

**Japanese ODA Loan****Ex-Ante Evaluation (for Japanese ODA Loan)****South Asia Division 1, South Asia Department****Japan International Cooperation Agency****1. Name of the Project**

Country: India

Project: The Project for Forest and Biodiversity Conservation for Climate Change Response in West Bengal

Project Site / Target Area: West Bengal (Population: approximately 91 million (2011 census))

Loan Agreement: March 29, 2023

**2. Background and Necessity of the Project**

- (1) Current State and Issues of the Forestry and Biodiversity Sector and the Priority of the Project in India

India is considered highly vulnerable to multiple natural disasters in 85% of its land area, and there are concerns that climate change may lead to more severe natural disasters such as cyclones, floods and landslides. Under these circumstances, the Government of India has indicated in its Nationally Determined Contribution (NDC) (2022) under the Paris Agreement that it intends to reduce greenhouse gas emissions by 2030 per unit of GDP by 45%, compared to 2005 levels. In addition, the country emphasizes on forest and biodiversity restoration and conservation and ecosystem-based climate change measures and has set a target of improving ecosystem services such as carbon storage and water source recharge in 10 million ha over 10 years as climate change measures in the 'Green India Mission' formulated in 2014. Furthermore, the Ministry of Environment, Forest, and Climate Change, in its draft National Forest Policy 2018, has identified contribution to mitigation and adaptation to climate change impacts as one of the key objectives of forest and biodiversity restoration and conservation activities and intends to strengthen specific initiatives.

West Bengal has a long and diverse topography from the north, which includes the Himalayan high mountain range and borders on Bhutan and Nepal, to the south, which faces the Bay of Bengal and has mangrove forests and is home to a wide variety of flora and fauna. However, the rapid expansion of agricultural land has led to a decrease in forest land, and by 1991 the forest cover was 9%, which was lower than the national average (19%) at the time. In addition,

the loss of forests and biodiversity has become a major issue, such as the worsening damage caused by human wildlife conflict such as elephants and tigers. Subsequently, a yen loan 'West Bengal Forest and Biodiversity Conservation Project' (hereinafter referred to as the 'Prior Project') was established. The state government's efforts, including the tree planting of approximately 22,000 ha under the Prior Project, have improved the forest cover rate to 19% by 2019 (Ministry of Environment, Forest and Climate Change, India).

On the other hand, the state has the highest population density in India (1,028 inhabitants/km<sup>2</sup>). The pressure to use natural resources such as forests is strong due to the state's high rate of urbanization, including residential land development, and the fact that many residents, especially the poor who account for about 23% (World Bank: 2012) of rural areas in the state, are dependent on forest resources for their livelihoods. The state's forest cover remains below the national target of 33% and the national average of 25% in 2019 (Ministry of Environment, Forest and Climate Change, India), and the rehabilitation and conservation of forests and biodiversity are an important issue.

Furthermore, the state has new expectations for the forest and biodiversity sector. The first is its contribution to climate change adaptation. The state's coastal deltas are classified as high-risk areas for cyclone flooding and storm surge damage, with 42% of areas vulnerable to flooding (National Disaster Management Authority of India, West Bengal: 2020), and more than 10 million people were affected by the massive cyclone in the Bay of Bengal in 2020. The dry lateritic & alluvial landscape in the south-western part of the state has suffered from a series of droughts due to reduced rainfall, in addition to the geology of the land's weak water retention capacity, and the number of droughts in the 2010s was almost double that of the 2000s. In addition, in the hills and north Bengal landscape of the northern part of the state, there are many landslides with infrastructure disruptions, etc., and the state is considered one of the 17 states that are severely affected by landslides (National Disaster Management Authority of India). Reducing the risk of these natural disasters is a pressing issue for the state, which needs to address the different biological, geographical, and climatic challenges in the hills in the north, the dry lateritic & alluvial landscapes in the southwest and the deltaic landscape. The State Government has a policy to promote disaster prevention and mitigation using ecosystems, which are less costly and have the potential to increase the resilience of the land against disasters, such as soil run-off control, flood prevention and tide protection, in

addition to manufactured structures.

Second, it contributes to climate change mitigation. In the state, carbon dioxide emissions, which are a cause of climate change, are on the rise due to factors such as increasing urbanization. Climate change has a serious impact on India and the world, and the state government is emphasizing climate change mitigation measures through the regeneration and conservation of ecosystems such as forests that absorb and store carbon dioxide. In addition, the state government intends to conduct research and trials on afforestation and forest management that will lead to higher absorption and storage of carbon dioxide, and to disseminate the results widely within and outside the state in cooperation with the central government.

West Bengal is implementing the State Climate Change Action Plan 2017-2020 after formulating an implementation plan for climate change mitigation and adaptation measures, including forest and biodiversity restoration and conservation. In addition, the State Climate Change Action Plan 2020-2025 is being developed and is expected to include an implementation plan for mitigation of impacts due to landslides, storm surges, etc., and research on the long-term impacts of climate change on forests and carbon storage in the state's forests. The 'Project for Forest and Biodiversity Conservation for Climate Change Response in West Bengal' (hereafter referred to as the 'Project') aims to mitigate and adapt to climate change and protect and restore ecosystems by implementing ecosystem based climate change measures, biodiversity conservation and restoration, livelihood improvement activities and institutional strengthening, in line with the State Climate Change Action Plan 2020-2025 of West Bengal and is positioned as a key project in the forest and biodiversity sector in India and the state.

(2) Japan's and JICA's Cooperation Policy and Operations in the Forestry and Biodiversity Sector

At COP26 in November 2021, Japan announced its participation in the Glasgow Leaders' Declaration on Forests and Land Use, which states that Japan will halt forest loss and land degradation by 2030 and strengthen efforts to conserve forests and promote their recovery. In addition, at COP15 in December 2022, the Kunming-Montreal Global Biodiversity Framework, a new global biodiversity target (Post-2020 Global Biodiversity Framework), was adopted, including by Japan. The Country Assistance Policy for India (March 2016) positions 'supporting sustainable and inclusive growth' as one of the priority areas

and clearly states that Japan will work on programmes to increase the income of the poor and promote support for the forest and disaster management sectors, etc. to address environmental and climate change issues. The JICA Country Analysis Paper for India (March 2018) also states that measures are needed to promote the appropriate use of natural resources for inclusive growth in rural areas, leading to appropriate conservation and use of forest resources. The JICA Global Agenda for Conservation of Natural Environment also aims to build a society that can continue to enjoy various blessings from the natural environment by harmonizing conservation and human activities and preventing the decline and degradation of the natural environment, and this Project is in line with these policies and analyses. As of September 2022, 30-loans projects amounting to 304.6 billion yen had been approved for the forest and biodiversity sector.

### (3) Other Donors' Activities

The German Corporation for International Cooperation (GIZ) is providing technical assistance to Uttarakhand, West Bengal, and Karnataka under the ' Human Wildlife Conflict Mitigation in India' (2017-2023), and in West Bengal, in collaboration with the Ministry of Environment, Forest and Climate Change, the Government of India, it assists in formulating guidelines, rapid warning for the population and establishing communication systems for the population, among other activities.

In addition, the World Bank and the Global Environment Facility have implemented cyclone damage mitigation projects and biodiversity conservation projects through supporting residents' organizations in West Bengal and other states.

## **3. Project Description**

### (1) Project Description

#### ① Project Objective

The project aims to mitigate and adapt to climate change, conserve and restore ecosystems by ecosystem based climate change measures, biodiversity conservation and restoration, livelihood improvement activities and institutional strengthening, thereby contributing to sustainable socio-economic development in West Bengal.

#### ② Project Components

The following activities will be implemented in the Hills and North Bengal Landscape, Dry Lateritic & Alluvial Landscape, Deltaic Landscape, based on the specific characteristics of each landscape.

- (a) Ecosystem based climate change measures (e.g., production of high-quality seedlings, afforestation in degraded lands and outside forest areas, Eco-DRR activities such as flood control measures using mangrove forests, etc., Eco-DRR activities related to water and soil conservation such as check dam development, promotion of research activities contributing to ecosystem based climate change measures, etc.)
- (b) Biodiversity conservation and restoration (human wildlife conflict mitigation through the installation of electric fences and alert systems, conservation of rare and endangered species, research on wildlife, etc.)
- (c) Livelihood improvement (preparation of village-level plans and development of local infrastructure through participation of local people, support for local people to start their own businesses, etc.)
- (d) Institutional strengthening (DX promotion activities (development of web-based GIS, digitalization of the boundaries of the Joint Forest Management Committee organized by Department of Forests, Government of West Bengal (hereinafter referred to as 'Forest Department') and local people (hereinafter referred to as 'JFMC'), demonstration of digital technologies for effective use of the collected and developed data, etc.), training for capacity building for forest officers, forest department staff and local people, etc.)
- (e) Consulting services (implementation supervision, support for the development of state DX strategies, etc.)

③ Project Beneficiaries (Target Group)

Approx. 100,000 (population subject to climate change adaptation measures (e.g., disaster prevention measures) and livelihood improvement activities, etc.)

(2) Estimated Project Cost

11,634 million Yen (Japanese ODA loan: 9,308 million Yen)

(3) Schedule

March 2023-March 2031 (97 months)

When all activities are completed (March 2031) is considered as the completion of the Project.

(4) Project Implementation Structure

- 1) Borrower: President of India
- 2) Guarantor: N/A
- 3) Executing Agency: Department of Forests, Government of West Bengal

#### 4) Operation and Maintenance System:

For the main activities of the Project, the Forest Department will continue to operate and maintain it after the project would be ended, using state government funds. Meanwhile, in the case of afforestation outside the forest area, the landowner will be responsible for operation and maintenance with his/her own funds. For Eco-DRR activities, minor restoration and other maintenance will be carried out by the JFMC. For livelihood improvement activities, the JFMC will operate and maintain it after the project completion. Forest Department will provide the necessary budgetary allocation for the operation, etc., of the JFMC, as well as technical support and monitoring of its activities. On the financial side, it has been agreed with the State finance department that the State Government will allocate the budget for the costs required for operation and maintenance to be borne by the Forest Department.

#### (5) Collaboration and Sharing of Roles with Other Donors

- 1) Japan's Activity: The formulating yen loan project 'Project for Capacity Enhancement for Effective Forest Management', executing agency of which is the Ministry of Environment, Forest and Climate Change (MoEFCC) of the central government ministry, will support the strengthening of the capacity of the Indian forest sector to tackle key policy issues such as climate change through strengthening research and training systems and joint research activities with researchers and companies in India and abroad. The Project will plan to utilize outcomes of research activities, trainings, etc. from this project for synergistic effect. Furthermore, the Project will also utilise the lessons learned, achievements and Japanese experience shared through the National Workshop, annually hosted in turn by executing agencies of Japanese ODA loan projects in the forestry sector, and the country focused training "Sustainable Forest Management and Biodiversity Conservation". Also, expanding the project's achievements will be aimed by the Project through the National Workshop. In addition, the Smallholder Horticulture Empowerment & Promotion (SHEP) approach (market-oriented agricultural promotion), which has been introduced in the agricultural sector, will be used to maximise the effects of livelihood improvement activities and other activities. The participatory forest management approach adopted in the prior project will also be applied in the Project.

2) Other Donors'Activity:

N/A. In addition, there is no overlap with the support provided by other donors.

(6) Environmental and Social Consideration

① Category: FI

② Reason for Categorization: The Project is being implemented under the JICA Guidelines for Environmental and Social Considerations (published in April 2010) (JICA Guidelines), as sub-projects cannot be specified prior to JICA's approval for financing, and they may have environmental and social impacts under the Guidelines.

③ Other/Monitoring: Under the Project, forest department, with the assistance of a project management consultant, will categorise the sub-projects in accordance with the Indian domestic legal system and JICA guidelines, and the necessary measures will be taken for the relevant categories. It has been agreed that the sub-projects will not include Category A projects.

(7) Cross-Sectoral Issues

① Climate change-related projects: The Project will contribute to climate change countermeasures (adaptation measures) because the implementation of afforestation and other activities will contribute to disaster prevention and mitigation, such as soil run-off prevention and flood mitigation, and reduce the negative impacts of climate change. In addition, the Project will contribute to climate change countermeasures (mitigation measures) as it is expected to reduce CO2 emissions by approximately 10,000 tonnes per year through afforestation activities, etc.

② Poverty alleviation and poverty considerations: The Project will target scheduled tribes with high poverty rates and high dependence on forest resources and will implement livelihood improvement initiatives such as livelihood improvement activities. It has been confirmed that these activities will not have any negative impact on the livelihoods and cultures of the scheduled tribes targeted in the prior project and the potential target sites of the Project. In addition, guidelines describing the activities will be prepared jointly with the local people before the implementation of the Project, and the activities will be carried out based on these guidelines.

③ Countermeasures against infectious diseases: As part of efforts to prevent the spread of COVID-19 infections, the executing agency has agreed on a

list of measures (a total of 36 measures) to be taken at the time of project formation and project implementation, and clarified the items of activities such as the maintenance of quarantine equipment and materials, improvement of the working environment including the dissemination of the code of conduct, construction supervision and awareness raising. By receiving quarterly reports from the executing agency on the status of implementation, the impact of the virus will be closely monitored throughout the project implementation phase to ensure that flexible and appropriate measures are taken by the implementing agencies.

- ④ Participatory development: The JFMC will be formed by the local people in the Project and will be responsible for formulating and implementing a village-level plan (micro-plan) for the village-based activities in the Project. In addition, as livelihood improvement activities, JFMCs and self-help groups (hereinafter referred to as 'SHGs'), consisting of women, will be provided with revolving funds to support their entrepreneurial activities.

(8) Gender Category: Gender Informed (Significant)[GI(S) Gender activity integration project]

<Details of Activities/Reason for Categorization>

Through the survey and discussions with the executing agency, gender-based needs were identified, such as strengthening the capacity of women staff and women residents involved in climate change action and biodiversity conservation and restoration activities and improving the livelihoods of women residents. The Project has a plan to implement these activities after preparing a gender action plan, because the number of SHGs composed of mainly women to be supported and the number of women forestry officers and women residents to receive capacity building training are set as indicators.

(9) Other Important Issues

①The Project will focus on DX promotion activities that contribute to effective and efficient forest management and biodiversity conservation, using Japanese knowledge. The need for technical assistance in this context will be considered.

②In promoting research activities that contribute to climate change countermeasures using ecosystems, academic collaboration between Japanese universities and research institutions, etc. and universities and government research institutions in West Bengal and other states of India, will be pursued.



#### 4. Targeted Outcomes

##### (1) Quantitative Effects

##### 1) Outcomes (Operation and Effect Indicators)

Indicators	Baseline (Actual value in 2022)	Target (2033) [2 years after project completion]
New plantation area by the project (ha)	-	3,900
Increase of carbon sequestration in forest by the project (CO2t)	-	75,470
Reduction in soil erosion levels at treatment sides of the project in Dry Lateritic and Alluvial Landscape (%)	(Note)	(Note)
Number of incidents of village flooding in targeted villages in Deltaic Landscape	(Note)	(Note)
Number of villages covered by Eco-DRR Measures	(Note)	(Note)
Percentage reduction in Human-Wildlife Conflict in the project intervention area (%)	-	10-20%
Number of endangered wild animal species to be protected by the project	-	5
Number of SHGs supported for income generation	-	1,200
Annual profit earned per income generation activity under the project per SHG member	-	(Note)
Number of male and female participants in capacity	-	Male : 3,444 Female : 2,932

building training under the project (persons)		
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Note: The baseline will be determined from the results of a baseline survey conducted after the Project starts.

## (2) Qualitative Effects

Sustainable socio-economic development, restoration and enhancement of functioning of ecosystem services, strengthening resilience to climate change, climate change mitigation and adaptation, social participation of women, poor and vulnerable groups, etc.

## (3) Internal Rate of Return

Based on the assumptions listed below, the economic internal rate of return (EIRR) for the Project is 10.5%. As the Project is not expected to collect fees from users and others, the financial internal rate of return (FIRR) has not been calculated.

### 【EIRR】

Cost : Project costs, operation and maintenance costs (excluding tax)

Benefit : CO<sub>2</sub> reduction, income from forest products, disaster mitigation and prevention (only flood control using mangrove forests), mitigation of human wildlife conflicts, income from livelihood improvement activities.

Project Life : 50 years

## 5 . External Factors and Risk Control

### (1) Preconditions

N/A

### (2) External Factors

No significant deterioration of security situation, no restrictions on travel and field activities due to the worsening of the transmission situation of COVID-19. Although the number of people infected with COVID-19 in West Bengal is decreasing as of December 2022, the impact of the spread of the virus on the implementation of the Project should be considered.

## 6 . Lessons Learned from Past Projects

In the ex-post evaluation of the technical cooperation project "Project on Forest Restoration after the Earthquake in Sichuan Province" for China (evaluation year 2018), among others, the establishment of technical guidelines and model technologies for forestry and mountain control led to the implementing agencies securing government budgets and the dissemination of the project

effects. In the ex-post evaluation of the “Gujarat Forest Development Project” (evaluation year 2005) found that the involvement of local people's organisations in sustainable forest management after the completion of the project has a significant impact on the project effectiveness, so it is important to encourage the participation of local people when formulating detailed activity plans and selecting activities and strengthen the capacity of local forest officers in facilitation techniques.

In this Project, attention will be paid to the establishment of an implementation system whereby models are established through the development and implementation of forestation technologies that contribute to climate change countermeasures, etc., and whereby the host government is able to expand the project results in a self-sustaining manner. In addition, training will be provided for field forest officers to strengthen their capacity in facilitation techniques to encourage the participation of local people in the formulation of microplans and the selection of activities.

## **7 . Evaluation Results**

The Project is in line with the development challenges and development policies of the Government of India and the Government of West Bengal, as well as the cooperation policy and analysis of Japan and JICA, and will contribute to poverty eradication, gender equality, climate change countermeasures, protection and restoration of ecosystems and promotion of sustainable use through promotion of climate change countermeasures, biodiversity conservation and livelihood enhancement activities, etc. It will contribute to Goals 1, 5, 13 and 15 of the SDGs (Sustainable Development Goals), and there is a high need to support project implementation.

## **8 . Plan for Future Evaluation**

(1) Indicators to be Used

As indicated in Sections 4. (1)~(3).

(2) Future Evaluation Schedule

Ex-post evaluation: two years after the project completion

END