India

FY2016 Ex-Post Evaluation of Japanese ODA Loan Project

"Integrated Natural Resource Management and Poverty Reduction Project in Haryana"

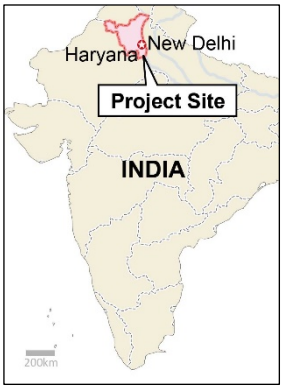
External Evaluator: Junko FUJIWARA, OPMAC Corporation

0. Summary

The objectives of the project were to restore forests and improve the living standards of residents in Haryana State, northern India, by afforestation, soil and water conservation, poverty reduction, technical assistance and supporting activities, thereby contributing to forest conservation and the promotion of sustainable forest management in the state. Implementation of the project was highly relevant to India's development plan and development needs, as well as to Japan's ODA policy at the time of appraisal. Through implementation of the project, afforestation area, the survival rates of planted trees and the number of Village Forest Committee (VFC) that were formed have all accomplished their targets. The annual household income of the beneficiaries generally improved, and in particular an improvement in living standards was qualitatively confirmed among the residents targeted by the project (although the quantitative confirmation of the extent of that improvement was not possible as the executing agency did not collect data during the project period). Quantitative data endorsing project effectiveness regarding the groundwater table in the targeted districts for the construction of water harvesting structures was not available to a sufficient extent so as to confirm the effectiveness in an objective manner. Meanwhile, the project had a certain effect on the improvement of forest and tree cover and the prevention of forest destruction in Haryana State and a contribution to forest conservation and the promotion of sustainable management in Haryana State was confirmed. It was too early to evaluate the benefit from forest products at the time of the ex-post evaluation. Therefore, the effectiveness and impact of the project are fair. On the other hand, both project cost and project period were within the plan, so the efficiency is high. No major concerns were found in the institutional, technical, financial aspects of operation and maintenance (O & M) or current status, and therefore the sustainability of the project effects is high.

Considering the above, this project is evaluated to be highly satisfactory.

1. Project Description



Project Location

Afforestation area (Left: Strip forest, Right: Community forest; Both in Yamunanagar District)

1.1 Background

Haryana State, the target area of the project, is in northern India and is the 9th smallest state among all 29 states of the country[1], and approximately 80% of the total state area consists one of the most prominent granaries in India. A population increase in the Delhi metropolitan area, the industrial area in the southern part of the state, represented by Gurgaon and other districts, has seen a rapid urbanization, which has seriously affected its preservation and expansion of the forests in the state. Further, the demands of lumber for housing land development, daily fuelwood and non-timber forest products had been continuous and increasing.

At the time of project planning (2002), the forest and tree cover in Haryana State[2] was 6.63% out of the total state area, which was lower than other part of the country[3]. There was also conspicuous deterioration in the quality of the forest. Meanwhile, although the poverty rate in the state was lower than the national average (8.7%[4]), there were a great number of socially vulnerable people, such as the illiterate (who comprised of 32.1%), and the population with stably employment remained at just 29.5% out of the total[5]. Under these circumstances, it was confirmed

[1] 7 Union Territories are excluded. The total area of Haryana State is 44,212km$^{2.}$

[2] Official definitions of "forest", "forest cover" and "tree cover" in India are as follows: "Forest": official forest defined in the Indian Forest Act 1927 such as "protected forest" and "reserved forest." "Forest cover": all types of lands which have a tree canopy density of 10% and above, and minimum mapping unit of one ha. All areas bearing tree species including orchards, bamboo, palms, etc. irrespective of their ownership, land use and legal status. "Tree cover": defined as small tree patches and isolated trees outside the recorded forest area between 0.1 ha to one ha in extent (in the case of Haryana State, these trees are mainly found on private land, on community land and trees planted in agricultural areas (including fruit trees). "Forest and tree cover", a combination of "forest cover" and "tree cover", is used as an index to measure the forest conservation status of each state of India.

[3] The assessment of forest cover through the interpretation of satellite data started in the 1990s. As remote sensing data had higher resolution, the contribution of tree cover started to be estimated in 2002 the results of which were reported in the "India State of Forest Report" (Forest Survey of India) issued in FY2003.

[4] As of 1999 to 2000. This poverty rate is the standard applied by the Government of India. It is calculated with the cost to maintain the minimum level of life, mainly consisting of food consumption for a necessary amount of energy (2,400 kcal in agricultural areas, 2,100 kcal in urban areas).

[5] The Population Census in 2001 (http://www.censusindia.gov.in/2011-common/census_data_2001.html (accessed in June 2017))

that it was necessary to provide job opportunities for the prevention of forest destruction due to destitution, to assist local livelihoods through forest conservation activities, and to promote the understandings of locals on forest conservation. It was expected, through project implementation, to increase forest and tree cover, improve the forest quality, and improve the quality of life at village level.

1.2 Project Outline

The objectives of this project were to restore forests and improve the standards of living of residents in Haryana State, by afforestation, soil and water conservation, poverty reduction activities, technical assistance and supporting activities, thereby contributing to forest conservation and the promotion of sustainable forest management in Haryana[6].

Loan Approved Amount / Disbursed Amount	6,280 million yen / 5,961 million yen	
Exchange of Notes Date / Loan Agreement Signing Date	March 2004 / March 2004	
Terms and Conditions	Interest Rate	0.75%
	Repayment Period (Grace Period)	40 years (10 years)
	Conditions for Procurement	General untied
Borrower / Executing Agency	The President of India / Forest Department, the State Government of Haryana	
Project Completion	March 2011	
Main Contractor (Over 1 billion yen)	None	
Main Consultant (Over 100 million yen)	None	
Feasibility Studies, etc.	None	
Related Projects	[The European Union] • "Aravalli Project" (1990 to 1999) • "Haryana Community Forest Project (HCFP)" (1998 to 2008)	

[6] The project objective at the time of appraisal was "to rehabilitate forest in an ecologically sustainable manner and improve the quality of life of the villagers adjoining forests, thereby contributing to long-term natural and social development in the region". However the project objective and contribution were revised in consideration of the planned project activities, for the following reasons, 1) what is indicated by "ecologically sustainable manner" was ambiguous, 2) what was enhanced and promoted in the project for both forest restoration and the living improvement of residents was the participatory afforestation mechanism: "Joint Forest Management" (hereinafter referred to as JFM), 3) the forests targeted by the project were not always in the vicinity of residential areas and "villages adjoining the forest" was too vague to specify the range of 'adjoining' areas, 4) the extent of the project's contribution to "long-term natural and social development in the region" was not measurable.

2. Outline of the Evaluation Study

2.1 External Evaluator

Junko FUJIWARA, OPMAC Corporation

2.2 Duration of Evaluation Study

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

Duration of the Study: September 2016 - September 2017

Duration of the Field Study: November 27 - December 23, 2016, and April 17 - April 25, 2017.

2.3 Constraints during the Evaluation Study

2.3.1 Constraints during the Evaluation Study

To work out the extent to which the project effects were accomplished, a set of beneficiary surveys (residents questionnaire survey and focus group discussion)[7] was conducted in ten villages in the Yamunanagar and Karnal Districts.

Although intervention through afforestation was planned in 800 villages in 17 districts under the project, the beneficiary survey target area was narrowed down due to the limited resources for the ex-post evaluation study (human resources, budget and time). To secure a certain number of samples under specific conditions, non-random sampling was selected. Thus, the beneficiary survey results do not show the approximate resident characteristics of the population of the 17 districts affected by afforestation works.

3. Results of the Evaluation (Overall Rating: A[8])

3.1 Relevance (Rating: ③[9])

3.1.1 Consistency with the Development Plan of India

The objectives of the national development plan of India, *the 10th Five Year Plan 2002 - 2007* at the time of the project appraisal (2002) were to increase forest and tree cover from 23.68% (77.83 million ha) as of 2002, to 25% by 2007, and to 33% by 2012. Nation-wide

[7] Duration of the beneficiary survey was December 14 to December 30, 2016. After discussion with HFD, the executing agency of the project, the Yamunanagar and Karnal Districts were selected from the northern area and the central area respectively as the survey target areas, considering differences in topographic conditions, climate, project components and plantation areas among each region. Pre-conditions in village selection were: a) that VFC were formed, b) that self-help groups (hereinafter referred to as SHG) were organized, c) that poverty reduction activities were implemented. In addition, the Evaluator asked HFD to select villages with an assumption of d) five villages per district (with the breakdown by afforestation type of 1 strip plantation, 1 block plantation, 2 community plantation and 1 farm forestry), and e) in-between distance among villages by car to be within a few hours (due to the time constraints in the survey schedule). However, securing sample villages for farm forestry was not possible because fast-growing trees were planted and most of them had already been felled, and the number of available villages where strip plantation was implemented was relatively less than that of block forest villages. 10 villages were ultimately selected in total by choosing 1 village with strip forest, 2 villages with block forest and another 2 villages with community forest in both districts.

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

[9] ③: High, ②: Fair, ①: Low

plantation was to increase to as much as 7.5 million ha and open forest was to be restored[10]. In addition, it was confirmed as important in this plan that Joint Forest Management (hereinafter referred to as JFM)[11] should be further promoted and enhanced, and that local participation be increased.

In *the National Forest Policy* revised in 1988, "to turn one third of national land into forest", which had been the basic goal of its first edition (1952), was kept as the target, while maintenance of the natural environment through ecosystem conservation, the sufficiency of residents' basic needs and maintenance of the traditional relation between forest and residents were also added as goals. In addition, the restriction of diverting forests to other purposes such as dams, reservoirs, mines, industrial or agricultural areas became more strictly regulated.

In *the 12th Five Year Plan 2012 - 2017* at the time of the ex-post evaluation (2016), the main policies for the forest sector were to continue efforts to increase forest and tree cover, to improve the quality of existing forest, to conduct comprehensive measures against climate change and so on. The targets in the period of the 12th Plan included the further promotion of JFM, productivity improvement of forest resources, forest resource restoration in areas devastated by grazing, the development of nurseries to grow a variety of forest resources and so on. The draft of re-revised version of *the National Forest Policy* was under preparation and discussion at the time of ex-post evaluation, but it was assumed that there would be no major modifications. Based on the above *National Forest Policy*, *the Haryana State Forest Policy* was established in Haryana State in 2006 with the target of achieving a forest and tree cover of 10% by 2010 and later raising this to 20% step by step[12].

3.1.2 Consistency with the Development Needs of India

At the time of appraisal (2002) in Haryana State, a little more than 80% of state land was used for agriculture, and forest and tree cover was 6.63%, which was extremely low compared to the national average (23.03%). Deterioration of forest quality was also a serious concern, as seen in the fact that 65% of forest and tree areas were open forest. Besides, an increase in the utilization of forest resources due to rapid growths in population and livestock, a decrease in forest area as it was diverted to agriculture, and an increase in demand for lumber due to

[10] Forest cover in India is classified into three categories: "very dense forest" (all land with a tree canopy density of 70% and above), "moderately dense forest" (all land with a tree canopy density of 40% and more but less than 70%) and "open forest" (all land with a tree canopy density of 10% and more but less than 40%). "Scrub," degraded forest lands with canopy density of less than 10% is not included in forest cover.

[11] Joint Forest Management: a participatory mechanism introduced by the Government of India in the 1990s aiming at the achievement of forest restoration and the improvement of the livelihoods of the poor by encouraging the participation of neighboring people in forestry projects, considering that forest conservation and the living standards of peripheral residents are highly related. Under JFM, residents organize VFC and plan afforestation activities and forest management plans in their targeted area. HFD and NGO provide them advice from technical and social points of view, so that they can formulate "micro plans" together. Based on the plans, HFD provides seedlings to VFC, and jointly conducts plantation and preservation work.

[12] According to HFD, at the time of the ex-post evaluation (2016) forest and tree cover had not achieved the target of 10%, and they reset the target year for the achievement of 10% as 2020.

industrialization and urbanization were prominent. It was therefore an urgent task to restore forests and improve their quality while increasing forest and tree cover.

The poverty rate of Haryana State at the time of appraisal was 8.7%, which was lower than the national average (26.1%). The illiterate accounted for 32.1% of the total state population while the stably employed was 29.5%. Among the scheduled castes (19.3% of the total state population) the illiterate accounted for 44.6%, which was higher than the average of the state population, and the stably employed remained at 25.4%, which was lower than the state average. Bearing in mind the fact that the state has a great number of socially vulnerable people, it was found necessary to provide poverty reduction activities as job opportunities and skills training for the improvement of living standards and through this to prevent deforestation which resulted from people's destitution.

At the time of the ex-post evaluation, Haryana State was still exposed to further development pressure from population growth[13] and urbanization. The executing agency of the project, the Haryana State Forest Department (hereinafter referred to as HFD) promotes activities to maintain and improve forest and tree cover, and to increase tree cover with local participation and for biodiversity conservation. However, forest and tree cover in the state in FY2015 remained at 6.65% as forest areas and other areas available for plantation were limited[14]. HFD is trying to keep the volume of existing forest cover and improve their quality by maintaining afforestation works based on annual action plans. Moreover, they are making efforts to secure tree cover in a long-term and sustainable manner through plantation work on private land or community land[15].

The poverty rate of Haryana State in 2011 was 11.2%[16]. Although this was lower than the national average of 21.9%, there was still a significant amount of people living in poverty. Among the total state population, the illiterate account for 34.5% and stably employed population is 27.7%. However, among the scheduled castes, which are 20% of the total state population, the illiteracy rate is 43.1% and the stably employed population is 24.4%. This implies a tougher situation than is experienced by the rest of the state population[17]. Therefore, at the time of the ex-post evaluation, there was continuing recognition of the necessity for poverty reduction and the promotion of living improvements through providing job opportunities and skills training for the poor.

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[13] The Haryana State population as confirmed in the Population Censuses of 1991, 2001 and 2011, has shown a continuous increase for 20 years. It was 16,463,648, 21,144,56 and 25,351,462 respectively.

[14] Figures are based on the Forest Status Report of India for FY2015. "Forest cover" and "tree cover" were 3.58% (1,584 km^2) and 3.06% (1,355 km^2) respectively. The forest and tree cover remained as 6.65% due to "development activities in areas other than forest areas", "tree felling", "periodic thinning and clear felling" and so on.

[15] Planted trees on private or community lands are mainly orchards with harvests or trees with a high cash value expected.

[16] Figures are from the "Handbook of Statistics on the Indian Economy 2016", the Reserve Bank of India (Sep 2016). The definition and calculation method of the poverty rate are the same as those in 1999 to 2000.

[17] The Population Census in 2011. http://www.censusindia.gov.in/2011-Common/CensusData2011.html (accessed in June 2017)

3.1.3 Consistency with Japan's ODA Policy

The Government of Japan set "measures for poverty reduction" and "environmental conservation" as priority areas for its economic cooperation policy dialogue mission in March 2002, and expressed support for India through Japanese ODA loan assistance. In *the JICA Medium-Term Strategy for Overseas Economic Cooperation Operations (2002 to 2005)*[18], "regional development beneficial to the poor" and "environmental improvement for the environment and sanitation" were given as priority areas in economic cooperation with India. Within this the forest sector was positioned as an important sector for improving the environment and assisting people in poverty. Furthermore, in *the JICA Country Assistance Strategy for India (2003),* "poverty reduction" and "environmental conservation" were given as priority sectors for assistance, and commitment made to "consider assistance in the forest sector as increase in forest and tree cover contributes to ensuring water resources and to the betterment of the lives of the poor who depend on the forest".

Consequently, the project, that has the objectives of forest restoration, soil conservation and improvement of the living standards of the poor, is relevant to the assistance policy of Japan.

In summary, this project has been highly relevant to the country's development plan 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

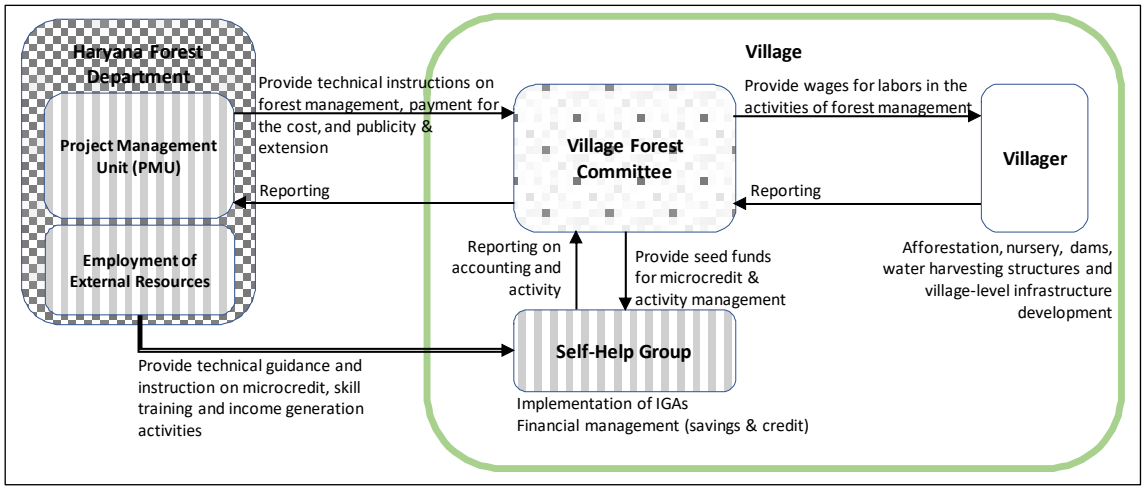
There was no major modification in the project outputs and implementation was mostly as planned. The actual project outputs against the plan are shown in the "Comparison of the Original and Actual Scope of the Project" at the end of this report. Under the project, the following activities were implemented: participatory afforestation works (including nursery modernization and the construction of dams and water harvesting structures in some districts), poverty reduction activities (village-level infrastructure development, microcredit, skills training and income generation activities), supporting activities (publicity and extension activities, school plantations and environmental campaigns and training) and technical assistance (facilitation, trainings, etc. mainly for assistance to implement poverty reduction activities)[19].

The project activities centering on plantation works were implemented in the framework of the existing organizational structure of HFD. Village-level activities and JFM required as a

[18] Established and published in December 1999 for the first time. This policy is the second term and the period covered is from April 2002 to March 2005.

[19] When the project was implemented, there were 19 districts in Haryana State. Later some districts were divided, making 22 districts in total in 2017. Participatory afforestation works were implemented in 17 districts at that time (18 districts in total in 2017), school plantations and environmental campaigns were implemented in the remaining two districts (four districts in total in 2017).

pre-condition the participation of the VFC formed in each target village and villagers and here activities to enhance forest management capability at village level were conducted. For poverty reduction activities, "self-help groups" (hereinafter SHG) comprised mostly of females in poverty were formed in each target village with 10 to 15 members. With the condition that they would work on savings activities to a certain extent, they took small-scale loans from HFD through VFC, using these to engage in income generation activities.



Source: Developed by the Evaluator based on project relevant documents and the results of interviews with the executing agency.
Note: The Empowered Committee, Steering Committee and District Coordination Committee are excluded from the figure.

Figure 1: Project Implementation Mechanism (Diagram)

No consultant was employed to supervise the whole project, however as external resources, local consultants and NGOs were employed to support and guide the poverty reduction activities at village level. HFD organized three supervision committees (the "Empowered Committee" (state level), the "Steering Committee" (coordination committee between government agencies) and the "District Coordination Committee" (district level))[20] in addition to the Project Management Unit. Contact and coordination works were implemented in detail with other state government departments and discussion took place on technical collaboration and cooperation measures as well as project progress management.

[20] The Empowered Committee, chaired by the Chief Secretary of Haryana State, was the highest decision-making authority of the project. It met more than once a year. The Steering Committee, chaired by the Secretary of Forests, approved annual operation plans, contacted and coordinated with other state government departments and monitored the progress of the project. The District Coordination Committee, chaired by the "Deputy Commissioner" of each district (equivalent to "prefectural governor" in Japan), was held for practical discussion about coordination with other state government departments.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The actual cost of the project was 6,961 million yen against the planned cost of 7,618 million yen, which was within the plan (91.4% of the budget) (Table 1). Out of the actual expenditure of each budget item, poverty reduction, supporting activities and administration cost are lower than the plan. At the time of appraisal, they applied common unit costs for the poverty reduction cost including those for afforestation works and other activities among 800 villages in 17 districts, and for supporting activities that include cost for school plantation and environmental campaign activities at 400 schools in two districts. The gaps between the planned budget and actual expenditure occurred consequently due to the fact that activity contents were different village by village, organization by organization, and school by school. Likewise, administration cost was estimated using common unit costs, which made the actual expenditure lower than the plan. They occurred as a result of implementing the project activities based on each local context, which was judged unavoidable.

The budget items in which actual expenditures exceeded the plan are the cost for plantation, soil and water conservation, and technical assistance. The excess of plantation cost and soil and water conservation cost (around 10%) were mainly caused by depreciation of the Japanese yen during the project implementation period. Meanwhile, as more staff were employed than planned in order to implement poverty reduction activities smoothly, the actual cost for technical assistance was twice that of the budget. However, the excessed cost was covered by the budget for price escalation and physical contingency, and the total amount of the project cost did not exceed the plan.

Table 1: Plan and Actual of Project Cost

Unit: million JPY

Item	Plan						Actual					
	Foreign Currency		Local Currency		Total		Foreign Currency		Local Currency		Total	
	Total	ODA loan	Total	ODA loan	Total	ODA loan	Total	ODA loan	Total	ODA loan	Total	ODA loan
Plantation and Soil and Water Conservation	0	0	4,158	4,158	4,158	4,158	0	0	4,566	4,566	4,566	4,566
Poverty Reduction	0	0	753	753	753	753	0	0	714	714	714	714
Technical Assistance	0	0	29	29	29	29	0	0	61	61	61	61
Supporting Activities	0	0	428	428	428	428	0	0	372	372	372	372
Price Escalation	0	0	413	413	413	413	0	0	39	32	39	32
Physical Contingency	0	0	288	288	288	288	0	0	2	0	2	0
Administrative Cost	0	0	1,340	0	1,340	0	0	0	991	0	991	0
Interest During Construction	211	211	0	0	211	211	211	211	0	0	211	211
Service Charge	-	-	-	-	-	-	6	6	0	0	6	6
Total	211	211	7,409	6,069	7,618	6,280	217	217	6,744	5,744	6,961	5,961

Source: Documents provided by JICA, and project completion report

Note 1: The exchange rate of the planned project cost was 1 rupee = 2.59 yen (August 2003). Physical contingency was estimated as 5% of total project cost, and price escalation was as 1.4% per annum for foreign currency and 2.2% per annum for local currency.

Note 2: The average exchange rate of the actual project cost was 1 rupee = 2.19 yen (average from 2004 to 2011).

Note 3: Price escalation and physical contingency are usually posted only in the plan of the project budget and not at the actual cost. But in the case of this project some wages were paid retrospectively in the following year or later to balance the difference due to inflation in the middle of a fiscal year or an unpaid portion of the annual unit price revision. This expenditure was counted as price escalation and physical contingency in the executing agency's expenditure report.

Note 4: Fractions of the total planned cost (7,618), local currency (6,744 and 5,744) and the total actual cost (6,941 and 5,961) do not match the sum of each item due to rounding.

3.2.2.2 Project Period

The actual project period was 85 months against the planned project period of 85 months (March 2004 to March 2011)[21] (100% of the plan).

3.2.3 Results of Calculations for Internal Rates of Return

The Financial Internal Rate of Return (FIRR) was not calculated while the Economic Internal Rate of Return (EIRR) was 26.9% at the time of the project appraisal. The calculation basis for the EIRR is shown in Table 2.

This ex-post evaluation does not re-calculate the FIRR because it was not calculated at the time of appraisal. The re-calculation of the EIRR was not possible because the details of the project benefits could not be confirmed and therefore the information required for re-calculation was not available.

[21] The project start was defined as the signing of the Loan Agreement. Meanwhile, the project completion was defined as "completion of all the project components".

Table 2: Calculation Basis of EIRR

Item	Contents
Cost	Initial investment, maintenance cost
Benefit	Sales of forest products, improvement in soil and water sources, CO_2 reduction effect
Project Life	67 years after project completion

Source: Information provided by JICA.
Note: The way of counting taxes is unknown as evidence for EIRR calculation at the time of appraisal is not available.

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

3.3 Effectiveness[22] (Rating: ②)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

(1) Afforestation Area

The size of the afforestation area under the project is shown in Table 3. Each actual figure for strip forest plantations, block forest plantations, community forest plantations and farm forestry at the time of project completion (2011) reached, or mostly reached, the target figures, and the actual figure for the total afforestation area reached the target. Tree species were confirmed to have been appropriately selected considering the growth of existing trees and newly planted tree species, forest conditions and the fluctuation of climatic conditions[23]. No alien species were afforested.

Table 3: Afforestation Area (Operation Indicators)

Unit: ha

Indicator	Baseline	Target	Actual
	2003	2011	2011
	Appraisal Year	Completion Year	Completion Year
Conservation Afforestation	-	20,000	22,019.3
Public Forest Afforestation	-	11,000	11,018.0
Community Forest Afforestation	-	4,000	3,916.0
Farm Forestry	-	13,800	13,861.3
Total of Afforestation Area	-	48,800	50,814.6

Source: Documents provided by JICA, project completion report, answers to questionnaire surveys with the executing agency
Note: Baseline was unset at the time of the appraisal

(2) Survival Rate of the Afforested Trees

The target for the survival rate of afforested trees was to be measured on the "5th year from afforestation" at the appraisal. Following this process, the "5th year from afforestation" for all

[22] Sub-rating for Effectiveness is to be put with consideration of Impact.
[23] The selection of tree species and afforestation focusing on long-term ecosystem preservation were implemented mainly at protected forests such as block forests. As for community forests and farm forestry, fast-growing trees were mostly selected reflecting and prioritizing the intention of residents and farmers.

the afforested trees differed in a range of 5 years from 2009 to 2013, as afforestation activities were implemented from 2004 to 2008.

The average survival rates in the above period exceeded the target of 70% except that of 2013 (69%), with which it is judged that it practically achieved the target (Table 4).

Table 4: Survival Rate of Afforested Trees (Operation Indicators)

unit: %

Indicator	Baseline	Target	Actual (Average)				
	2003	-	FY2009	FY2010	FY2011	FY2012	FY2013
	Appraisal Year	5th Year From Afforestation	5th Year From Afforestation	6th Year From Afforestation	7th Year From Afforestation (Completion Year)	8th Year From Afforestation	9th Year From Afforestation
Survival Rate of Afforested Trees	-	70	78	76	73	71	69

Source: HFD

Note: Afforestation was implemented in 17 districts for strip forests, 13 for block forests, 17 for community forests and 13 for farm forestry. However, the survival rate information was available only for 11 districts for strip forests, 9 for block forests, 11 for community forests and 2 for farm forestry between 2009 and 2013. The average figure of each fiscal year in the table shows the average of the survival rate of afforested trees in these districts.

The factors affecting the survival rate of the afforested trees were confirmed by HFD as soil condition, precipitation, frosting in winter, extreme coldness, drought, damage by livestock, mountain burning, wildfires and so on. The areas of strip forest decreased due to by public works operations such as the felling of trees along roads due to road widening. However, these were recovered by alternate afforestation, so the loss of forest area was offset.

(3) Number of VFC

200 VFC were formed every year, and 800 were formed during the project period. Among these, 780 were officially approved by HFD after examination of the required qualifications, and thus the number of organizations had practically achieved the target at the time of project completion (achievement rate of 97.5%) (Table 5). The number of organizations at the time of the ex-post evaluation was not available.

Table 5: Number of VFC (Operation Indicator)

unit: organization

Indicator	Baseline	Target	Actual	
	2003	2011	FY2011	FY2016
	Appraisal Year	Completion Year	Completion Year	5 Years After Completion
Activity of VFC (No of Organization)	-	800	780	N.A.

Source: Documents provided by JICA, Project Completion Report, and answers to the questionnaire surveys with the executing agency.

(4) Annual Household Income of the Target Villages

To measure annual household income, it was planned that three villages per region would be set as samples (a total of twelve villages in four regions). However, the executing agency did not collect this information and so actual information remained unavailable.

Table 6: Annual Household Income of the Target Villages (Effect Indicators)

Indicator	Baseline	Target	Actual	
	2004	2008	FY2008	FY2016
	Appraisal Year	5th Year of the Project	5th Year of the Project	5 Years After Completion
Annual Household Income of the Target Villages	Measure in the 1st year of the Project	Income increase of more than 10% on average	N.A.	N.A.

Source: Documents provided by JICA

Data on 150 people who participated in the project implementation were extracted among residents questionnaire surveys[24] that reached 240 residents in the target villages to substitute information on annual household income (Table 7). Most had positive answers about their household income except those without an income. More than 70% had improved agricultural income, and a little less than 90% had improved non-agricultural income. Over 90% had improved household income overall.

[24] Outline of the residents questionnaire survey is as follows.
1) Survey target villages: 10 villages of 2 districts (see the footnote 7 for the background of district and village selection).
2) Features of survey target households:
<Number of target household> 240 households (122 households of 5 villages in Yamunanagar District, 118 households of 5 villages in Karnal District). <Breakdown by religion> Hindu: 211 households (87.9%), Muslim: 27 households (11.3%), Sikh: 2 households (0.01%) <Breakdown by caste> Scheduled Castes: 90 households (37.5%), Other Backward Classes: 104 households (43.3%), General: 45 households (18.8%)
3) Features of survey target people
<Gender> male: 154 (64.2%), female: 86 (35.8%), <Age Group> age of 18 to 30: 34 (14.2%), age of 31 to 40: 82 (34.2%), age of 41 to 50: 68 (28.3%), age of 51 to 60: 39 (16.3%), age of over 60: 17 (7.1%) <Education Level> high school: 68 (28.3%), secondary school: 59 (24.6%), uneducated/illiterate: 50 (20.8%), primary school :37 (15.4%), the literate without schooling: 14 (5.8%), university graduate: 10 (4.2%), preschool: 2 (0.1%) <Occupation> labor such as daily worker :82 (34.2%), agriculture: 76 (31.2%), housewife: 23 (9.6%), economic activity such as retail and wholesale: 20 (8.3%), self-employed 13: (5.4%), paid employee (private): 11 (4.6%), paid employee (government): 7 (2.9%), unemployed: 5 (2.1%), pensioner: 3 (1.3%)
4) Features of survey target household heads (Note: 157 out of 240 survey targets are household heads.)
<Gender> male 218 (90.8%), female 22 (9.2%) <average age> 44.5 years old (median is 45, youngest 22, oldest 85) <education level> the illiterate 68 (28.3%), high school 63 (26.3%), secondary school: 58 (24.2%) in decreasing order. <occupation> labor 105 (43.8%), agriculture 69 (28.8%) in decreasing order.

Table 7: Household Income Fluctuation of Project Participants

Unit: person

Status	Much increased / improved	Increased / improved	No change	Decreased / worsened	Much decreased / worsened	None	Other	Unknown	Total
Agricultural Income	1 (0.7%)	61 (40.7%)	13 (8.7%)	1 (0.7%)	6 (4.0%)	67 (44.7%)	1 (0.7%)	0 (0.0%)	150 (100.0%)
Non-agricultural Income	1 (0.7%)	123 (82.0%)	18 (12.0%)	0 (0.0%)	0 (0.0%)	8 (5.3%)	0 (0.0%)	0 (0.0%)	150 (100.0%)
Total Household Income	1 (0.7%)	140 (93.3%)	9 (6.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	150 (100.0%)

Source: Residents questionnaire survey results

Focus group discussions[25] were held to confirm the major reasons for income increases in thanks to participation in the project. Effects seen were a) job opportunities[26] during the project implementation period, and b) microcredit and income generation activities implemented on loans (livestock raising, agricultural production, sewing production, handicraft production, operation of variety stores and so on).

From the above, the annual household income of the target villages is judged to have improved in most cases, but as the precise amount was not available, a quantitative evaluation of "income increase of more than 10% on average" was not possible.

(5) Groundwater

In Haryana State, the amount of water intake was exceeding the increment amount by precipitation at the underground aquifer, which apparently led to a drawdown of the groundwater level and to further difficulties in water intake. Securing the required amount of water for agriculture and raising livestock throughout the year was also difficult as there were not enough facilities for storing surface water and rain water. With the above situation in consideration, water harvesting structures were constructed through the project to store rain water and surface water in the districts mainly around hilly areas. This was carried out along with the afforestation work, to improve the quality of forests, to contribute to improvement in agricultural productivity (the main source of local livelihoods), and to increase the increment amount of groundwater.

At the time of appraisal, an effect indicator was set to see the effects of the implementation of the component: "water level increase in wells in at least five villages out of ten villages with newly constructed water harvesting structures". The construction of seven structures in total

[25] Focus group discussions were held in 10 villages in 2 districts, where residents questionnaire survey was held with: 1) VFC (10 groups in 10 villages), 2) SHG (3 groups in 4 villages with community forest afforestation out of 10 villages (there was no SHG in 1 village), 3) male groups (4 groups in 4 villages with community forest afforestation), 4) female groups (the same 4 groups).

[26] Wages were paid through VFC to residents engaged in afforestation works, the construction of dams and water harvesting structures and village-level infrastructure development.

in three northern districts (Panchkula, Ambala, and Yamunanagar Districts) under the project was confirmed at the ex-post evaluation, though the actual quantitative figures were not available as they were not collected during the project implementation period.

Table 8: Change in the Groundwater Table (Effect Indicator)

Indicator	Baseline	Target	Actual	
	2004	2011	2011	FY2016
	Appraisal Year	Completion Year	Completion Year	5 Years After Completion
Change in groundwater table	Measure in 1st year of the project	Water level increase to be confirmed in more than 5 villages out of 10 villages with newly constructed reservoir structures.	N.A.	N.A.

Source: Documents provided by JICA.

Meanwhile, out of all the survey targets (i.e., 240 households in ten villages from two districts), the results of those from 5 villages in the Yamunanagar District, where water harvesting structures were newly constructed, show that 74 samples (60.6%) out of 122 households say that the availability of groundwater "improved compared to the situation before project implementation (they became able to use more groundwater than before)." This figure greatly surpassed those who replied "no change" (18 households: 14.8%) and "deteriorated" (30 households: 24.6%). Therefore, an improvement is recognized. The cause of this availability was explained as "it became easier to use groundwater by making use of hand pumps and others installed under village-level infrastructure developed by the project"[27].

As stated above, improvements in the use of groundwater were confirmed at the residents questionnaire survey in districts with newly constructed reservoir structures, this improvement seems to have been caused mainly by using better facilities for groundwater intake. While it cannot be denied that development of the water harvesting structures causes increases in the groundwater table, as the groundwater table is also greatly affected by precipitation, regional vegetation and other factors, it is difficult to confirm causality between this project and the groundwater table.

As a result, it is not possible to evaluate the restoration of headwater conservation by project implementation.

3.3.2 Qualitative Effects

(1) Conservation and Improvement of the Forest Ecosystem

According to HFD, information related to the conservation of the forest ecosystem is not

[27] The village-level infrastructure development is one of the poverty reduction activities known as "Entry Point Activity" in the project. Infrastructure development (such as installation of hand pump and wells, road development and construction of community meeting places) was implemented through the villagers' own choices and the villages provided the labor.

collected. Through routine monitoring activities, however, changes in biodiversity have been confirmed and numbers of individual types of wildlife are assumed to have approximately doubled. However, at the time of the ex-post evaluation, not enough actual data had accumulated to give long-term observation results on various issues such as the food chain status between wildlife, the climate and so on.

In focus group discussions with VFC members, the most common reply to the question about changes in the forest was that: “before project implementation, both animals and plants were scarce. They suffered from the extreme heat and there was also little precipitation. But now the number of trees has increased, more birds come flying. Precipitation, the groundwater table, agriculture and the climate have improved and become stable”. Besides, SHG members and residents who were not engaged in the project also recognized improvement in the natural environment and the increase in numbers of plants and animals.

Therefore, although it is too early to confirm the conservation and improvement of the forest ecosystem, the project is confirmed to have had some contribution to future conservation and improvement.

(2) Improvement in the Awareness of Residents regarding Forest Conservation

Included in the activities of the project were the publicity and extension activities together with training targeting the forest management skills and JFM of residents. These were implemented in 17 districts out of 19 districts in Haryana State. To confirm their effects, changes of awareness regarding forest conservation was asked about in the residents questionnaire survey, in which 175 (72.9%) out of 240 samples replied that “forest conservation awareness was much improved” or “improved”. Out of 175 samples where replies implied positive changes, improvements in awareness were more noticeable among the project participants (131 samples: 97.4%) than non-participants (44: 48.9%).

It is thus regarded that awareness of forest conservation among residents had improved.

(3) Improvement in the Living Standards of Residents

As described in 3.3.1 (4), improvement in “household income” resulting from project implementation was confirmed through the focus group discussions, with causes mentioned such as “job opportunities during the project period” and “microcredit and income generation activities”. The results of the residents questionnaire survey among project participants (150 samples) endorse these reasons. “Job opportunities” and “savings" were said to be improved (78.0% and 84.7% respectively), together with “stability of the household economy” among 76.0% of the project participants (Table 9).

Table 9: Changes in Job Opportunities and Household Economies among Project Participants

unit: person

Status Shift	Much Increased / Improved	Increased / Improved	No Change	Decreased / Worsened	Much Decreased / Worsened	None	Others	Unknown	Total
Job Opportunities	1 (0.7%)	117 (78.0%)	27 (18.0%)	3 (2.0%)	0 (0.0%)	1 (0.7%)	0 (0.0%)	1 (0.7%)	150 (100.0%)
Savings	0 (0.0%)	127 (84.7%)	17 (11.3%)	2 (1.3%)	0 (0.0%)	4 (2.7%)	0 (0.0%)	0 (0.0%)	150 (100.0%)
Stability of Household Budget	1 (0.7%)	114 (76.0%)	30 (20.0%)	5 (3.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	150 (100.0%)

Source: Residents questionnaire survey results

Meanwhile, views collected in the residents questionnaire survey on the effects of village-level infrastructures, dams and water harvesting structures developed under the project are shown in Table 10. Although it cannot be concluded that all improvements were caused by the infrastructure development of the project, the living environment in the villages where the beneficiary survey was conducted had mostly improved. In the more detailed inquiry at the focus group discussions, comments were made on village infrastructure maintenance (more easily accessible) and improvement in household income (payment capability increase), There were opinions such as “it became possible for us to send our children to schools outside our village” and “to see doctors outside our village” which both reflected aspects of improved access due to village-level infrastructure development and improvements in household income.

Therefore, the living standards of residents were confirmed to have been generally improved through project implementation.

Table 10: Changes in the Living Environment at Village Level

unit: person

Status Shift	Much Improved	Improved	No Change	Deteriorated / Worsened	Much Deteriorated / Worsened	Others	Unknown	Total
Road Accessibility	6 (2.5%)	225 (93.8%)	9 (3.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	240 (100.0%)
Water Supply at Canals / Farms	1 (0.4%)	198 (82.5%)	41 (17.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	240 (100.0%)
Drinking Water Availability	10 (4.2%)	214 (89.2%)	15 (6.3%)	1 (0.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	240 (100.0%)
Health and Sanitation	2 (0.8%)	217 (90.4%)	19 (7.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.8%)	240 (100.0%)

Source: Residents questionnaire survey results

In summary, the area of afforestation at the time of project completion, survival rates of the afforested trees five years after afforestation, and the number of VFC formed at project completion reached their targets. Annual household income among the beneficiaries was mostly improved. In particular, there was qualitative confirmation of improvement in the living standards of residents targeted by the project, though the quantitative confirmation of the extent of that improvement was not possible. Also, it was not possible to objectively confirm changes in the groundwater table in the target districts where water harvesting structures were constructed since supporting quantitative data was not available. Therefore, the effectiveness of the project is fair.

Source: Taken by Evaluator (December 2016)

Photo 1: Reservoir Dam maintained by the Project (Yamunanagar District)

3.4 Impacts

It was expected that the project activities intended for forest conservation and the improvement of local living standards would make a contribution to the conservation of forests and the promotion of sustainable forest management in Haryana State. To confirm that contribution and its degree, analysis was made regarding (1) the contribution to the improvement of forests and tree cover in Haryana State, (2) the effects of sharing the benefits of forest products, and (3) contribution to prevention of forest destruction.

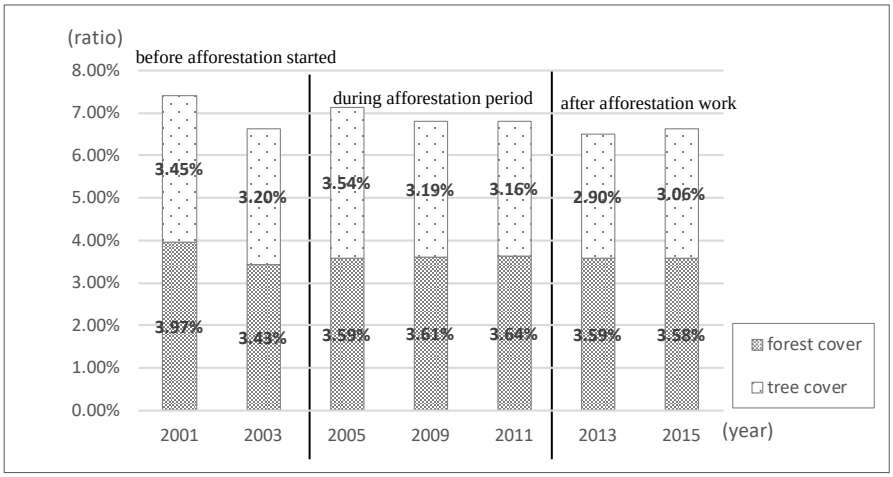
3.4.1 Intended Impacts

(1) Contribution to the Improvement of Forests and Tree Cover in Haryana State

The transition of forests and tree cover in Haryana State before, during and after the afforestation activities of the project is shown in Figure 2. Forest and tree cover both increased immediately after afforestation activity started (2005). However, afterwards, forest cover decreased slightly while tree cover increased slightly. In 2013, after the completion of afforestation activity, forest cover temporarily dropped to less than 3% but recovered afterwards. Tree cover decreased slightly.

The “India State of Forest Report” (Forest Survey of India) states the reason for the increase between 2003 (before the activity period) and 2005 as being “enhancement of afforestation activities by HFD”. Out of all afforestation activity by HFD (for the entire state area), for instance in FY2007, 10,316 ha (68%) of all 15,202 ha afforested and non-forest area had been afforested thanks to the project. In FY2008, 13,554 ha, 46% of all afforestation area (29,477

ha), was afforested under the project[28]. From the above, it is considered that there was a contribution to "the enhancement of afforestation activity" by the project.



Source: "India State of Forest Report" issued in 2001, 2003, 2005, 2009, 2011 and 2015 (Forest Survey of India)
Note 1: Total area of the whole of Haryana State is 44,212km^2.
Note 2: India State of Forest Report was not issued in 2007.
Note 3: Forest cover data from FY2004 to FY2008 during afforestation activity was reflected in the India State of Forest Report issued from FY2005 to FY2011 mentioned above. Tree cover data from FY2005 to FY2011, was based on the data from 2002 to 2010.
Note 4: In ISFR 2009, they refined the methodology for forest cover mapping by considering differences in altitude zones and forest types, and switching over vector data. Along with these changes, forest cover became more specified into three categories: very dense forest, moderately dense forest, and open forest, from two categories up to ISFR 2005: dense forest (all lands with a tree canopy density of 40% and above) and open forest.

Figure 2: Transition of Forest and Tree Cover before, during and after Afforestation Work

The report pointed to causes of the slight decrease after afforestation work ended as being periodical thinning and clear cutting of forest, felling on private land and community land, conversion of land use and so on. While forest cover reached its peak, HFD implemented afforestation for the improvement of the quality of existing forests according to their action plan, attempting both improvement in forest quality and optimization. Tree cover in the state is largely on private land, in community forests and farm forestry. The area available for afforestation is therefore limited, so the expansion of tree cover is extremely difficult due to felling and the conversion of land use by developers. HFD has been attempting to secure areas for the planting of trees in the long-term by helping local people to maintain and enlarge green areas, mainly by planting particular trees with fruit and other harvests on private land, community land and farm land.

From the above, this project, which promoted community land afforestation and farm

[28] The afforestation area is not the same every year as the life spans of existing trees, time of thinning and clear cutting and the survival situations must be considered.

forestry as well as afforestation in forest areas, is considered to have contributed to maintaining forest and tree cover and to improving the quality of forests in Haryana State to a certain extent.

(2) Sharing of the Benefits of Forest Products

The distribution of benefits from forest products is a system to secure the motivation of villagers within the framework of JFM. HFD stipulates, by a notification[29] which came into effect in 1998, that profit generated from all forests and trees under JFM should be shared after deducting the costs required for felling, transportation and the sales of the final felling of timber and non-timber (undergrowth, thinned material, pruned lower branches, tree leaves and so on) between the State Government and VFC at the ratio of 70% and 30% respectively. The amount distributed to VFC is to be used for their own activities and for village development. Cutting down the trees afforested by the project are expected to be started soon after the ex-post evaluation, and the benefit from the final felling of timber is planned to be shared based on the pattern above.

In summary, the impact from the benefit brought to the villages under JFM was thus still difficult to confirm at the time of the ex-post evaluation.

(3) Contribution to the Prevention of Forest Destruction

At the time of appraisal, it had been confirmed that providing job opportunities and improving local lives at village level were necessary to prevent the occurrence of forest destruction resulted from the actions of socially vulnerable people living in poverty. At the time of the ex-post evaluation, no data or information was available to show the contribution of the project to the prevention of forest destruction. In fact, wages had been paid to residents during the project period for their engagement in the project activities of the construction of water harvesting structures, the development of village infrastructure, and afforestation, which was a huge incentive for them. Their awareness of forest conservation improved, as mentioned in 3.3.2, and their living standards also improved. The fact that wages are still being paid for forest management activities including the afforestation work of HFD and that HFD staff members were frequently visiting villages for poverty reduction activities even at the time of ex-post evaluation, is considered to be of considerable contribution to the prevention of forest destruction.

3.4.2 Other Positive and Negative Impacts

(1) Impacts on the Natural Environment

The “JBIC Environmental Guidelines for ODA Loans” (issued in October 1999) was applied at the project appraisal, and as the project intended afforestation aiming at

[29] Haryana Forest Department Notification No.3799-Ft-I-98/13358 (as of June 29, 1998).

environmental improvement[30], it was specified as Type B. Moreover, according to Indian laws, no Environmental Clearance or Forest Clearance was required for the project, and neither was an Environmental Impact Assessment mandatory.

At the time of the ex-post evaluation, discussions took place with the executing agency and HFD, together with on-site observation in the inspection area. There was no confirmation of an impact on the natural environment or deterioration of the natural environment caused by the project as the afforestation under the project mainly selected local species and was aligned with the local climate and the natural features of the afforestation area.

(2) Land Acquisition and Resettlement

No land acquisition or resettlement was implemented under the project.

(3) Other Positive and Negative Impacts

As part of the supporting activities, in Gurgaon and Faridabad Districts, school plantations and environment campaign[31] activities were implemented. An NGO[32] with accomplishments in these fields was actively involved in the implementation. Through these activities, there were significant attention and interest from local communities, and children educated the adults in their families. Furthermore, implementation mechanisms and systems were organized, and the teaching staff in charge were trained, which gave positive impacts such as the continuation of activities at school and firm knowledge gained by the children.

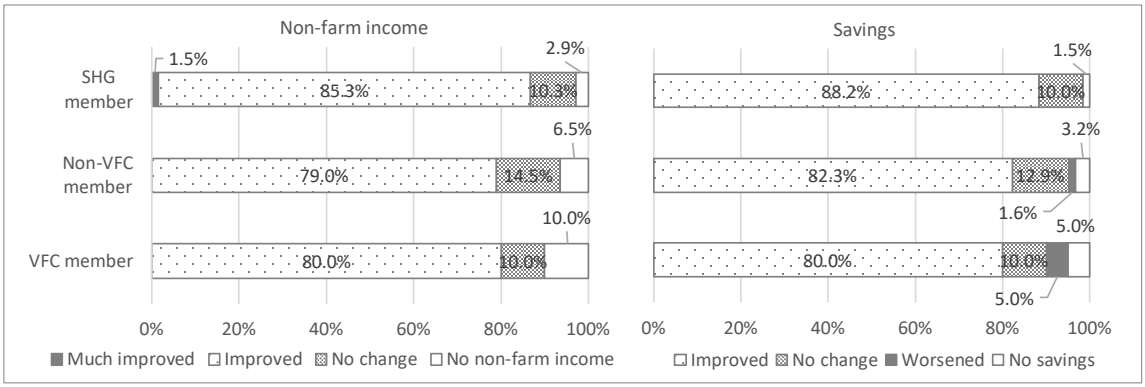
In addition, consideration was given to gender in the project. SHG were formed mainly of females in difficult poverty situations for whom microcredit, income generation activities (animal rearing, dairy product making, carpet making, sewing, store management for groceries and accessories, vermicompost making, etc.) and skill development training for such activities were provided. Improvements in non-agriculture income and savings were found more among SHG members than the rest of the project participants, according to the results of the residents questionnaire survey. Approximately 90% of the SHG members replied that they had seen "great improvements" or "improvements" (Figure 3). The immediate reasons behind this result are assumed to be that non-agricultural income was generated by income generation activities and that saving habits were developed as saving was one of the preconditions for taking

[30] According to the Guidelines, "Type B" is defined as not belonging to "Type A" (new or renovating projects on a large-scale, projects implemented in or with some risk of affecting the specified area and the projects with specific features (large-scale, various and irreversible environmental impact, impact on a considerable number of residents, mass consumption of non-renewable natural resources, enormous change of land use and environment, huge amount of hazardous waste generated or to be disposed of)), or with no prospect of a considerable environmental impact as in "Type A".

[31] Targeting school children and students of 400 private/public primary and secondary schools in total, the following activities were implemented as orientations at each school: afforestation, extension activities (art contests, speech contests, nature tours in natural parks, workshops and training seminars for teachers, and the preparation and distribution of environmental education materials (environmental calendars, posters, etc.)).

[32] OISCA North India

microcredit. Moreover, one of the cases confirmed in the focus group discussion with SHG members was that women taught how to sew each other in their villages after they sat for the training under the project. It was also heard from them that their household economy was improved through SHG activities, and they nurtured the spirit of self-independence.



Source: Residents questionnaire survey results
Note: "VFC" stands for Village Forest Committee. "Non-VFC member" indicates a resident who was not a member of VFC but participated in the project activities. "SHG member" is a resident who belonged to an SHG.

Figure 3: Fluctuation of Non-agricultural Income and the Savings of Project Participants

In summary, this project has achieved its objectives to some extent. Therefore the effectiveness and impact of the project are fair.

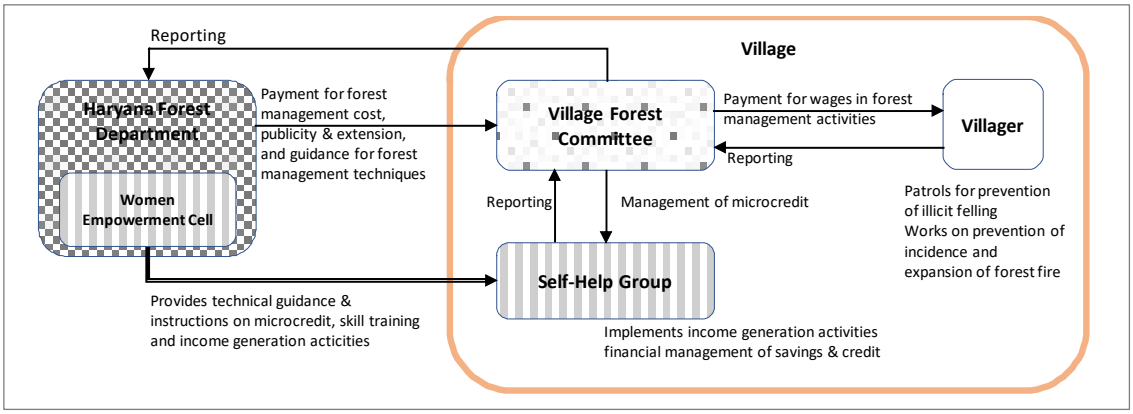
3.5 Sustainability (Rating: ③)

Among the components implemented under the project, afforested trees other than farm forestry are managed by HFD and VFC under JFM. The operation and maintenance of farm forestry is implemented by each farm. Soil and water conservation facilities such as nurseries and water harvesting structures are operated and maintained by HFD. Furthermore, as part of the poverty reduction component, the operation and maintenance of village-level infrastructure is carried out by each village, while microcredit, skills training and income generation activities are implemented by SHG under the management of VFC, with HFD (Women Empowerment Cells) dealing with technical instructions. Table 11 shows the roles and functions of each party in the operation and maintenance of each project component, and Figure 4 shows the implementation mechanism of forest management and poverty reduction activities as at the time of the ex-post evaluation.

Table 11: Project Components and Agencies for their O&M

Project Component	Operation and Maintenance Agency	
1. Forest Management		
・ Strip Forests / Block Forests	HFD	VFC
・ Trees on Community Land		
・ Farm Forestry	Each farmer	
・ Nurseries, Dams and Water Harvesting Structures*1	HFD	
2. Poverty Reduction Activities		
・ Village-Level Infrastructure*2	Local Communities	
・ Microcredit	HFD (Women Empowerment Cells)	Implemented by SHG under the Supervision of VFC
・ Skills Training		
・ Income Generation Activity		
3. HFD Facilities and Equipment		
MIS/GIS equipment at HFD HQ, Training Centers, equipment and vehicles	HFD	

Source: HFD
Note 1: Dams and water harvesting structures were developed under the "soil and water conservation activity" of the project.
Note 2: Village-level infrastructure was developed under the "entry point activity" of the project.



Source: The Evaluator created based on the interview survey to the executing agency.

Figure 4: O&M Structure for Forest Management and Poverty Reduction Activities at Ex-Post Evaluation Time (Diagram)

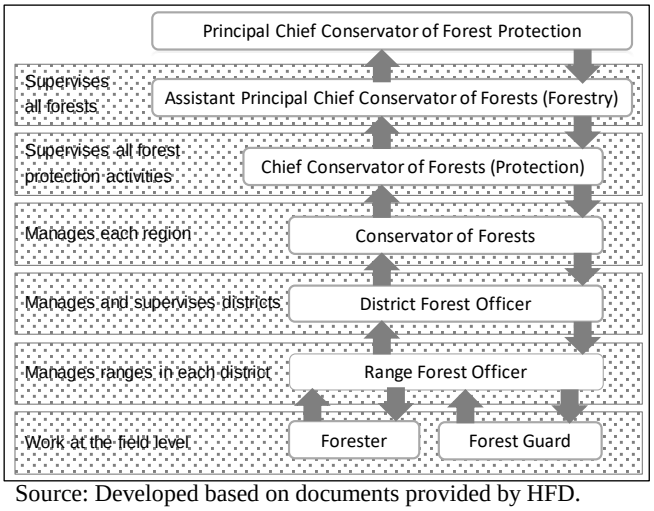
Based on the above, the institutional, technical and financial aspects and current status of operation and maintenance at HFD and each village are mentioned from 3.5.1 to 3.5.4.

3.5.1 Institutional Aspects of Operation and Maintenance

(1) Haryana Forest Department

Positions and the chain of command for the operation and maintenance of the project components in HFD are shown in Figure 5. Based on the existing organizational structure, the supervision and monitoring of forests in each village is implemented mainly by foresters and forest guards of the Department. They contact and report to range forest officers and district forest officers.

Regarding staff allocation as of December 2016, numbers in the Indian Forest Service (IFS) and the Haryana Forest Service (HFS) (46 and 45 people respectively) were less than their fixed numbers (69 and 54), although according to HFD, the required operations were satisfactory with the existing numbers. Also, the numbers of the existing personnel of range forest officers, foresters and forest guards, (83, 294, and 886 people respectively) were less than their cadres (126, 527, and 1,547). However no particular problems have been found at the actual operation of each site as JFM is implemented with villagers, and where VFC and villagers can be employed in case of personnel shortages or where it is judged more efficient to monitor with them[33].



Source: Developed based on documents provided by HFD.

Figure 5: O&M Mechanism of the Forest Department

At the same time, some foresters and forest guards belonging to the Women Empowerment Cells under the supervision of IFS and HFS, lead poverty reduction activities and conduct monitoring. “Women Empowerment Cells” were newly established in the Department in the year of project completion to continue supporting activities for the poverty reduction of residents. The project was implemented through the employment of external resources such as local consultants and NGO. The successful model from the “Haryana Community Forestry Project” was applied, operating in 328 villages of eleven districts from 1998. It seems that more than ten years of field experience and lessons given in poverty reduction activities targeting residents under the said preceding project and this project convinced the executing agency to firmly establish an implementing structure of its own. As of the end of FY2015, there were 46 personnel in the Women Empowerment Cells.

(2) Village Forest Committees

On the village side, forest management, monitoring and reporting systems were established by VFC, and the current status and problems of forests are reported to HFD at any time. The VFC consist of around 15 male and female villagers, and residents with knowledge of, and interest in, social welfare and conservation of natural environment or with adequate time for

[33] As recruitment of HFD is managed by the Haryana Staff Selection Commission together with other posts of government, HFD is not allowed to employ on its own accord.

forest conservation activities are often selected. Among the members, there are positions such as chairperson, secretary general and accountant. Members are elected every two years at Panchayat Meetings[34]. Approximately 800 VFC had been formed in Haryana State at the time of the ex-post evaluation.

The activities of VFC are afforestation, irrigation, forest protection, extension for residents, the prevention of illicit felling, forest fire fighting operations, substitutive afforestation and so on. In addition, they monitor SHG activities such as microcredit, skills training, and income generation activities. SHG consist of 10 to 15 people per group, mainly of women in poverty, with a strong need for an increase in income, and with the willingness to participate in social activities. At the end of FY2015, in 17 districts where poverty reduction activities were implemented under the project, 1,893 [35] SHG were in operation (Table 12).

Table 12: Transition of Numbers and Members of SHG after Project Completion

	Unit	FY2012	FY2013	FY2014	FY2015
SHG in operation at fiscal year end	Organization	1,332	1,300	1,788	1,893
Total Number of Members	Persons	16,748	16,748	17,722	17,947

Source: Annual Activity Report (HFD Women Empowerment Cells)

Thus there is no specific issue found in the institutional aspect.

3.5.2 Technical Aspects of Operation and Maintenance

(1) Haryana Forest Department

Training programs and technical improvement courses are operated at both national and state level for IFS and HFS, experienced staff, range forest officers and so on. In two HFD training centers within Haryana State[36], training for department personnel is operated based on the annual training plan. Various manuals for afforestation, forest management and nurseries are prepared and are used. As well as improvement of practical skills, there is also the intention to maintain and improve the nationally standardized technical and knowledge level. HFD properly handles technical issues at dams or water harvesting structures by consulting their civil engineers. As for supporting activities for poverty reduction, "Women Empowerment Cells" monitor and promote the work of residents. Although the activities require particular knowledge and field experience which differ from forest management, there was no major technical concern about operations as at the time of the ex-post evaluation HFD staff had accumulated sufficient ground experience during the project period, and there were training program courses available for them. HFD thoroughly ensures personnel management

[34] VFC formed during the project period had member re-elections afterwards as well.
[35] "FY2015 Annual Activity Report" by HFD Women Empowerment Cell
[36] They are in the western area, Hisar District and in the northern area, Kurukshetra District, and were established under the project.

and technical management by annual personnel assessments and even the technical assessment of professional staff.

(2) Village Forest Committees

The technical level of forest management by residents is maintained through the technical support, mobile services and extension activities of HFD. For instance, training opportunities for VFC members are provided at all times, and VFC members give instructions to residents. Regarding the skills required for poverty reduction activities, HFD Women Empowerment Cells provide technical instructions, conduct monitoring, and provide technical support in cooperation with other government agencies. As there is a wide variety of income generation activities and microcredit requires tailor-made guidance to each member according to their skills and education levels, cooperation and support is obtained from the Agriculture Department and the Horticulture Department of Haryana State, so that skill development training can take place as required with instruction for production with high marketability.

Thus no specific concern was found in technical aspect of operation and maintenance.

3.5.3 Financial Aspects of Operation and Maintenance

(1) Haryana Forest Department

Table 13 shows the transition of the forest management budget and expenditure operated by Haryana State. According to HFD, there is no budget shortage.

Table 13: O&M Budget and Expenditure for the Project Target

Unit: million rupees

	FY2012	FY2013	FY2014
Budget	1,703.5	1,668.4	2,015.4
Expenditure	1,683.1	1,620.6	1,906.6

Source: HFD Annual Report

Note: Budget indicates only that related to afforestation of such as for strip forests, block forests, and community forests, improvement of open forest, social forestry, farm forestry, forest protection, etc.

(2) Village Forest Committees

The financial resources of VFC come mainly from the forest management budget paid by HFD for afforestation activities and forest maintenance works, and their wages for village-level activities are included in the Table 13. According to HFD, they employ VFCs and villagers and pay their wages based on the State Government's cost norm when their own staff cannot be deployed and when they find it more efficient for monitoring, therefore the balance in the VFC's budget is appropriate.

The forest management budget includes wages for work on various activities. VFC also

conduct financial monitoring of microcredit by SHG. SHG operate income generation activities by using revolving funds provided during the project implementation period, to which SHG members' savings are added. The results of activities in 17 districts are shown in Table 14. Issues such as delays in repayment are reported to VFC and HFD in a timely manner, and countermeasures can be discussed anytime on-site and implemented straight away. Although the actual repayment is lower than the total loan amount, income and expenditures for these activities are recorded and managed by SHG members, and after VFC have checked them, these records are kept at the district office of HFD to secure transparency. HFD provides supports such as technical counseling for those who delay in repayment on ad-hoc basis and encourages repayment taking into consideration their livelihoods.

Table 14: Achievements of Microcredit

Unit: Rupee

	FY2012	FY2013	FY2014	FY2015
Total of loan amount	99,128,689	110,892,975	116,621,177	126,983,347
Repayment at fiscal year end	38,749,396	50,857,097	71,466,973	77,033,032
Total of savings	N/A	N/A	52,627,077	61,760,906
Savings and loans	N/A	N/A	87,974,696	90,668,294
Repayment of savings and loans	N/A	N/A	49,290,611	58,581,325

Source: Annual Activity Report (HFD Women Empowerment Cells)

No specific concern was found in the financial aspect of operation and maintenance at the time of the ex-post evaluation.

3.5.4 Current Status of Operation and Maintenance

(1) Haryana Forest Department

The status of forest management is favorable. HFD operates forest maintenance and quality improvement cooperating with villages through the planting of seedlings, weeding, removing unnecessary tree species, pruning lower branches, and thinning based on the canopy density and deaths of trees in each forest. The frequency of this work differs according to tree species, tree conditions and forest status. Table 15 shows the transition of afforestation work in the whole state from FY2011.

Table 15: Transition of Afforestation Work in Haryana State after the Project Completion

unit: ha

	FY2011	FY2012	FY2013	FY2014
Afforestation Area	16,576	21,741	23,950	23,845

Source: HFD Annual Report

Forests and trees in the state are recorded and managed by an MIS/GIS system established under the project. When foresters or forest guards confirm any differences from the existing

information (for instance, when trees are missing because of illicit felling, etc.), they transmit positioning data from their smartphones to HFD headquarters, which HFD then reflects in their system to ensure that their records are kept up to date.

Publicity and extension activities for residents have continued to be operated as social forestry activities at village level after the project completion. HFD keeps a list of all facilities and equipment of dams and water harvesting structures, in which they record each structure's status in detail. As for poverty reduction activities, HFD staff members were often visiting villages vigorously at the time of the ex-post evaluation, and support was provided for the improvement in residents' lives, especially for destitute women. These activities promote further understanding of and cooperation with afforestation activities at village level and contribute to the enhancement of JFM.

(2) Village Forest Committees

The focus group discussions with VFC members, which were held in the field survey of the ex-post evaluation, found that VFC and villagers operate forest protection and activities to prevent illegal felling, and that forest management has continued in practice (Table 16). After project implementation, villagers have operated not only afforestation, but also forest management and protection activities such as forest fire prevention and firefighting activities by groups. These activities are assumed to contribute to the improvement of the survival rates of trees. Moreover, at the discussions between SHG members and residents currently participating in the activities, statements were made such as "after project implementation, we work on afforestation and protection activities such as monitoring", "we work on preventing damage caused by animals and the expansion of forest fires by creating trenches and fences for forest protection".

Table 16: Status of Community Forest and Villages' Activities (at the Ex-Post Evaluation)

	Activity Detail
VFC	・ Forest management and protection activities ・ Training for villagers (instruction in forest management, measures to prevent damage to trees and so on). ・ Instructions to prevent villagers themselves from damaging trees.
Roles of Villages	・ Based on the directions of VFC, to watch and monitor the status of forests, patrols to prevent illicit felling, prevention of damage from animals, reporting of fires and support for firefighting activities, substitutional afforestation and patrols. ・ Reporting immediately to HFD and VFC on any occasion. ・ Consulting VFC and HFD regarding irrigation times for trees and implementing proper irrigation.

Source: Results of focus group discussions

When confirming the current status of operation and maintenance through on-site inspections and field interviews in three villages in Yamunanagar District, in the northern area of the state, it was found that VFC operated patrolling activities for the prevention of forest fires and illicit felling under the instructions of HFD. Concerns at field level were reported to HFD, and countermeasures were discussed and put into operation right away. Income generation activities were continued by SHG members, such as spice making, candle making, carpet production, sewing and the raising of livestock. Products were also sold.

Source: Taken by Evaluator (December 2016)

Photo 2: Local products from income generation activities (Yamunanagar District)

No specific concern was found in current status of operation and maintenance.

In summary, no major problems were observed in the institutional, technical, financial aspects and current status of the operation and maintenance system. Therefore the sustainability of the project effects is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The objectives of the project were to restore forests and improve the living standards of residents in Haryana State, northern India, by afforestation, soil and water conservation, poverty reduction, technical assistance and supporting activities, thereby contributing to forest conservation and the promotion of sustainable forest management in the state. Implementation of the project was highly relevant to India's development plan and development needs, as well as to Japan's ODA policy at the time of appraisal. Through implementation of the project, afforestation area, the survival rates of planted trees and the number of VFC that were formed have all accomplished their targets. The annual household income of the beneficiaries generally improved, and in particular an improvement in living standards was qualitatively confirmed among the residents targeted by the project (although the quantitative confirmation of the extent of that improvement was not possible as the executing agency did not collect data during the project period). Quantitative data endorsing project effectiveness regarding the groundwater table in the targeted districts for the construction of water harvesting structures was not available to a sufficient extent so as to confirm the effectiveness in an objective manner. Meanwhile, the project

had a certain effect on the improvement of forest and tree cover and the prevention of forest destruction in Haryana State and a contribution to forest conservation and the promotion of sustainable management in Haryana State was confirmed. It was too early to evaluate the benefit from forest products at the time of the ex-post evaluation. Therefore, the effectiveness and impact of the project are fair. On the other hand, both project cost and project period were within the plan, so the efficiency is high. No major concerns were found in the institutional, technical, financial aspects of operation and maintenance or current status, and therefore the sustainability of the project effects is high.

Considering the above, this project is evaluated to be highly satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

(1) Promotion of Afforestation on Private Land

Under the project, efforts to expand tree areas were conducted through the introduction of community forest plantations and farm forestry, and these were continued by HFD after project completion. Exposed to various development pressures such as population increase and urbanization however, in some cases the cooperation of residents becomes impossible due to such influences as fluctuations in timber prices, climate change and the higher prices fetched by superiority of other crops.

Approximately 80% of Haryana State is agricultural land, and possibility of expanding forest areas to a large extent in Haryana State is not high near future. Under this situation, HFD intends to maintain and improve the quality, greening and afforestation of private land which will be essential to maintain and increase forest and tree cover in the future. To secure a better feasibility of farm forestry, for instance, providing incentives to residents is considered increasingly important from now on, as well as countermeasures on the part of the state government such as hedging risks by harvest purchase or compensation for costs.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

(1) Setting Operation and Effect Indicators as Project Effect Measurement

As operation and effect indicators of the project, “annual household income of target villages to increase more than 10% in average in 12 sample villages” and “the groundwater table around forests to increase in 5 villages out of 10 with newly constructed reservoir structures” were provided. However, the executing agency did not collect data and no actual figures were available. A qualitative confirmation of the improvement in the living standards of residents was made

through an residents questionnaire survey as substitutional data. However, a quantitative confirmation of the degree of improvement was not possible. Objective confirmation of the fluctuation of the groundwater table in districts targeted for the construction of water harvesting structures was not possible without supporting quantitative data. The Groundwater table varied greatly according to altitude, use of land in the vicinity, the existence of irrigation structures and season, but information on these conditions was not provided. In addition, details of the excavation and management of wells remained unknown. The details of monitoring situation during project implementation was also difficult to obtain.

Considering this situation, the effectiveness of the project was evaluated as fair. It would be desirable to keep details of examination and discussion results in the agreed documents adequately at the time of appraisal on the appropriateness of operation and effect indicators, the party mandated to collect data, a practical method of measurement, time and location, etc. It would be also preferable to appropriately keep relevant information that was collected during project implementation, and describe the results of measurement in the project completion report.

(2) Implementation and Extension of Good Practices in the Long Term and in a Large Area

The intention of the project was to improve the living standards of residents through poverty reduction activities by employing external resources such as local consultants and NGO. The activities applied in the framework of the “Haryana Community Forestry Project” started in 1998, and, together with the preceding project, supporting activities for poverty reduction of residents operated on a large scale during a period of over ten years in an area of up to 1,100 villages in total.

After the completion of project activity, budget allocation was terminated and external resources were no longer employed for the promotion of poverty reduction activities. However, HFD created “Women Empowerment Cells” within their departments in the year of project completion to continue their supporting activities for residents, activity monitoring and to promote activities further. Although these activities require particular knowledge and know-how other than forest management and are additional work for HFD staff, they have been taken on by HFD and is established within the organization as a result of the implementation of “Haryana Community Forestry Project” and this Project. This was a project in which HFD collected and accumulated experience and know-how, which gave HFD the rationale for its existence and to continue promoting local understanding of, and cooperation with, afforestation works at village level through poverty reduction activities.

In cases where there are programs assisted by other agencies, successful models in the past and on-going projects by JICA, the executing agency could nurture more self-independence organizationally and technically, if support were given to the same executing agency to implement projects in the longer term and over a larger geographical area. In this way project activities could

be expected to become more sustainable without depending on the encouragement of donors or financial assistance.

<End>

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs		
(1) Participatory Afforestation	Total: 43,526.5 ha (total 800 villages)	Total: 50,814.6 ha (total 800 villages) (breakdown of villages by afforestation type is unknown)
1) Strip Plantations	Afforestation in 500 villages of 17 districts (Total: 20,000 ha). ➢ Tall plantation (4,000 ha) ➢ Ridge plantation (10,000 ha) ➢ Mix plantation of medicinal species (2,000 ha) ➢ Rehabilitation of degraded strip forest (4,000 ha)	Implemented in 17 districts (Total: 22,019.3 ha). ➢ Tall plantation (4,461.25 ha) ➢ Ridge plantation (11,469.5 ha) ➢ Mix plantation of medicinal species (2,049.5 ha) ➢ Rehabilitation of degraded strip forest (4,039.0 ha)
2) Block Plantations	Afforestation in block forest in 150 villages of 17 districts (Total: 11,000 ha). ➢ Rehabilitation of degraded block forest (7,500 ha) ➢ Alkaline land plantation (1,500 ha) ➢ Mix plantation of medicinal species (2,000 ha)	Implemented in 13 districts (Total: 11,018.0 ha). ➢ Rehabilitation of degraded block forest (7,755 ha) ➢ Alkaline land plantation (1,194 ha) ➢ Mix plantation of medicinal species (2,069 ha)
3) Community Forests	Afforestation in community area in 150 villages of 10 districts (Total: 4,000 ha). ➢ Mix plantation of medicinal species (2,000 ha) ➢ Silvi-pasture (2,000 ha)	Implemented in 17 districts (Total: 3,916.0 ha). ➢ Mix plantation of medicinal species (2,494 ha) ➢ Silvi-pasture (1,192 ha) ➢ Alkaline land plantation (230 ha)
4) Farm Forestry	Afforestation on private land in 17 districts (total: 13,800 ha).	Implemented in 14 districts (total: 13,861.3 ha).
5) Nursery Improvement	HFD nursery modernization at 70 locations in 17 districts (concrete fences, sprinklers, greenhouse installation etc.)	Implemented modernization of nurseries at 67 locations in total in 16 districts.
6) Soil and Water Conservation Activity	➢ Dry stone check dams (18,000 m^3) ➢ Crate-wire structures (16,000 m^3) ➢ New water harvesting structures (10 nos) ➢ Rehabilitation of the existing water harvesting structures (30 nos)	➢ Dry stone check dams (19,000 m^3) ➢ Crate-wire structures (10,754 m^3) ➢ New water harvesting structures (7 cases) ➢ Rehabilitation of the existing water harvesting structures (28 cases) ➢ Rehabilitation of ponds (40 cases)
(2) Poverty Reduction Activity		
1) Entry Point Activity	Plan to implement 800 cases in 17 districts.	Implemented 803 cases in 17 districts (wells, village roads, hand pumps etc.).
2) Skills Training	Implementation of job training for income generation activities (with a plan to utilize external resources such as government agencies of other states as district development agencies or irrigation departments or NGO for fields of expertise that HFD do not have).	Paper plates production, embroidery, dairy skill instruction, spice pulverization skills, supplemental food production skills, dyeing, soap production, herbal processed production, fungus cultivation, candle production, livestock rearing skills, compost production etc.
3) Provision of Microcredit	Income generation activities of 2,400 SHGs	Out of 2,400 SHG formed during the project period, 1,974 were approved after qualification requirement inspection. Out of 1,539 of SHG existed at the project completion time, 1,129 SHG operated savings and credit activities and income generation activities.

Item	Plan	Actual
(3) Supporting Activities		
1) Publicity and Extension	• Residents support by mobile publicity teams • Awareness raising	Implemented activity monitoring at village level and provided guidance through mobile services.
2) School Plantations and Environmental Campaigns	In Gurgaon and Faridabad Districts, implement environmental education and afforestation (5 years) in 40 elementary schools per district annually, and environmental campaigns 6 times in total.	Through the "Children's Forest" Program of OISCA North India, environmental education was implemented as planned.
3) Training	Training implementation for forest skills, JFM and farm forestry targeting HFD staff, general residents and NGO.	Training implemented targeting HFD staff and residents.
4) Other Support	• Investigation research for the improvement of tree species and conduct of experiments. • MIS/GIS development • Facility maintenance • The following facility maintenance was estimated: Training center improvement (2 locations), Range Offices (5 locations), Range residences (5 locations), Forester residences (10 locations), Forest guard huts (25 locations), Seed stores in nurseries (20 locations) • Equipment Maintenance, Vehicle Procurement The following equipment maintenance was estimated: Tractors (17), Tankers (17), Mini buses (2), Jeeps (9), Mini trolleys (17), Mobile irrigation systems (200)	• Investigation research for the improvement of tree species and conduct of experiments: Implementation to improve various tree species and work to improve quality (tissue culture etc.) • MIS/GIS development: Installation of equipment such as computer and software. • Facility maintenance: Training center improvement (2 locations), Range offices (3 locations), Range residences (3 locations), Forester residences (5 locations), Forest guard huts (16 locations), Seed stores in nurseries (11 locations) • Equipment Maintenance, Vehicle Procurement: Tractors (12), Tankers (13), Mini Trolleys (12), Jeeps (10), Vehicle for firefighting (1), General Bus (1), Mini Buses (4), Official vehicle for staff (1), Mobile irrigation systems (144), Engine pumps (11), Pump Sets (3), Greenhouse (1), Projector (1), Computer (1)
(4) Technical Support	Technical support for Implementation of Poverty Reduction Activities 1) Lead Consultant (17 M/M): Needs research at VFC formation, JFM system formulation, creation of operation framework, coordination 2) Supporting activity consultant (19 M/M): Research of training needs for HFD staff and project beneficiary, program preparation, selection of on-site instructor 3) Poverty reduction consultant (88 M/M): SHG formation, activity support, specification and implementation of poverty reduction activities 4) Soil and water conservation baseline research consultant (planned workload unknown): Implementation of technical confirmation survey at construction of dam or reservoir structure	Implemented as planned. Total workload was added as below. 1) Lead consultant 23 M/M 2) Supporting activity consultant 11 M/M 3) Poverty reduction consultant 604 M/M 4) Soil and water conservation baseline survey consultant 13 M/M
2. Project Period	March 2004 - March 2011 (85 months)	March 2004 - March 2011 (85 months)

Item	Plan	Actual
3. Project Cost Amount Paid in Foreign Currency	211 million yen	217 million yen
Amount Paid in Local Currency	7,407 million yen (2,860 million rupee)	6,744 million yen
Total	7,618 million yen	6,961 million yen
ODA Loan Portion	6,280 million yen	5,961 million yen
Exchange Rate	1 Indian rupee＝2.59 Japanese yen (As of August 2003)	1 Indian rupee＝2.19 Japanese yen (Average between 2004 and 2011)
4. Final Disbursement	June 2014	

ANNEX

<Column>
A case of school plantation and environmental campaign activities implemented through collaboration with an NGO

Skills training, income generation activities using small scale start-up funds, and school plantation and environmental campaign activities were implemented by the project, assuming use of field experiences, expertise, knowledge and know-how of local resource persons and national NGO.

This column introduces the school plantation and environmental campaign activities and is based on interviews with collaborating NGO, information collected and reports. It also summarizes the outcomes of the activities and accomplishments through collaboration with NGO in the project, and describes the evaluator's insights.

1. Outline of School Plantation and Environmental Campaign

- Name of activities: Children's Forest Program[37]
- Organization: OISCA North India[38]
- Period of activities: FY 2004 to FY 2008 (Five years)
- Target Area: Gurgaon and Faridabad Districts, Haryana State[39]
- Target beneficiaries: 5th to 9th grade pupils at 400 primary and secondary schools in total (private and government)
- Activities: Orientation, plantation, advocacy activities (picture contests, speech contests, etc.), nature tours at national parks, training and seminars for teachers, development and distribution of environmental education materials (environmental calendars, posters, etc.)

[37] A program which OISCA International initiated in 1991. 4,891 schools in 36 countries and regions have participated in the program as of March 2017. Children plant and grow seedlings in their school complexes and neighboring sites, through which they nurture a caring mind toward the natural environment and desire to take care of greenery, to promote more greenery on the earth. It aims to promote region-wise development not only of the school children who participate in the program but also of their families and other residents in local communities.

[38] OISCA North India is based in Delhi and they have conducted their activities since 1991. With the vision of creating a world where all people coexist despite a variety of differences, and where they protect and build a platform for every kind of life on earth, OISCA International, established in 1961, extended its operations to 34 countries and regions mainly in Asian and Pacific regions as of March 2017. The majority of their collaboration is found in the field of rural development and environmental conservation, as found in their four pillars of activities: Children's forest programs (which was introduced in the project), human resources development programs, advocacy and dissemination programs, and overseas development programs. There is another OISCA organization in India: OISCA South India based in Kerala State, which started its activities in 1985. OISCA's children's forest program was adopted in the project since JICA had a keen interest in working together with OISCA in the project, according to the OISCA International Headquarters in Japan, as they had known of OISCA's programs in the Philippines which JICA highly evaluated, and that OISCA North India had already launched its activities in Haryana State at that time. The Children's forest program was adopted into the project as suggested by JICA.

[39] According to the administrative borders as of the ex-post evaluation, the two districts were divided into four: Gurgaon and Mewat Districts (divided from former Gurgaon in 2005), and Faridabad and Palwal (divided from former Faridabad in 2008).

2. Position of school plantations and environmental campaigns in the Project

The Gurgaon and Faridabad Districts are geographically adjacent to New Delhi, the country's capital, where rapid urbanization has taken place due to its prominent economic growth. Since the local situation was very different from the rest of the districts in Haryana State, it was decided at the time of the project appraisal that, after a series of various examinations on which measures should be applied to the two districts, that school-based plantations and environmental education be implemented.

The school plantations and environmental campaign activities, therefore, were not intended to directly affect the achievement of the project objectives (forest conservation and improvement in the life standard of local people). The Forest Department of Haryana State (HFD) did not intervene much except for providing technical advice and guidance.

3. Effects of the Activities

The major effects of the school plantations and environmental campaign activities are described as below.

3.1 Effect #1: Raising of Awareness in Local Communities

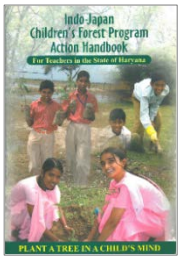
- Keen attention to and interest in the activities by local communities

Most of the schools where the activities were conducted are in the rural areas of both districts. It is rare at rural schools to have the opportunity to conduct plantation activities in an organized manner, or to participate in advocacy classes. To have people from outside their villages, which is also rare in rural areas, helped the activities to gain the attention of the local community. The fact that Haryana State Government people often visited their villages with OISCA North India staff and other outsiders was a very good reason for the adults and others of the parents' generation to be interested in the activities.

School children looking at the photos of children's forest program activities in other countries

OISCA staff explaining the outlook of the forest

Female pupil digging a hole to plant seedlings



Handbook for teachers (front cover)

Source: OISCA International Headquarters Tokyo

Photo 1: Snapshots of the activities

- Advocacy from children to their parents at home

Children reported what they had learned about forest conservation at school to their parents back home in the context where not all parents necessarily had good knowledge or awareness of forest conservation and environmental issues. It gave the parents a chance to learn through their children by the sharing of what they did not know at home, thus promoting their understanding of the activities.

3.2 Effect #2: Building roots for the activities at school

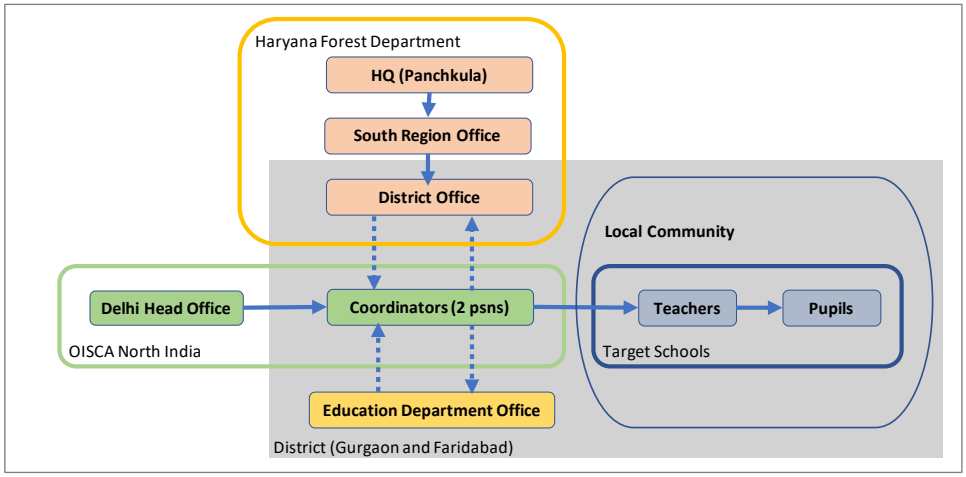
- Framework building and implementation mechanism development

OISCA North India deployed two coordinators at each district, who reported and coordinated with the Forest Department and Education Department to conduct school plantations and advocacy campaigns in Gurgaon and Faridabad.

They developed a plan of action at each school's convenience taking into consideration their annual events. Further, they donated relevant books to school libraries, provided plantation calendars, and tools for plantation (scoops, shovels, watering pots and buckets) to maintain and promote motivation as well as mitigate the financial burdens of schools.

- Training of teachers in charge

It was not children who were directly educated. OISCA North India created a framework for teachers to train children by training teachers in the know-how of the activities. An Action Handbook for teachers was developed and distributed so they could keep it at hand to refer to and use. The Handbook was elaborated by OISCA North India through discussions and exchanges of opinion with the project stakeholders, intellectuals and teachers in charge. They published English and Hindi editions in which many photos, pictures and figures are found to help attract the attention of readers and enhance learning effectiveness.



Source: Developed by the Evaluator based on the interview results with the project stakeholders.

Figure 6: Implementation Mechanism of OISCA North India

3.3 Effect #3: Laying the foundations for the sinking in of children's knowledge of forest conservation

Children continuously participated in the activities from 5th grade to 9th grade. OISCA's aim to focus on the same children for five years was so that they could make sure that the children's knowledge of plantations and forests would sink in by taking a certain period of time to continue teaching them. The elder children shared their knowledge and experiences with younger children in the same schools, and built roots of the activities.

4. Effects of collaboration with an NGO in the project

(1) Benefits of the Haryana State Forest Department

There were continual visitors from Japan to the project schools, which helped the Government of Japan know more about the Haryana State Forest Department. The local communities of Gurgaon and Faridabad Districts in which the target schools were located increased their understanding about the forest conservation through afforestation.

(2) Benefits to JICA

Publicity was enhanced since the activities in the two districts were implemented nearby the capital Delhi, and were regarded as a good practice of government and non-government partnership. Since the successful completion of the project in Haryana, JICA has applied collaboration models with NGO in forestry sector projects in other states based on the accomplishments in Haryana[40]. The experience of working together with NGO in the forest sector projects, and examination of how they should collaborate with each other in those project components which have been accumulated up to the present have presented a valuable lesson.

(3) Benefits to OISCA North India

i. Accumulation of project experience

Upon implementation of the activities, OISCA obtained technical guidance and advice from the Haryana State Forest Department. More precisely, the Haryana State Forest Department gave interpretation of the soil quality and conditions of the two target districts to OISCA North India staff, and provided selection, recommendation and the distribution of several local species suitable for plantation in both districts. OISCA North India, based on technical advice given by the Forest department, distributed seedlings at target schools and gave instructions on the plantation.

[40] OISCA South India and OISCA North India participated in the "Karnataka Sustainable Forest Management and Biodiversity Conservation Project" (FY 2004 ODA loan project), and the "Uttar Pradesh Participatory Forest Management and Poverty Alleviation Project" (FY 2007 ODA loan project) respectively.

ii. Effects on publicity

Not only JICA representatives from their office of Delhi and headquarters Tokyo, but Members of the Diet, Ministers, university students, and secretaries of the Embassy of Japan visited the two districts as there was an increasing interest in the activities from the Government of Japan. Along with the project activities which OISCA North India implemented, their work in the country became better-known, and their popularity also increased.

iii. Ensuring reliability and credibility

OISCA North India gained a better understanding of their activities on the part of the Haryana State Forest Department, and their reliability and credibility increased.

5. Discussion

The Evaluator concludes that the project secured better effects in its school plantation and environmental campaigns through contracting OISCA North India. On the other hand, there is space for improvement and future tasks in making further and better use of the knowledge and experiences of NGOs for achieving the objectives of ODA projects, and building roots in their field activities in the future. The sections (1) and (2) below describe the rationale for this.

(1) OISCA North India's efforts for the accomplishment of the activity effects

- Collaboration with relevant organizations at ground level

It is worth mentioning that OISCA North India had good contacts and coordination with government organizations in Gurgaon and Faridabad Districts at the commencement of the school plantation and environmental campaigns of the project. According to OISCA North India, they directly got in touch with the Haryana State Education Department when they started the school activities to obtain a permit for the implementation of activities and a school list. Although the project was under the forest sector, coordination with relevant organizations within a short period was essential for smooth implementation of such multi-sector activities as found in the project and which included environmental education and school plantations. OISCA North India knew, from its long field experience in India, that endorsement by important government departments would be the key in the longer-term for smooth implementation. The activities were conducted as part of the project run by the Forest Department, while collaboration between the Education Department and OISCA was essential in the field. It is considered that OISCA's tacit knowledge and amount of experience helped things go smoothly with the Education Department, which was essential for the school-based activities.

- Activities targeting teachers

It is also considered that the activity framework worked well where OISCA trained teachers instead of children directly. The activity target was children at primary and secondary school, but sustainability depends on the extent to which teachers are committed to the project activities and how much effort they make. OISCA North India recognized well that activity sustainability depended on the school principals and teachers.

(2) Necessity of having a long-term vision

The school plantation and environmental campaign has not been continued by the Haryana Forest Department as their own program since the project ended. The following issues are some of the reasons behind this.

i. The activities were planned with the prior assumption of having collaboration with an NGO, and started in Gurgaon and Faridabad Districts without a clear vision of a long-term dissemination.
ii. The Forest Department did not have the chance to make use of the education effects achieved in the local communities in the two districts where target schools are located.
iii. The activities of OISCA North India were not linked with those of the Forest Department (forest conservation works, afforestation works out of school, poverty alleviation activities, etc.).
iv. The project period, five years, was too short for the Forest Department to develop know-how and a basic framework to continue the activities while the inputs (budget and human resources from outside of the department) ended upon project completion.
v. The activities had accomplishments in only two districts, and these did not apply in the rest of the districts of Haryana State. There was no vision to disseminate the successful model of the activities in other districts apart from Gurgaon and Faridabad (or for other NGO to conduct the activities in parallel). (Note: As it is considered that being actively involved at 40 schools per year in two districts was the maximum extent possible for an NGO, it is not proposed to increase the number of schools per year.)
vi. Taking the above i to v into consideration, the activity effects did not finally convince Haryana Forest Department that they were worth allocating a budget and continuing them as one of the Department's programs.

To summarize the above, by having a long-term vision to further try experimental activities that involve local organizations such as OISCA and to target a wider geographical area in Haryana State, it would have been possible to make more use of the know-how of OISCA North India and adopt them into ODA projects to ensure sustainability of the activities, i.e., succession and implementation by the Forest Department or the Education Department on their own initiatives.

According to OISCA North India, some private schools applied the school plantation and environmental campaign as one of their formal class programs since they highly appreciated the effects. On the other hand, most of the target 400 schools did not continue the activities after the project was over. In government schools, particularly, it is the quality and beliefs of principals and teachers that makes a big difference in the effects and sustainability of the activities, which implies that the activity's effectiveness and sustainability depends on individual efforts. Furthermore, the turnover of school staff every several years does not easily allow schools to continue activities. These are problems which are often faced by not only OISCA North India but NGOs and civil society organizations working at grass-root level. They are structural issues that make it difficult to promote good practices on the ground level into official systems and frameworks.

If NGO activities are adopted in future ODA projects, it would be desirable to support NGO in tackling their glass ceilings: the ODA side is expected to continue its efforts with the longer-term vision of working with the Forest Department and Education Department to take the successful model from field level into the official framework of cooperation projects between governments, thus being able to make proposals for the long-term in an effective manner that can influence the decision making of the State Government.

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