India

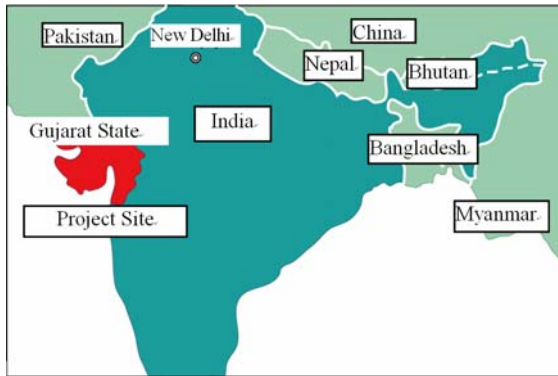## Gujarat Afforestation and Development Project

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Field Survey: September 2005

1. Project Profile and Japan's ODA Loan

Map of project area

Afforestation of village common lands

1.1 Background

Located in India's northwest quadrant, Gujarat province is bounded by the Arabian Sea. With an area of 200,000km^2 and a total population of 50.6 million people, Gujarat is one of India's leading industrial states. The Indian government has set a target of covering one-third of the nation's land area with forest. In 1995, however, only 6% of Gujarat was forested, a figure that is well short of the nation's average of 20%. Because of dry climate and soil, much of the state's land is inhospitable to both flora and fauna. For that reason, most of the state's forestland is concentrated in the southeast, where rainfall is plentiful. From the gathering of wood for fuel and grazing by domestic animals, however, these forests have been subject to intense pressure, with the result that some 70% of the state's 19,000km^2 of forestland were degraded. The World Bank has financed afforestation projects in Gujarat, but the forest area covered by the World Bank sponsored projects was no more than 33km^2, and so the need for afforestation in Gujarat continued to be high.

In light of the above issues, the captioned project was conducted from January 1996 to April 2003 with the objective of increasing forest coverage and restoring degraded forests to their former level of productivity.

1.2 Objective

This project's objective was to green Gujarat state and restore productivity of the deteriorated land by conducting afforestation activities mainly at the degraded forests,

thereby improving environment and improve the living standard of the local people.

1.3 Borrower/Executing Agency

The President of India/ Forest Department, State Government of Gujarat

1.4 Outline of Loan Agreement

Loan Amount/ Disbursed Amount	15,760 million yen/15,732 million yen
Date of Exchange of Notes Date of Loan Agreement	January 1996 January 1996
Terms and Conditions	
- Interest Rate	2.1%/year
- Repayment Period	30 years
(Grace Period)	10 years
- Procurement	Partial untied
Final Disbursement Date	March 2004

2. Evaluation Result

2.1 Relevance

2.1.1 Relevance at the time of appraisal

The main objective of India's National Forest Policy, enacted in 1988, was to cover one-third of nation's land area with forest and protect forest ecosystems. Aiming at the renewed productivity and environmental protection of denuded forests, this project is consistent with that policy.

As the forest coverage rate of Gujarat state is well below the national average of 33%[1], it is in great need of afforestation. Moreover,

Grazing continues on degraded forests

Gujarat is blessed with a wealth of biodiversity, and has a large number of national parks and natural conversation areas, therefore, there was a need for conservation of ecosystems. Hence, this project was highly necessary. However, beyond the mere planting of trees, this project sought to employ a comprehensive approach that included preservation of wildlife, training, promotion, and research, and improvements to the

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[1] Gujarat's rate of forest coverage in 1994 was a mere 6.4% compared to the nationwide figure of 19.4%.

Forest Department's infrastructure. However, within the project period, a design allowing built-in synergy among components (including such things as feedback on training contents and afforestation plans based on research and development result) to be fully utilized has not been created.

2.1.2 Relevance at the time of ex-post evaluation

Following the above-mentioned National Forest Policy, India's 10th Five-Year Plan (2002-2007) aims to achieve 25% of total land area covered by forest by the end of the plan's term. The plan emphasizes several aspects, such as role of forests in conservation of soil and water, forest management accommodating the livelihoods of the local people, and the research and development as well promotion activities.　This project's approach has been consistent with these aspects.

As of 2001, forest coverage ratio in Gujarat was low at 7.7%, and the need for afforestation as well as the need to preserve ecosystems remains high. However, in 2005 the Forest Department received 1.5% of the state government's budget allocations, down from an average of 2.9% between 1992 and 1997.

Through this project, development of the Forest Department's infrastructure has almost come to the end, but the need to perform afforestation activities (in particular those in which residents participate), preserve biodiversity, human resource development, and research and development as well as promotion activities continues as ever before.

2.2 Efficiency
2.2.1 Outputs

This project is composed of some components including the preservation of wildlife, capacity building of Forest Department, and of course, afforestation itself, which, as the main component occupies 75% of project costs. Table 1 compares planned outputs at the time of appraisal with the actual results achieved.

Table 1. Project Output

Afforestation Component	Plan	Actual
Social Forestry (Afforestation of village common land/land for public utilization)	70,500 ha	82,626 ha
Territorial Forestry (Afforestation in state-owned forest areas)	160,295 ha	181,705 ha
Afforestation based on the distribution of tree seedlings to farmers	240 million trees	284 million trees
Joint Forest Management (JFM) Management of state-owned forest areas by JFM committee		891 villages, 555 of which conducted entry point activities encouraging the participation of local residents
Components other than afforestation	Target	Actual
Development of wildlife conservation facilities ・ Infrastructure (buildings, roads, Telecommunications, exhibition facilities, fences) ・ Habitat environment enhancement facilities (watering places, fodder plants, etc.) ・ Forest fire prevention facilities, etc.	4 national parks 20 preservation areas	As planned.
Construction of crematoriums	750 sites	As planned.
Promotion/training activities (including facilities development) ・ Training for Forest Department employees ・ Training of farmers and for joint forestry management/training of benefiting farmers ・ Education of general citizens and schoolchildren on the issues	6,760 times 19 facilities	13,679 times 19 facilities
Research and development (including maintenance of the facilities)	Studies: 29 Facilities provided: 19	Studies: 29 Experiments: 230 Facilities provided: 19
Maintenance of Forest Department's facility	665 buildings	635 buildings/348 Forest Department buildings were damaged by earthquake
Supply of vehicles and materials and equipment for the Forest Department	254 vehicles, GIS and AV equipment, power generators and air conditioners	276 vehicles, GIS and AV equipment, power generators and air conditioners

Afforestation of degraded state-owned forestland

Distribution of seedlings at a school

In afforestation components, the total area afforested was above the plan. 60% of afforested land in Gujarat state between 1996 and 2001 was planted through this project, and total forest coverage amounts to 1.3% of the state's area. In approximately two-thirds of the area afforested through this project, in addition to the actual afforestation, assorted soil and water conservation measures were conducted, including the building of trenches, partitions, stone levees, and check damns. These measures accounted for 37% of afforestation costs. However, judging from an impact study by the

Forest Department, soil and moisture conservation work only covered approximately 30% of small watersheds. The types of work conducted were limited, the amount of work conducted was small relative to the area involved, and in many cases, the planned activities were inappropriate. In joint forest management (JFM), local residents participate in the planning and implementation of

Forest training center

afforestation, as well as in conservation. In the state forestlands, this approach was primarily applied to the reforestation of degraded areas. Among components other than afforestation, the development of facilities for the protection of wildlife, and the development of facilities for the Forest Department were conducted almost as planned, and the activities related to the promotion/training activities targeting Forest Department employees, residents, students, and JFM participants actually exceeded planned targets. Moreover, not only were promotion/training activities increased, but various tests and experiments were additionally conducted in local areas as part of research and

development. In addition, various activities to encourage the participation of local residents such as maintenance of infrastructure for targeted villages were conducted. On account of a major earthquake that hit the area during the project period, the repair of damaged buildings was added to the work.

2.2.2 Project period

At the time of the appraisal, this project was scheduled to run 72 months, from January 1996 to December 2001. In fact, the project implementation lasted 89 months, from January 1996 to May 2003. Nearly all components, including afforestation, ended in March 2002, three months behind the schedule. Following that, an external impact study was conducted up until May 2003.

2.2.3 Project cost

Total project costs came to 19,221 million yen, approximately 4% above planned cost of 18,542 million yen. While foreign currency expenditure was greatly increased, local currency expenditure, which accounted for the majority of costs, was almost as planned.

2.2.4 Summary of efficiency

Taking into consideration the above factors related to the efficiency of the project, while the main portion of the project period and project costs both exceeded the plan by approximately 4%, afforestation work (the main component) also exceeded the planned targets by 15%. This means that efficiency was high overall.

Table 2. Survival Rates by Model and Area

Four- to six-year survivability rates by region

Saurashtra (arid area)	13%
Northern area	29%
Central area	37%
Southern area	40%

Afforested areas and 4-6 year survival rates by afforestation model

Afforestation on village common lands and public use lands

Landscape forests (roadside trees, etc.)	12,715ha	28%
Production/conservation forests (indiv. farms)	56,058ha	22%
Production forests (village common lands)	13,853ha	31%
Environmental forests	1,422ha	22%
Seedling distribution		23%

Planting on state-owned forestland

Production forests (incl. fuelwood and fodder)	49,116ha	27%
Restorative forests (denuded land)	129,619ha	34%
Local livelihood trees	2,970ha	40%

2.3 Effectiveness

2.3.1 Effectiveness of the afforestation component

(1) Survival rate of planted trees

The survival rate of the trees four to six years after the afforestation was 30%,

which was rather low [2]. Approximately 390 million trees were planted through this project, but it is estimated that only 110 million survived four to six years later. Survival rates varied considerably depending on the region. For instance, in the arid region of Saurashtra, the average survival rate was a mere 13%, and in 80% of afforested areas the survival rate was below 20%.

The reasons for the low survival rates are harsh natural conditions[3], damage due to grazing, and pests. In some of the afforested areas, however, not enough was done to protect against damage from grazing. Moreover, it is believed that the species and breed of trees planted may not have been completely appropriate for the land conditions.

(2) Increase in forest coverage

Gujarat state's forest coverage area (forest ratio) increased up to 14,946 km^2 in 2000 (7.6%) from 12,965 km^2 in 1996 (6.6%). During that five-year period, while there was an increase of 2,200 km^2 (1.1%), it cannot be said to be sufficient[4].

Table 3. Gujarat State's Forest Coverage and Forest Coverage Rate

	Forest Coverage (km^2)		Forest Coverage Rate	
	(Dense Forest)	(Open Forest)	(Total)	forest ratio
1992	6,369	5,262	12,320	6.3%
1994	6,337	5,250	12,578	6.4%
1996	6,430	5,504	12,965	6.6%
1998	8,673	6,479	15,152	7.7%
2000	6,345	8,601	14,946	7.6%

Note: Dense forests are those that have a forest cover ratio of over 40%; open forests have a forest cover ratio of 10%-40%.

The trees planted through this project were young, and so they are yet to have contributed substantially to the above-described increases in forest coverage. Accordingly, assuming that afforested areas having 400 trees/ha surviving four to six years after planting become future forests, judging from this project's planting density and survival rate, roughly 60% of lands (1,750 km^2) planted by this project will become forests in the future. This would increase Gujarat state's forest coverage rate by 0.9%.

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[2] The target figures for the Central Forestry Commission of the Government of India is 60% survival rate within five years in planting areas highly conducive to afforestation (so-called "favorable sites") and 40% in areas deemed to be of average suitability for afforestation (called "fair forest sites").
[3] Two-thirds of the state area is made up of semiarid land, with an average annual rainfall of less than 800mm. In particular, droughts were seen between 1998 and 2001. There was a hurricane in 1998 and an earthquake in 2001.
[4] The Indian government has set a target of 25% forest coverage by the year 2007. In addition, in the FAO the target figure for developing countries' forest coverage rate is greater than 10%.

Table 4. Annual Forest Productivity

Forest Products	Annual production	
	Forecast Actual Results	Target Figures
Wood used as fuel	157,000 tons	892,000 tons
Rods/building materials	174,000m^3	237,000m^3
Bamboo materials	20.7 million trees	17 million trees
Fodder (grass/leaves)	225,000 tons	64,000 tons
Fruit	22,000 tons	500 tons
Other MFP	14,000 tons	1,800 tons

(3) Recovery of productivity of degraded areas

   According to a report by the Forest Department, the productivity of lands through this project improved by 50%-100% compared to prior to afforestation. In trial calculations by the Forest Department, in lands planted through this project, production 30 years after afforestation is forecasted as shown in Table 4.[5]

   Productivity for bamboo materials, fodder, fruits and other Minor Forestry Produce (MFP) is forecasted to be higher than figures planned at the time of appraisal, while productivity of fuelwood, rods, and lumber is lower. Fuelwood production is anticipated to be 157,000 tons; this corresponds to 3.5% of 2004 consumption for Gujarat state.

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[5] Estimates based on the survival rate of planted trees and actual production results achieved so far. However, because it is difficult to grasp the true results for afforestation based on the distribution of seedlings to farmers, production figures included only rods, lumber, bamboo materials and fruit. Kindling wood and fodder production was not included.

Change in Vegetation in degraded State-Owned Forestland
Before and After Project Implementation:
Prior to Afforestation (Left), After Afforestation (Right)

(4) Internal Rate of Return for afforestation component

As for the afforestation component of this project at the time of the appraisal, the Economic Internal Rate of Return (EIRR) was calculated to be 22.5%. This calculation took benefit to be the sales proceeds from forest 30 years after planting. Costs were taken to be the afforestation costs, the cost of 30 years of follow-up maintenance, and protection costs. In the ex-post evaluation, recalculating based on the same prereqities , EIRR was found to be only 13.3%. The reason that actual values fell short of the figures cited at the time of the appraisal is that the production of fuelwood, rods, and building materials—all of which constitute a large portion of profit—fell below the plan.

2.3.2 Effectiveness of components other than afforestation

Results for project components other than afforestation were as follows.

· Through the component for the protection of wildlife, forest fire protection measures and infrastructure facilities in the wildlife preservation district were put in place. Wildlife preservation activities achieved greater efficiency, and damage from forest fire was reduced.

- Promotion/training facilities constructed through the project were fully utilized, and it was useful in strengthening Forest Department capabilities and educating state residents. Some 87% of farmer training participants responded that the training was very beneficial. Unfortunately, employee training did not cover important issues like how to understand and adapt to key social economic problems surrounding forest management, nor did it address the need to modify afforestation technology according to the natural conditions of each region.

- In the research and development component, as a result of cultivation, productivity for several tree varieties improved, and the improved seedlings were supplied to afforestation sites. In addition, important techniques that can be used to nurture seedlings were introduced, including the use of root trainers, cuttings, and grafting. Improvements in productivity are expected for the future through the dissemination of such techniques. However, in 29 studies, because they were begun more than three years following the maintenance of infrastructure, they were not fully applied in the afforestation and wildlife preservation components either planned or actually realized under the project. In local afforestation experiments, suspensions and failures were common, and positive results were scarce.

- In general, infrastructure facilities are well used and have made a significant contribution to raising the efficiency of Forestry Department activities. However, GIS equipment is insufficiently used, due to personnel shortages

2.4 Impact

2.4.1 Impact on environmental conservation

According to an impact study conducted 4-6 years following afforestation, the following important impacts related to environmental conservation were observed in at least two-thirds of the afforested areas.

- Natural tree cover of medium to high density was noted in 92% of afforested areas within state forestlands.

- A reduction in biotic pressures such as wildfires, illegal logging, and illegal

grazing were confirmed in 73% of afforested areas in state forestlands.

・ Natural renewal, coppice regeneration, grass growth, reduced soil erosion, and increases in humidity and soil moisture were observed in 77% of afforested areas in state forestlands.

・ In 61% of planted areas that included soil and moisture conservation activities, soil moisture accretion, reductions in soil runoff and other important effects were confirmed.

・ 47% of residents in areas surrounding afforested areas reported a rise in groundwater levels.

The population of valuable wildlife has been on the increase. Wildlife preservation activities through national parks and sanctuaries have proven effective. Wildlife preservation facilities provided through this project are judged to have contributed in this area. These include buildings, roads, telecommunication tools, exhibition facilities, fences, habitat environment enhancement facilities, and means for preventing wildfires.

Table 5. Changes in Population of Valuable Wildlife

Lions	304 ('95)	327 ('01)
Panthers	832 ('97)	1,038 ('92)
Black bucks	1,345 ('94)	3,436 ('00)

2.4.2 Socioeconomic impacts

The project generated the short-term employment of approximately 65 million man-days worth of labor for afforestation[6]. Approximately 40% of the laborers employed were women.

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[6] Seventy percent of project costs were personnel expenses.

According to an interview survey of residents living in areas surrounding typical afforestation areas[7], children and women used to spend much time traveling long distances in search of fuelwood and fodder (undergrowth and leaves). After planting, it became possible to harvest these things more easily in planted areas, and the time they spent was reduced. It has been confirmed that because women were able to turn to other production activities, many households

Village woman transporting fodder harvested in a planted area

experienced income increase from farming and stockbreedings, and households income dependence on the forests declined. Other positive changes were also observed in some areas. For instance, thanks to rising household incomes and expanded farming, their eating habits also improved. Increased production of building materials (including bamboo) led to improved housing. Increased income and the liberation of children from fuelwood and fodder gathering chores increased school attendance rates. If one compares regional populations, these positive impacts were especially noticeable in afforestation projects in state-owned forestlands where relatively high-density planting was carried out, as well as among poor farmers and tribal populations inhabiting mountain districts where dependence on the forest tends to be high.

On the other hand, undesirable phenomena were also observed in some places. In some areas communication/liaison among residents was insufficient, and the distribution of forest products were unequal. Stockbreeding might increase of, spurred by higher fodder production and a favorable dairy market, causing grazing pressures on forests. Some neighboring villages did not exercise joint forest management; clashes regarding grazing activities were also observed. The Forest Department is aware of these problems, but the detailed surveys are yet to be conducted.

If one estimates the total population of the villages where afforestation was conducted benefited directly or indirectly from the project, it appears that a maximum of 7.5 million people (or 15% of Gujarat's population) have benefited from this project.

2.5 Sustainability

2.5.1 Executing Agency

2.5.2.1 Technical capacity

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[7] A number of afforestation models were tested to grasp their relative impact. Questionnaires were used to survey 179 households in four villages. Of these, two villages had been subject to "social forestry" (planting on village common lands and lands for public use), and two villages had been subject to "territorial forestry" (planting conducted on state forestland).

Since all managers majored in science, they are not necessarily familiar with socioeconomic factors critical in the task of conducting sustainable forest management based on resident participation. As for local staff, the Forest Department is striving to strengthen their capacity through training, but much room for improvement is seen in terms of their expertise and capacity. A number of issues thus remain, including the fact that training has not been necessarily appropriate for the needs of on-site employees, or the fact that no analysis has been done on the efficacy of training conducted so far.

2.5.2.2 Structure

The Forest Department prepared basic infrastructure through the present project, and so the efficacy of project administration is thought to be sufficiently high. However, there continues to be considerable room for improvement in the monitoring evaluation system and planning for afforestation projects. These have lessen product quality and hinder the ability to get better results. Issues surrounding the afforestation modeling system, planning procedures and techniques, and monitoring and evaluation, are as outlined below.

- There are many afforestation models and their systems are complicated, making the focal point of work unclear. Having so many models invites complications from a management standpoint.

- The residents' needs and targeted villages' socioeconomic conditions have not been sufficiently considered in planning.

- Soil and moisture preservation work was conducted only in a part of a watershed; the contents and amount of work done were thus insufficient.

- The monitoring of afforestation activities was limited in scope to the three-year survival rate of planted trees. There is no systematic monitoring and evaluation of the growth of planted trees, the impact on environmental conservation, the extent of residents' participation.

2.5.2.3 Financial status

The annual budget figures for the Forest Department during the implementation of the project (1995-2001) and after (2002-2004) basically did not change. Taking price escalations into consideration, however, there was actually a slight decline over time. Afforestation projects after this project's completion remained at the level of 80%-90%

compared to the project implementation period. Research and development, together with training/extension activities were the same level as at the time of the project. The fact that over 90% of the post-project budget has come from state budget shows that such activities have proceeded without reliance on external assistance. It seems the state is committed to sustaining the activities. However, allocations to the forest sector in the state's development budget have tended to decline from an average of 2.9% from 1992 to 1997 to 1.5% in FY2005. In the future, sufficient budget resources need to be allocated.

2.5.2 Sustainability of management of the program

For most of the afforested areas in state forestland (territorial forestry) the three- to five-year maintenance period has ended. Following that period, there is a plan to conduct any necessary management work (including protection, thinning, and harvesting) that suits the model. However, because of insufficient budgeting, protection from excessive grazing, illegal logging and wildfires are given priority, and periodic thinning and harvesting is not being carried out. There is a possibility that the quality of these lands as production forests and environmental forests will decline.

The majority of afforestation on village common lands and public lands (social forestry) is being conducted by JFM. On some 30% of these lands, JFM is believed to be very proactive, with forests being managed efficiently. On another 30%, however, JFM activities are considered to be not fully active. In roughly 30% of JFM, no cooperation or participation from some villagers is being reported. Excessive grazing and illegal logging by the neighboring villages where JFM is not being conducted is also being reported in roughly two-thirds of JFM areas. Recently the Forest Department conducted a study on the state of JFM and its activities, and an investigation of future efforts is planned.

In the social forestry effort (the planting of trees in village common lands and public use lands), for the most part it is the benefiting residents who manage afforestation. Some 70% of afforestation is done on degraded farmland according to a model entitled "Ecological Rehabilitation of Degraded Farmland." This model for the most part targets small-scale farming households. Small-scale farmers, because of insufficient funds and because they take part in migrant labor, cannot sufficiently manage afforestation in many cases. For this reason, the four to six year survival rate for this model remains low at 22%.

That said, all the various facilities and equipment provided by the project are being well used, and for the most part are being appropriately maintained.

3.1 Lessons Learned

The afforestation project will have expected effect once trees are grown, but to evaluate the effectiveness, in addition to the survival rate, indices that measure growth such as diameter at breast height (DBH) and tree height are also important. Other measures also need to be used assess the achievement of the project's objectives. These include (1) indices that measure the extent of environmental improvement (including the presence of natural trees, natural regeneration, the existence of coppice regeneration, and changes in soil and moisture); (2) indices that measure the extent of residents' participation (such as the number of participants, worker man-days, and number of meetings); and (3) indices that measure the extent to which residents depend on the forests economically (including the proportion of residents' cash and non-cash earnings that derive from forest production). With regard to these indices, it is essential to gather baseline date before the project, and carry out monitoring and evaluations on a continuous basis.

3.2 Recommendations for the Gujarat State Forest Department

(1) Improvement of Planning

・ To enhance project outcome and avoid inter-village conflicts, adopt a cluster approach of watershed units in afforestation planning.

・ Use watersheds as the units for soil and water conservation planning, and allocate sufficient funds based on appropriate planning criteria.

・ To reduce the complexity of project management, determine clear focal points for plans and simplify the composition of afforestation models, thereby enhancing project outcomes.

(2) Strengthening of community involvement

・ To strengthen the socioeconomic impact of afforestation, strengthen community involvement by collaborating with local NGOs and village authorities (Panchayat), draw up appropriate project plans (including plans for species selection and planting density) that reflect socioeconomic conditions and the needs of the residents, and strengthen alignments with related projects being undertaken in the rural sector, e.g. agricultural/rural development, agricultural community

infrastructure development, watershed/water resource management etc.

・ To ensure the long-term sustainability of forest management involving the community, add to project goals to reduce economic dependency on forests to appropriate levels onto project goals, set suitable criteria for measuring forest dependency, e.g. the ratio of income from forest products to cash/non-cash earnings, and monitor these continuously.

(3) Improving the survival rate

・ In order to improve growth and survival rates for trees planted in harsh natural environments, proper tree varieties should be selected during planning, and when needed, root trainers, micro-irrigation, and other technologies should be used taking the project's economic sustainability into consideration.

(4) Proper, efficient management of afforestation

・ In order to provide appropriate management for reforested areas in state-owned forests once they are beyond their maintenance period, sufficient funds must be budgeted to execute management work drafted under a forest management working plan. In addition, forest management resource efficiency should be enhanced by strengthening increased through communication with villagers and training and educating them in a way that results in improved joint forest management.

(5) Capacity Building of Forest Department personnel

・ Training for on-site employees needs to be continued and strengthened.
・ The department should conduct an evaluation of training efficacy, and based on the results, prepare a training program. In order to ensure appropriate forest management, training should include instruction on how to understand and respond to various socioeconomic issues.

(6) Strengthening monitoring and evaluation

・ Undertake continuous monitoring and comprehensive evaluation of tree survival rate and growth (for at least five years following planting), of forest/soil conservation impacts (using the various criteria employed in the impact survey), and of the performance of resident participation schemes. Provide feedback on the

results to site workers and link to necessary measures.

Comparison of Original and Actual Scope

Items	Plan	Actual
(1) Outputs	(1) Afforestation components ・ Social Forestry: 70,500ha ・ Territorial Forestry: 160,295ha ・ Seedlings distributed: 240 million ・ Joint Forest Management: Management of state-owned forestlands by means of a JFM association (2) Development of wildlife conservation facilities: 4 national parks and 20 wildlife reserves (3) Provision of facilities to create cremations: 750 locations (4) Extension/training (including facilities development) ・ Facilities provided at 19 locations ・ Extension/training conducted 6,760 times (5) Research and development (including facilities development) ・ facilities provided at 19 locations ・ 29 studies conducted (6) Buildings provided for the Forest Department: 665 (7) Vehicles and materials and equipment provided for the Forest Department ・ 254 vehicles ・ GIS and AV equipment, power generators, air conditioners (8) Project management: 926 people employed	(1) Afforestation components ・ Social Forestry: 82,626ha ・ Territorial Forestry: 181,705ha ・ Seedlings distributed: 284.3 million ・ Established in 891 villages ・ Managed 87,638ha of planted land ・ (Conducted entry point activities to promote resident participation in 555 villages) (2) As planned. (3) As planned. (4) Development of facilities: as planned. Training and education conducted 13,679 times. (5) Provision of facilities: as planned 29 studies conducted 230 tests and experiments administered locally (6) Buildings provided for the Forest Department: 635 <u>Forest Department buildings that suffered earthquake damage and were repaired: 348</u> (7) 276 vehicles GIS and AV equipment power generators air conditioners (the actual items and their number were changed) (8) Project management: 560 people employed
(2) Project Period	January 1996-	January 1996-

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	December 2001	May 2003
(3) Project Cost		
Foreign currency	976 million yen	1,498 million yen
Local currency	17,566 million yen	17,723 million yen
	(6, 078 million rupees)	(6,361 million rupees)
Total	18,542 million yen	19,221 million yen
ODA Loan Portion	15,760 million yen	15,732 million yen
Exchange rate	1 rupee = 2.89 yen	1 rupee = 2.79 yen