update the pictures &GIS related data is also available.

iv) The financial data related to Creation &maintenance can also be updated from time to time.

v) All Visitors/ Inspector's comment can also be tagged with individual planation journal.

vi) The "Global Search" feature made it possible to find, view & know the status of a plantation journal in a single click.

vii) The online user navigation is self-guided and simple to understand. Further a web application for visualisation and obtaining Financial Report associated with individual Plantation Journal''has also been developed.

viii) Plantation Journal Data Analysis: With digitised planation journal data, it is now possible to generate vital reports in one or two clicks.

i. List of Plantation by Creation year

ii. Total Plantation Area by District/ Circle/ Model & Year

iii. Plantation list deviated from model

iv. Plantation list by species and so on....

FPC BOUNDARIES DEMARCATION

West Bengal Forest and Biodiversity conservation project (WBFBCP) aims to improve forest ecosystem and conserve biodiversity through Joint Forest Management (JFM), where FPCs/EDCs form the minimum mapable unit of the administration. The MOD of WBFBCP clearly indicates that all the project activities to be undertaken in field shall be recorded in GIS, making it imperative to generate the GIS database of FPC boundaries in project area.

Accordingly, the generation of comprehensive GIS database on FPC boundaries has been undertaken for efficient management of ground activities related to project and for assisting decision makers to analyse and visualize of project impact.

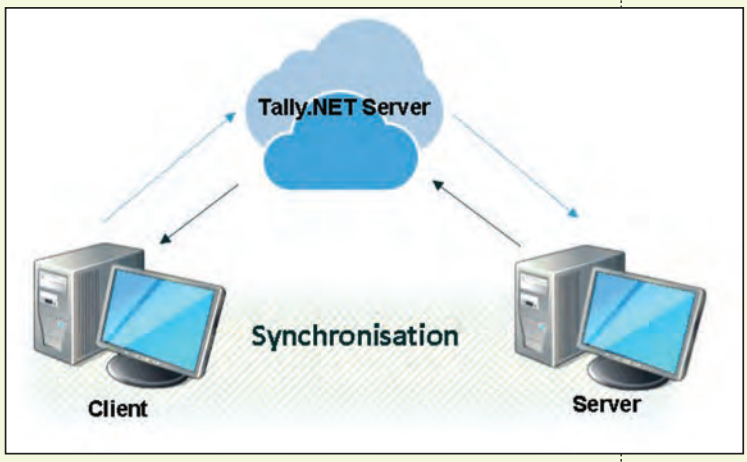
The FPC boundaries have been surveyed and demarcated on ground during field surveys by digging cut lines along the perimeter, marking the trees located on the boundaries and by placing geo-located boundary pillars on the outer edge of cleared line. Any analysis of visualization process in GIS requires the complete bounded area of any entity.

The GPS receivers are capable of marking and storing the entire perimeter of an area accurately as tracks and routes, preserving its shape, size and distances. These Tracks/routes can be transferred into computer systems as GIS entities and used for analysis and visualization purposes effectively. As

a consequence, the complete picture of project FPCs/EDCs position will be visible as stated below:-

- Forest Protection Committee Boundary geo-database for 600 FPC's/EDC's under WBFBCP
- Web portal to visualize, showcase and disseminate the FPC boundary geo-database with open-source satellite data as base layer.

TALLY ONLINE DATA SYNCHRONISATION



WBFBCP has taken an initiative for complete set up of Synchronization of Tally.ERP-9 data within DMU (34 Locations) , FMU (174 Locations), FPC/EDC (600 Locations) and PMU (HO) using Tally.NET Technologies and internet.

The auto-synched Tally System has been designed in such way so that all types of data i.e. head wise (as per Accounting Masters created by PMU office) entry at Field Management Unit (FMU), DMU, FPC & PMU level, both separately and consolidated data can be generated in both tally and excel format and can be accessible and used in any application.

Synchronisation helps to share Society data such as:

- Payments or receipts from DMUs, FMUs & FPCs/EDCs
- MIS reports from one location to another.

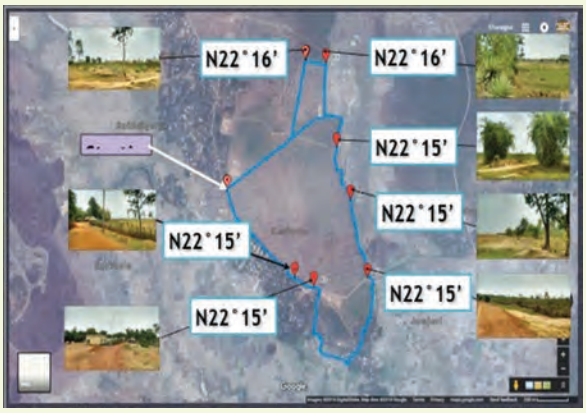
ONLINE BUDGET CONTROL SYSTEM

WBFBCP manages the financial transactions throughout its administrative hierarchy (PMU, DMU, FMU and FPC) using an auto-synched Tally System. The budgeting process of the project required a software program which is capable of interlinking the standalone budgeting at head-office to the networked financial management of Tally.

entity with open source tools to handle all financial transaction so that DMU-wise budget and expenditure sheet of each financial year can be skillfully controlled. The flow sheet from generation of requisition of fund from DMU including approval and disbursement from PMU end has been interlinked in the application.The PMU has the access, to change & download all the booking of expenditure of the all the DMUs head wise and upload the reconciled figure of the account as and when required in the application.

As a result, the complete budget control system has been ensured at fingertip to handle the intricate financial transactions across the hierarchy of WBFBCP offices.

GEO-TAGGING OF PHOTOGRAPHS OF PROJECT ACTIVITIES UNDER WBFBCP



The JICA Mission suggested to record the project progress in visuals as a "project life history" WBFBCP requires periodic recording of the pre-intervention, intervention and post intervention activities for efficient monitoring of the project progress.

Repetitive surveys, records of activities like trainings/workshops or civil works taking place innumerable times during the project can be substantiated with location-specific information to aid in monitoring and assessment of project.

All the project activities under WBFBCP are being photographed and geo-tagged simultaneously. Geo-tagging has been introduced as a concept and is an essential component of the data generation trainings being imparted comprehensively throughout the project areas.

Classified database of geo-tagged photo evidences maintained centrally, which can be accessed and promptly retrieved for any monitoring or assessment requirement.

INSTANT INCIDENT REPORTING SYSTEM

Several unforeseen incidents happening in forest area like elephant attacks, forest fires and forestcrimes require immediate help and support for trapped forest officers and their aides. The exact location of incident and immediate status of danger to forest staff is of foremost importance at such times, according to which the gravity of situation and quantum of assistance required is decided.

Smartphone application with web interface being quick and easy for users to operate in field, can aid such situations and allow support staff to capture essential information about these incidents. Only problem being that telecommunication network in heavily forested areas is often weak and internet connectivity almost negligible.

Solution

WBFBCP has developed and tested an Incident reporting System for such incidents. The system makes use of a GPS tracker along with a standard mobile (not Smartphone) to track & report the incident realtime.In the event of an incidence, the forest officer will press the SOS button on GPS tracker that will initiate a set of pre-defined functions to enable the reporting officer to know about the incident & can track the movements realtime.

Outcomes

- Generation of SOS intimation SMS containing the GPS co-ordinates with ready link to Google Map, Status (Speed- KM/Hr), GSM Signal Strength & Battery Status.
- Automatic call placing to pre-defined mobile no's. If a call is missed by the first reporting officer, the device will automatically connect to other numbers.
- The stored incident record can be later used for reporting using GPS log/ tracks of the complete incident,staff involved and final status of the incidence.

Income Generation Activity and Capacity Building of SHG

West Bengal Forest & Biodiversity Conservation Project (WBFBCP) aims at strengthening JFM movement to enable JFMC to improve their level of performance by involving their communities not only in afforestation / biodiversity conservation activities but also creating an environment of trust and confidence between them and forest personnel on the frontline.

Most of project activities at the village level have been planned to be undertaken in Joint Forest Management (JFM) mode through Forest Protection Committees (FPCs)/Eco Development Committees (EDCs), Self-Help Groups (SHGs) and Beneficiary Groups (BGs).

574 FPCs and 26 EDCs have been targeted by the Project for implementation of forestry development, biodiversity conservation and community development activities covering 23 forest divisions accross 8 district in the state.

Following are the key achievements with regard to community infrastructure development and microfinace management.

- Micro-planning process was carried out across the selected FPCs/EDCs resulting completion of 600micro-plans.

SHG training at Kharagpur ▼

SHG meeting in the villages ▲

All FPCs/EDCs have been categorized on the basis of their performance in the past to support them fund allocations of Rs. 2,55,800.00, Rs. 5,75,500.00 and Rs. 7,67,000.00 for A, B and C categories respectively for carrying out community infrastructure development activities.

The Project has planned to work with 1200 SHGs at a rate 2 SHGs per FPC/EDC. Each FPC/ EDC has to be supported with a revolving credit fund of Rs. 1,25,000.00 which would be used by the SHGs operating within the FPC/ EDC area at a rate of Rs. 62,500.00 each to start small income generation activities (IGAs) and enterprises development.

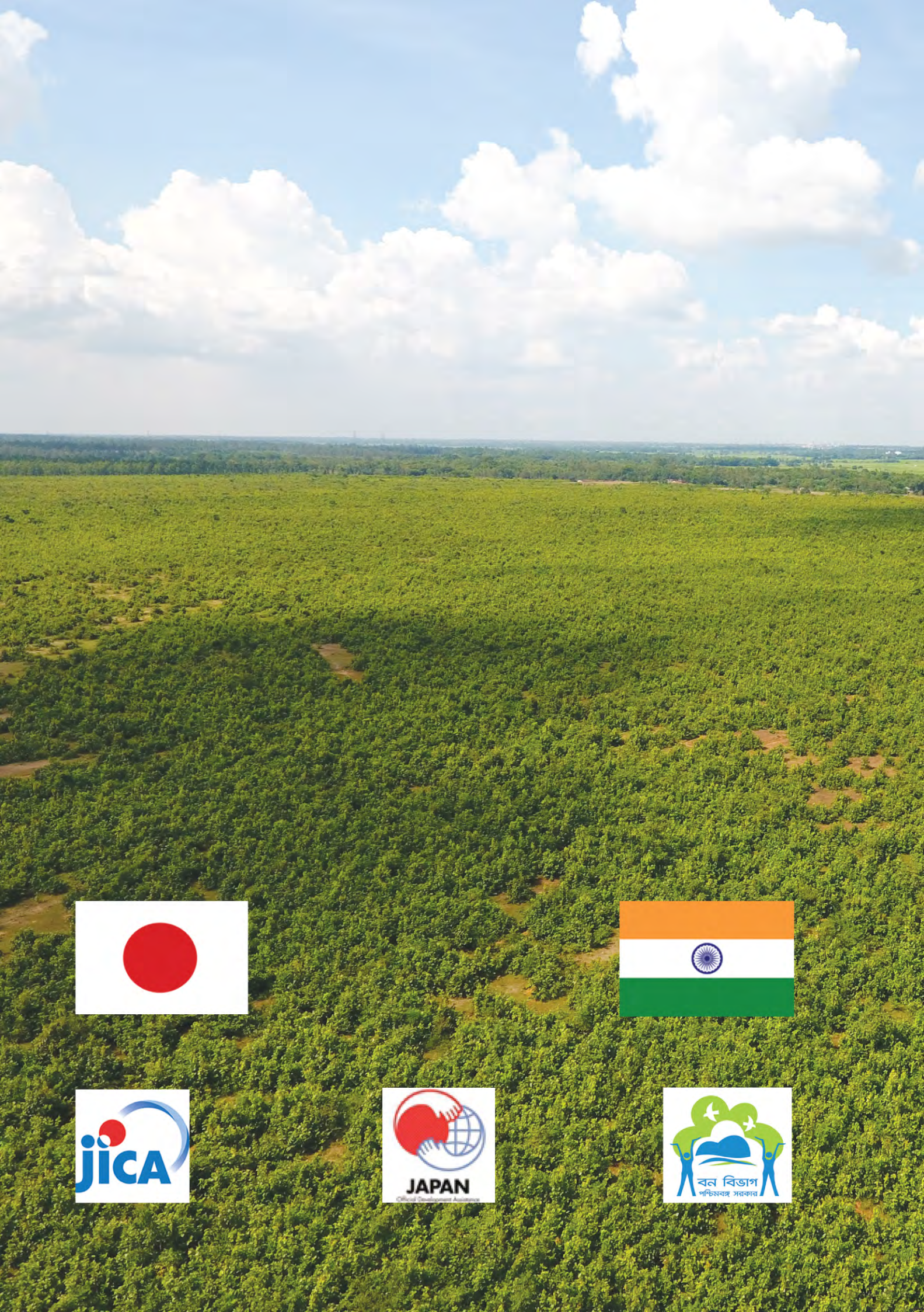
- Criteria and indicators have been developed to identify the potential SHGs from amongst the existing SHGs functional under FPCs/EDCs.
- A detailed capacity building plan has been prepared for the NGOs, frontline staff, FPC/EDC representatives and SHG members.
- BR Ambedkar Institute of Panchayat and Rural Development (SIPRD), Government of West Bengal has been involved in conducting training programmes in batches for Extension Workers, Frontline staff, FPC/EDC representatives and SHG members.

Field visit and Interaction with JFMC Member by JICA Team

Workshop on Afforestation Model

Workshop on Technical Issues on Forestry Research

Various Steps of Compost Preparation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