India

FY2019 Ex-Post Evaluation of Japanese ODA Loan

"Gujarat Forestry Development Project (II)"

External Evaluator: Tomoo Mochida, OPMAC Corporation

0. Summary

The objective of the project was to regenerate forests and raise the living standards of local people by conducting community-based afforestation and activities to improve livelihoods in the state of Gujarat in western India, thereby contributing to improvement of the local environment and to poverty reduction. At the time of the appraisal as well as at the time of the ex-post evaluation, the policy of the Indian government set forth rehabilitation and reforestation of forests, sustainable forest management and improvement of living standards of local people through participation in forest management. This project was also consistent with the aid policies of Japan. Therefore, its relevance is high. While the project cost was lower than planned, the project period was as planned. The project largely achieved its outputs as originally planned (the plantation areas were increased). Therefore, the efficiency of the project is high. Regarding the effectiveness and impacts, effects were confirmed on such aspects as the restoration of forests, soil and moisture conservation and the improvement of forest biodiversity conservation, which contributed to a betterment of the natural environment. On the other hand, limited effects were observed on increases in the income of local people. However, the income from forestry produce is considered to be supplementary to agricultural income. As it has been evaluated that the effects of employment generation and improvement of incomes through the self-reliant activities of the People's Organizations (hereinafter referred to as "PO") are yet to realize, contributions to poverty reduction through these activities are limited. However, improvement in the ability of women in the social and economic fields have been observed. Thus, the effectiveness and impacts of the project are high. The operation and maintenance after completion of the project has been carried out as part of their regular works by Gujarat Forest Department (hereinafter referred to as "GFD"). In terms of the operation and maintenance system of GFD, its technical and financial aspects as well as the status of the operation and maintenance conditions, no serious issue adversely affecting the project effects has been found. However, continual improvement in information management by making use of management information systems (hereinafter referred to as "MIS") needs to be done. Among the PO supported under the project, some were found to be less active after the project completion. Furthermore, there are cases where the Income Generating Activities (hereinafter referred to as "IGA") of Self-Help Groups (hereinafter referred to as "SHG") which had been assisted by the livelihood enhancement activities were suspended. Therefore, sustainability of the project effects is fair.

In light of the above, this project is evaluated to be highly satisfactory.

1. Project Description

Project Location

At the loading site of dried grasses by PO

1.1 Background

As most of the State of Gujarat falls in an arid region, it is difficult for forests to grow. In addition, because of population increase, demands for animal feeds, fuels and so forth taken from forests have been growing, which poses a high load on forests. As a result, the deterioration of forests has continued. In 1995, forest cover in the State was 6%, a figure that was well short of the national average of about 20%. With a view to increasing forest areas and restoring the production capacity of forests, GFD carried out plantations in areas of about 260,000 ha through the Gujarat Afforestation and Development Project (Loan Agreement in 1996, completed in 2003, hereinafter referred to as "Phase 1"). According to satellite data from 2006, the forest cover of Gujarat had increased up to 7.46%, but the ratio was still far behind the national average of 21.02% in India.

In the eastern hilly areas of Gujarat State where forest areas are widely spread, scheduled tribes (indigenous tribes) rely heavily on the forests. Deterioration of forests has continued due to over-grazing and over-exploitation of forest resources. Phase 1 covered all the areas in the State. However, this project targets eastern hilly areas where the poverty ratio and the ratio of scheduled tribes are high, aiming further to increase forest areas and improve forest quality.

1.2 Project Outline

The project aims to regenerate forests and raise the living standards of local people by conducting community-based afforestation and activities to improve livelihoods in the State of Gujarat in western India, thereby contributing to improvement of the local environment and to poverty reduction.

<ODA Loan Project>

Loan Approved Amount / Disbursed Amount	17,521 million yen / 14,931 million yen
Exchange of Notes Date / Loan Agreement Signing Date	March 2007 / March 2007
Terms and Conditions	Interest Rate 0.75% Repayment Period 40 years (Grace Period) (10 years) Conditions for Procurement General Untied
Borrower / Executing Agency	The President of India / GFD, Government of Gujarat
Project Completion	March 2017
Target Area	State of Gujarat
Main Contractor(s) (Over 1 billion yen)	None
Main Consultant(s) (Over 100 million yen)	Deutsche Gesellschaft Fuer Technische Zusammenarbeit - International Services (GTZ-IS) (Germany)
Related Studies (Feasibility Studies, etc.)	(1) Feasibility Study (Forest and Environment Department of Gujarat, 2005) (2) Special Assistance for Project Formulation for Gujarat Forestry Development Project Phase II India (JICA, 2006)
Related Projects	[ODA Loan Project] - Gujarat Afforestation and Development Project (1996) - Project for Ecosystem Restoration in Gujarat (2020)

2. Outline of the Evaluation Study

2.1 External Evaluator

Tomoo Mochida, OPMAC Corporation

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: September 2019 – February 2021

Duration of the Field Study: January 13, 2020 – January 31, 2020

2.3 Constraints during the Evaluation Study

The areas for the site survey at the time of the ex-post evaluation were selected with the support of GFD from the areas where PO were organized and are still in operation and/or the areas where PO assisted by the state government are still in operation. The site survey was conducted through interviews.[1] Accordingly, the sampling was not performed through a random process and the

[1] The site survey by the local consultant was carried out from the end of February to the beginning of March 2020 in the four districts (i.e., Narmada, Kevadiya, Bharuch and Tapi. A district is an administrative area that corresponds to a

samples were small in size. Although the results of the site survey have some limitation in terms of representativeness and accuracy, analysis was made by making use of documents provided by JICA and GFD. Furthermore, it must be pointed out that as COVID-19 spread widely across the globe, the second field survey, initially scheduled for April 2020, had to be cancelled. Instead, the survey was carried out by mobilizing the local consultant through remote devices. Subsequently, the data collection activities were limited to some extent.

3. Results of the Evaluation (Overall Rating: A[2])

3.1 Relevance (Rating: ③[3])

3.1.1 Consistency with the Development Plan of India

At the time of the appraisal, the Government of India was aiming for the goal of 33% forest and tree cover by the end of the *Eleventh Five Year Plan* (April 2007 - March 2012). In addition to the rehabilitation of degraded forests, the *Tenth Five Year Plan* (April 2002 - March 2007) placed emphasis on sustainable forest management through the promotion of Joint Forest Management (hereinafter referred to as "JFM"[4]) as well as support for forest dependents to obtain alternative income sources. In the *Tenth Five Year Plan* (April 2002 - March 2007) of the State of Gujarat, the promotion of planting was planned, particularly the strengthening of local people's participation in the protection and regeneration of degraded forests. This policy direction was expected to be succeeded by the subsequent five-year plan.

The national development plan at the time of the ex-post evaluation, the *INDIA Three Year Action Agenda*[5] (2017/18 - 2019/20[6]), referred to 33% forest and tree cover and pointed out the importance of building incentives into long-term investments in community-managed forests such as JFM-type forests. GFD set the objectives to increase forest cover, increase the trees outside forest areas, increase mangrove cover, effectively manage sanctuaries and national parks for conserving wildlife and biodiversity, elicit the active participation of government and non-government institutions and the people at large in conserving forest and wildlife, carry out IGA to meet the needs of the local community, provide raw materials to forest based industries and

prefecture in Japan.). In these four districts, interview surveys were conducted with 12 Joint Forest Management Committees (hereinafter referred to as "JFMC"), 4 Social Forestry Development Committees (hereinafter referred to as "SFDC") and 2 Eco Development Committees (hereinafter referred to as "EDC"), 1 SHG and 12 staff members at local offices of GFD. The interview survey results were reviewed by comparing them with the results of the pre-test interview survey with 6 JFMC, 3 SFDC, 1 EDC and 1 SHG by the Japanese evaluator in Sabarkantha, Aravalli, Panchmahal and Vadodara.

[2] A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

[3] ③: High, ②: Fair, ①: Low

[4] JFM is a participatory mechanism for local people, aiming to restore forests and improve livelihoods of the poor in such a way that forest departments in the respective states and the local people collaborate with each other for plantations and forest protection.

[5] The formulation of the conventional five-year plans for national development by the Government of India came to an end with the Twelfth Five Year Plan (2012 - 2017). A new framework has been developed since 2017: the 15-year vision (Fiscal Year 2017 - Fiscal Year 2031), the 7-year strategy (Fiscal Year 2017 - Fiscal Year 2023) and the 3-year action agenda (Fiscal Year 2017 - Fiscal Year 2019).

[6] In the Indian fiscal year, 2017/18 is from April 2017 to March 2018. The same applies to the following fiscal years.

promote environmental conservation and awareness. As part of its strategies, GFD plans to build JFMC, EDC, SHG and so forth to create synergy between resource conservation and the socio-economic uplift of forest dependent communities.

As described above, the development policies of the Government of India and the State Government of Gujarat prescribe the restoration of the forests, sustainable forest management, and improvement of the living conditions of local people through engagement in forest management. Thus, the plantation with people's participation, livelihood improvement activities and so forth carried out under the project are considered to have been consistent with these development policies at the time of the appraisal as well as at the time of the ex-post evaluation.

3.1.2 Consistency with the Development Needs of India

At the time of the appraisal, since most of the State of Gujarat is in an arid region, it was found that it was difficult for forests to grow. In addition, because of population increase, demands for animal feeds, fuels and so forth taken from forests were growing and posing high loads on the forests. As a result, the deterioration of forests progressed.

Forest cover[7] in the State of Gujarat increased from 7.46% in 2011 to 7.52% in 2017, and then slightly to 7.57% in 2019. According to the *India State Forest Report 2019*, which is prepared every other year by the Forest Survey of India under the Ministry of Environment, Forest and Climate Change, the main reasons for the increase in forest cover in the State were plantation and conservation activities. However, the ratio in 2019 is still low compared to the national average of 21.67%. In the light of this, development needs are still high.

Table 1: Changes in Forest Cover Rate and Tree Cover Rate in India and the State of Gujarat

Year Published	2011	2017	2019
Satellite Data	2008/2009	2015/2016	2017/2018
Forest and Tree Cover in India	23.81%	24.39%	24.56%
Out of which: Forest cover	21.05%	21.54%	21.67%
Out of which: Tree cover	2.76%	2.85%	2.89%
Forest and Tree Cover in State of Gujarat	11.46%	11.61%	11.09%
Out of which: Forest cover	7.46%	7.52%	7.57%
Out of which: Tree cover	4.00%	4.09%	3.52% Note

Source: Forest Survey of India, *India State of Forest Report.*
Note: According to GFD, a decrease in the tree cover was resulted due to changes in the method of measurements.

3.1.3 Consistency with Japan's ODA Policy

JICA's Overseas Economic Cooperation Operation Implementation Policy (2005) at the time of the appraisal placed "Support for poverty reduction" and "Support for global environmental

[7] In order to examine the appropriate level of forest cover in Gujarat, efforts were made to obtain the target rate and year of forest cover at the state level. However, the data was not made available during the study period at the time of the ex-post evaluation.

issues and peace-building" as overall priority areas, and "Regional development that benefits the poor" and "Response to environmental issues" as priority areas for India. Japan's Country Assistance Policy for India in the fiscal year 2006 placed the forest sector as a major sector for assistance to India. "While it is planned to expand forest areas and reduce the ratio of open forests (increase of quality and quantity), areas where poverty is a critical issue will be targeted. In addition, it is necessary to adapt the use of JFM. Taking into account the socio-economic conditions of the targeted areas, coordination and collaboration with village councils and other departments of the governments will be promoted while the use of Non-Governmental Organizations (hereinafter referred to as "NGO") / Community Based Organizations will be accelerated."

As described above, the project has been highly relevant to India's development policy and development needs, as well as to Japan's ODA policy. Therefore, its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs[8]

Various activities were carried out under this project in the four components of plantations (departmental forest development management, JFM forest development and management, social forestry development and management), wildlife conservation and development, community / tribal development and supporting activities for forest conservation activities. The major outputs of the project are described as follows:

(1) Plantations

The plantation areas are recorded in terms of the three sub-components: departmental forest development management, JFM forest development and management, and social forestry development and management, respectively. Although some changes were observed, the actual outputs were largely the same as the planned outputs or more than those initially planned. As for the changes, the plantation areas under JFM forest development and management increased by 30% mainly through the use of the Saving Utilization Plan.[9] In particular, it is considered that the issuance of the Authorization Letter (Adhikar Patra[10]) to the respective JFMC also contributed to expedition of the activities under JFM forest development and management.

[8] For details, see "Comparison of the Original and Actual Scope of the Project" on the last page of the report.

[9] In order to utilize the amount of savings (i.e., 17,950 million Rupee) generated through appreciation of the Japanese Yen against the Indian Rupee, the project activities were continued by extending the project period for 2 years (from 2014/15 to 2016/17). This plan is called the "Savings Utilization Plan."

[10] For example, an authorization letter addressed to the Forest Development Committee / Village Development Committee issued by a forest division of GFD says: "it is allotted to the committee for regeneration of the forest through the support of the Forest Department."

Table 2: Plantations under Departmental Forest Development and Management

Unit: ha

Model	Plan	Actual	Difference
Forest Development in Degraded Forest Lands	5,000	5,443	+443
Gap Planting (Open Forest)	10,000	11,000	+1,000
Forest Improvement (Dense Forest)	10,250	11,250	+1,000
Grasslands Development	5,750	5,750	0
Mangrove Plantation	15,000	15,126	+126
Total	46,000	48,569	+2,569

Source: Documents provided by JICA and GFD

Note: Other than the items described in the table above, GFD reported that the actual areas of the grass seed plots were 24 ha against a planned area of 26 ha. If these areas are counted together, the actual areas were 48,593 ha as against the planned area of 46,026 ha. In addition, the actual area of the soil and moisture conservation works was 33,207 ha.

Table 3: Plantations under JFM Forest Development and Management

Unit: ha

Model	Plan	Actual	Difference
Forest Development in Degraded Forest Lands	13,370	20,567	+7,197
Gap Planting in Open Forest	43,230	51,706	+8,476
Forest Improvement in Dense Forest	29,620	39,757	+10,137
Grasslands Development	1,180	1,180	0
Total	87,400	113,210	+25,810

Source: Documents provided by JICA and GFD

Note: The total area includes the planted areas of 25,800 ha under the Saving Utilization Plan. It is also reported that the actual area of the soil and moisture conservation works is 113,559 ha.

Table 4: Plantations under Social Forestry Development and Management

Unit: ha

Model	Plan	Actual	Difference
Village Multipurpose Plantation	6,520	5,092	-1,428
Village Fruit Orchard Plantation	4,120	3,399	-721
Plantation on Public Land	2,580	2,162	-418
Total	13,220	10,653	-2,567

Source: Both plan and actual are from documents provided by GFD

Note: According to the documents provided by JICA, the plantation areas under Social Forestry Development and Management totalled 13,190 ha consisting of 10,610 ha for "development and management of village lands" and 2,580 ha for "plantation on land managed under the tax office." On the other hand, according to the documents provided by GFD, the classification was into "Village Multipurpose Plantation," "Village Fruit Orchard Plantation," and "Plantation on Public Land." Because no large differences between the plan and actual were observed, the documents prepared by GFD were referred to for reporting the plan and actual areas.

The actual plantation area under Social Forestry Development and Management was 10, 653 ha, lower than the area originally planned of 13,220ha. However, the achievement level is more than 80% of that planned. There are a number of reasons behind the decrease in the plantation area of about 2,500ha. These include constraint in village land management and limited supervision of such land,[11] the small size of the forest lands with the relatively limited fund

[11] Social Forestry Development and Management is undertaken in village land other than government forest land. According to GFD, the priority of forest-related activities tends to be lower than that of agriculture-related activities

available for investment, a weak sense of unity within SFDC[12] and so on. It was observed during the site visit at the ex-post evaluation that Social Forestry Development and Management were being implemented in the village land (an area ranging from 4 ha to 5 ha at the site the evaluator visited). When the Social Forestry Development and Management were implemented, the existence of the village land was confirmed and the views of local people over the use of the village land were taken into account. It is assumed that consequently the actual area decreased from the planned area.

The sum of the actual plantation areas under all the above three sub-components was 172,432 ha against planned areas of 146,620ha, which represents an increase of a little less than 18%. The increased area of plantations under Departmental Forest Development and Management balanced out the decreased area under Social Forestry Development and Management. The implementation of the Saving Utilization Plan contributed to the expansion of the plantation area under JFM Forest Development and Management. As a result, if the plantation area under Departmental Forest Development and Management is compared with the plantation area under Forest Development and Management with people's participation (either through JFMC or SFDC), the ratio of the plantation area under Forest Development and Management with people's participation increased from 69% at the time of the planning to 72%.

(2) Wildlife Conservation and Development

Protected area management, conservation and development of biodiversity hotspots, eco-tourism development and eco-development were undertaken largely as planned under this component.

(3) Community / Tribal Development

A number of activities were implemented under this component such as capacity building for PO, IGA, entry point activities, formulation of micro-plans, preparation of manuals, livelihood enhancement activities and so forth. The actual number of PO trained for capacity building was 1,639 JFMC (out of which 1,289 JFMC were newly formed) against the planned number 1,100 JFMC, 822 SFDC against the planned number of 800 SFDC and 230 EDC against the planned number of 210 EDC. Implementation of the Saving Utilization Plan also contributed to an increase in the number of JFMC trained. PO were provided with various training opportunities. The following table describes examples of the major training courses and the number of PO that participated in such courses.

during the busy farming season. The progress of plantation activities was thus affected. In addition, GFD pointed out that unlike JFMC, forest management by SFDC was a new trial for GFD, which had been adapted under the project.

[12] Based on documents provided by JICA and others.

Table 5: Implementation of Training for PO

Unit: Number of PO

Types of Training	JFMC	SFDC	EDC
Formulation of micro plans	1,329	788	206
Registration as an authorized society	658	39	121
Fund raising	367	31	68

Source: Documents provided by JICA

For IGA, livelihood enhancement teams were organized by NGO and research institutions in order to provide training services in business development and marketing. However, several issues and concerns were raised. These included the fact that services provided by NGOs varied; some NGOs had only limited knowledge and skills for business development; the engagement of GFD staff in the livelihood enhancement activities was beyond its jurisdiction.[13] SHG were formulated to assist undertaking of IGA by the poor in local areas and the people dependent on the forests. Under the project, financial support was extended to SHG. However, reports were made about the low repayment rate of loans extended to SHG (documents provided by JICA).[14]

(4) Supporting Activities

Under this component, preparatory works (institutional arrangements in GFD, the selection of the project sites, the preparation of manuals, etc.), strengthening of the project implementation mechanism, forest surveys and research, communication and orientation, preparation of the monitoring and evaluation (hereinafter referred to as "M & E") manual, implementation of training for M & E, implementation of M & E, development of MIS, phase-out activities and so on were carried out. The development of MIS progressed in connection with M & E. However, it was difficult to grasp the updated information on the project by using the MIS and GFD reported that the MIS had not been sufficiently utilized. GFD pointed out several reasons behind the underutilization of the MIS such as a delay in the introduction of MIS during the project period, a shortage of budget and insufficient training given to staff members.

(5) Consulting Services

The consultant responsible for the project management was employed to manage and assist in implementation of the overall project as well as to extend field-level assistance. As shown below, the number of man-months for the site managers had increased compared with those at the time of the appraisal. Presumably, this is the result of the emphasis being placed on field-level assistance. Furthermore, it can be pointed out that the actual number of man-months (4.5 man-months) for MIS/data management expert assigned as a local consultant decreased from the planned number (15 man-months) at the time of the appraisal.

[13] Based on the interviews at GFD

[14] GFD explained that the low repayment rate would be linked to operations of IGA.

Table 6: Man-Month Allocation of Consulting Services

Unit: Man-Months

Expert	Plan (a)	Actual (b)	Difference (b)-(a)
International Consultants	85	75.5	-9.5
Local Consultants	417 Note 1	78.9	-338.1
Site Managers	-	436.4	+436.4
Supporting Staff Note 2	292	356.2	+64.2

Source: Documents provided by JICA
Note 1: According to the plan at the time of the appraisal, the number of man-months for Site Management Experts was 330 man-months out of 417 man-months allocated to the local consultants. It is considered that the planned number of man-months for the Site Management Experts correspond to the actual number of man-months for the Site Managers.
Note 2: The term "Office Staff" in the actual record is used for "Supporting Staff" in the plan.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The original project cost was 20,923 million yen (of which the foreign currency portion was 1,108 million yen and the local currency portion was 19,815 million yen), out of which the ODA loan was 17,521 million yen (of which the foreign currency portion was 1,074 million yen and the local currency portion was 16,447 million yen). On the other hand, the actual cost was 16,860 million yen (of which the foreign currency portion was 674 million yen and the local currency portion was 16,186 million yen), out of which the ODA loan was 14,931 million yen. Both the project cost and the ODA loan were within the plan (the actual amount of the project cost was 81% of the planned amount and the actual amount of the ODA loan was 85% of the planned amount).

Table 7: Plan and Actual of Project Cost Breakdowns

Unit: Million Yen (Planned and Actual Amounts converted in Yen)

Item	Planned Amount						Actual Amount					
	Foreign Currency Portion		Local Currency Portion		Total		Foreign Currency Portion		Local Currency Portion		Total	
	Total	ODA Loan	Total	ODA Loan	Total	ODA Loan	Total	ODA Loan	Total	ODA Loan	Total	ODA Loan
Plantations	0	0	10,788	10,788	10,788	10,788	0	0	13,997	13,997	13,997	13,997
Wildlife Conservation and Development	0	0	211	211	211	211	0	0				
Community / Tribal Development	0	0	1,748	1,748	1,748	1,748	0	0				
Supporting Activities	0	0	1,670	1,670	1,670	1,670	0	0				
Price escalation	0	0	893	893	893	893	0	0	0	0	0	0
Physical Contingencies	0	0	766	766	766	766	0	0	0	0	0	0
Consulting Services	306	306	371	371	677	677	251	251	142	142	393	393

Item	Planned Amount						Actual Amount					
	Foreign Currency Portion		Local Currency Portion		Total		Foreign Currency Portion		Local Currency Portion		Total	
	Total	ODA Loan	Total	ODA Loan	Total	ODA Loan	Total	ODA Loan	Total	ODA Loan	Total	ODA Loan
Administration Costs	0	0	2,010	0	2,010	0	0	0	1,354	0	1,354	0
Taxes	34		1,358	0	1,392	0	0	0		0		0
Interest during construction	768	768	0	0	768	768	539	539	0	0	539	539
Total	1,108	1,074	19,815	16,447	20,923	17,521	791	791	15,494	14,140	16,285	14,931

Source: Documents provided by JICA

Note 1: The exchange rate applied at the time of the appraisal: 2.52 yen per Rupee (as of September 2006). The exchange rate applied at the time of the ex-post evaluation: 1.80 yen per Rupee (the weighted average exchange rate from 2007 to 2016 by International Financial Statistics, IMF).

Note 2: Due to rounding (rounding down the amount after the decimal point), the costs of each item do not necessarily add up.

3.2.2.2 Project Period

While the planned period of the project was set from March 2007 to March 2015 (97 months), the project period was actually from March 2007 to March 2017 (121 months), exceeding the planned period by 125%. The major factor behind this difference is found in the fact that the Saving Utilization Plan was put in place where the project period was prolonged by two years although at the same time, the plantation areas were expanded. Preparation of the Saving Utilization Plan was started by the State Government of Gujarat from 2012 and review meetings were held with the Government of India for approval, followed by reviews with JICA India Office. JICA conveyed its "no objection" to the Saving Utilization Plan in December 2013 (to the amount of 1,795 million Rupee). While informing GFD of its no objection, JICA confirmed that the Saving Utilization Plan was in line with the agreement at the time of the appraisal, and that the period of implementation of the Saving Utilization Plan was to be from FY 2013/14 to FY 2016/17. All the project components of the Saving Utilization Plan were agreed to except the Departmental Forest Development and Management component. As a result, the plantation area under JFM Forest Development and Management was increased from 87,400 ha to 113,200 ha and the number of JFMC subject to support under the project was increased from 1,350 JFMC to 1,450 JFMC. Taking the above points into consideration and referring to the agreement on the Saving Utilization Plan between the governments in India and JICA together with its consistency with the project objective, it is evaluated that the actual project period was within the planned period because the project was completed within the (revised) planned period, assuming that the revised project period were deemed to have been treated as the planned period.

3.2.3 Results of Calculations for Internal Rates of Return (Reference only)

The Economic Internal Rates of Return (hereinafter referred to as "EIRR") of the project were calculated at the time of the appraisal and at the time of the ex-post evaluation, respectively, as

shown in Table 8. Because most of the actual data relating to costs and benefits from the project was not available at the time of the ex-post evaluation, the EIRR was calculated using the data expected at the time of the appraisal and referring to the ratio of the actual plantation area against the planned plantation area. It can be noted that the reason behind the improvement of the EIRR is that the project cost (ODA portion) decreased from the planned cost and the actual plantation area increased compared with the planned area.

Table 8: EIRR of the Project

Indicator	At the time of the Appraisal	At the time of the Ex-post Evaluation	Costs	Benefits	Project Life
EIRR	15.3%	18.3%	Project Costs (excluding price escalation and interest during construction), operation and maintenance costs, replacement costs	Benefits accrued as forest benefits, IGA and soil erosion protection	50 years

Source: Documents at the time of the appraisal, which was provided by JICA and calculation results by the evaluator at the time of the ex-post evaluation

As seen above, both the project cost and the project period were within the plan. Therefore, the efficiency of the project is high.

3.3 Effectiveness and Impacts[15] (Rating: ③)

3.3.1 Effectiveness

In evaluating the effectiveness, the extent of forest restoration was analysed from the point of view of plantation area and survival rates, etc. and the status of livelihood improvement examined by a review of the institutionalization of JFMC, SHG and so on, based on the fact that forest development management, wildlife conservation and development, community / tribal development and supporting activities were undertaken in the project. Thereafter, the status of the forest restoration, soil and moisture conservation, biodiversity conservation and increases in income will be reviewed.

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

Operation and effect indicators agreed at the time of the appraisal are shown in the table below. As for the operation indicators, the plantation under Social Forestry Development and Management of SFDC was not achieved. However, the total plantation area, including the plantation areas under Departmental Forest Development and Management and JFM Forest Development Management, exceeded the planned area. Out of this, the plantation area under JFM Forest Development Management increased by about 30% compared with the planned area, through implementation of the Saving Utilization Plan. Furthermore, the actual number

[15] Sub-rating for Effectiveness is to be put with consideration of Impacts.

of JFMC, SFDC and EDC subject to assistance was more than the number originally planned. As for SHG, it was reported that a total of 3,484 SHG was formed in the JFMC area, out of which 2,740 SHG were women's groups (documents provided by JICA). Therefore, if the number of SHG formed in SFDC and EDC areas were counted, the number of SHG formed and/or assisted would probably be more. It is also evaluated that the survival rates of planted trees also exceeded the planned rates.

Table 9: Operation Indicators

Indicators	Target (Year 2015)	Actual (Year 2016/17)	Achievement
(a) Afforestation Area (ha)	146,630	172,456	Achieved
(b) Quantity of Planting (million)	152	185.98	Achieved
(c) No. of JFMC formed Note	1,100	1,639	Achieved
(d) No. of SFDC formed Note	800	822	Achieved
(e) No. of EDC formed Note	210	230	Achieved
(f) No. of SHG formed Note	1,500	A total of 3,484 SHG was formed in JFMC area	Achieved
(g) Survival Rate (%)	Afforestation 1st year: 80-90% Afforestation 2nd year: 60-70% Afforestation 3rd year: 50-60% Afforestation 4th year: 50-55% Afforestation 5th year: 40-50%	Average survival rates Afforestation 1st year: 92% Afforestation 2nd year: 73% Afforestation 3rd year:66% Afforestation 4th year: 62% Afforestation 5th year:57%	Achieved

Source: Documents provided by JICA
Note: The indicators for the number of PO are titled as "the number formed." However, they are not necessarily newly formed PO but the number indicates the number of PO that received assistance under the project. [16]

Due to the unavailability of the target values, the achievement level is unknown for the following indicators. Those are namely: the rate of forest cover, the increase in the volume and/or monetary value of forest produce, and the increase in the percentage of the annual income per household among the beneficiary forest owners.[17] It was reported by the executing agency that there was not much difference in the rate of forest cover before and after the project, but that a sense of belonging among PO members had contributed to the protection of the forest resources.[18] The generation of employment was not achieved, but the number of trainees was achieved.

[16] At the start of the project, 350 JFMC and 90 EDC existed in the project area. Therefore, the number of newly formed JFMC was 1,289. The target number of EDC was 210, out of which the number of newly formed EDC was 120 while the existing number of EDC at that time was 90.
[17] The translation for the indicator "the increase in the production of the forest produce" has been revised from "the increase in the production of forest produce" (as written in the Ex-ante Evaluation) to "the increase in the volume and/or monetary value of forest produce," in order to further clarify the meaning of the indicator. Likewise, the translation for the indicator "the increase in income per beneficiary household" has been revised from "the increase in income per beneficiary household" (as written in the Ex-ante Evaluation) to "the increase in the percentage of the annual income per household among the beneficiary forest owners."
[18] WAPCOS Limited, *"Socio-economic Impact Survey of JFMCs/EDCs/SFDCs/IGA-Gs/SHGs, ex ante, mid-term and ex post Project – Consolidated Final Report"*.

Table 10: Effect Indicators

Indicators	Target (Year 2015)	Actual (Year 2016/17)	Achievement
(h) Rate of Forest Cover (%)	Scrub (<forest & tree cover:10%) to be Open Forest (forest & tree cover: 10 to 40%) Open Forest (10 to 40%) to be Dense Forest (40% or more)	Forest coverage due to intervention of the POs (Baseline => Endline) JFMC: 49%⇒79% SFDC: 39%⇒46% EDC: 62%⇒76%	Unknown Note 1
(i) Increase in the volume (m3) and/or monetary value (Rupee) of forest produce)	2017/18: 132 Million Rupee 2021/22: 1,213 Million Rupee 2025/26: 2,461 Million Rupee	There is no significant difference between the pre and post project period in terms of the amount of produce (m3) of non-timber forest produce (NTFP) extracted from the forest. The monetary value of extraction of NTFP in the project villages by households in forest areas improved from Rupee 3,504 in the pre project period to Rupee 4,140 in the post project period in the case of JFMC	Unknown
(j) Increase in the percentage of the annual income per household among the beneficiary forest owners	7.5% / Household	Average annual income of PO households from forest related produce in the case of JFMC Baseline: Rupee 11,856 End line: Rupee 13,212	Unknown Note 2
(k) Job creation (Man-days)	43 million	32.1 million	Not achieved
(l) Number of trainees (persons)	223,250	360,858	Achieved

Source: Documents provided by JICA

Note 1: The actual rate of forest cover compares the results of the baseline and end-line surveys on the "forest cover due to intervention of the PO." Because it is not possible to compare the results with the target, the level of the achievement is not known. According to *The Status of Forest Report,* the rate of the total forest cover in the 14 districts out of the 18 districts, excluding 4 districts where it is difficult to confirm the rates due to bifurcation, etc., decreased from 10.38% in 2017 to 10.31% in 2019 (a comparison between the rates in the 2017 report based on the data in 2015 and in the 2019 report based on the data in 2017). As changes in the rates of the forest cover are affected by various factors such as changes in the areas of dense and open forest areas, regional development and so on, it is difficult to examine the extent of the direct impacts of the project on the changes.

Note 2: The baseline value for "the increase in the percentage of the annual income per household among the beneficiary forest owners" was to be set after conducting a baseline study. Documents provided by JICA describe "average annual income of PO households from forest related produce" instead of "the increase in the percentage of the annual income per household among the beneficiary forest owners." However, it is not clearly stated whether an increase in the annual income is based on a nominal basis or on a real basis. The details are shown in Table 11

With regard to the indicator relevant to the "percentage increase in the annual income per household regarding forest owners who benefited," documents provided by JICA describe the "average annual income of PO households from forest related produce" by which the data collected at the time of the baseline and end-line surveys can be compared by type of PO. Although all the types of PO exhibit an increasing trend, it was not possible to evaluate the extent to which the target was achieved.

Table 11: Average annual income of households from forest-related produce

PO	Baseline survey (a)	End-line survey (b)	Rate of increase (a)/(b)*100 (%)-100%	Annual average of increase rate (%) Note
JFMC	11,856	13,212	11.4%	1.8%
SFDC	8,988	10,740	19.5%	3.0%
EDC	18,112	21,240	17.3%	2.7%

Source: Documents provided by JICA
Note: Although it is not described in the report, the "unit" is assumed to be Rupee in nominal terms. The annual averages were calculated, assuming that the baseline survey was conducted in 2011 and the end-line survey was carried out in 2017, based on the description in the afore-mentioned report by WAPCOS Limited concerning the project. For reference, the annual average of increases in the Consumer Price Index (CPI) from 2011 to 2017 was 7.0%.

The following table compares the per capita income between the project area and the State of Gujarat. The per capita income in the project area was lower than that in the state, but the rate of increase was higher. However, as indicated in the corresponding amounts in Table 11, the ratio of the average annual income from forest-related produce against the total of households was quite marginal. At the time of the site visit, it was pointed out that the income from forest-related products was secondary to the income from agriculture-related activities. On the other hand, it was reported that PO members had become able to collect and sell forest-related produce without any fear. It is considered that one of the factors behind this change was the issue of Authorization Letters that authorized PO to make use of forest-related produce on the condition that they would protect and preserve the forest areas concerned. Interviews with JFMC and others at the time of the site survey also revealed that the income from forest-related produce was secondary to household income, and did not account for a large share of the total income.

Table 12: Comparison of Per Capita Annual Income

Unit: Rupee/year

Area	Baseline survey (a)	End-line survey (b)	Rate of increase ((a)/(b)*100 (%)-100%)	Annual average of increase rate (%)
Project area	60,610	111,462	83.9%	10.7%
State of Gujarat	78,802	138,023	75.2%	9.8%

Source: Documents by JICA

3.3.1.2 Qualitative Impacts (Other Impacts)

The following aspects are evaluated in terms of the qualitative impacts of the project: improvement of the natural environment (restoration of forests, soil and moisture conservation, and biodiversity conservation), increases in local people's income and enhancement of the social and economic capacity of women.

(1) Restoration of Forests and Soil and Moisture Conservation

PO answers to questions on the status of forest restoration during the site survey are summarized in the table below. Many PO answered "improved a lot" or "improved" regarding the status of forest restoration. They pointed out that trees presently grew on previously barren land, that forest restoration progressed and that the access to fodder collected for animals got easier as JFMC members were engaged in forest protection activities under the agreement concluded between JFMC and GFD, and as the relationship with GFD improved.

Table 13: PO Perspectives on Forest Restoration after the Project

Unit: Number of PO

Scale	JFMC		SFDC		EDC		Total	
	Number of Responses	Ratio	Number of Responses	Ratio	Number of Responses	Ratio	Number of Responses	Ratio
Improved a lot	5	45%	3	75%	0	0%	8	47%
Improved	4	36%	0	0%	1	50%	5	29%
Improved to some extent	2	18%	1	25%	0	0%	3	18%
Same as before	0	0%	0	0%	0	0%	0	0%
Worsened	0	0%	0	0%	0	0%	0	0%
NA	0	0%	0	0%	1	50%	1	6%
Total	11	100%	4	100%	2	100%	17	100%

Source: Results of the site survey at the time of the ex-post evaluation
Note: The number does not necessarily add up due to rounding.

Responses from JFMC regarding changes in soil and moisture conservation in the forests are described in the table below. While some responded with "same as before," the total number of answers with "improved" or "improved to some extent" accounted for more than half of the responses. A number of reasons were given such as retaining of rainwater in ravines for a longer period, improvement of watershed protection, and the securing of long-term availability of water.

Table 14: JFMC Perspectives on Changes in Soil and Moisture Conservation after the Project

Unit: Number of JFMC

Scale	JFMC	
	Number of Responses	Ratio
Improved a lot	0	0%
Improved	3	27%
Improved to some extent	4	36%
Same as before	4	36%
Worsened	0	0%
NA	0	0%
Total	11	100%

Source: Results of the site survey at the time of the ex-post evaluation
Note: The number does not necessarily add up due to rounding.

(2) Biodiversity Conservation

As for biodiversity conservation, local people were asked to comment on changes in varieties of trees, birds and animals in the forest areas. As shown in the table below, the number of JFMC responding with "increased" or "increased to some extent" made up more than half. Animals include peacocks, leopards, rabbits, wild bores and sloth bears. During the site survey, local people also pointed out increases in various trees and wild animals.

Table 15: PO Perspective on Biodiversity Conservation in the Forest Areas
(Changes in Species of Trees, Birds and Animals)

Unit: Number of PO

Scale	JFMC		SFDC		EDC		Total	
	Number of Responses	Ratio	Number of Responses	Ratio	Number of Responses	Ratio	Number of Responses	Ratio
Increased a lot	0	0%	2	50%	0	0%	2	12%
Increased	3	27%	2	50%	1	50%	6	35%
Increased to some extent	6	55%	0	0%	0	0%	6	35%
Same as before	0	0%	0	0%	1	50%	1	6%
Decreased	0	0%	0	0%	0	0%	0	0%
NA	2	18%	0	0%	0	0%	2	12%
Total	11	100%	4	100%	2	100%	17	100%

Source: Results of the site survey at the time of the ex-post evaluation

With regard to biodiversity conservation, increases in the number of the key wildlife species in the national parks and sanctuaries were reported (documents provided by JICA). Furthermore, it was learned during the site visit that technical support had been received from GFD in selecting tree species. GFD staff members also explained that not as in the past, they were presently selecting tree species from the viewpoint of biodiversity conservation.

(3) Increases in Local People's Income

Perspectives on increases in local people's income revealed during the site survey are summarized in Table 16 where PO responses of "increased" or "increased to some extent" constituted the majority. At the PO visited, it was learned that since forest-related activities were secondary to agriculture-related activities, forest-related income had increased to only a limited extent.[19] However, local people considered that a significant increase in milk production could be partly explained by an improvement in the availability of fodder, although various factors had direct as well as indirect impacts on this outcome. Further comments were received such as: an increase in the underground water table that led to an increase in agricultural production; increased availability of fuelwood and fodder so that the local people did not have to purchase them any longer; an increase in income due to regular cash income

[19] At SFDC visited, it was learned that Eucalyptus they had planted was to be harvested, but that it would take a few more years before harvest was possible.

generating from daily husbandry; and an increase in income due to agriculture-related activities while the availability of grasses and fuelwoods improved. Meanwhile, during the site survey, several PO explained that their financial capacity was limited. Although many PO were assisted under the project, it was not possible to conclude that such support had resulted in the realization of self-reliant activities of PO and improvement of income through the diversification of livelihoods by SHG.

Table 16: PO Perspectives on Increases in Local People's Income

Unit: Number of PO

Scale	JFMC		SFDC		EDC		Total	
	Number of Responses	Ratio	Number of Responses	Ratio	Number of Responses	Ratio	Number of Responses	Ratio
Increased a lot	1	9%	0	0%	1	50%	2	12%
Increased	5	45%	2	50%	0	0%	7	41%
Increased to some extent	5	45%	2	50%	0	0%	7	41%
Same as before	0	0%	0	0%	0	0%	0	0%
Decreased	0	0%	0	0%	0	0%	0	0%
NA	0	0%	0	0%	1	50%	1	6%
Total	11	100%	4	100%	2	100%	17	100%

Source: Results of the site survey at the time of the ex-post evaluation
Note: The number does not necessarily add up due to rounding.

As more direct impacts, it can be also pointed out that the local people were able to earn income through work at nurseries, by serving as tourist guides and so forth (documents provided by JICA).

3.3.2 Impacts

3.3.2.1 Realization of Impacts

In order to examine the extent to which impacts were realized, the following aspects were examined: (1) improvement of the natural environment; (2) enhancement of the social and economic capacity of women; and (3) poverty alleviation (improvement of economic aspects).

(1) Improvement of the Natural Environment

At the time of the site survey, questions were raised over how local people had perceived improvement of the natural environment. As shown in Table 17, "improved" and "improved to some extent" accounts for more than half of the responses from PO. PO interviewed during the site visit pointed out improvement of tree cover, increase in the underground water level and changes in habitat for more diversified tree and wildlife species

Table 17: PO Perspectives on Improvement of the Natural Environment

Unit: Number of PO

Scale	JFMC		SFDC		EDC		Total	
	Number of Responses	Ratio	Number of Responses	Ratio	Number of Responses	Ratio	Number of Responses	Ratio
Improved a lot	0	0%	0	0%	1	50%	1	6%
Improved	4	36%	1	25%	0	0%	5	29%
Improved to some extent	3	27%	1	25%	0	0%	4	24%
Same as before	0	0%	1	25%	0	0%	1	6%
Worsened	0	0%	0	0%	0	0%	0	0%
NA	4	36%	1	25%	1	50%	6	35%
Total	11	100%	4	100%	2	100%	17	100%

Source: Results of the site survey at the time of the ex-post evaluation
Note: The number does not necessarily add up due to rounding.

Furthermore, increases in the number of the key wildlife species in the national parks and sanctuaries, increased fish caught in mangrove forest areas and so forth were reported (documents provided by JICA).

(2) Enhancement of the Social and Economic Capacity of Women

At the time of the site survey, PO were asked to comment on their perception of how far and to what extent women participated in the community activities. As shown in Table 18, "participated" and "participated to some extent" constituted more than half of the responses from PO.

Table 18: PO Perception of the Extent to which Women participated in Community Activities

Unit：Number of PO

Scale	JFMC		SFDC		EDC		Total	
	Number of Responses	Ratio	Number of Responses	Ratio	Number of Responses	Ratio	Number of Responses	Ratio
Participated more	1	9%	0	0%	1	50%	2	12%
Participated	4	36%	1	25%	0	0%	5	29%
Participated to some extent	4	36%	2	50%	0	0%	6	35%
Same as before	0	0%	1	25%	0	0%	1	6%
Participated less	0	0%	0	0%	0	0%	0	0%
NA	2	18%	0	0%	1	50%	3	18%
Total	11	100%	4	100%	2	100%	17	100%

Source: Results of the site survey at the time of the ex-post evaluation
Note: The number does not necessarily add up due to rounding.

PO visited during the site visit outlined a number of points: women had become confident because the appointment of women as board members of PO was made mandatory; women had improved their communication capacity; other family members supported women (i.e., there was the understanding of other members of women's participation in community activities); PO were formed; and women had opportunities to learn about the improvement of the social

status of women, etc., by visiting other areas and observing the activities of other PO as part of their training.

Meanwhile, one PO commented that they had not noticed large differences despite the fact that women were able to improve their social status through dealing with banks, holding meetings and implementing dairy businesses. In respect of the enhancement of women's social and economic status, it was also documented that the project had positive impacts on the thinking process of women[20] and that women had become more confident on different issues relating to forest protection and their families (documents provided by JICA).

(3) Poverty Alleviation

① Quantitative effects

On the aspect of the poverty alleviation, a comparison of the results of the baseline survey and the end-line surveys exhibits an improvement tendency as described in the table below.

Table 19: Comparison of Baseline and End-line Survey Results
(Average Below Poverty Line ratio Note)

PO	Baseline Survey (a)	End-line Survey (b)	(b)- (a)
JFMC	50%	49%	-1%
SDFC	60%	56%	-4%
EDC	56%	54%	-2%

Source: Documents provided by JICA
Note: The poverty ratio means the average below poverty line ratios in GFDP intervention villages.

② Qualitative effects

At the time of the site survey, PO were asked whether or not the project activities had helped economic improvement for people in the communities. As summarized in Table 20, "improved" or "improved to some extent" accounted for more than half of the responses. However, some PO responded with "same as before" and many PO did not respond to this question.

[20] For example, as members of SHG, women were given training for capacity building in the field of SHG management, etc., which ultimately empowered them and increased their confidence.

Table 20: PO Perception of Poverty Alleviation (Improvement of Economic Aspect)

Unit: Number of PO

Scale	JFMC		SFDC		EDC		Total	
	Number of Responses	Ratio	Number of Responses	Ratio	Number of Responses	Ratio	Number of Responses	Ratio
Improved a lot	0	0%	0	0%	0	0%	0	0%
Improved	2	18%	2	50%	0	0%	4	24%
Improved to some extent	4	36%	1	25%	0	0%	5	29%
Same as before	2	18%	1	25%	0	0%	3	18%
Worsened	0	0%	0	0%	0	0%	0	0%
NA	3	27%	0	0%	2	100%	5	29%
Total	11	100%	4	100%	2	100%	17	100%

Source: Results of the site survey at the time of the ex-post evaluation
Note: The number does not necessarily add up due to rounding.

At the PO visited, it was learned that differences due to the project from the viewpoint of effects on the improvement of poverty status and conditions were not observed to any great extent although there were employment opportunities. During the interview, SFDC explained that benefits had yet to be actualized because trees planted on community (village) land was yet to be harvested. Furthermore, another PO commented that the poverty issue had not been specifically addressed.

3.3.2.2 Other Positive and Negative Impacts

(1) Impact on the Natural Environment

In accordance with the Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations (April 2002) this project is classified into Category B because it is considered that the project has not had a significant adverse impact on the environment due to the features of the sector, the project characteristics and the locational characteristics. Based on the Notification of January 1994 by the Ministry of Environment and Forests in India, it was found not necessary to implement an Environment Impact Assessment (EIA). Accordingly, an EIA was not conducted. No negative impact was reported based on the monitoring results.

(2) Resettlement and Land Acquisition

The resettlement of local people and land acquisition did not take place.

As described above, although it is evaluated that improvement of people's income through PO self-reliant activities was yet to be realized, effects through the implementation of the project are more or less observed as planned. Therefore, the effectiveness and impacts of the project are high.

3.4 Sustainability (Rating: ②)

3.4.1 Institutional / Organizational Aspects of Operation and Maintenance

The Executing Agency is GFD. GFD established a Project Management Unit (hereinafter referred to as "PMU") headed by an Additional Principal Chief Conservator of Forests (hereinafter referred to as "APCCP") within GFD, and posted new personnel for implementation of the project. For the operation and maintenance of the project, the State Government of Gujarat scaled down and maintained PMU headed by APCCP.[21]

The operation and maintenance at field level is carried out at field offices. According to the documents provided by JICA and interviews conducted with staff members at the field offices of GFD, various activities were being carried out including plantations, forest protection, the prevention of illegal cutting and illegal entries into forest areas, regular visits to, and assistance for, JFMC. PO such as JFMC also explained that PO were engaged in forest protection in small groups, and they were managing to limit free grazing and to protect from forest fires. M & E is carried out as part of the state-wide M & E activities by GFD. However, MIS was not effectively utilized, and policy formulation and budget allocation were not carried out by making use of the information concerned.

As for PO supported under the project, GFD set up criteria and classified them into the following three categories: "(A) very active," "(B) active," "(C) not so active / inactive." As of 2017, 80% of JFMC and EDC fell into categories (A) and (B), but just slightly more than 50% of SFDC fell into the categories of (A) and (B).

Table 21: Classification of Status of PO as of 2017

PO	Very Active(A)		Active(B)		Not so Active/ Inactive (C)		Total	
	No of PO	%	No. of PO	%	No. of PO	%	No. of PO	%
JFMC	612	37.3%	768	46.9%	259	15.8%	1,639	100.0%
SFDC	84	10.2%	360	43.8%	378	46.0%	822	100.0%
EDC	79	34.3%	112	48.7%	39	17.0%	230	100.0%

Source: Documents provided by GFD

Furthermore, during the site visit/survey, the ex-post evaluation team visited SHG as well as JFMC, SDFC and EDC. However, the number of active SHG was limited. According to documents provided by JICA, the number of very successful SHG cases was limited. Problems were observed in promoting the restoration of forests through community-based plantation by

[21] At the time of the ex-post evaluation conducted in January 2020, three years had passed since the completion of the project. At that time, PMU consisted of two persons including APCCF. The number of positions in GFD was 8.451, while the actual number of personnel working at the department was 5,918, accounting about 70% of the number of positions (as of March 31, 2019). It is noted, however, that there were positions, for example for drivers, for which new hires were suspended under the policies set forth by the state government. Other than these positions, staff members are employed on a contract basis as in the practice observed under the project. If these points are taken into account, the rate of the positions filled increases.

building capacity for PO and improving living conditions of the local people in a self-sustainable manner.

3.4.2 Technical Aspects of Operation and Maintenance

During the project implementation period, various training was given to PO and GFD who were engaged in the project. Due to capacity building of PO awareness, knowledge sharing, and exposure visits, PO members were better equipped than in the period prior to project implementation (documents provided by JICA). Staff members of GFD visit PO on a regular basis to support them in terms of activities such as forest protection, record keeping and the maintenance of records, and the convening of meetings. Training for capacity buildings was extended not only to PO and GFD staff members but also to resource organizations such as livelihood enhancement teams. However, GFD pointed out that the number of NGO that could support SHG in developing high value-added produce was limited.

At the preparation phase of the project, 19 standard management manuals / guidelines / handbooks were prepared, which laid the basis of project implementation. They had been effectively utilized after completion of the project. Some of these manuals were also delivered to the villages visited during the site visit, but according to GFD staff, PO members needed to be guided by GFD staff for their utilization because they had difficulties in reading and understanding such manuals.

3.4.3 Financial Aspects of Operation and Maintenance

The following table shows the yearly change of the budgets and expenditure of GFD. It is noted that GFD maintained an annual increase of 7% in terms of the expenditure. The estimated budgets relating to JICA project showed a declining tendency.

Table 22: Budgets and Expenditures of GFD

Unit: 10 million Rupee

Item/Fiscal Year	2016/17	2017/18	2018/19
Budget Estimate	1,268.3	1,195.2	1,260.3
Revised Budget	1,099.0	1,174.0	1,257.9
Expenditure	1,069.7	1,152.0	1,237.4
Budget Estimate relating to JICA project [Note]	45.2	15.3	11.8

Source: Documents provided by GFD

Note: Although it is not necessarily clear from documents provided by GFD, it is considered that the amount indicates that budget estimates were allocated specifically for the operation and maintenance of the project.

The State of Gujarat launched the “Participatory Forest Management Scheme under Gujarat Forest Development Programme” in the fiscal year 2016/17, appropriating 90 million Rupee. According to GFD, this scheme was intended to fill the vacuum of the period of no external assistance that PO would face after completion of the project until such time that PO could take

off. In the current budget, about 100 million Rupee was allocated to extend 2.5 million Rupee/PO to selected JFMC and EDC. [22] The number of PO that had been supported in and after the fiscal year 2016/2017 is shown in the table below. These PO are not necessarily confined to the PO which were assisted under the project. Although a limited number of PO was supported under the scheme, this is considered an important initiative taken by the state government to ensure sustainability.

Table 23: The Number of PO supported by the State Government of Gujarat

Unit: Number of PO

PO	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
JFMC	31	31	34	39
EDC	5	4	5	5
Others	0	0	1	0
Total	36	35	40	44

Source: Documents provided by GFD

3.4.4 Status of Operation and Maintenance

As described above, the operation and maintenance of plantation areas and structures for soil and moisture conservation continued, mainly carried out by the field offices of GFD and PO. Soil and moisture conservation structures for drainage line treatment are constructed before the preparation period prior to plantation activities. Various types of structures exist such as check dams and contour line. No specific problems have been observed in the operation and maintenance.[23]

As described above, some minor problems were observed in terms of the institutional / organizational aspect concerning information management making use of MIS, and sustainable activities of PO and SHG. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The objective of the project was to regenerate forests and raise the living standards of local people by conducting community-based afforestation and activities to improve livelihoods in the state of Gujarat in western India, thereby contributing to improvement of the local environment and to poverty reduction. At the time of the appraisal as well as at the time of the ex-post

[22] The breakdown of the support in the amount of 2.5 million Rupee is as follows: 1.5 million Rupee for soil and moisture conservation activities (drainage line treatment) through GFD, 0.5 million Rupee for IGA, and 0.5 million Rupee for training support (local people, who are familiar with the local practice and languages, are employed as trainers through GFD/NGO).

[23] The impact assessment study conducted in 2015 evaluated the soil and moisture conservation structure in terms of "conditions" and "effects" on a one to five scale based on a relatively wide range of the sample surveys for the structure. According to the assessment study, structures were evaluated as "Good (3 out of 5)" or as "Very Good (4 out of 5)." (BASIX Consulting And Technology Services, et al. "*Impact Assessment Study of JICA Assisted Forestry Project in the State of Gujarat State Report 2016.*")

evaluation, the policy of the Indian government set forth rehabilitation and reforestation of forests, sustainable forest management and improvement of living standards of local people through participation in forest management. This project was also consistent with the aid policies of Japan. Therefore, its relevance is high. While the project cost was lower than planned, the project period was as planned. The project largely achieved its outputs as originally planned (the plantation areas were increased). Therefore, the efficiency of the project is high. Regarding the effectiveness and impacts, effects were confirmed on such aspects as the restoration of forests, soil and moisture conservation and the improvement of forest biodiversity conservation, which contributed to a betterment of the natural environment. On the other hand, limited effects were observed on increases in the income of local people. However, the income from forestry produce is considered to be supplementary to agricultural income. As it has been evaluated that the effects of employment generation and improvement of incomes through the self-reliant activities of the PO are yet to realize, contributions to poverty reduction through these activities are limited. However, improvement in the ability of women in the social and economic fields have been observed. Thus, the effectiveness and impacts of the project are high. The operation and maintenance after completion of the project has been carried out as part of their regular works by GFD. In terms of the operation and maintenance system of GFD, its technical and financial aspects as well as the status of the operation and maintenance conditions, no serious issue adversely affecting the project effects has been found. However, continual improvement in information management by making use of management information systems needs to be done. Among the PO supported under the project, some were found to be less active after the project completion. Furthermore, there are cases where the IGA of SHG which had been assisted by the livelihood enhancement activities were suspended. Therefore, sustainability of the project effects is fair.

In light of the above, this project is evaluated to be highly satisfactory.

4.1 Recommendations

4.1.1 Recommendations to the Executing Agency

MIS was introduced late in the project period without sufficient budget being allocated and staff being sufficiently trained. Linkages of data and information from the ground level to offices at various levels of GFD were not established. Therefore, it is not possible to capture current conditions of the project by the use of the MIS. GFD has been preparing to implement a new ODA loan project titled “Project for Ecosystem Restoration in Gujarat” (the loan agreement was signed in March 2020), under which MIS is also expected to be utilized. It is recommended that GFD make effective use of the MIS developed under the soon-to-be- implemented “Project for Ecosystem Restoration in Gujarat”.

4.1.2 Recommendations to JICA

None

4.2 Lessons Learned

GFD and Livelihood Enhancement Activities

Although many SHG were formed during the project period, it was found that only a limited number of SHG actively ran their operations after the project completion. During the project period, livelihood enhancement activities were extended through NGO and others, which were selected and employed by GFD. As the project area stretches over an extensive area, many NGO were mobilized to support PO. However, the capacity of NGO varied and the assistance to increase added values through support for the product development was not sufficient. On the other hand, support for livelihood enhancement was beyond the jurisdiction of GFD. GFD staff were engaged in support for livelihood enhancement even though the number of staff members at GFD did not meet the number of positions. As GFD staff were not adequately equipped with the technical know-how to support IGA of SHG, their involvement in the IGA posed a certain level of constraints to GFD staff involved in forest development activities. Therefore, at the time of project formulation, JICA and the executing agency should review the appropriateness of assigning tasks, especially when such tasks as livelihood enhancement activities are different from the specialized tasks originally assigned to the executing agency. Although the implementing structure may become complicated, the appropriateness of implementing such tasks in collaboration with other agencies (for instance, the agency responsible for rural development) should be examined. In such cases, it will be important to set up a functional steering committee at the state and/or district level to coordinate activities among departments at different agencies.

Quality Assurance of Forest Development under Joint Forest Management and Promotion of Local People's Participation in Forest Development Activities

Forest development with the participation of local people has been implemented under JFM, aiming at the recovery of the forests and improvement of the living conditions of the poor through collaborations between GFD and local people by carrying out plantations and forest management. However, the quality assurance of forest development and the promotion of the participation of local people do not necessarily conform. If local people find that benefits from forest development activities are relatively lower than expected, then the effectiveness of forest development through the participation of local people will be limited. For instance, during busy farming seasons, the priority of forest activities is less than that of agricultural activities which affects the participation of local people in plantation activities. Based on the experiences gained from the project, GFD plans to ensure the quality of the forest development under the Project for Ecosystem Restoration in Gujarat by increasing the engagement and control of GFD during the

initial stage of plantations (i.e., planting activities). At the time of project formulation, JICA and the executing agency should clarify the extent and timing of the involvement of the executing agency and local people, respectively, in order to achieve the objective of the project through JFM.

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs (Major Outputs)	(1) Plantations Total Area: 146,620ha (2) Wildlife Conservation and Development Protected area management, conservation and development of biodiversity hotspots, etc. (3) Community / Tribal Development The number of PO to be assisted: 1,100 JFMC 800 SFDC 210 EDC (4) Supporting Activities Preparatory works, phase-out activities, etc. (5) Consulting Services International Consultants: 85 man-months Local Consultants: 417 man-months[Note1] Supporting Staff: 292 man-months	(1) Plantation Total Area: 172,432ha (2) Wildlife Conservation and Development Protected area management, conservation and development of biodiversity hotspots, etc. (3) Community / Tribal Development The number of PO to be assisted: 1,639 JFMC 822 SFDC 230 EDC (4) Supporting Activities Preparatory works, phase-out activities, etc. (5) Consulting Services International Consultants: 75.5 man-months Local Consultants: 78.9 man-months Site Managers: 436.4 man-months Supporting Staff: 356.2 man-months
2. Project Period	March 2007 – March 2015 (97 months)	March 2007 – March 2017 (121 months)
3. Project Cost Among Paid in Foreign Currency	1,108 million yen	791 million yen
Amount Paid in Local Currency	19,815 million yen	15,494 million yen
Total	20,923 million yen	16,285 million yen
ODA Loan Portion	17,521 million yen	14,931 million yen
Exchange Rate	1 Rupee = 2.52 yen (As of September 2006)	1 Rupee = 1.81 yen (Weighted average between 2007 and 2016)
4. Final Disbursement	July 2017	

Note 1 : According to the plan at the time of the appraisal, the number of man-months for Site Management Experts was 330 man-months out of 417 man-months allocated to the local consultants. It was considered that the planned number of man-months for the Site Management Experts correspond to the actual number of man-months for the Site Managers.