Ex-Ante Evaluation Paper (for Japanese ODA Loan)

South Asia Division 1, South Asia Department, JICA

1. Name of the Project

Country: India

Project: Project for Ecosystem Restoration in Gujarat

Loan Agreement: March 27, 2020

2. Background and Necessity of the Project

(1) Current State and Issues of the Ecosystem Conservation Sector in India's Gujarat State

India has a varied topography and geographical conditions, and its ecosystems are also rich in diversity. Diverse ecosystems fulfill wide-ranging functions for the community as blessings of nature in the form of "ecosystem services." These services include water conservation, soil run-off prevention, soil conservation and flood regulation (regulating services), as well as ensuring means of subsistence and livelihood based on the provision of forest resources (provisioning service). Looking at forests, though, which are a typical ecosystem in India, forest cover as a percentage of national land decreased from 34.5% in 1880 to 19.2% (633,000 km^2) in 1997, in part as a consequence of logging, conversion of land for farming, and development activities. In an attempt to strengthen ecosystem conservation, the Government of India introduced biodiversity conservation laws on the establishment of national parks and sanctuaries, as well as on prohibiting the hunting and trade of wild animals and the harvesting of specific plants, in addition to enforcing forest conservation laws and implementing participatory forest management. As of 2017, forest cover had increased slightly to 21.5%. Furthermore, the Government of India states in its 2014 Green India Mission that it will seek to restore biodiversity and improve ecosystem services, such as water resource management and carbon sequestration, through implementing conservation/restoration projects covering 100,000 km^2 over 10 years.

Gujarat is a state in western India. It has a population of 60.38 million (2011), and an area of 196,000 km^2. Within the state, there are diverse ecosystems, each of which provide communities with unique ecosystem services. Mangroves and coastal forests stave off heavy seas during cyclones and prevent damage caused by salt in the sea wind. Grasslands produce grass to feed livestock. Forests control floods and produce forest products. And wetlands control floods and provide a means of livelihood through fisheries. The state's diverse

ecosystems serve as a habitat for wildlife, including for endangered species listed by the International Union for Conservation of Nature (IUCN). Gujarat is home to the Asiatic lion and other species that are already extinct in other countries or in other Indian states.

However, there has been a degradation of ecosystems and a decline in ecosystem services in recent years brought about by the increased use of natural resources including firewood and irrigation water, as a consequence of population growth as well as economic development including development of land for housing and development of urban areas. There have been concerns on an increase in economic damage attributable to natural disasters and on the sustainable economic activities of rural communities being hindered by a decrease in water resources. In addition, due to habitats being threatened, there has also been a number of injuries and fatalities to residents following conflicts with wildlife encroaching human habitats. 862 cases (including 88 fatal accidents) were reported in the five-year period between 2014 and 2018 (preparatory survey). As for livestock casualties, there have been more than 4,200 cases in a one-year period (2016). Such a situation in Gujarat requires model countermeasures to be developed and implemented for improving the situation through maintaining and restoring ecosystems according to the characteristics of each ecosystem and the social and economic circumstances surrounding that ecosystem.

With assistance provided by Japanese ODA loans, the Gujarat Forest Department sought to improve the percentage of forest cover, implementing the Gujarat Afforestation and Development Project (hereinafter referred to as “Phase 1”) from 1995 through to 2004, followed by the Gujarat Forestry Development Project Phase 2 (hereinafter referred to as “Phase 2”) from 2007 through to 2017. During Phase 2 in particular, livelihood improvement activities were conducted in conjunction with afforestation activities through Joint Forest Management Committees and Eco Development Committees organized by local residents, and participatory forest management with communities were developed. As a result, 1,724 km^2 of afforestation was carried out in the target area, and incomes were improved following livelihood improvement activities being conducted for about 2,700 community organizations. Taking advantage of the Phase 2 support, the Forest Department has also been planting mangroves since 2000, and as of 2016, the area of mangrove forests had increased from 431 km^2 in 2011 to 1,107 km^2 (Indian State of Forest Report). However, as described earlier, there has been a statewide degradation of ecosystems and decline in ecosystem services

brought about by the increased use of natural resources as a consequence of population growth and by economic development in recent years. There have been concerns about an increase in economic damage attributable to natural disasters and about the sustainable economic activities of rural communities being hindered.

The Government of Gujarat has formulated “Gujarat Sustainable Vision 2030”—a policy that outlines the state’s priority projects and sector-specific targets based on the Sustainable Development Goals (SDGs). Within this, each government Department has formulated policies and development plans based on the SDGs. Consistent with the recognition stated in the vision regarding the importance of ecosystem conservation, Forest Department has developed a policy to achieve the SDGs Goal 15—namely, the sustainable use of terrestrial ecosystem services—and in implementing this policy, has adopted a strategy of developing “ecological infrastructure” to carry out disaster prevention and water management utilizing ecosystem services. Ecological infrastructure includes strategic development of mangroves and coastal shelterbelts, restoration of grasslands, wetlands and forests and management of human wildlife conflict. Forest Department will also take the participatory joint management framework developed during Phase 2 and adapt it for other ecosystem restoration activities in addition to forests.

The Project for Ecosystem Restoration in Gujarat (hereinafter referred to as the “Project”)—which addresses social and economic issues within the state through the development of “ecological infrastructure” (model countermeasures for maintaining and rehabilitating ecosystems) which is at the core of the state government’s ecosystem conservation policy, while adopting the participatory approach developed during Phase 2—is positioned as an important project in Gujarat’s ecosystem conservation sector.

(2) Japan and JICA’s Ecosystem Conservation Sector/Gujarat Cooperation Policy and the Positioning of this Project

Under Country Assistance Policy for India (March 2016), the Government of Japan has positioned support for sustainable and inclusive growth as a priority area, and is working on income generation programs for the poor, and is promoting assistance for the forestry sector in order to tackle environmental and climate change issues. The JICA Country Analysis Paper for India (March 2018) also analyzes the need for measures to promote the appropriate use of natural resources for inclusive growth in rural areas, and which lead to the appropriate conservation and use of forests and other natural resources. Accordingly, the

Project is consistent with this policy and analysis.

(3) Other Donors' Activity

In India, the Global Environment Facility (GEF) is supporting formulation of a biodiversity conservation program and associated action plan. Meanwhile, under its Integrated Coastal Zone Management Project (2010–2020), the World Bank is implementing a program designed to strengthen the capacity for integrated coastal zone management, and has conducted mangrove conservation and research on wildlife conservation in coast areas in Gujarat as a pilot project. The Project has been coordinated to ensure there is no overlap with the above-mentioned projects in the target area.

3. Project Description

(1) Project Objective

The objective of the Project is to restore and enhance ecosystem services by development of mangroves and coastal shelterbelts, restoration of grasslands, wetlands and forests, management of human wildlife conflict and institutional strengthening, thereby contributing to solving socio-economic issues in Gujarat State.

(2) Project Site / Target Area: Gujarat

(3) Project Components

1) Ecological infrastructure development in coastal area (plantation of mangrove, plantation of shelterbelts, etc.)
2) Ecological infrastructure development in inland area. (restoration of grasslands, forests and wetlands, livelihood improvement activities (vocational training, establishment of a revolving fund for microcredit, cluster development for marketing of non-timber forest products and other products), etc.)
3) Human wildlife conflict management (habitat improvement, livelihood improvement activities (vocational training, establishment of a revolving fund for microcredit, cluster development for marketing), improvement of wildlife rescue centers, etc.)
4) Institutional strengthening (preparation of habitat maps, development of geographic information systems (GIS), establishment of corporate social responsibility (CSR) funds, capacity building training, etc.)
5) Consulting services (implementation supervision, etc.)

(4) Estimated Project Cost

16,293 million yen (of which, the ODA Loan amount is 13,757 million yen)

(5) Schedule

March 2020 – March 2029 (109 months in total). Project completion date is defined as date by when activities of the Project shall be completed in totality (March 2029).

(6) Project Implementation Structure

1) Borrower: President of India

2) Guarantor: N/A

3) Executing Agency: Gujarat Forest Department, Government of Gujarat

4) Operation and Maintenance System: With regard to activities carried out directly by Forest Department, Forest Department will, using its own budget, continue to operate and maintain these activities after the completion of the Project. With regard to activities led by communities, these activities will be operated and maintained by Joint Forest Management Committees and other community organizations after the completion of the Project. In order to enhance the operation and maintenance capabilities of communities, Forest Department will provide training to community organizations on establishing maintenance systems, and community organizations will formulate operation and maintenance plans together with Forest Department. Furthermore, Forest Department is well equipped with the technical capabilities necessary for maintenance, and will, where necessary, provide technical support for the operation and maintenance carried out by communities. With regard to funds necessary for the operation and maintenance carried out by communities, community organizations will, with the involvement of Forest Department, continue to operate the revolving fund set up during the Project, and use it for operation and maintenance.

(7) Collaboration with Other Schemes and Donors

1) Japan's Assistance Activities: None

2) Other Donors' Assistance Activities: The executing agency will establish a corporate social responsibility (CSR) fund, and the responsible unit in the Project will promote privately funded afforestation by liaising with private companies.

(8) Environmental and Social Consideration / Cross-Sectoral Issues / Gender Category

1) Environmental and Social Consideration

① Category: FI

② Reason for Categorization

In accordance with the JICA Guidelines for Environmental and Social Considerations (published in April 2010), sub-projects cannot be

identified prior to JICA's approval of the loan for the Project, and such sub-projects may have an impact on the environment.

③ Other / Monitoring

During the Project, while receiving support from consultants employed using the Japanese ODA loan, the executing agency will categorize sub-projects based on India's domestic legislation and on the JICA Guidelines, and will take action necessary for the applicable category. The sub-projects will not include any category A projects.

2) Cross-Sectoral Issues

During the Project, activities will be conducted using a participatory approach, whereby Joint Forest Management Committees or other community organizations are formed, and plans combining restoration activities and livelihood improvement activities are collaboratively formulated by Forest Department in conjunction with communities. Furthermore, since the Project includes components such as planting of mangrove forests, planting of shelterbelts and ecosystem conservation, the Project also contributes to climate change measures (mitigation/adaptation) with an expected reduction in CO_2 emissions of 13,623,000 tons.

3) Gender Category: ■GI (S) (Gender activity integration project)

<Activities/Classification Rationale>

In the rural areas targeted by this Project, there are limited training opportunities and employment opportunities for women. The livelihood improvement activities carried out during the Project involve efforts led by self-help groups comprised primarily of women, and the plans readily reflect the intentions of women.

(9) Other Important Issues: N/A

4. Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

Indicator	Baseline (Actual value in 2020)	Target (2031) [2 years after project completion]
Ecological infrastructure development in coastal area		
Plantation in Coastal area (ha) *1	-	12,200
Survival rate of mangroves after 3 years (%)	-	At least 50
Agriculture productivity behind coastal shelter belts (t/ha)	*2	*3
Ecological infrastructure development in coastal area in inland areas		
Grassland restoration area (ha)	-	8,500
Productivity of grassland (t/ha)	*2	*4
Removal of weeds in wetland area (ha)	-	900
Number of species and their population of biodiversity of wetland	*2	*4
Forest restoration area (ha)	-	9,000
Survival rate of plantation (%)	-	At least 50
Increase of vegetation cover (ha)	*2	*4
Increase of JFMC member's annual household income from Non-Timber Forest Products (NTFP) (%)	*2	*4
Human wildlife conflict management		
Removal of weeds for habitat improvement (ha)	-	6,000
Deduction of number of incidents of human wildlife conflict (%)	*5	*4
Institutional strengthening		
Number of JFMCs and EDCs newly established/reactivated	-	701
Increase of JFMC and EDC member's annual household income from livelihood improvement activities (%)	*2	*4
Area covered with GIS based monitoring by forest officers (%) *6	0	100
Number of donors to CSR activities	-	10

*1 Plantation area of Mangrove and Coastal Shelterbelts

*2 Original figures shall be decided by baseline survey conducted by the executing agency after the start of the Project.

*3 Target crops and productivity shall be decided by survey conducted during the course of implementation. Plantation in the 1st batch (second year of the Project) will be used for evaluation, considering the time required for growth sufficient to have effects.

*4 Target shall be decided based on the result of the baseline survey and mid-term survey to be conducted by the executing agency in the fourth year of the Project.

*5 Base data will be collected from the Forest Department's record of conflict with wildlife.

*6 Percentage of total project intervention area.

(2) Qualitative Effects

Improvement of ecosystem services, social participation of women, resolution of social and economic issues such as agricultural damage attributable to floods and other natural disasters or to salt in the sea wind.

(3) Internal Rate of Return

Based on the conditions indicated below, the economic internal rate of return (EIRR) will be 12.6%. Since generating revenue is not an objective of this Project, the financial internal rate of return (FIRR) has not been calculated.

[EIRR]

Cost: Project cost, operation and maintenance expenses (excluding tax)

Benefit: Income from forest products, fodders, income generation activities, reduction in CO_2, mitigation of human wildlife conflicts

Project Life: 50 years

5. External Factors and Risk Control

(1) Preconditions: N/A

(2) External Factors: N/A

6. Lessons Learned from Past Projects and Application to the Project

From the ex-post evaluation results of the Haryana Natural Resource Management and Poverty Reduction Project (evaluated in fiscal 2016), it has been learned that, in order to enable an appropriate evaluation to be carried out during the ex-post evaluation, detailed outcomes of considerations and discussions at the time of appraisal (consideration of the appropriateness of operation and effect indicators, identification of person/organization to collect required information, specific measurement policy, timing, location, etc.) should be recorded in the written agreement at the time, and related materials collected during project implementation should be appropriately preserved. Furthermore, from past forest projects carried out in the Indian state of Gujarat, it has been learned that clarifying the division of roles between the Forest Department and Joint Forest Management Committees before implementing the project—that is,

the Forest Department carries out seedling and planting activities, while Joint Forest Management Committees carry out forest maintenance work—is important for achieving the project effects. Similarly, from the detailed analysis (qualitative comparative analysis) in the ex-post evaluation results of the Tamil Nadu Biodiversity Conservation and Greening Project (evaluated in fiscal 2017), it has been learned that consensus building between the Forest Department and the Joint Forest Management Committees contributes to rehabilitation of the forests.

Based on the lessons learned from the ex-post evaluation results of the Haryana Natural Resource Management and Poverty Reduction Project, in this Project, agreement has been made with the executing agency regarding specific measurement methods for operation and effect indicators. Furthermore, based on the lessons learned from the ex-post evaluation results of the Tamil Nadu Biodiversity Conservation and Greening Project, the division of roles between the department and community organizations will be clarified and consensus formed for the Forest Department to cultivate seedlings and plant trees, and for the Joint Forest Management Committees/Eco Development Committees to undertake maintenance work.

7. Evaluation Results

The Project is consistent with the development policy of the Government of India, the policies of the Government of Gujarat, and the cooperation policy/analysis of the Government of Japan and JICA, and also contributes to Goal 1 (eradication of poverty), Goal 13 (action against climate change), Goal 14 (sustainable development of marine resources, including coastal areas), and Goal 15 (promoting the sustainable use and management of terrestrial ecosystems, and biodiversity conservation) of the SDGs; therefore, it is highly necessary to support implementation of the Project.

8. Plan for Future Evaluation

(1) Indicators to be Used

As indicated in sections 4. (1) to (3).

(2) Timing of the Next Evaluation

Two years after the project completion

End