



Completion Report

Project Number: 29336
Loan Number: 1605-INO
September 2008

Indonesia: Central Sulawesi Integrated Area Development and Conservation Project

Asian Development Bank

CURRENCY EQUIVALENTS

Currency Unit – rupiah (Rp)

		At Appraisal	At Project Completion
		30 November 1997	31 December 2005
Rp1.00	=	\$0.000027	\$0.000102
\$1.00	=	Rp3,730	Rp9,785

ABBREVIATIONS

ADB	–	Asian Development Bank
BAPPEDA	–	<i>Badan Perencanaan Pembangunan Daerah</i> (Regional Development Planning Agency)
BME	–	benefit monitoring and evaluation
BZF	–	buffer zone forum
CCA	–	community conservation agreement
CCMF	–	credit cooperative matching fund
CDF	–	community development facilitator
DGFPNC	–	Directorate General of Forest Protection and Nature Conservation
DGRD	–	Directorate General of Regional Development
EA	–	executing agency
FOB	–	free on board
IA	–	implementing agency
MTR	–	midterm review
NGO	–	nongovernment organization
NTFP	–	non-timber forest product
O&M	–	operation and maintenance
PCR	–	project completion review
PCU	–	project coordination unit
PIU	–	project implementation unit
SCG	–	social cohesion grant
TNC	–	The Nature Conservancy
USAID	–	United States Agency for International Development

NOTE

In this report, "\$" refers to US dollars.

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BASIC DATA

A. Loan Identification

1.	Country	Indonesia
2.	Loan Number	1605-INO
3.	Project Title	Central Sulawesi Integrated Area Development and Conservation Project
4.	Borrower	Republic of Indonesia
5.	Executing Agency	Directorate General of Regional Development
6.	Amount of Loan	\$32,000,000
7.	Project Completion Report Number	PCR: INO 1056

B. Loan Data

1.	Appraisal	
	– Date Started	28 July 1997
	– Date Completed	18 August 1997
2.	Loan Negotiations	
	– Date Started	10 December 1997
	– Date Completed	12 December 1997
3.	Date of Board Approval	27 January 1998
4.	Date of Loan Agreement	4 March 1998
5.	Date of Loan Effectiveness	
	– In Loan Agreement	2 June 1998
	– Actual	15 May 1998
	– Number of Extensions	0
6.	Closing Date	
	– In Loan Agreement	30 September 2005
	– Actual	16 June 2006
	– Number of Extensions	1
7.	Terms of Loan	
	– Commitment Charge	0.750% (ordinary capital resources)
	– Interest Rate	Libor-based (floating)
	– Maturity (number of years)	25 years
	– Grace Period (number of years)	7 years

8. Disbursements

a. Dates

Initial Disbursement	Final Disbursement	Time Interval
13 July 1998	16 June 2006	95 months
Effective Date	Original Closing Date	Time Interval
15 May 1998	30 September 2005	88.5 months

b. Amount (\$)

Category	Original Allocation	Last Revised Allocation	Amount Canceled ^a	Amount Disbursed	Undisbursed Balance ^b
01 Civil Works					
a) Katu Village Resettlement	151,000	0	151,000	0	0
b) Other Activities	5,879,000	3,936,566	1,942,434	3,970,535	(33,969)
02 Survey, Investigation, Design, and Mapping	1,136,000	1,617,203	(481,203)	1,557,134	60,069
03 Extension, Demonstration, and Training	4,735,000	2,838,825	1,896,175	2,772,741	66,084
04 Equipment, Vehicles, Furniture, and Materials	4,385,000	4,085,161	299,839	3,962,502	122,659
05 Katu Village Resettlement	320,000	0	320,000	0	0
06 Consulting Services	3,173,000	3,184,403	(11,403)	3,162,322	22,081
07 Local Community Organization Services	1,203,000	1,907,642	(704,642)	1,790,314	117,328
08 O&M and Incremental Administration Costs	771,000	637,600	133,400	536,034	101,566
09 Credit Cooperative Matching Fund	1,953,000	0	1,953,000	0	0
10 Social Cohesion Grant	299,000	253,638	45,362	233,654	19,984
11 Interest and Commitment Charges	5,974,000	4,600,000	1,374,000	3,722,269	877,731
12 Unallocated	2,021,000	38,790	1,982,210	0	38,790
99 Imprest Fund	0	0	0	0	0
Total	32,000,000	23,099,828	8,900,172	21,707,504	1,392,324

^a Two partial cancellations were carried out: \$3,062,008 on 16 July 1998 and \$5,838,164 on 17 September 2002.

^b The final undisbursed balance was canceled on 16 June 2006 and the loan was closed effective on the same date.

9. Local Costs (Financed)

- Amount (\$)	9,232
- Percent of Local Costs	51.15%
- Percent of Total Cost	29.90%

C. Project Data

1. Project Cost (\$'000)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	16,000	12,826
Local Currency Cost	37,700	18,048
Total	53,700	30,874

2. Financing Plan (\$'000)

Cost	Appraisal Estimate	Actual
Implementation Costs		
Borrower Financed	14,200	6,707
ADB Financed	26,000	17,986
USAID/TNC	3,200	1,370
Beneficiaries	4,300	1,089
Subtotal	47,700	27,152
ICC Costs		
ADB Financed	6,000	3,722
Total	53,700	30,874

ADB = Asian Development Bank, ICC = interest and commitment charges, USAID = United States Agency for International Development, TNC = The Nature Conservancy.

3. Cost Breakdown by Project Component (\$'000)

Component	Appraisal Estimate	Actual
A. Base Cost		
1. Community Development	10,300	2,371
2. Park and Buffer Zone Management	6,400	4,094
3. Rural Support and Infrastructure Services	20,100	16,631
4. Project Management and Institutional Strengthening	4,200	4,056
Subtotal (A)	41,000	27,152
B. Contingencies		
1. Physical	3,300	
2. Price	3,400	
Subtotal (B)	6,700	
C. Interest During Implementation and Commitment Charge		
Subtotal (C)	6,000	3,722
Total	53,700	30,874

4. Project Schedule

Item	Appraisal Estimate	Actual
Date of Contract with Consultants		
Project Management Adviser (international)	4th quarter 1998	November 1998
Project Management Specialist (national)	4th quarter 1998	December 1998
Consulting Firm for Community Development Component (international)	1st quarter 1999	September 1999
Consulting Firm for Rural Support and Infrastructure Services (national)	1st quarter 1999	November 1999
Civil Works Contract (major contracts)		
Construction of Betue-Doda Road III (Date of Award)		18 October 2002
Completion of Work		December 2005
Construction of Wuasa-Betue Road I (Date of Award)		15 August 2003
Completion of Works		February 2004
Equipment and Supplies		
Dates		
First Procurement		19 August 1998
Last Procurement		15 March 2006
Completion of Equipment Installation		29 March 2006
Other Milestones		
First Partial Cancelation		16 July 1998
Second Partial Cancelation		17 September 2002
Final Cancelation		16 June 2006

5. Project Performance Report Ratings

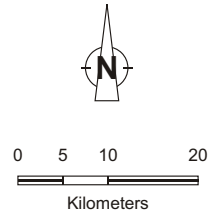
Implementation Period	Ratings	
	Development Objectives	Implementation Progress
From 30 June to 31 December 1998	Satisfactory	Satisfactory
From 1 January to 31 December 1999	Satisfactory	Satisfactory
From 1 January to 31 December 2000	Satisfactory	Satisfactory
	Impact and Outcome	Implementation Progress
From 1 January to 30 June 2001	Partly Satisfactory	Partly Satisfactory
From 1 July to 31 December 2001	Partly Satisfactory	Partly Satisfactory
From 1 January to 31 December 2002	Partly Satisfactory	Partly Satisfactory
From 1 January to 31 May 2003	Partly Satisfactory	Partly Satisfactory
From 1 June to 31 December 2003	Partly Satisfactory	Satisfactory
From 1 January to 30 June 2004	Partly Satisfactory	Satisfactory
From 1 July to 31 August 2004	Partly Satisfactory	Satisfactory
From 1 September to 31 December 2004	Satisfactory	Satisfactory
From 1 January to 31 December 2005	Satisfactory	Satisfactory
From 1 January to 30 June 2006	Satisfactory	Satisfactory

D. Data on Asian Development Bank Missions

Name of Mission ^a	Date	No. of Persons	No. of Person-Days	Specialization of Members ^a
Fact-Finding	19 March–4 April 1997	5	85	a, b, c, g, h
Appraisal	28 July–18 August 1997	5	110	a, b, c, e, f, i
Project Inception	16–19 June 1998	2	8	a, d
Project Review Mission 1	22 February–4 March 1999	2	24	j, l
Project Review Mission 2	18 January–2 February 2000	2	32	j, l
Project Review Mission 3	6–15 February 2001	1	10	n
Midterm Review	13–28 June 2002	2	21	c, l
Project Review Mission 4	13 February–12 March 2003	2	26	c, l
Project Review Mission 5	17–28 May 2004	2	18	k, l
Project Review Mission 6	15–24 June 2005	2	20	k, l
Project Completion Review	15 May–5 June 2008	4	81	m, o, p, q

^a a - project specialist, b - programs officer, c - project economist, d - senior project officer, e - counsel, f - environment specialist, g - consultant (civil engineer), h - consultant (ecotourism specialist), i - consultant (credit specialist), j - senior project specialist, k - agriculture and natural resources specialist, l - assistant project analyst, m - consultant (forest ecosystem management specialist), n - senior project engineer, o - consultant (economist), p - principal project management specialist, q - project officer.

INDONESIA CENTRAL SULAWESI INTEGRATED AREA DEVELOPMENT AND CONSERVATION PROJECT (as completed)



- | | | | |
|--|--------------------|--|----------------------|
| | Project Area | | Asphalt Road |
| | National Park | | Gravel Road |
| | Provincial Capital | | Track |
| | City/Town | | River |
| | Village | | Subdistrict Boundary |
| | Road Improvement | | Provincial Boundary |

Boundaries are not necessarily authoritative.

I. PROJECT DESCRIPTION

1. The Asian Development Bank (ADB) approved on 27 January 1998 a loan of \$32.0 million from its ordinary capital resources to support the Central Sulawesi Integrated Area Development and Conservation Project in Indonesia. In parallel with the ADB loan, the United States Agency for International Development (USAID) and The Nature Conservancy (TNC) provided \$1.37 million as grant to support one of the project components. The project objectives were to (i) improve the socioeconomic welfare of the rural communities surrounding Lore Lindu National Park, and (ii) protect the Park's biodiversity resources.

2. The project area comprised five administrative subdistricts (which have since that time been subdivided into 13 subdistricts), encompassing 227,000 hectares (ha) of park area and its surrounding 117 villages in Poso and Donggala districts of the Central Sulawesi Province. The 122,000 targeted persons (about 24,000 households) in the project area are culturally diverse, with about 68% belonging to indigenous cultural communities. About 60% of them are located within the Park's buffer zone, i.e., along or near the boundary of the Park with easy access to the Park's resources. In 1982, the Park was identified by the Government as a priority area for conservation because of its high biological diversity. It contained about 328 bird, 127 mammal, 117 reptile, 5,000 plant, and an unknown number of invertebrate species. Many of the species were endemic to Central Sulawesi.

3. Although the level of illegal logging and encroachment into the park area by the surrounding population was relatively low compared with other national parks, the Park's outer zone was subject to degradation because of indiscriminate hunting for wildlife and harvesting of such forest products as rattan, timber, and sugar palm sap. The primary factor in abuse of the Park's resources was poverty. In 1996, 87% of the population of the 117 villages in the project area had an average annual household income of about \$250, well below the provincial household poverty line of \$415. The second factor was that the plant and animal resources inside the Park were an important supplement to the cash economy of the farming community surrounding the Park. Furthermore, the lands inside the Park were viewed as means to expand the people's agriculture. The potential for further abuse of the Park was high, given the weak enforcement of protection laws and regulations.

4. The project scope included activities to (i) promote community awareness of the need for sustainable management of the natural resources and conservation of the Park's ecosystem, (ii) support local government in identifying and funding community development activities, (iii) assist the park authority to implement the 25-year Park Management Plan drafted with TNC assistance and to generate community-based initiatives to promote conservation and ecotourism activities, (iv) increase the incomes and living standards of poor communities through providing appropriate social services and infrastructure facilities, and (v) support project management and institutional strengthening.

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

5. The Project's rationale and design stemmed from the Government's recognition that an integrated approach was needed in the project area to reconcile protection for the ecological functions and unique forest habitats of the Park with the economic interest and needs of the surrounding populations. As a tropical rainforest, the Park contains a rich and diverse variety of flora and fauna. As an ecosystem, the Park provides water for irrigation and consumption,

sustenance, housing, and other materials for the surrounding communities. The economic dependence of the people surrounding the Park on forest resources was deep, and protection and sustainable management of forest resources was not feasible without the socioeconomic welfare of the communities and without their participation in resource management.

6. Thus, the project design focused on integrating a community development initiative with a protected area management system and aimed to reconcile the economic pursuits of the local population with park protection measures. Although the Park was officially gazetted as a national park in October 1993, in line with the 1992 Biodiversity Action Plan of Indonesia¹, it lacked a proper management system to manage and protect its biological diversity. A 25-year park management plan had been drafted, but it had not yet been finalized and formally approved by the Government. The project design provided technical and financial support for addressing both the communities' socioeconomic development needs and the Park's protection and management needs.

7. The project design provided for the participation of various stakeholders at regional and local levels in project implementation. While the national government sector agencies concerned were to provide necessary policy guidance, field level implementation responsibilities were vested with the park authority and the provincial and district governments' sector agencies. The design provided for a participatory approach to park and buffer zone management that was consistent with the Government's thrust for regional government and community participation in local development initiatives.

B. Project Outputs

8. The Project's logical framework, showing project objectives, components, and targets at the time of appraisal and achievements at completion, is included as Appendix 1. This also summarizes achievements at project goal and objective levels and by individual component.

1. Community Development

9. The component aimed to address the development needs of those communities most affected by the Park's establishment: 60 villages in the buffer zone, two enclaves inside the Park, and Katu village.² It is predicated on a recognition that these communities had enjoyed free access to the forest resources prior to the Park's establishment as a conservation area and have a legitimate claim to compensation in some form to offset the loss of access to forest resources. Moreover, as users of water and other natural resources whose abundance and quality are tied to the integrity of the Park as an ecosystem, they have a stake in the outcome of park protection efforts. Therefore, the component was designed to support a process to assist the villagers in responding to their changed circumstances and link them to the framework by which the local government agencies identify and fund community development activities. The five key interventions planned were (i) capacity building of communities and local government agencies in village development planning and implementation, (ii) preparation of village development proposals for funding under the Project's rural support and infrastructure component, (iii) provision of a modest social cohesion grant (SCG) to fund activities for enhancing community solidarity and promoting local culture and traditions, (iv) generation of

¹ Government of Indonesia. Ministry of Development Planning. 1992. *Biodiversity Action Plan for Indonesia*. Jakarta.

² The two enclaves, Lake Lindu enclave and Besoa enclave, have demarcated areas for agricultural activities. Katu village is a small isolated settlement within the forest area.

savings to form credit cooperatives and provision of matching funds to support income generating activities, and (v) resettlement of Katu village to another location outside the Park.

10. The Project engaged community development facilitators (CDFs) to train the communities and assist them in preparing development proposals through a process that included participatory assessment of community resources, problem analysis, preparation of development proposals, application for funding under the Government's budget planning process, and implementation. Engaging CDFs was delayed by 2 years, and participation of communities in the planning and implementation process was less than adequate, particularly during the initial years of the Project. Development proposals included construction and rehabilitation of village water supply systems, village sanitation, farmer-managed irrigation systems, drainage facilities, and an access trail. SCG funds were used for the following broad categories of activities: (i) culture and arts—constructing and rehabilitating indigenous-style community halls and houses; promoting local musical instruments, artifacts, and traditional bark and silk clothes; and promoting cultural and recreational programs through group dances and stage plays; (ii) education and science—collecting and publishing Bada and Napu folk tales; compiling and publishing Bada, Napu, and Kulawi language books; and documenting and planting locally available medicinal plants; and (iii) administration—supporting community organizations in managing SCG activities. In addition to contributions in kind and labor for some activities, communities made some financial contributions as well.

11. The generation of savings and establishment of a credit cooperative matching fund (CCMF) did not materialize, largely because of inadequate experience and expertise with the project executing and implementing agencies in developing and managing such credit funds. The design of the subcomponent at appraisal had envisaged (i) forming a credit cooperative in each village, training villagers to mobilize savings, and establishing bookkeeping and accounting systems; (ii) establishing a CCMF to provide a grant to match the savings generated; and (iii) establishing a foundation in each of the two project districts to manage the CCMF. The CCMF was supposed to be administered as a revolving fund for lending to cooperatives. The first 3 years of implementation were to focus on formation and training of groups within the 60 priority villages to form credit cooperatives. Cooperatives meeting the qualifying criteria were to start receiving matching funds in the fourth year. Little or no progress was achieved during the period, however, as CDFs tasked to assist in forming cooperatives had little or no related experience and qualifications. The executing agency (EA) and implementing agencies (IAs) considered the subcomponent design envisaged at appraisal as complex, and they proposed in August 2003 a revised design. ADB found the design insufficiently robust to meet project requirements and ensure the CCMF's sustainability. As the remaining implementation period was too short for design modification and successful implementation, the Government agreed to ADB's recommendation to cancel the subcomponent.

12. The proposal for resettling the 64 families in Katu village faced opposition from the villagers, who in December 1998 retracted from their earlier agreement to resettle in the Besoa enclave. Negotiations with communities failed, and in 2000 the Government rescinded the resettlement proposal.

2. Park and Buffer Zone Management

13. This component was designed to (i) assist in implementing the Park's 25-year management plan, and (ii) generate community-based initiatives promoting conservation and ecotourism.

a. Park Management

14. Key activities envisaged in the project design included to (i) develop and implement a 5-year park management work plan, (ii) train park guards in establishing a park boundary and inventory monitoring system, (iii) conduct inventory and ecological studies to guide park zoning for protection and sustainable uses, (iv) provide office and staff housing and field equipment for resource monitoring, and (v) improve access trails.

15. The 25-year master plan drafted in 1995 was formally approved by the Directorate General of Forest Protection and Nature Conservation (DGFPNC) of the Ministry of Forestry in June 2004. Until then, DGFPNC prepared and implemented annual work plans within the framework of the draft master plan. The 2005–2009 five-year plan was approved in November 2004 and is under implementation. A series of trainings have been conducted to train the forest guards and local people in forest boundary maintenance, the patrolling system, and conservation awareness and jungle survival. An inventory of the Park's resources and mapping using geographical information system facilities have been carried out, and plans are being finalized for undertaking a more comprehensive assessment with local community participation commencing in 2009. A field office and staff houses were constructed in the Park, but the facilities were burned down by rioters in 2002.

16. A number of studies are being conducted in the Park in collaboration with national and international institutions. TNC conducted ecological surveys for birds and small and large mammals, including their distribution patterns. The Georg-August-Universität Göttingen of Germany has an ongoing research program on the stability of rainforest margins in Indonesia. The research focuses on a number of topics, including (i) effects of the current land use on the biophysical system in the forest margin, and scenario analysis of strategies to enhance stability in the forest margins; (ii) management intensification and landscape effects on the diversity of plants, arthropods and birds, arthropod pests and predators, as well as parasitoids and pollinators; and (iii) detailed assessments of the ecological consequences of droughts in perhumid forests and cacao agroforestry systems, and how these ecosystems adapt to severe droughts. Most of the research activities will be concluded by 2009.

b. Buffer Zone Management

17. This subcomponent was designed to support four main activities: (i) establish buffer zone forums (BZFs) to promote conservation and resolve land use conflicts, (ii) assist in formulating and implementing community conservation agreements (CCAs) with local communities, (iii) assist villagers in identifying alternative sources of income, and (iv) establish a program for four gateway communities to operate small-scale tourism enterprises.

18. Six BZFs and three sub-BZFs have been established. The BZFs comprise members representing village-level conservation organizations. BZFs have played a key role in developing CCAs following a process of consultation with village government officials, traditional and religious leaders, and women and youth groups. The park management has so far approved 40 CCAs of which 14 were promoted by TNC and 26 by the Park's management office. Twenty-five CCAs promoted by the project consultants are to be reviewed and approved by the park management. Through the CCAs, the Project supported creating a 60 km long living fence along the Park boundary at selected locations using local tree species.

19. The Project supported a program to develop skills in alternative livelihood activities, including furniture-making using non-timber forest products, sewing and embroidery, brick-

making, and managing small shops and restaurants. However, most trainees have not been able to effectively use the skills acquired due to the lack of capital and access to credit facilities. Promotional materials, such as the park guidebook, posters on endemic flora and fauna, cultural heritage, and tourist maps were prepared and distributed. Ecotourism and English-language training courses were conducted for the four so-called gateway communities. While the Park has potential to attract tourists, the lack of convenient flight schedules to Palu, the only airport in the province, and occasional civil unrest in parts of Central Sulawesi have not helped in exploiting that potential.

3. Rural Support and Infrastructure Services

20. This component was designed to target all 117 villages in order to relieve support services and infrastructure constraints in health, agriculture, and access roads and trails.

21. **Water Supply, Health, and Schistosomiasis.** At completion, 75 water supply systems were constructed covering 75 villages. Sixty-three of these systems are performing satisfactorily while 12 systems require repairs to improve either the quality or volume of water delivered. These deficiencies are due to inadequate feasibility studies and/or inappropriate technical design and construction. About 11,750 sanitary latrines were installed, with higher coverage in schistosomiasis endemic villages. Fifty-four health care centers were renovated, expanded, and provided with basic equipment and facilities. Two schistosomiasis control laboratories were constructed and a comprehensive program was supported for survey and control of vector snail colonies, treating affected persons, and monitoring the schistosomiasis prevalence. Most health centers and the two schistosomiasis centers have adequate numbers of qualified technical staff and regular supply of chemicals and medicines. Local communities are generally satisfied with the services provided to them. The schistosomiasis prevalence in the two endemic areas was brought down from the pre-project rate of about 4% to less than 1.5%.

22. **Agriculture.** The Project supported establishing one rural extension center and rehabilitating another, and it financed the services of 22 additional extension staff. District and subdistrict technical staff, field extension workers, and farmers were trained in improved farming systems for both lowland and upland crops. Field demonstrations were conducted on the use of improved seeds and seedlings, fertilizer, and environment-friendly pest and disease control techniques. Demonstration plots were established on about 1,500 ha of farmers' fields, covering a range of such tree crops as cocoa, coffee, candlenuts, and various fruits.

23. Farmer participation in agricultural extension during the initial years was inadequate, and selection of project inputs and services was made without adequately assessing farmers' needs and preferences. Consequently, some of the recommended crop varieties did not meet the expectations of farmers, who were guided by their own experiences. Agronomic conditions in the valley are suitable for a variety of field, horticultural, and tree crops with high yield potential even without much use of fertilizer and pesticides. Farmers in surrounding villages have made good progress in harnessing that potential. However, agricultural land resources on the foothill buffer zones are limited and vulnerable to degradation. Further intensification of agricultural activities in such areas will require closer partnership between the farmers and local government agencies responsible for agricultural support services.

24. **Rural Infrastructure.** The Project supported constructing and rehabilitating 41.2 km of district roads and 65 km of village roads with asphalt surface and required drainage structure, as well as 103 km of trails linking remote village to roads. Riverbank protection works against flood and erosion totaling 3.4 km were undertaken in 21 villages. Thirty-three farmer-managed

irrigation systems were improved and rehabilitated. These serve 3,770 ha in 33 villages. Six mini-hydropower turbines with capacity ranging from 15 kW to 35 kW have been installed.

25. The roads have improved connectivity to the hitherto inaccessible villages, thus providing market access for agricultural produce and improving delivery support services to the rural people. Sections of the roads passing through hills were damaged by landslides and were being rehabilitated during the project completion review. The two district governments have been regular in providing funds in their annual budgets to undertake operation and maintenance (O&M) of the project roads and bridges, and overall O&M performance has been satisfactory. Nine of the 33 irrigation systems supported by the Project were damaged by a 2007 flood, thereby reducing the total service area from 3,770 ha to 2,600 ha. Arrangements were being made to rehabilitate the systems with technical and financial assistance from the two district governments. All irrigation systems are managed and maintained by farmers, and overall O&M has been satisfactory. Only two of the six hydropower units are in operation. The other four failed to operate due to inadequate water head and/or electro-mechanical faults. Project-supported infrastructure and equipment and their current status are listed in Appendix 2.

4. Project Management and Institutional Strengthening

26. This component aimed to (i) strengthen provincial and district government institutions responsible for project implementation through training, capacity building, recruiting additional staff, and varied equipment support; and (ii) ensure effective project implementation through establishing project coordination and management systems at the provincial and district levels. Specific training programs were developed and implemented for various stakeholders in participatory planning, financial management, and implementation monitoring. International and national consultants were engaged to assist project staff in planning, design, and implementing project activities. Project offices were provided with logistics support and vehicles for field visits and implementation supervision.

C. Project Costs

27. At appraisal, the total project cost was estimated at \$53.7 million, including interest during implementation and commitment charge. At project completion, the total cost was \$30.87 million, or 57.6% of the original estimate in dollar terms. ADB financing accounted for \$21.71 million, or 70.3% of the total project cost, compared with envisaged financing of 60%. The higher-than-expected ADB financing resulted primarily from ADB's decision to finance a larger percentage of project costs during 2000–2003 to alleviate the Government's counterpart funding constraints caused by the Asian financial crisis. Actual project costs were lower than the appraisal estimates in dollar terms because of (i) cost savings resulting from the rupiah's depreciation against the dollar, (ii) cancelation of the CCMF subcomponent, (iii) cancelation of the Katu villagers resettlement program, and (iv) the large amounts budgeted in the unallocated and interest during construction loan categories. Against an appraisal estimate of \$3.2 million for the United States Agency for International Development/The Nature Conservancy-financed activities, actual expenditures totaled about \$1.37 million. The total project cost at completion in local currency was Rp279.4 billion against the appraisal estimate of Rp168.5 billion. Appendix 3 compares project costs by component at appraisal and at completion.

D. Disbursements

28. The disbursement mechanism envisaged at appraisal followed ADB's standard loan agreement provisions. The project design anticipated full loan disbursement in about 7.5 years.

That was actually exceeded by about 3 months, as the loan's closing date was extended from 30 September 2005 to 31 December 2005. The loan account was finally closed on 16 January 2006. Disbursement peaked in 2003 and maintained momentum until late 2005, the last year of physical implementation. During the course of implementation, ADB approved two partial cancelations totaling \$8.9 million and corresponding reallocation across loan categories. When final cancelations are included, only \$21.708 million, or 67.84% of the original loan amount of \$32.0 million was utilized. The yearly loan utilization details are in Appendix 4.

29. The loan funds were disbursed using a range of disbursement procedures, with direct payment used for consultant payments and large civil works contracts. Imprest account and statement of expenditure procedures were used extensively. The average turnover rate of the imprest account over the 7-year period was 1.78 (using a cutoff date of December 2005). That was below ADB's standard turnover ratio of 2.00.³

E. Project Schedule

30. The Project was originally scheduled to be implemented over 7 years from April 1998 to March 2005. Actual implementation took about 7.5 years, from May 1998 to September 2005. The implementation pace varied during the project period. After a very slow start in early 1998, the project progress continued to lag considerably behind schedule until 2003. Causes of implementation delays during the earlier years included (i) political and economic crises during 1998–2000 that delayed release of counterpart funds and providing policy guidance to project management; (ii) civil riots in Poso that seriously interfered with project management and implementation, especially in 2000;⁴ (iii) delayed recruitment of consultants and CDFs; (iv) uncertainty about the resettlement program for the residents in Katu village who withdrew from an earlier agreement with the authorities to move out of the Park; and (v) project staff's unfamiliarity with ADB's procurement procedures and social and environmental safety requirements. Appendix 5 compares planned project implementation at appraisal against actual.

F. Implementation Arrangements

31. As the EA, the Directorate General of Regional Development (DGRD) of the Ministry of Home Affairs had overall responsibility for project coordination, supervision, and procurement of equipment, vehicles, and consulting services. The IAs were the district governments of Donggala and Palu plus DGFPNC through its Lore Lindu National Park Office at Palu. A team of DGRD staff in the Directorate for Synchronization and Regional Development were responsible for routine project administration and coordination. DGRD and the central government agencies involved with the Project formed a project steering committee headed by the National Development Planning Agency. A project coordination unit (PCU) was set up at the provincial planning agency (*Badan Perencanaan Pembangunan Daerah [BAPPEDA]*) in Palu for coordinating with project IAs and other stakeholders. The PCU was headed by an Echelon 2 officer supported by a team of BAPPEDA staff. A project implementation unit (PIU) was established at each of the District BAPPEDA offices in Donggala and Poso. District government service agencies for agriculture, health, and public works assisted in planning and executing field activities under the guidance of the respective PIUs.

³ Annualized imprest turnover is computed as the ratio of total liquidation over the time-weighted average fund balance for 12 months.

⁴ Project activities in the district were disrupted, and Poso-based project staff was evacuated to safety in Palu. These staff members returned to the project area only at the end of 2002.

32. Services of international and national consultants and local nongovernment organizations (NGOs) were hired under five packages to assist the EA and IAs in project management. In addition, TNC helped the park authority in some selected activities under the park and buffer zone management component using USAID grant money and its own resources.

G. Conditions and Covenants

33. The Government's compliance with the loan conditions and covenants was generally satisfactory. The standard requirements for loan effectiveness were met within the 90-day period stipulated in the loan agreement, and the loan was declared effective 19 days prior to the scheduled date. Compliance with covenants relating to project implementation, coordination, and reporting was less than satisfactory during the Project's initial years. Coordination and implementation issues were exacerbated by the economic crisis and political unrest that engulfed the country in the late 1990s. Compliance improved significantly during later years.

34. It was expected that the TNC-drafted 25-year management plan for the Park would be approved and a 5-year work plan within the framework of the master plan would be prepared by the end of the Project's first year. Approval of the master plan and formulation of a 5-year work plan was delayed until the end of 2004. Nevertheless, annual work plans consistent with the master plan were prepared and formed the basis for the park and buffer zone management activities during years prior to 2005.

35. Project accounts and financial statements were audited annually, and audit reports were submitted to ADB on schedule. Audit reports identified cases of overpayments to contractors or suppliers totaling Rp533.08 million (\$59,225 equivalent). Rp228.17 million (\$25,352) was recovered, and the Rp 304.91 million balance remains outstanding. The issue was discussed by ADB Headquarters and Indonesia Resident Mission staff with the project coordinator, former and current project managers, and relevant staff of the Supreme Audit Agency in a meeting at BAPPEDA in Palu on 20 June 2005. This was followed up by two letters from ADB Headquarters. The matter was raised by the Project Completion Review Mission, and the authorities undertook to recover the outstanding overpayments by 25 July 2008. An advice from them is awaited. The status of compliance with major loan covenants is given in Appendix 6.

H. Consultant Recruitment and Procurement

36. Consultants were selected and engaged in accordance with ADB's *Guidelines on the Use of Consultants* (October 1998). A total of 89.5 person-months of international and 555.8 person-months of national consulting services were utilized, compared with the appraisal provision of 74 person-months international and 275 person-months of national consulting services. The consultants' services included (i) individual contracts for project management advisers (1 international, 37.5 person-months) and for project management specialists (4 nationals, 55 person-months); (ii) an international firm for 18 person-months of management adviser services; (iii) an international firm in association with a national firm for 27.4 person-months of international experts in participatory planning and training plus monitoring and evaluation, and 237.3 person-months of national experts in resettlement, community development, buffer zone management, environment, agriculture, and financial management; (iv) a national firm for 208.5 person-months of national experts in health care, schistosomiasis, water supply and sanitation, roads, water resources (irrigation, river training, and mini-hydropower), and geographic information system; and (v) a national firm for 55 person-months of national experts' services in monitoring and evaluation, handicrafts, and English language. The Project also engaged an NGO to provide CDF services.

37. Need for additional consulting services were identified at various stages during project implementation. The ADB Midterm Review Mission in June 2002 identified service needs in the fields of microfinance, financial management, and agriculture. That review also identified a need to extend the services of a number of experts because of the slow pace of project implementation during the first half of the project period. In early 2005, and with ADB approval, addenda were made to existing contracts ensuring availability of consultants for some key activities, such as for preparing an exit strategy and holding related workshops, as well as documenting project activities and achievements.

38. Equipment (mainly computers, laboratory and geographic information system equipment, specialized items, and vehicles) was procured through a mix of international shopping, local bidding, and direct purchase. Civil works contracts packages were simple, and local contractors had the necessary skills and capacity to undertake these works. Therefore, local competitive bidding was used for construction and improvement of rural infrastructure, including to construct roads and bridges, irrigation systems, health centers, and water supply facilities. Some small works were carried out using the force account procedure.

I. Performance of Consultants, Contractors, and Suppliers

39. Performance of consultants during the initial year was less than satisfactory. Most of them were slow in helping develop integrated work programs for the managers and implementers to follow and getting involved in quality control of project works at planning, design, and acceptance stages. Performance started improving after mid-2002, and most consultants (except the civil engineer covering irrigation, river training, and mini-hydropower) ultimately made important contributions in technical and administrative supervision. TNC performed well as a development partner and as a technical assistance provider. However, its activities in park and buffer zone management started 1 year later than originally scheduled. This, in turn, delayed some other activities such as concluding the community conservation agreements, which had to wait for completion of the first five pilot agreements through TNC. The CDFs engaged through a national NGO performed variously, and training courses were arranged to strengthen their skills in community development. Most of them, however, lacked qualifications and experience in credit cooperative development—an important element of their terms of reference—and failed to make any meaningful contributions.

40. Suppliers performed satisfactorily, and no major problems were encountered with regard to the delivery of goods and their quality. Except for some deficient quality in works related to irrigation, drainage, and riverbank protection, which were also attributed to inadequately detailed engineering and construction supervision, most civil works contractors performed satisfactorily.

J. Performance of the Borrower and the Executing Agency

41. The overall performance of the EA and IAs was satisfactory in achieving project targets, albeit with some delays during initial years caused by a host of factors mostly being beyond their control, including the political and financial crises, transition to regional autonomy and devolution of responsibilities from the central to district governments, and civil unrest in parts of the project area. There were several changes in top officials and project personnel in most of the agencies involved. These changes affected the continuity of policy directions and the skills balance at provincial and district levels.

42. The Project's objective of socioeconomic development of the rural poor in harmony with conservation of the forest ecosystem in the project area required close coordination amongst the participating institutions and agencies at provincial and district levels. The Project had difficulties in achieving the required level of coordination during the initial years, and this was largely due to inadequate understanding of the project concept and design and/or a lack of willingness among staff to share information. The situation was exacerbated by inefficient management of project consultants and the NGO. Consultants and NGO service contracts were not shared by DGRD with the PCU and PIUs who were responsible for implementing the Project at field level. The situation improved gradually, particularly after the midterm review (MTR), providing opportunities for successful implementation of the project activities.

43. Two major social and environmental concerns—resettling of Katu village residents and construction of Wuasa-Puna bridge road—were handled prudently by those agencies concerned. When the Katu village residents withdrew from the earlier agreement to resettle at a location outside the Park, an interministerial working group initiated dialogue with the residents to find an acceptable solution. Negotiations failed, however, and the park authorities conceded to residents' demand for allowing agricultural activities in a defined area within the Park. While the arrangement makes preserving the Park's ecosystems more challenging, subsequent developments elsewhere in the buffer zone suggest that it helped avoid a more difficult situation. A comprehensive environmental impact assessment of the Wuasa-Puna bridge road and its alternative alignment confirmed significant negative impact on the Park's ecosystems, and the agencies decided not to construct the road and use the potential savings for developing village roads and trails in the service areas of the proposed road.

K. Performance of the Asian Development Bank

44. The PCR rates ADB's performance as satisfactory. Three ADB staff members were responsible in succession for overseeing the Project during the implementation period as project officer: a senior project specialist (appraisal mission leader), a project economist, and an agriculture and natural resources management specialist. Eight supervision missions were fielded over 8 years, with a memorandum of understanding or aide memoire prepared at the end of each mission clearly setting out recommended follow-up actions. All missions comprised two members: the project officer and the project analyst. A MTR was conducted jointly with the Government in June 2002. The MTR's memorandum of understanding incorporated a comprehensive and candid assessment of problems and issues facing the Project and provided a time-bound action plan of corrective measures agreed by the parties concerned. The MTR was a turning point, and the implementation performance started improving thereafter.

45. The Government regards ADB's oversight of the Project as satisfactory, noting the intensive and strong recommendations and support that were provided during project reviews. The Government considers that the missions' effectiveness would have been further enhanced if some of them had included a conservation specialist. The Government regarded ADB as quite responsive in providing explanations and information and responding to queries. It indicated, however, that ADB's procedures were complicated, and significant time was needed to comply with the procedural and approval processes associated with procuring goods and services.

III. EVALUATION OF PERFORMANCE⁵

A. Relevance

46. Overall, the Project is rated “highly relevant,” both at time of approval and completion. The Project was designed to address two major problems: (i) rural poverty, and (ii) degradation of natural resources. These two problems are closely interrelated, particularly in and around the Lore Lindu Park (para. 3). The project design recognized the need to address these simultaneously in order to break the vicious cycle of environmental degradation and poverty.

47. The project strategy was to build a mutually supportive and sustainable relationship between the Park and the local people. It was designed to address multifaceted development needs in the project area through strengthening the capacity of local government agencies to work with the communities directly in identifying and addressing site-specific needs. It also supported implementing park and buffer zone management activities to protect and enhance the Park’s biological resources, with participation of the people in the surrounding villages who had hitherto exploited forest resources.

48. The project design and objectives at approval were very much in line with ADB’s country development strategy for Indonesia promoting sustainable economic growth and reducing poverty. The Project remains in line with ADB’s strategies at completion, with poverty reduction cited as a key priority, including an emphasis on environmental management and sustainable use of natural resources through participatory approaches at local level.

49. The Project was consistent with Indonesia’s policies and strategies at the time of approval (Sixth Five-Year Development Plan [REPELITA VI, 1993/94–1998/9]) and remains so at completion. At approval, the Government’s policies emphasized the need for reducing rural poverty and improving natural resources management. The policies recommended community empowerment, social services improvement, rural infrastructure development, and decentralized planning and development as important elements in the process to reduce poverty. The policies also recognized the need to foster community participation for sustainable management of biological resources as recommended in the 1992 Indonesia Biodiversity Action Plan.

B. Effectiveness in Achieving Outcome

50. The Project is assessed “effective” in meeting most of its objectives and target outcomes. An initial impact assessment survey was conducted toward the end of 2005, and its findings are reflected in the project framework in Appendix 1. Most of the socioeconomic welfare targets have been achieved, and indications are there that the remaining targets will be achieved in the short to medium term. Annual household incomes in the 64 priority villages increased by 43% within 6 years (i.e. 2005) after the project commencement, against a target of 30%. By the end of 2008, the household incomes are expected to increase by 48% over the pre-project level (Appendix 7, Table 4). Against a target of 50% household coverage by the rural infrastructure, project achievements are as follow: (i) water supply systems covered 64% of households in the area, (ii) sanitary toilets installed raised the coverage to 56% of households, and (iii) roads and trails constructed and rehabilitated provided improved access to 80% of the population.

⁵ For project loans, the Operations Evaluation Department’s guidelines use four core criteria for rating performance: relevance, effectiveness, efficiency, and sustainability (see guidelines at <http://www.adb.org/Documents/Guidelines/Evaluation/PPER-PSO/default.asp>).

51. With the upgrading of health clinics, all the 117 villages in the project area now have facilities that meet the national government standards for rural health clinics. The Project Completion Review Mission visited a few health clinics and noted that the staff complement met the standard provision, and villagers and other stakeholders expressed their satisfaction with the services provided. The Mission visited the two schistosomiasis control stations established by the Project and noted that there has been a steady decline of prevalence in one cluster from the pre-project rate of 4% to less than 0.5%, while the prevalence has fluctuated between 0.6% and 1.5% in the other cluster where controlling of the vector snail colonies has been relatively difficult due to unfavourable topographic conditions.

52. The overall progress in achieving the natural resources management targets is considered satisfactory, but the achievements of some of the subcomponents at project completion have been less than satisfactory. The eight BZFs in the project area remain active and contribute to public awareness of the issues affecting the Park's biological resources and measures initiated to conserve the resources. CCAs have been made with all the priority villages, and the overall compliance has been generally satisfactory. Some farmers have been making use of the alternative livelihoods skills provided under the Project, and the wider application of the skills has been constrained by the lack of capital. Since 2007, the park authority has been providing technical and financial support for an alternative livelihood program using 20% of its nonrecurring development budget. That program will ease the capital constraint, albeit on a limited scale.⁶

53. According to a 2007 survey by the park management, a total of 3,583 ha was affected by encroachment during 1998–2001, of which 1,447 ha is currently used for farming. With the improvement of the sociopolitical environment in the province, and including the project area, no further encroachment into the Park occurred and some encroachers had since left the park area. According to park management, the number of encroacher families went down from its peak of 430 in 2002 to 247 in 2007. The park management and local authorities have been negotiating with the remaining families to find a mutually acceptable solution to the encroachment problem.

54. Strengthening of the staff complement and logistic supports, along with a steady increase in annual budgets since upgrading of the park status to a subdirectoriate in 2002 and a directorate in 2007, have significantly improved the park management efforts. The 5-year plan (2005–2009) provided more opportunities than in previous years for strategically planning park management activities and ensuring their continuity and consistency with the 25-year master plan. The planned comprehensive updating of the park inventory will provide an important basis for further improving the park management.

C. Efficiency in Achieving Outcome and Outputs

55. The Project is assessed as “efficient.” Financial and economic analyses were carried out based on a comparison of with- and without-project scenarios for the Project as a whole and for each component. The findings are given in Appendix 7. The Project's economic internal rate of return (EIRR) is estimated at 16% as compared with the EIRR of 18% estimated at appraisal. The difference appears to be mainly due to the lower benefits from the irrigation and flood protection, forest conservation, and mini-hydropower subcomponents (Appendix 7, Table 1). A sensitivity test was conducted on the EIRR analysis by changing O&M costs and project benefits. The resultant project EIRR is not sensitive to cost changes, but it is to benefit changes.

⁶ The program covered five villages in 2007 and six villages in 2008.

A 20% increase in O&M costs will reduce the EIRR to 15.4%, and a 20% shortfall in benefits will reduce the EIRR to 13.2%.

D. Preliminary Assessment of Sustainability

56. The Project is assessed as “likely sustainable.” The district governments have been providing O&M budgets for the project-supported roads, health clinics, and schistosomiasis control stations, and the overall O&M status of these infrastructures and facilities have been satisfactory. Road sections in hilly terrain might be subject to landslides and need emergency repair and rehabilitation. While the 2008 O&M budget is adequate for such major rehabilitation needs (para. 25), allocations in later years will need to be gradually increased to maintain the current O&M standard. The irrigation systems improved and rehabilitated have existing water users associations with well-defined arrangements for undertaking normal O&M. For major rehabilitation of damages to structure caused by floods and landslides, water users associations depend upon district governments for technical and financial assistance. Such assistance is often delayed because of procedural requirements and unavailability of funds in the district budget. Institutional and financial arrangements for O&M of village water supply systems are similar to those for village irrigation, and the facilities are being managed satisfactorily.

57. Sustainable management of the project area’s natural resources depends upon the continued efforts by the local communities and the park management. To ensure this, the community awareness and participation programs need to be reinforced and continued. Some BZFs have asked for incentives for their protection and conservation initiatives. While such incentives may not be in the form of cash allowances, as the resource management is in the interest of the communities, incentives in other forms to encourage enhanced and continued participation may be considered by local governments and the park management. Some 247 families have made claims on 3,583 ha of park area. All of these families encroached into the park area during 2000–2001. These encroachers and the 64 families living in Katu village pose major challenge to the Park’s conservation initiatives unless they are relocated outside the Park or technically and economically viable conservation agreements are reached with them. There have been no fresh encroachments into the park area since 2002, and the incidence of illegal logging went down to 273 ha in 2005 and 27 ha in 2007. The decline can be largely attributed to increased community awareness and participation in conservation initiatives plus the park management’s strengthened surveillance and monitoring.

58. The present park management is committed to the rationale for establishing the Park, and it has been proactively working with development partners and local stakeholders in maintaining the Park’s integrity and biodiversity. There has been increasing policy and financial support to the park management from DGFPNC, which has improved the Park’s sustainability.

E. Impact

59. Based on the assessment at project completion review, the Project’s impact is considered significant. The Project has considerably improved the socioeconomic conditions of the target communities, and substantial progress has been made in meeting the goal of raising some of the key human development indicators in the priority villages to provincial level averages by 2010 (Appendix 1). The household access to potable water in the priority villages exceeds the provincial average of 67%. The wide gap of poverty incidence between the province and the project area was steadily reduced, and, in 2005, the poverty incidence in the project area was 30% against the provincial average of 22%. Reliable data on infant mortality in the project area were not available to the Project Completion Review Mission, but it is expected

that the substantial improvements in the health services in the project area must have brought down the mortality rate significantly.

60. In the absence of appropriate monitoring and survey, it is not possible to assess and confirm the project impact on the natural resource base in the project area in terms of quality and quantity of groundwater, river flows, soil fertility, and tree coverage. However, the Project Completion Review Mission discussions with stakeholders at provincial, district, and field levels confirmed that there have been no major developments that could have any significant negative impact on the aforementioned resource parameters. The increased community awareness, substantial reduction in illegal logging, and improved park management will positively impact on the natural resources base in and around the park area.

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

61. Overall, the Project is assessed as “successful.” It was highly relevant to the Government’s and ADB’s development strategies and policies at formulation, and it continues to be highly relevant after completion. Despite some major implementation problems and initial delays due to various factors—some of which were beyond the control of the project EA and IAs—the project was completed without any significant extension of the project completion and loan closing dates. It has significantly increased the socioeconomic conditions of the targeted communities. The Project has made encouraging progress in establishing a program for protection and conservation of the Park’s natural resources. The Project is economically viable, and the recalculated EIRR of 16% is considered acceptable for a project with an emphasis on rural development, capacity building, and resource conservation and management.

62. The Project was the second of two ADB-assisted investment projects in Indonesia aimed at, among other things, protecting and conserving forest ecosystems.⁷ Both the projects faced major implementation problems during the initial years, the major common problem being inadequate coordination among the government agencies involved in project implementation. The earlier project was wound up halfway through its implementation, but the Government and ADB succeeded in their efforts to continue with and complete the second project. This was possible largely because of a design that allowed blending conservation initiatives with local development programs while involving the participation of local stakeholders.

B. Lessons

63. Key lessons derived from the project implementation are as follow:
- (i) Effective coordination and information-sharing are essential for successful implementation of a project involving multiple agencies.
 - (ii) The concept and design of a project simultaneously aimed at meeting the multifaceted development needs of the communities and protecting and conserving the natural resources may not be easily appreciated by the implementers and stakeholders and thus require special efforts.
 - (iii) Credit cooperatives development should be handled by experienced institutions, and efforts should be made to utilize the services of existing rural financing institutions rather than to develop new institutions.

⁷ The other project was Loan No. 1187-INO (SF): Biodiversity Conservation Project in Florence and Siberut, approved on 12 November 1992 for \$24.5 million equivalent.

- (iv) Because of the inherent difficulties in implementing an integrated area development project, care should be taken to avoid components introducing new facilities that require special skills and experience in design, construction, and operation.
- (v) Community participation is the key to rural development and sustainable resource management.

C. Recommendations

64. The Project has been completed with reasonable success, and its effectiveness should be enhanced and sustainability ensured. The Project Completion Review Mission recommends the following:

- (i) Coordination and information sharing between the park management, provincial and district agencies, TNC, and other institutions involved in the project area should be continued.
- (ii) The 25 CCAs prepared with the assistance of project consultants should be submitted to the park management for review and approval.
- (iii) Community members trained in alternative livelihood skills should be assisted by the district governments in accessing credit from such rural financing institutions as Bank Rakyat Indonesia.
- (iv) District governments should provide technical and financial assistance to water users associations for urgent rehabilitation of the nine irrigation systems damaged by flood. Similar assistance should be provided for improving the 11 water supply systems that yield water of unsatisfactory quality.
- (v) O&M budgets for the project supported roads should be gradually increased.
- (vi) Community awareness efforts regarding conservation needs and community involvement in resource management and surveillance have been effective and should receive continued support from both the park management and district governments.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Indicators at Project Appraisal	Data Source & Reporting Mechanism	Assumptions and Risks	Revised Performance Indicators	PCR Evaluation of Accomplishments
1. Goal (Impact)			Assumptions		
<p>To promote economic development and resource management that are environmentally sound and beneficial for both the local population and Lore Lindu National Park</p>	<ul style="list-style-type: none"> • Key human development indicators (infant mortality rates, access to water supply, and households below poverty line) in priority project villages will be brought up to the provincial average by 2010. • Natural resource base of the settled project area is protected as indicated by healthy groundwater, river flows, soil fertility, and increased tree cover by 2000. 	<ul style="list-style-type: none"> • Provincial and district statistics • Completion report • Benefit monitoring and evaluation (BME) system • Completion report • BME system • Lore Lindu National Park ecosystem monitoring reports 	<ul style="list-style-type: none"> • Decentralization supported by local skills and resources. • Adequate government commitment for sustainable development • No natural disasters • Enforcement of the park protection measures has a high priority with the local government. • Adequate budget and staff for park management 	<ul style="list-style-type: none"> • Key human development indicators (infant mortality rates, access to water supply, and households below poverty line) in priority project villages will be brought up to provincial averages by 2010. • Natural resource base of the settled project area is protected, as indicated by healthy groundwater, river flows, soil fertility, and increased tree cover by 2000. 	<ul style="list-style-type: none"> • 84% of population in priority villages have access to potable water against 67% in the province in 2007. Poverty incidence in these villages reduced from pre-project level of about 87% to about 30%. • Groundwater and river flow data are inadequate for drawing conclusion. Illegal logging and deforestation have decreased significantly (2.2 below).

Design Summary	Performance Indicators at Project Appraisal	Data Source & Reporting Mechanism	Assumptions and Risks	Revised Performance Indicators	PCR Evaluation of Accomplishments
<p>2. Objectives (Outcome)</p> <p>2.1 To improve the socioeconomic welfare of rural communities surrounding the Park</p> <p>2.2 To protect the Park's biodiversity resources through strengthening park management</p>	<ul style="list-style-type: none"> • Annual household incomes in 60 villages increased by 30% within 6 years after the Project begins in these villages. • 50% of households have access to clean water, toilets, and roads. • All (117) villages in the project area provided with rural health services and facilities to the government standard. • Schistosomiasis incidence will be not greater than 2% by 2000. • Environmentally sound land use practices exist in all villages adjacent to the Park, as indicated by replacement of annual crops with perennial crops on steep slopes and stabilization of slopes with contouring and alley-cropping. • The Park is managed effectively, as indicated by reconciled boundary, decrease in illegal 	<ul style="list-style-type: none"> • BME surveys in years 1, 3, and 7 • Review missions • Completion report • Health Department reports 	<ul style="list-style-type: none"> • Accountability and transparency in fund management • Strong commitment and motivation of government staff • Farmers motivated to commence conservation farming. • Environmental degradation can be controlled or reversed. • Strong support by the central government for provincial 	<ul style="list-style-type: none"> • Annual household incomes in 60 villages increased by 30% within 6 years after the Project begins in these villages. • 50% households have access to clean water, toilets, and roads. • All (117) villages in the project area provided with rural health services and facilities to the government standard. • Schistosomiasis incidence will be not greater than 2% by 2000. • Environmentally sound land use practices exist in all villages adjacent to the Park, as indicated by replacement of annual crops with perennial crops on steep slopes and stabilization of slopes with contouring and alley-cropping. • The Park is managed effectively, as indicated by reconciled boundary, decrease in illegal 	<ul style="list-style-type: none"> • Annual household incomes in 64 priority villages increased by 43%. • Households with access to clean water, toilets, and roads increased to 64%, 56%, and 80% respectively. • All (117) villages now have rural health services and facilities meeting the government standard. • Schistosomiasis prevalence rate decreased to 1.5% by 2007. • Environmentally sound land use practices initiated in most villages. Tree crops and forest trees planted on 1,500 ha of sloping lands. Slash-and-burn agriculture not completely abandoned and still practiced as part of local culture in some villages. • The park management office status and resources substantially enhanced. Boundary

Design Summary	Performance Indicators at Project Appraisal	Data Source & Reporting Mechanism	Assumptions and Risks	Revised Performance Indicators	PCR Evaluation of Accomplishments
	harvesting, and sustainable financing for management of the Park.		sustainable development	harvesting, and sustainable financing for management of the Park	reconciled and demarcated. Illegal harvesting decreased from 1,500 hectares (ha) per year in mid-1990s to 273 ha in 2005 and 21 ha in 2007.
<p>3. Project Components (Outputs)</p> <p>3.1 Community Development</p> <p>(i) Local government and village development planning and implementation capacity enhanced.</p> <p>(ii) Establishment and operation of funding</p>	<ul style="list-style-type: none"> • 50 local government officials trained in participatory planning. • 60 village development plans implemented. • 60 community conservation agreements (CCAs) implemented. 	<ul style="list-style-type: none"> • Progress reports • Review missions • Based on village and indigenous 		<ul style="list-style-type: none"> • 50 local government officials trained in participatory planning. • 60 village development plans implemented. • 60 CCAs implemented 	<ul style="list-style-type: none"> • More than 50 provincial, district, and subdistrict officials and village heads and community leaders trained in participatory planning. • 64 village development plans developed and served as a basis for project investment program. • 66 CCAs prepared, including 40 to be reviewed and approved by the park management

Design Summary	Performance Indicators at Project Appraisal	Data Source & Reporting Mechanism	Assumptions and Risks	Revised Performance Indicators	PCR Evaluation of Accomplishments
<p>systems:</p> <ul style="list-style-type: none"> • Social cohesion grant (SCG) • Credit cooperative matching fund (CCMF) <p>(iii) Resettlement of Katu village</p>	<ul style="list-style-type: none"> • About \$20 per household utilized for qualified activities. • About \$155 per household utilized for income-generating activities. • About 60 households relocated outside the Park. 	<p>peoples development plans</p> <ul style="list-style-type: none"> • Based on resettlement plan 		<ul style="list-style-type: none"> • About \$20 per household utilized for qualified activities. • About \$155 per household utilized for income-generating activities. • About 60 households relocated outside the Park. 	<ul style="list-style-type: none"> • SCG established and effectively utilized. Activities supported enhanced self-esteem and community bondage and promoted preservation of local culture and traditions. • CCMF canceled. Lack of experience and expertise at Executing Agency and late start meant failure to develop a viable institutional framework for CCMF. • Villagers withdrew from an earlier agreement, and the Government rescinded the resettlement proposal in 2000.
<p>3.2 Park and Buffer Zone Management</p> <p>(i) Park constructed and upgraded.</p>	<ul style="list-style-type: none"> • Office, research post, 5 guard posts, and 30 staff houses constructed or upgraded. 	<ul style="list-style-type: none"> • Progress reports • Review missions 		<ul style="list-style-type: none"> • Office, research post, 5 guard posts, and 30 staff houses will be constructed or upgraded. 	<ul style="list-style-type: none"> • New park management office built in 2004 in Palu. Forest guard posts and staff houses were upgraded. Guard posts, visitor center, guesthouses, and research post in Kamarora burnt down by rioters following the 2000–2001 encroachments. New

Design Summary	Performance Indicators at Project Appraisal	Data Source & Reporting Mechanism	Assumptions and Risks	Revised Performance Indicators	PCR Evaluation of Accomplishments
(ii) Park use areas zoned.	<ul style="list-style-type: none"> • 550 kilometers (km) of park boundary secured. • 240 km of trails are constructed. • Targets for surveys, studies, and training activities are determined during year 1. 	<ul style="list-style-type: none"> • United States Agency for International Development (USAID) and The Nature Conservancy (TNC) project reports 		<ul style="list-style-type: none"> • 550 km of park boundary secured. • 240 km of trails are constructed. • Targets for surveys, studies, and training activities are determined during year 1. 	<p>guard posts constructed in other locations.</p> <ul style="list-style-type: none"> • Park boundary demarcated. • Construction and rehabilitation needs confirmed for only 70 km trails surrounding Park, and all works completed. Park management rehabilitated and maintained trails within Park using separate fund. • Draft zoning maps being validated and to be finalized in 2008. TNC conducted ecological surveys for birds and small and large mammal distribution patterns. Other partners conducted demographic, river catchment, and erosion surveys. Survey results served as a basis for park zoning. Georg-August-Universität Göttingen of Germany conducting various researches under a program entitled Stability of Rainforest Margins in Indonesia (STORMA). Various

Design Summary	Performance Indicators at Project Appraisal	Data Source & Reporting Mechanism	Assumptions and Risks	Revised Performance Indicators	PCR Evaluation of Accomplishments
<p>(iii) Buffer zone forums (BZFs)</p> <p>(iv) Community-based ecotourism program developed.</p>	<ul style="list-style-type: none"> • 13 forums are formed. • 11 training and education workshops are completed. • 6,000 brochures and 3,000 leaflets are produced. • 3 trade fairs are held. 			<ul style="list-style-type: none"> • 6 BZFs formed at subdistrict level. • 11 training and education workshops are completed. • 6,000 brochures and 3,000 leaflets are produced. • 3 trade fairs are held. 	<p>trainings on sustainable park management undertaken using project and bilateral assistance.</p> <ul style="list-style-type: none"> • 6 subdistrict buffer zone forums and 3 regional sub-forums (in Kulawi) have been established. BZFs assisted in developing and implementing CCAs and reducing encroachment effects. • Ecotourism and English language training for gateway communities' and government officials, teachers, home-stay managers, and local guides conducted. • 6,000 brochures, 3,000 leaflets, and other campaign materials such as Lore Lindu National Park guidebook, posters of megaliths and of endemic flora and fauna, and tourist maps produced and distributed at the trade fairs, airports, and hotels. • 5 trade fairs arranged to promote Central Sulawesi and Lore Lindu National Park as attractive Tourist destinations.

Design Summary	Performance Indicators at Project Appraisal	Data Source & Reporting Mechanism	Assumptions and Risks	Revised Performance Indicators	PCR Evaluation of Accomplishments
				<ul style="list-style-type: none"> Draft regional legislation for buffer zone management completed. 	<ul style="list-style-type: none"> Regional legislation on buffer zone management prepared and approved by the provincial legislative council.
<p>3.3 Rural Support and Infrastructure Services</p> <p>(i) Improved water supply and sanitation</p> <p>(ii) Rehabilitated and upgraded health service facilities</p> <p>(iii) Strengthened monitoring and evaluation program for schistosomiasis</p>	<ul style="list-style-type: none"> Domestic water supply systems in at least 60 villages rehabilitated or constructed, then maintained. Sanitary latrines for around 13,500 households and schools installed. 6 village health service units, 20 subdistrict health centers, and 30 provincial health centers 150 health staff in 69 villages trained in management, participatory, and clinical skills. 11 intersectoral workshops and integrated schistosomiasis control seminars held. Schistosomiasis laboratory 	<ul style="list-style-type: none"> Progress reports Review missions 		<ul style="list-style-type: none"> Domestic water supply systems in at least 60 villages rehabilitated or constructed, then maintained. Sanitary latrines for around 13,500 households and schools installed. 6 health centers, 20 health sub-centers, and 30 midwife centers rehabilitated and equipped. 150 health staff in 69 villages trained in management, participatory, and clinical skills. 11 intersectoral workshops and integrated schistosomiasis control seminars held. Schistosomiasis 	<ul style="list-style-type: none"> Construction and/or rehabilitation of 75 water supply systems completed. 60 systems are performing satisfactorily, and 12 systems require repairs to improve either the water quality or volume. 11,750 sanitary latrines installed. 55 centers have been renovated and equipped. All medical staff at health centers trained in management, participatory, and clinical skills. Workshops and seminars held, and the findings incorporated into integrated programs implemented by related agencies. Schistosomiasis

Design Summary	Performance Indicators at Project Appraisal	Data Source & Reporting Mechanism	Assumptions and Risks	Revised Performance Indicators	PCR Evaluation of Accomplishments
(iv) Strengthened agricultural extension	<p>in Desa Tornado rehabilitated.</p> <ul style="list-style-type: none"> • Annual snail track surveys conducted. • 12 field workers recruited and trained. • 1 rural extension center rehabilitated or constructed. • Extension materials developed, and on-farm trials and demonstrations for perennial and annual crops conducted. • 2 district nurseries and 30 village nurseries established to supply planting materials. • Study conducted on agroforestry and rattan potential. • 17 farming system surveys in western Kulawi completed. 		<p>Assumptions</p> <ul style="list-style-type: none"> • Commitment and motivation of extension staff 	<p>laboratories in Desa Tomado and Wuasa rehabilitated.</p> <ul style="list-style-type: none"> • Annual snail track surveys conducted. • 2 veterinary schistosomiasis warning centers constructed and put into operation. • 22 field workers recruited and trained. • 1 rural extension center rehabilitated or constructed. • Extension materials developed, and on-farm trials and demonstrations for perennial and annual crops conducted. • 2 district nurseries and 30 village nurseries established to supply planting materials. • Study conducted on agroforestry and rattan potential. • 17 farming system surveys in western Kulawi completed. 	<p>laboratories in Desa Tomado and Wuasa rehabilitated and equipped.</p> <ul style="list-style-type: none"> • Annual surveys undertaken. • Completed in Wuasa, Lore Utara Subdistrict but not being optimally used. • 22 extension staff recruited and trained. • 1 rural extension center constructed and 2 rehabilitated. • Extension materials developed. and 250 demonstrations carried out in farmers' fields. • 2 subdistrict nurseries were established but did not function well. 52 temporary village nurseries were established in support of tree crops demonstrations. • The studies conducted. • Surveys covering 14 remote villages in western Kulawi completed, but only a few farming systems followed up due to area's remoteness.

Design Summary	Performance Indicators at Project Appraisal	Data Source & Reporting Mechanism	Assumptions and Risks	Revised Performance Indicators	PCR Evaluation of Accomplishments
<p>(v) Farmer-managed irrigation schemes rehabilitated.</p> <p>(vi) Improved rural infrastructure</p>	<ul style="list-style-type: none"> • About 30 schemes rehabilitated, covering about 3,800 ha. • 62 km of village access and connector roads upgraded. • 34 km of a new road (Wuasa-Puna bridge section) constructed. • 220 km of village tracks and trails improved. • Riverbank protection structures on about 20 km of threatened sections improved. • 5 community-managed mini-hydropower stations constructed. 		<ul style="list-style-type: none"> • Identification of schemes • Communities are registered as water user associations. • Communities are capable of operation and maintenance. 	<ul style="list-style-type: none"> • About 30 schemes rehabilitated, covering about 3,800 ha. • 41.5 km of district roads and 65 km of village roads upgraded. • 34 km of a new road (Wuasa-Puna bridge section) constructed. • 220 km of village tracks and trails improved. • Riverbank protection structures on about 20 km of threatened sections improved. • 5 community-managed mini-hydropower stations constructed. 	<ul style="list-style-type: none"> • 33 schemes upgraded or rehabilitated, serving about 3,770 ha. • 41.5 km of district roads and 65 km of village roads completed. • Road was not constructed due to potential environmental impact. • Rehabilitation needs confirmed and rehabilitation done for 103 km of village trails. • The initially applied vegetative methods as proposed in the project design proved not feasible. In later years gabions were constructed along 4.2 km of riverbanks using allocated budget. • 6 Mini-hydropower stations installed. Four ceased to operate due to technical problems.
<p>3.4 Project Management and Institutional Strengthening</p> <p>(i) Provincial project implementa-</p>	<ul style="list-style-type: none"> • Project coordination committee established in year 1. 		<ul style="list-style-type: none"> • Effective interagency communication 	<ul style="list-style-type: none"> • Project coordination committee established in year 1. 	<ul style="list-style-type: none"> • Project coordination committee established on 17 June 1998.

Design Summary	Performance Indicators at Project Appraisal	Data Source & Reporting Mechanism	Assumptions and Risks	Revised Performance Indicators	PCR Evaluation of Accomplishments
<p>tion capacity strengthened.</p> <p>(ii) Institutions at village level strengthened</p>	<ul style="list-style-type: none"> • Project coordination unit (PCU) and project implementation units (PIUs) established and operating at provincial and district levels in year 1. • Management information, BME, and accounting systems established in year 1. • Participatory workshops held for all stakeholders of the Project • 60 village development plans funded. • Annual work plans and budget plans in place. 		<p>and cooperation</p>	<ul style="list-style-type: none"> • PCU and PIUs established and operating at provincial and district levels in year 1. • Management information, BME, and accounting systems established in year 1. • Participatory workshops held for all stakeholders of the Project • 60 village development plans funded. • Annual work plans and budget plans in place. 	<ul style="list-style-type: none"> • PCU and PIUs established on 17 June 1998. • Except for management information system spreadsheet to track project activities, no modules were developed for BME. • Participatory workshops held. • The village development plans were used as a basis for activities funded by the Project. • Annual work plans and budgets were in place.

4. Activities		Inputs	
At Appraisal	Accomplishment	At Appraisal	At Completion
<p>4.1 Community Development</p> <ul style="list-style-type: none"> • Mobilization and training of local communities and participatory preparation of village development plans • Formation of village cooperatives, generation of savings, establishment of CCMFs with adequate institutional arrangements ensuring program sustainability • Prepare Katu village resettlement plans and relocate the villagers. 	<p>Substantially accomplished.</p> <ul style="list-style-type: none"> • A viable CCMF model and institutional framework could not be developed, largely due to delayed start of the activity and inadequate experience and expertise of implementing agencies. The activity was deleted from the project scope. • Implementation of the plan deferred due to unwillingness of the villagers to be relocated. 	<p>Component Cost: \$10.3 million</p>	<p>Component Cost: \$2.25 million</p>
<p>4.2 Park and Buffer Zone Management</p> <ul style="list-style-type: none"> • Design and conduct baseline ecological surveys. • Establish BZFs and conclude CCAs with priority villages. • Prepare zoning maps for the parks. • Prepare local communities and institutions for ecotourism to the Park and initiate campaign to attract tourists. 	<ul style="list-style-type: none"> • Several surveys and investigations completed and some ongoing with expected completion by 2009. • BZFs established and active. CCAs drafted and signed with all priority villages. • Zoning maps drafted and to be finalized in 2008. • Envisaged trainings and campaigns conducted. Limited tourists due to occasional ethnic unrests. 	<p>Component Cost: \$6.4 million</p>	<p>Component Cost: \$4.1 million</p>
<p>4.3 Rural Support and Infrastructure Services</p> <p>(i) Health</p> <ul style="list-style-type: none"> • Confirm water supply and sanitation improvement needs and implement an improved program. • Rehabilitate and upgrade health centers and service. • Strengthen schistosomiasis control and monitoring program. 	<ul style="list-style-type: none"> • Substantially achieved. • Substantially achieved. • Substantially achieved. 	<p>Component Cost:^a \$20.1 million</p>	<p>Component Cost: \$16.63 million</p>
<p>(ii) Agriculture</p>			

4. Activities		Inputs	
At Appraisal	Accomplishment	At Appraisal	At Completion
<ul style="list-style-type: none"> Strengthen extension services, including to establish demonstration farms and distribute seeds and seedlings of recommended crops and trees. Rehabilitate and upgrade farmer-managed irrigation systems and develop operation and maintenance capacity (iii) Access roads and trails Confirm access road, trail, riverbank protection, and drainage structure needs, then develop and implement a program Assess mini-hydropower potential and install such facilities. 	<ul style="list-style-type: none"> Mostly achieved. Mostly achieved. Substantially achieved. Four out of six mini-hydropower units installed failed to operate. 		
<p>4.4 Project Management and Institutional Strengthening</p> <ul style="list-style-type: none"> Establish project management and coordination systems at national, provincial, and district levels. Recruit and manage consultants' services for project implementation. Initiate procurements. 	<ul style="list-style-type: none"> Mostly achieved. Consultations' services not efficiently managed. Most procurements undertaken satisfactorily. 	Component Cost: ^a \$4.2 million	Component Cost: \$4.06 million
		<p>Total Project Cost (\$millions)</p> <p>ADB: 32.0 Government: 14.2 USAID/TNC: 3.2 Beneficiaries: 4.3 Total: 53.7</p>	<p>Total Project Cost (\$millions)</p> <p>ADB: 21.71 Government: 6.71 USAID/TNC: 1.37 Beneficiaries: 0.97 Total: 30.76</p>

ADB = Asian Development Bank, BME = benefit monitoring and evaluation, BZF = buffer zone forum, CCA = community conservation agreement, CCMF = credit cooperative matching fund, ha = hectare, km = kilometer, PCR = project completion report, PCU = project coordination unit, PIU = project implementation unit, TNC = The Nature Conservancy, USAID = United States Agency for International Development.

^aExcluding interest during construction.

STATUS OF PROJECT SUPPORTED INFRASTRUCTURE AND EQUIPMENT

No.	Item	Unit	Quantity	Service Area and/or Beneficiaries	Status at Project Completion Review
A. Infrastructure					
1.	Water supply systems	Number	75	75 villages (37 in Poso District and 38 in Donggala District), serving about 6,600 households	63 systems are performing satisfactorily and 12 systems need repairs to improve the water quality or increase water pressure.
2.	Health centers	Number	54	Covers 117 villages in the project area.	Services conform to the Health Ministry recommended standards and facilities are well-maintained.
3.	Sanitary latrines	Number	11,750	Serve 11,750 households	Facilities being effectively used in monitoring and controlling schistosomiasis prevalence. Receive technical advice and medical supplies from the Ministry of Health.
4.	Schistosomiasis laboratories	Number	2	6 villages in Lindu area and 16 villages in Lore Utara area	
5.	District roads	Kilometer	41.2	Serving hitherto isolated areas in Lore Utara and Lore Selatan subdistricts.	Satisfactory operation and maintenance. Sections in hilly terrain affected by landslides being rehabilitated.
6.	Village roads	Kilometer	65	Provide access to remote villages in 3 subdistricts of Kulawi, Lore Selatan, and Lore Utara.	Satisfactory operation and maintenance. No major rehabilitation needed.
7.	Rural trails	Kilometer	103	Serve hilly terrains in 5 subdistricts.	Satisfactory operation and maintenance. 73 kilometers passable by motorbikes.
8.	Riverbank protection	Kilometer	3.4	Sections of riverbanks in 21 villages	Generally satisfactory
9.	Farmer-managed irrigation systems	Number	33	3, 770-hectare service area in 33 villages	9 systems damaged by floods, reducing service area to 2,600 hectares. Arrangements are being made to rehabilitate the damaged facilities with district governments' technical and financial assistance and farmer contributions.
10.	Mini-hydropower station	Number	6	Designed to serve 350 households in two remote villages.	2 units in operation and 4 units withdrawn because of design faults and technical problems.
11.	Agriculture extension center	Number	2	Service area covers 32 villages in Kulawi and Lore Utara subdistricts.	Facilities satisfactorily maintained and used for extension services.
12.	Subdistrict town hall	Number	6	Located in 6 subdistrict towns.	Satisfactorily maintained and used for community meetings and social gatherings.
B. Equipment					
1.	4-wheel drive vehicles	Number	6	Used for implementation supervision by executing and implementing agencies' staffs.	All are in working conditions.
2.	Motorbikes	Number	25	Used by extension staff.	Most are in working condition.
3.	Radio communication facilities	Set	57	Installed at health centers in project area and government hospitals in Palu and Poso.	Being used effectively by health centers in communicating with provincial and district hospitals

Source: Asian Development Bank.

PROJECT COST BY COMPONENTS
Table A3.1: Project Cost in Rupiah
(Rp million)

Component	Appraisal			Actual			%	%
	Local Currency	Foreign Exchange	Total Cost	Local Currency	Foreign Exchange	Total Cost	Foreign Exchange	Total Base
A. Community Development								
1 Community Development Process	6,675	537	7,212	19,242	1,371	20,613	7%	8%
2 Credit Cooperative Matching Fund and Social Cohesion Grant	11,886	138	12,024			0		
3 Resettlement of Katu Village	8,445	232	8,677			0		
Subtotal (A)	27,006	907	27,913	19,170	1,443	20,613	7%	8%
B. Park and Buffer Zone Management								
1 Park Management ^a	11,443	2,775	14,218	26,378	6,595	32,973	20%	13%
2 Buffer Zone Management	1,905	153	2,058	4,066	306	4,372	7%	2%
Subtotal (B)	13,348	2,928	16,276	30,444	6,901	37,345	18%	15%
C. Rural Support and Infrastructure Services								
Health Care and Schistosomiasis								
1 Control	5,097	2,947	8,044	13,302	7,812	21,114	37%	9%
2 Village Water Supply ^b	5,949	6,044	11,993	17,536	15,981	33,517	50%	14%
3 Agriculture Support Services ^b	6,963	1,248	8,211	19,227	3,102	22,329	15%	9%
4 Roads, Tracks, and Bridges	18,719	3,369	22,088	47,941	8,460	56,401	15%	23%
5 Irrigation, River Training, and Mini-hydropower ^b	4,622	961	5,583	15,328	2,336	17,664	17%	8%
Subtotal (C)	41,350	14,569	55,919	63,269	10,796	151,025	26%	62%
D. Project Management	6,511	5,144	11,655	20,236	15,900	36,136	44%	15%
Total Base Costs (A+B+C+D)	88,215	23,548	111,763	193,644	51,475	245,119	21%	100%
Physical Contingencies	7,419	1,686	9,105					
Price Contingencies	22,604	6,439	29,043					
Total Base Costs and Contingencies	118,238	31,673	149,911					
Interest During Implementation	—	17,411	17,411		34,280	34,280	100%	14%
Commitment Charges	—	1,176	1,176					
Total	118,238	50,258	168,496			279,399	31%	114%

— = no data available

Note: Total may not sum due to rounding.

^a Including the United States Agency for International Development and The Nature Conservancy parallel financing amounting to \$1.37 million.

^b Including beneficiaries' equity contribution.

Source: Asian Development Bank.

Table A3.2: Project Cost in Dollar
(\$ million)

Component	Appraisal			Actual			%	%
	Local Currency	Foreign Exchange	Total Cost	Local Currency	Foreign Exchange	Total Cost	Foreign Exchange	Total Base
A. Community Development								
1 Community Development Process	2,403	193	2,596	2,213	158	2,371	7%	9%
2 Credit Cooperative Matching Fund and Social Cohesion Grant	4,566	50	4,616			0		
3 Resettlement of Katu Village	3041	83	3,124			0		
Subtotal (A)	10,010	326	10,336	2,205	166	2,371	7%	9%
B. Park and Buffer Zone Management								
1 Park Management ^a	4,473	1,116	5,589	2,892	723	3,615	20%	13%
2 Buffer Zone Management	686	55	741	445	34	479	7%	2%
Subtotal (B)	5,159	1,171	6,330	3,337	757	4,094	18%	15%
C. Rural Support and Infrastructure Services								
1 Health Care and Schistosomiasis Control	1,835	1,061	2,896	1,447	850	2,297	37%	8%
2 Village Water Supply ^b	2,142	2,176	4,318	2,096	1,740	3,657	50%	13%
3 Agriculture Support Services ^b	2,507	449	2,956	2,107	338	2,445	15%	9%
4 Roads, Tracks, and Bridges Irrigation, River Training, and Mini- hydropower ^b	6,740	1,213	7,953	5,218	921	6,139	15%	23%
5	1,664	346	2,010	1,839	254	2,093	17%	8%
Subtotal (C)	14,888	5,245	20,133	12,707	4,103	16,631	26%	61%
D. Project Management	2,344	1,852	4,196	2,271	1,785	4,056	44%	15%
Total Base Costs (A+B+C+D)	32,401	8,594	40,995	21,450	5,702	27,152	21%	100%
Physical Contingencies	2,671	607	3,278					
Price Contingencies	2,646	755	3,401					
Total Base Costs and Contingencies	37,718	9,956	47,674					
Interest During Implementation	—	5,597	5,597		3,722	3,722	100%	14%
Commitment Charges	—	378	378					
Total	37,719	15,932	53,651	21,450	9,424	30,874	31%	114%

— = no data available.

Note: Total may not sum due to rounding.

^a Including the United States Agency for International Development and The Nature Conservancy parallel financing amounting to \$1.37 million.

^b Including beneficiaries' equity contribution.

Source: Asian Development Bank.

YEARLY LOAN UTILIZATION
(\$)

Category	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
1A. Civil Works for Katu Village Resettlement	0	0	0	0	0	0	0	0	0	0
1B. Civil Works for Other Activities	170,909	24,873	118,712	474,258	406,800	814,144	1,067,255	606,517	287,066	3,970,534
2. Survey, Investigation, Design and Mapping	75,447	2,997	121,784	127,052	103,423	148,751	504,053	215,744	257,883	1,557,134
3. Extension, Demonstration and Training	86,061	2,396	84,438	154,487	441,828	535,574	901,729	407,150	159,078	2,772,741
4. Equipment, Vehicles, Furniture and Materials	263,833	252,966	459,510	646,984	532,607	407,712	701,556	689,287	8,047	3,962,502
5. Katu Village Resettlement (excluding civil works)	0	0	0	0	0	0	0	0	0	0
6. Consulting Services	160,346	293,063	532,300	196,090	474,634	512,941	446,093	127,367	419,488	3,162,322
7. Local Community Organization Services	194,055	1,272	132,393	128,498	195,415	188,950	533,756	130,045	285,930	1,790,314
8. Operation and Maintenance, and Incremental Administration Costs	49,349	9,121	57,292	49,582	81,386	71,851	74,966	48,721	93,766	536,034
9. Credit Cooperative Matching Fund	0	0	0	0	0	0	0	0	0	0
10. Social Cohesion Grant	0	0	0	0	0	99,115	47,817	86,722	0	233,654
11. Interest and Commitment Charge	39,005	131,588	276,785	456,256	613,407	655,667	697,594	851,967	0	3,722,269
12. Unallocated	0	0	0	0	0	0	0	0	0	0
Total	1,039,005	718,276	1,783,214	2,233,207	2,849,500	3,434,705	4,974,819	3,163,520	1,511,258	21,707,504

Source: Asian Development Bank.

IMPLEMENTATION SCHEDULE




Overall Project Accomplishment as of 31 December 2005

Component	PROJECT IMPLEMENTATION SCHEDULE																																			
	1997				1998				1999				2000				2001				2002				2003				2004				2005			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
A. PROJECT MANAGEMENT AND INSTITUTIONAL STRENGTHENING																																				
1. Establishment of PCU/PIUs																																				
2. Project Work Plans																																				
3. Project Planning Management																																				
4. Monitoring and Evaluation Survey																																				
5. Institutional Strengthening																																				
6. Buffer Zone Area and Community Forums																																				
B. COMMUNITY DEVELOPMENT																																				
1. Community Development Process																																				
a. Planning and staff training																																				
b. NGO facilitators/coordinators fielding																																				
2. Community Development Funding																																				
a. Social cohesion fund																																				
b.. Credit cooperative matching fund (CANCELLED)																																				
3. Katu Village Resettlement (CANCELLED)																																				
a. Environment and social assessment																																				
b. Site preparation																																				
c. Village relocation																																				
d. Follow-up monitoring																																				

Component	PROJECT IMPLEMENTATION SCHEDULE																																							
	1997				1998				1999				2000				2001				2002				2003				2004				2005							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
C. PARK AND BUFFER ZONE MANAGEMENT																																								
1. Pilot Activities (USAID/TNC funded)																																								
2. Staff Development and Training																																								
3. Construction and Refurbishment of Park Facilities																																								
4. Ecological, Biodiversity, and Environmental Studies																																								
5. Boundary Demarcation																																								
6. Trail Clearance and Marking																																								
7. Ecotourism Promotion																																								
D. RURAL SUPPORT AND INFRASTRUCTURE SERVICE																																								
1. Primary Health Care																																								
a. Village sanitation																																								
b. Health center upgrading																																								
c. Essential drug supply																																								
d. Communication network																																								
e. Motherhood and child survival																																								
f. Management and participatory skills improvement																																								
2. Schistosomiasis Control																																								
a. Updating survey data																																								
b. Sectoral integration seminars skill improvement																																								
c. Early warning system/laboratory rehabilitation																																								

Component	PROJECT IMPLEMENTATION SCHEDULE																																							
	1997				1998				1999				2000				2001				2002				2003				2004				2005							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
3. Agriculture Production and Marketing																																								
a. Institutional strengthening																																								
b. Kulawi farming system survey																																								
c. Trials and demonstration																																								
d. Nurseries establishment																																								
4. Rural Infrastructure																																								
a. Water supply																																								
b. Roads , trucks, and bridges																																								
c. Village irrigation systems																																								
d. Microhydropower																																								
e. River training																																								

Legend:

-  - Survey and design
-  - Planned
-  - Actual

Source: RRP (planned); Project progress reports (actual)

STATUS OF COMPLIANCE WITH MAJOR LOAN COVENANTS

COVENANTS AND REFERENCE TO LOAN AGREEMENT	RELEVANT DATE	RESPONSIBLE AGENCY	STATUS OF COMPLIANCE
1. Borrower to establish a project steering committee (PSC) to coordinate and monitor the Project at the national level during project implementation. [Loan Agreement, Schedule. 6, para 2].	Within one month after loan effectivity date (1 May 1998)	The National Development Planning Agency (BAPPENAS) and the Directorate General of Rural Development (DGRD)	Complied with delay. PSC established on 3 August 1998.
2. The Borrower to establish a provincial coordination committee (PCC) with adequate staff complement to provide policy guidance to the provincial coordination unit (PCU) during project implementation. [Sch. 6, para 3].	Within one month after loan effectivity (15 May 1998)	The Central Sulawesi Province through provincial planning agency (BAPPEDA)	Complied with delay. PCC established on 17 June 1998.
3. The Borrower to establish a Project Coordination Unit (PCU) which shall be responsible for supervising project management, monitoring and evaluation, preparing project budgets, processing proposals for budget allocation to each project component, consolidating records for loan disbursement and routine coordination of project activities. [Sch. 6, para 4]	Within one month after loan effective date of 15 May 1998	The Central Sulawesi Province through BAPPEDA.	Complied with delay. PCC established on 17 June 1998 with adequate staff complement.
4. The Borrower to establish a district executing committees (DECs) in Donggala and Poso districts to provide guidance to respective project implementation units (PIU) to be established in each district. [Sch. 6, para 5]	Within three months after effective date	The district governments of Donggala and Poso through respective BAPPEDA	Complied with. DECs established on 17 June 1998. Regular meetings have been held.
5. The Borrower to establish a PIU for each of the project districts of Donggala Poso to implement the project at field level. (Sch 6, para. 6)	Within three months after Effective date	The district governments of Donggala and Poso through respective BAPPEDA	Complied with. PIU Donggala and PIU Poso established on 17 June 1998.
6. The Borrower will not allow any project or activity (including, but not limited to, the construction of a new road or road section, or the construction of a hydropower facility using water resources from Lake Lindu) that would have an adverse environmental impact on the Lore Lindu National Park. Any Project or activity to be undertaken in the Project area shall be in accordance with the Borrower's environmental laws and regulations and the 25 Year Management Plan for Lore Lindu National Park (as soon as the Plan becomes operational). The Borrower would promptly inform the Bank of any proposed project or activity to be undertaken in the Project area for which an	During project life	The Government of Indonesia through the Ministry of Forestry and the Lore Lindu National Park Office.	Complied with delay. The 25-year Management Plan has been formally approved in June 2004 and given legal status. All proposals for construction and development activities within the park area have been subjected to environmental impact assessment (EIA), and the Wuasa-Gintu-Tentena road proposal was rejected because of adverse EIA findings. Similarly, the proposal for

COVENANTS AND REFERENCE TO LOAN AGREEMENT	RELEVANT DATE	RESPONSIBLE AGENCY	STATUS OF COMPLIANCE
environmental impact assessment is required. (Sch 6, para. 8)			a hydropower development using Lindu lake water was abandoned.
7. The Borrower to cause the provincial office of the Ministry of Transmigration and Forest Squatters Resettlement (MOTFSR) (through its district office in Poso), in conjunction with local government at the district, subdistrict and village levels, to commence implementation of the resettlement action plan, as agreed by the Bank, for the resettlement of Katu Village at the Baliura site in the Besoa enclave. (Sch 6, para. 10)	Within one year after the Effective Date	MOTFSR, Ministry of Forestry and local governments at provincial and district levels.	Not complied. The Katu villagers retracted from their earlier agreement with the Park management to be relocated at Besoa enclave. The political unrest in the country following the Asian financial crisis made it difficult for the authorities to enforce the planned resettlement. Negotiations with communities failed and in 2000, the Government rescinded the resettlement proposal.
8. The Borrower to ensure that the credit cooperative matching fund (CCMF) is established and operated in accordance with procedures and criteria acceptable to the Bank. Borrower shall cause the DEC's and PIUs to take all necessary measures to ensure (i) the eligibility of villages, in accordance with criteria acceptable to the Bank, to form credit cooperatives; and (ii) the establishment of credit cooperatives and the two foundations in Donggala district and Poso district, acceptable to the Bank, in connection with the establishment of the CCMF. (Sch 6, para. 11)	By the end of the third year of the project	DGRD and the provincial and district governments.	Not complied. The delayed start of subcomponent activities and inadequate experience and expertise of the project executing and implementing agencies failed to develop a viable institutional framework and operational procedures for CCMF. The subcomponent was subsequently deleted at ADB's recommendation.
9. The Borrower to ensure that the SCG is utilized in accordance with procedures and criteria acceptable to the Bank. Borrower shall cause the DEC's and PIUs to take all necessary measures to ensure (i) the establishment of an SCG committee acceptable to the Bank; and (ii) the cultural, educational, and recreational activities to be financed out of the SCG are in accordance with criteria acceptable to the Bank. (Sch 6, para. 12) .		DGRD,PCU, DEC's, and PIUs	Complied with. Activities supported by SCG funds met the selection criteria and helped enhance communities' ownership of the project..
10. The Borrower to ensure that by the end of the first year after the Effective Date, the Directorate General of Forest Protection and Nature Conservation of the Ministry of Forestry and the PIUs will, based on the assistance of the consultants and local community organization personnel financed under the USAID Grant and TNC Grant,	One year after effective date	DGFPC/PCU/PIUs/ BTNLL	Complied with, albeit with some delays. Approval of the 25-Year Park Management Plan by the authorities was delayed until 2004 and park activities since project commencement up to

COVENANTS AND REFERENCE TO LOAN AGREEMENT	RELEVANT DATE	RESPONSIBLE AGENCY	STATUS OF COMPLIANCE
formulate and commence implementation of Park and buffer zone management policies including (i) preparation of a five-year work plan for the Park, (ii) formulation and implementation of community conservation agreements (CCAs), (iii) extension for the pilot microenterprise program to selected villages, (iv) preparation of zoning maps; (v) training of Park personnel and enforcement of regulations; and demarcation of Park boundary. (Sch 6, para. 13)			2004 were based on annual plans prepared within the framework of the draft 25-Year Plan. A 5-year Park management work plan (2005-2009) was approved in November 2004. concluded with all priority villages; park personnel trained on surveillance, enforcement and monitoring; park boundary demarcated; and zoning maps drafted and to be finalized in 2008.
11. The Borrower to ensure establishment of buffer zone forums by the end of the second year after the loan effective date. These forums, which will be comprised of selected community leaders, will ensure public participation in the formulation of Park and buffer zone management plans and policies. (Sch 6, para. 14)	After the second year of effective date	DGRD/PCU/ PIUs/local government	Complied with delay. Six subdistrict level BZFs have been established comprising members representing village conservation organizations (Lembaga Konservasi Desa –LKD) established at village level. The BZFs were engaged by the Project in most all relevant activities, meetings and workshops. Also, other Park and buffer zone management stakeholders, such as TNC, CARE have developed partnerships with the BZFs.
12. Based on the recommendations of the consultants to be financed under the Loan, the Borrower shall ensure that the PCU and PIUs establish management systems and adopt participatory planning approaches, and establish procurement, financial management and Project information systems and a procurement monitoring and evaluation system for Project activities. (Sch 6, para. 15)	Early during project period	DGRD/PCU/ PIUs	Complied, albeit with significant delays. The project lacked of proper monitoring and reporting system during initial years. Participatory planning was also delayed due to delayed recruitment of community development facilitators. Substantial improvements were achieved on both aspects after the midterm review.
13. Borrower shall ensure the coordination among PSC and the relevant central, provincial and district agencies, so that counterpart financing as required for the Project will be allocated in a timely manner, commencing with the 1998/99 fiscal year. (Sch 6, para. 16)	Annually commencing in FY1998/99	Ministry of Finance, DGRD, and provincial and district governments.	Generally complied with. Allocated budgets were adequate in meeting yearly funding requirements, but approval of budgets and release of funds were often delayed.

COVENANTS AND REFERENCE TO LOAN AGREEMENT	RELEVANT DATE	RESPONSIBLE AGENCY	STATUS OF COMPLIANCE
14. Borrower shall cause PCU to establish, in consultation with the Bank, a computer-based system for Project benefit monitoring and evaluation (BME). The BME indicators shall include establishment of a baseline social, environmental and economic indicators to be monitored on a regular basis. (Sch 6, para. 17)	Within 18 months after effective date	DGRD/ PCU/PIUs	Partially complied. The baseline survey was conducted but periodic monitoring was not done, nor computer-based BME was established. An impact assessment was conducted toward the end of the project in 2005 by a local consulting firm, and the report prepared provides a good picture of the initial impact.
15. The Borrower to cause DGRD to carry out comprehensive annual review of the Project. In addition, before the end of the third year after the Effective Date, DGRD shall undertake a midterm Project review, which will, inter alia, assess the initial impact of completed Project outputs and make adjustments, if necessary to subsequent Project implementation. (Sch 6, para. 18)	Annual Review. MTR - Before the end of the third year after effective date.	DGRD	Partly Complied with. Only since 2003 annual reviews were carried out by DGRD. DGRD actively participated in the midterm review jointly conducted with the Bank and closely followed –up the recommendations.
16. The Borrower to furnish to the Bank not later than nine months after the end of each related fiscal year certified copies of audited accounts and financial statements and the report of the auditors relating thereto, all in the English language. (Article IV, Sec 4.06 (B.11))	Nine months after end of each fiscal year	DGRD/PCU/ PIUs	Complied late. Audited accounts and financial statements (AFS) and audit reports for fiscal years 2000 up to FY2003 were submitted to ADB with delay. AFS for FY 2004 and 2005 submitted within due date. Audit reports recommended recovery of Rp533,030,482 (\$59,225) from officers for ineli-gible payments made to suppliers and contractors. Rp228, 173, 845 has been recovered and the EA, in coordination with the Supreme Audit Agency, have been pursuing settlement of the outstanding amount.
17. After physical completion of the project, not later than three months thereafter or such date as may be agreed. DGRD to prepare and furnish to the Bank a report on the execution and operation of the Project. (Article IV, Sec. 4.07c)	Three months after completion of project.	DGRD	DGRD prepared and submitted to the Bank a Project Completion Report on project implementation and its initial performance.

FINANCIAL AND ECONOMIC ANALYSIS

A. Introduction

1. The objectives of the Central Sulawesi Integrated Area Development and Conservation Project at formulation were to (i) improve the socioeconomic welfare of the rural communities surrounding Lore Lindu National Park, and (ii) protect the Park's biodiversity resources. It was expected to have a direct impact on the regional economy through improved environmental protection and rural infrastructure, increased agricultural production, and more microenterprises. The project rationale and design stemmed from the Government's recognition that an integrated approach was needed to reconcile protection for the Park's ecological functions and unique forest habitats with the economic interest and needs of the surrounding populations.

2. At appraisal, it was found that 97% of the population in the 117 villages surrounding the Park was poor, with the average income 60% below the poverty line. These villagers were essentially practicing subsistence agriculture—farming small parcels of land ranging from 0.5 to 2.0 hectares (ha) and mainly growing rice, corn, cocoa, coffee, and fruit trees. Rice and corn were grown mainly for household consumption while sales of cocoa, coffee, and fruits provided cash income for purchasing essential needs. In addition, the people harvested some such non-timber forest products (NTFPs) as rattan, palm sugar, jungle fruits, and honey to supplement their farm incomes. NTFP sales constituted some 20 to 40% of their household incomes. Harvesting of NTFPs was unregulated, and many farmers abused the opportunity through overharvesting and extending agricultural activities inside the park boundary. The potential for further abuse of the Park's resources was high, given the weak enforcement of laws and regulations and the lack of public awareness of the need to conserve the resources.

B. Project Benefits

3. For the purposes of financial and economic analyses, benefits are computed from two components: (i) park and buffer zone management, and (ii) rural support and infrastructure services. A summary of project benefits estimated at appraisal and at project completion review (PCR) are shown in Table A7.1.

4. **Park Management.** Benefits taken into account at appraisal included (i) NTFP extraction by the buffer zone communities, (ii) biodiversity, and (iii) carbon sequestration. It was recognized that, even if the Park were upgraded, people would continue to extract NTFPs, albeit in a non-destructive manner following park land use and conservation guidelines that would eventually enhance NTFP yields. It was assumed that NTFP harvesting would remain confined to an estimated 20,000 ha and no new areas would be opened up in future. At PCR, that area was reduced to about 16,000 ha, net of area under the control of illegal settlers who encroached into the Park during 2000–2001. The incremental value was estimated at Rp80,000/ha/year, the same as the appraisal estimate. Similarly, the appraisal estimate of 20,000 ha of area with increased biodiversity for commercial use was reduced to 16,000 ha at PCR, with an incremental value of Rp800,000/ha/year assumed both at appraisal and PCR. The incremental carbon sequestration benefit at PCR was computed for 16,000 ha, with a carbon dioxide absorption rate of 6 tons/ha/year and valued at \$8/ton. The carbon absorption rate and unit value are the same as used at appraisal.

5. **Agriculture Support.** The agriculture support program consisted of (i) strengthening the agriculture extension centers; (ii) carrying out some 10,000 small demonstration plots; and (iii) distributing some 200,000 cocoa, coffee, candlenut, fruit, and other seedlings.

Demonstration plots were created in farmers' fields, where the extension agent demonstrated planting of new crop varieties and improved crop management practices. This was conducted for both annual and perennial crops, with an emphasis on rice, corn, and selected vegetables and fruits. The farmers were provided with all material inputs and technical assistance.

6. It was expected that the project support would raise crop yields by about 30% over a farm area of 9,000 ha. Data available to the Project Completion Review Mission showed that the expected yield gains were achieved for all crops except rice, which had an increase of 20%. The farm area benefited was 7,200 ha, 20% less than the appraisal target. About 1,200 ha within the irrigation systems service area stopped receiving irrigation supplies after the 2007 floods. The Project failed to address the problem of low crop yields among some indigenous people.

7. The financial costs and benefits of various crops grown in the project area are given in Tables A7.2–A7.6. The annual net income from the main crops grown in the project area ranged from Rp2.0 million/ha for rice to Rp3.6 million/ha for coffee, Rp3.8 million/ha for corn, and Rp4.5 million/ha for cocoa. In evaluating the benefits of this subcomponent, a weighted average comprising 55% paddy, 25% cocoa, 10% coffee and 10% corn has been used in calculating the average productivity value of Rp3.0 million/ha.

8. **Roads and Trails.** The benefits of this subcomponent were not evaluated separately at appraisal and were considered as part of the agriculture subcomponent benefits. At PCR, it was found that the districts and village roads constructed and improved under the Project were being extensively used by motor vehicles for transporting goods and people, and field interviews with village leaders and officials supported the view that communication improvements have contributed substantially to the overall level of economic activities in the project area. An evaluation of the project-supported roads was therefore carried out based on benefits derived from the different types of vehicles that were using the roads (Table A7.13).

9. **Health Care.** This subcomponent comprised the renovation and rehabilitation of 54 health centers and 3 schistosomiasis laboratories plus improvement of medical support and services to the local communities. It was assumed at appraisal that the improved health care facilities would help avoid a loss to illness of 10 person-days per household. The Project Completion Review Mission's discussions with local communities and staff at the health centers confirmed that the economic benefits of the subcomponent far exceeded the appraisal assumption and a saving of 20 person-days per household was used for reestimating benefits.

10. **Water Supply.** Of the 75 water supply systems developed, 63 systems were performing satisfactorily at PCR. Some 12,000 households benefited from the improved water supply facilities. The economic evaluation of the subcomponent at appraisal assumed a saving of 40 hours/household/month in carrying water. The Project Completion Review Mission found that assumption to be overestimated and used a saving of 25 hours/household/month in reestimating the benefits.

11. **Village Irrigation.** Thirty-three small-scale irrigation systems using water from small rivers and creeks were rehabilitated, and service areas were expanded in cost-sharing arrangements with farmers to serve about 3,770 ha. At PCR, it was found that the coverage area was reduced to 2,600 ha because of recent flood damages to nine systems. Arrangements were being made to rehabilitate the systems with technical and financial assistance from the district governments. The subcomponent increased the average paddy yield by from 3.0 tons/ha to 3.6 tons/ha, with incremental production valued at Rp1.15 million/ha.

12. **Mini-hydropower Generation Units.** It was envisaged at appraisal that five community managed mini-hydropower generation units would be installed to serve some 300 households, with each household paying a fixed amount of Rp30,000/month for the electricity. The funds collected would be used for maintaining these stations. The actual number of units installed was six, only two of which were functional at the time of PCR. These were serving 114 households. Because four units failed, the subcomponent was not economically viable.

13. **River Training.** This component aimed at strengthening the riverbanks at crucial points to protect some 200 ha of farmland from flooding. The scope of the component was substantial because of technical issues, but the area protected was only 32 ha. The subcomponent as implemented was found economically not viable.

14. **Tourism.** The Project was expected to boost the number of foreign tourists visiting the Park by some 8% annually. Data from the project office and tourism board indicated, however, no significant gains in the number of tourists to the Park in the last 10 years.

C. ASSESSMENT OF ECONOMIC RETURNS

15. All costs are in constant 2008 terms. Project costs, net of duties, taxes, and interest during construction, were adjusted to 2008 prices using the World Bank Manufactures Unit Value Index.¹ The labor price used was Rp25,000 per day, the prevailing rate in the project area at the time of the PCR. Forecasted prices of traded commodities were based on World Bank commodity price projections² while prices of other commodities were based on prevailing local market prices. All values were expressed in local currency in constant 2008 prices. The standard conversion factor for farm inputs used in this analysis was 0.9, compared with 1.06 used at appraisal. The Project's economic life was 25 years, as envisaged at appraisal.

16. Tables A7.12–A7.16 show economic internal rate of return (EIRR) computations for the various components and subcomponents. Table A7.17 shows the EIRR for the Project as a whole. Appraisal and PCR EIRR estimates are given in Table A7.18. The PCR estimate of the project EIRR of 16% is lower than the 18% estimated at appraisal. The decline can largely be attributed to the lower than envisaged benefits of the irrigation and hydropower subcomponents.

17. A sensitivity test was conducted on the EIRR analysis with changes in the operation and maintenance costs and project benefits. A 20% increase in operation and maintenance costs reduces the EIRR to 15.4%, and a 20% shortfall in benefits reduces the EIRR to 13.2%. The combined effects of the above scenarios reduces the EIRR to 12.2%.

D. Project Impact

18. Average with- and without-project farm incomes are shown in Table A7.7. The Project has been able to raise the average farm income from Rp5.64 million to Rp8.38 million, an increase of 48%. Despite this increase, however, farm incomes are still low, and the income per capita is less than \$0.60 per day. This is largely due to low farm productivity, and more investments are needed to increase farm productivity. Investments in agriculture represent less than 20% of the total project cost at appraisal, and it was expected that the Project would have only a limited impact on farm income.

¹ World Bank, Manufactures Unit Value Index 2007.

² World Bank, Commodity Price Projection, December 2007.

19. The main benefits of the Project envisaged at appraisal were (i) improvements in the social sector, and especially in the areas of health care, sanitation, safe drinking water, and better transport and multimedia communication linkages; and (ii) conservation of the Park's flora and fauna. The Project has made significant impact in these two key aspects, and it has contributed to an overall improvement in the living standards of its intended beneficiaries. More than 80% of the beneficiaries now have access to piped water supply, as compared to the figure of 50% in the without-project scenario. The percentage of the population living below the poverty line has declined to less than 30%.³ The average farm income without-project of Rp5.64 million was 12% below the poverty line, while the average farm income with-project of Rp8.38 million is 31% above the poverty line. At appraisal, average farm income was 60% below the poverty line. In terms of the human development index, the province of Central Sulawesi now ranks 22 as compared with its ranking of 27 at appraisal.

³ The National Socioeconomic Survey. March 2006. Rural poverty income is defined as Rp148,320 per capita per year in 2008 values or Rp6.4 million per year for a farm family of 4.33 members.

Table A7.1: Benefits Assumed at Appraisal and Observed at PCR

No	Items	Appraisal	PCR	Remarks
1	Park Management			
	Savings in Logged Area – ha	50,000	0	Logging prohibited in Park
	Value of royalty foregone – Rp million /year	2,520	0	
	Area harvested for NTFP – ha	20,000	16,000	Area available reduced by 4,000 ha due to encroachment
	Incremental NTFP - Rp/ha/year	80,000	80,000	
	Incremental NTFP – Rp million /year	1,600	1,280	
	Annual growth in NTFP - %	2.5%	2.5%	
2	Biodiversity			
	Area with biodiversity improvements	20,000	16,000	
	Value of biodiversity improvements - Rp/ha/year	800,000	640,000	Benefits reduced by 20% due to slow learning process
	Incremental biodiversity benefits- million Rp/year	16,000	10,240	
	Annual growth in biodiversity benefits - %	2.5%	2.5%	
3	Carbon sequestration			
	Area considered	20,000	16,000	
	Incremental benefits - Rp/ha	445,000	445,000	Based on 6 tons/ha/year of carbon dioxide absorption valued at \$8.00/ton
	Carbon sequestration – Rp million /year	8,900	7,120	
4	Agriculture			
	Area improved - ha	9,000	7,200	Beneficial area reduced by 20% due to crop failure
	Value of improvement - Rp/ha/year	900,000	900,000	
	Total benefit – Rp million /year	8,100	6,480	
5	Roads and tracks			
	Total benefits – Rp million /year	none	12,092	At appraisal, benefits included in agriculture
	Annual growth in traffic -%		3%	

No	Items	Appraisal	PCR	Remarks
6	Health Care			
	No of household	31,100	29,100	
	Value of labor saved per household - Rp/year	250,000	500,000	Appraisal estimate of 10 labor day/household is too low. PCR used 20 labor days/household
	Value of labor saved - Rp million /year	7,775	14,550	
7	Water Supply			
	No of household served	14,000	12,000	
	Value of labor saved per household - Rp/year	1,500,000	937,500	Appraisal estimate of 40 hrs/month/household is too high. PCR used 25 hrs/month/household
	Value of labor saved - Rp million /year	21,000	11,250	
8	Village irrigation			
	Village Irrigation - ha	3,800	2,600	
	Increase value of crop per ha - Rp/ha/year	1,148,968	1,148,968	Incremental net income from raising paddy yield from 3.0 to 3.6 tons/ha
	Increase in value of crop – Rp million /year	4,366	2,987	
9	Mini-hydropower station			
	No of household served	300	114	
	Value generated - Rp million /year	9	10	Value/household assumed at Rp30,000 at appraisal and Rp60,000 at PCR
10	River Training			
	Area protected – ha	200	32	
	Value of crop protected - Rp/ha/year	3,000,000	3,000,000	Assumed as average net income from a mixture of crops
	Value of crop protected - Rp million /year	600	96	
11	Tourism			
	Annual benefit - Rp million /year	817	0	No growth in tourism due to security problems
	Growth in Tourism benefits - %	8%	0	Minimal investments in facilities

ha = hectare; NTFP = non-timber forest products; PCR = project completion report; Rp = Rupiah
Source: Asian Development Bank.

Table A7.2: Paddy Financial Cost and Benefits, Yield of 3.6 tons paddy/ha, Rp/ha
(1 crop/yr)

Item	Unit	Number	Cost/unit (Rp)	Total (Rp)
Labor				
Land preparation	person-day	20	25,000	500,000
Planting	person-day	10	25,000	250,000
Fertilizer application	person-day	10	25,000	250,000
Weeding	person-day	15	25,000	375,000
Harvesting	person-day	15	25,000	375,000
Subtotal		70		1,750,000
Material				
Seeds	Kg	25	4,500	112,500
Fertilizer				
- urea	Kg	250	1,891	472,708
- SP 36	Kg	100	1,635	163,547
- KCL	Kg	50	2,659	132,968
Chemicals	Ltr	1	125,000	125,000
Others				100,000
Subtotal				1,106,723
Total cost				2,856,723
Yield and total income				
	Kg	3,600	1,384	4,984,146
Net income	million Rp			2.13
Gross margin	million Rp			3.88
Benefit/cost ratio	Unit			1.74
Return/person-day	Rp			55,392

ha = hectare; kg = kilogram; ltr = liter; Rp = Rupiah

Note: Gross margin is the net income less labor cost. It assumes that all labor provided by farm family.

Source: Asian Development Bank.

Table A7.3: Paddy Financial Cost and Benefits, Yield of 3.0 tons paddy/ha, Rp/ha
(1 crop/yr)

Item	Unit	Number	Cost/unit Rp	Total Rp
Labor				
Land preparation	person-day	20	25,000	500,000
Planting	person-day	10	25,000	250,000
Fertilizer application	person-day	10	25,000	250,000
Weeding	person-day	15	25,000	375,000
Harvesting	person-day	15	25,000	375,000
Subtotal		70		1,750,000
Material				
Seeds	Kg	25	4,500	112,500
Fertilizer				
- urea	Kg	250	2,500	625,000
- SP 36	Kg	100	2,500	250,000
- KCL	Kg	50	3,000	150,000
Chemicals	Ltr	1.5	125,000	187,500
Others				100,000
Subtotal				1,425,000
Total cost				3,175,000
Yield and total income				
	Kg	3,000	1,384	4,153,455
Net income	million Rp			0.98
Gross margin	million Rp			2.73
Benefit/cost ratio	Unit			1.31
Return/person day	Rp			38,978

ha = hectare; kg = kilogram; ltr = liter; Rp = Rupiah

Note: Gross margin is the net income less labor cost. It assumes that all labor provided by farm family.

Source: Asian Development Bank.

Table A7.4: Corn, Financial Cost and Benefits, Rp/ha
(1 crop/yr)

Item	Unit	Number	Cost/unit Rp	Total Rp
Labor				
Land preparation	person day	10	25,000	250,000
Planting	person day	4	25,000	100,000
Fertilizer application	person day	4	25,000	100,000
Weeding	person day	7	25,000	175,000
Harvesting	person day	3	25,000	75,000
Subtotal		28		700,000
Material				
Seeds	Kg	25	27,000	675,000
Fertilizer				
- urea	Kg	100	2,500	250,000
- SP 36	Kg	75	2,500	187,500
- KCL	Kg	50	3,000	150,000
Chemicals	Ltr	2	125,000	250,000
Subtotal				1,512,500
Total cost				2,212,500
Yield and total income				
	Kg	3,000	2,000	6,000,000
Net income	million Rp			3.79
Gross margin	million Rp			4.49
Benefit/cost ratio	Unit			2.71
Return/person day	Rp			160,268

ha = hectare; kg = kilogram; ltr = liter; Rp = Rupiah
Source: Asian Development Bank.

Table A7.5: Financial Cost and Benefits of Cocoa Planting - Rp'000/ha - Constant 2008 prices

YEAR----->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Cost															
Labor at Rp25,000/day	1,225	1,875	1,875	2,125	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Planting material	550	55													
Fertilizer/chemical	1,011	905	2,755	2,755	1,377	1,377	1,377	1,377	1,377	1,377	1,377	1,377	1,377	1,377	1,377
Others	228	200	300	300	300	300	300	300	300	300	300	300	300	300	300
Total cost - Rp '000	3,014	3,035	4,930	5,180	4,177	4,177	4,177	4,177	4,177	4,177	4,177	4,177	4,177	4,177	4,177
Benefits															
Yield-kg/ha			330	550	770	990	1100	1100	1100	1100	1100	1100	1100	1100	1100
Price -Rp/kg			8,566	8,566	8,566	8,566	8,566	8,566	8,566	8,566	8,566	8,566	8,566	8,566	8,566
Total revenue - Rp'000			2,827	4,711	6,596	8,480	9,422	9,422	9,422	9,422	9,422	9,422	9,422	9,422	9,422
Net revenue	3,014	3,035	2,103	-469	2,418	4,303	5,245	5,245	5,245	5,245	5,245	5,245	5,245	5,245	5,245
Gross margin - Rp'000	1,789	1,160	-228	1,656	4,918	6,803	7,745	7,745	7,745	7,745	7,745	7,745	7,745	7,745	7,745
Labor person day	49	75	75	85	100	100	100	100	100	100	100	100	100	100	100
Urea - kg/ha at Rp3,550/kg	100	100	242	242	121	121	121	121	121	121	121	121	121	121	121
TSP - kg/ha at Rp4,230/kg	60	100	308	308	154	154	154	154	154	154	154	154	154	154	154
KCL - kg/ha at Rp3,170/kg	70	40	187	187	94	94	94	94	94	94	94	94	94	94	94
FIRR	29.22		%												

Table A7.6: Financial Cost and Benefits of Coffee Planting - Rp'000/ha - Constant 2008 prices

YEAR----->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
With Project															
Cost															
Labor at Rp25,000/day	1,375	1,530	1,691	1,857	1,894	1,932	1,971	2,297	2,343	2,390	2,438	3,108	3,171	3,234	3,299
Planting material	866														
Fertilizer	1,050	1,050	740	740	740	740	740	740	740	740	740	740	740	740	740
Others	320	583	87	117	117	117	117	117	117	117	117	117	117	117	117
Total cost - Rp '000	3,611	3,163	2,518	2,714	2,751	2,789	2,828	3,154	3,200	3,247	3,295	3,965	4,028	4,091	4,156
Benefits															
Yield-kg/ha			200	250	350	450	450	550	550	800	800	800	800	800	800
Price -Rp/kg			10,785	10,785	10,785	10,785	10,785	10,785	10,785	10,785	10,785	10,785	10,785	10,785	10,785
Total revenue - Rp'000	0	0	2,157	2,696	3,775	4,853	4,853	5,932	5,932	8,628	8,628	8,628	8,628	8,628	8,628
Net revenue	-3,611	-3,163	-361	-18	1,023	2,064	2,025	2,777	2,731	5,380	5,333	4,662	4,600	4,537	4,472
Gross margin - Rp'000	-2,236	-1,633	1,330	1,839	2,918	3,996	3,996	5,075	5,075	7,771	7,771	7,771	7,771	7,771	7,771
Labor person day	55	60	65	70	70	70	70	80	80	80	80	100	100	100	100
Urea - kg/ha	150	150	120	120	120	120	120	120	120	120	120	120	120	120	120
TSP - kg/ha	150	150	100	100	100	100	100	100	100	100	100	100	100	100	100
KCL - kg/ha	150	150	100	100	100	100	100	100	100	100	100	100	100	100	100
FIRR		22.77	%												

**Table A7.7: Border Parity Prices for Rice
At Constant 2008 Economic Prices**
(US\$ per ton, Rp per kg)

Commodity Import	Price		Forecast Prices				
	per unit		2004	2005	2006	2010	2015
US\$/ton							
World price - nominal Thailand 5% broken	\$/ton	=	238	286	295	276	260
World price - 2006 base	\$/ton	=	249	293	280	265	243
Quality differential -5%		x	0.95	0.95	0.95	0.95	0.95
Equivalent value of Indonesian product	\$/ton	=	236	279	266	252	230
Freight & insurance cost to Jakarta	\$/ton	+	15	15	15	15	15
Value at Indonesian port	\$/ton	=	251	294	281	267	245
Rp/kg							
(exchange rate)			9,000	9,800	9,300	9,300	9,300
Value at Indonesian port	Rp/kg	=	2,261	2,876	2,613	2,483	2,282
Port handling charges, storage & loss -5%	Rp/kg	+	68	86	78	74	68
Internal handling/transport costs - near port	Rp/kg	+	20	20	20	20	20
Value at wholesale market	Rp/kg	=	2,349	2,983	2,712	2,577	2,371
Transport costs, local to wholesale market	Rp/kg	-	30	30	30	30	30
Wholesale margin -3%	Rp/kg	-	70	89	81	77	71
Value at local market/processor/mill	Rp/kg	=	2,248	2,863	2,600	2,470	2,269
Trader margin -3%	Rp/kg	-	67	86	78	74	68
Ex-mill price	Rp/kg	=	2,181	2,777	2,522	2,396	2,201
Conversion - paddy to rice - 65%	Rp/kg	=	1,417	1,805	1,640	1,557	1,431
Milling cost	Rp/kg	-	50	50	50	50	50
Transport cost - farmgate to local market/mill	Rp/kg	-	15	15	15	15	15
Value at farmgate - financial	Rp/kg	=	1,352	1,740	1,575	1,492	1,366
Value at farmgate - economic	Rp/kg	=	1,384	1,772	1,607	1,524	1,398
Financial price - GOI support -30%	Rp/kg	=	1,758	2,262	2,047	1,940	1,776

**Table A7.8: Border Parity Prices for Corn
At Constant 2008 Economic Prices
(US\$ per ton, Rp per kg)**

Commodity	Price per unit		Forecast Prices				
			2004	2005	2006	2010	2015
Import							
US\$/ton							
World price, FOB Gulf No. 2 yellow	\$/ton	=	104	99	112	143	130
World price - 2006 base	\$/ton	=	109	101	112	137	121
Quality differential		x	1.0	1.0	1.0	1.0	1.0
Equivalent value of Indonesian product	\$/ton	=	109	101	112	137	121
Freight & insurance cost to Jakarta	\$/ton	+	25	25	25	25	25
Value at Indonesian port		=	134	126	137	162	146
Rp/kilogram							
(exchange rate)			9,000	9,800	9,300	9,300	9,300
Value at Indonesian port	Rp/kg	=	1,202	1,235	1,274	1,511	1,360
Port handling charges, storage & loss -5%	Rp/kg	+	36	37	38	45	41
Internal handling/transport costs - near port	Rp/kg	+	15	15	15	15	15
Value at wholesale market	Rp/kg	=	1,253	1,288	1,327	1,571	1,416
Transport costs, local to wholesale market	Rp/kg	-	30	30	30	30	30
Wholesale margin -5%	Rp/kg	-	38	39	40	47	42
Value at local market/processor/mill	Rp/kg	=	1,186	1,219	1,258	1,494	1,344
Trader margin -5%	Rp/kg	-	36	37	38	45	40
Milling cost	Rp/kg	-	10	10	10	10	10
Transport cost - farmgate to local market/mill	Rp/kg	-	10	10	10	10	10
Value at farmgate – financial	Rp/kg	=	1,130	1,162	1,200	1,429	1,283
Value at farmgate – economic	Rp/kg	=	1,147	1,180	1,217	1,446	1,301

**Table A7.9: Derivation of Export Parity Price for Cocoa
At Constant 2008 Prices**

Item	2003	2004	2005	2006	2007	2008 Jan- April	2008 April	Forecasted Prices	
								2010	2015
US \$/mt ^a	1,653	1,778	1,604	1,592	1,952	2,310	2,608	1,580	1,370
Quality Differential (less 10%) ^b	1,488	1,600	1,444	1,433	1,757	2,079	2,347	1,422	1,233
Freight, Medan to Penang	10	10	10	10	10	10	10	10	10
FOB Jakarta US\$	1,478	1,590	1,434	1,423	1,747	2,069	2,337	1,412	1,223
Exchange Rp'000 to \$	8,200	9,000	9,500	9,000	9,300	9,300	9,300	9,300	9,300
FOB Jakarta, Rp'000/mt	12,117	14,312	13,620	12,805	16,245	19,242	21,736	13,132	11,374
Port handling	50	50	50	50	50	50	50	50	50
Transport cost	500	500	500	500	500	500	500	500	500
Government tax – 1%	121	143	136	128	162	192	217	131	114
Marketing margin -10%	1,157	1,376	1,307	1,226	1,570	1,869	2,119	1,258	1,082
Discount for water content-20%	2,423	2,862	2,724	2,561	3,249	3,848	4,347	2,626	2,275
Dry beans - Rp/kg									
Financial farm price	7,866	9,380	8,903	8,341	10,714	12,782	14,503	8,566	7,353
Economic farm price	8,400	10,002	9,497	8,902	11,414	13,601	15,422	9,141	7,857

^a Daily average prices, dry beans, New York and London.

^b Includes retention cost.

Source: IBRD Commodity Price Forecasts, December 2007.

**Table A7.10: Derivation of Export Parity Price for Coffee
Constant 2008 US Dollars.**

Item	2004	2005	2006	2007	Forecasted Prices	
					2010	2015
US \$/mt ^a	1,748	2,316	2,320	1,740	1,580	1,370
Quality Adjustment (less 10%) ^b	1,573	2,084	2,088	1,566	1,422	1,233
Freight, Jakarta-Europe	50	50	50	50	50	50
FOB Jakarta US\$	1,523	2,034	2,038	1,516	1,372	1,183
Exchange Rp'000 to \$	9,000	9,500	9,000	9,500	9,500	9,500
FOB Jakarta, Rp'000/mt	13,705	19,327	18,342	14,402	13,034	11,239
Port handling	35	35	35	35	35	35
Transport cost	65	65	65	65	65	65
Ex-factory price	13,605	19,227	18,242	14,302	12,934	11,139
Processing cost	700	700	700	700	700	700
Processing margin - 20%	140	140	140	140	140	140
Marketing margin -10%	1,276	1,839	1,740	1,346	1,209	1,030
Transport cost	100	100	100	100	100	100
Dry beans - Rp/kg						
Financial farm price	11,388	16,448	15,562	12,016	10,785	9,169
Economic farm price	11,620	16,736	15,840	12,254	11,010	9,376

^a Daily average prices, dry beans, New York and London.

^b Includes retention cost.

Source: IBRD Commodity Price Forecasts, December 2007.

Table A7.11: Economic Cost and Benefits of Village Irrigation Subcomponent
(Rp million)

2008 Constant Prices														
Items	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
COST														
Investment Cost														
Village irrigation		0	183	2,083	2,177	3,355	1,852	2,759	1,623					
Total Investment Cost		0	183	2,083	2,177	3,355	1,852	2,759	1,623					
Recurrent cost - 5%		0	0	9	113	222	390	482	620	702	702	702	702	702
Total Cost		0	183	2,092	2,290	3,577	2,242	3,242	2,243	702	702	702	702	702
BENEFITS														
Area of paddy irrigated			0	0	780	1,560	2,080	2,600	2,600	2,600	2,600	2,600	2,600	2,600
Incremental benefit/ha - Rp million			1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Total Benefits			0	0	896	1,792	2,390	2,987	2,987	2,987	2,987	2,987	2,987	2,987
Net benefits	0	0	-183	2,092	1,394	1,785	148	-254	744	2,286	2,286	2,286	2,286	2,286
EIRR	19.70 %													

Table A7.12: Economic Cost and Benefits of Agriculture Support Subcomponent
(Rp million)

2008 Constant Prices															
Items	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
COST															
Investment Cost															
Agriculture support	1,902	346	2,468	4,072	7,870	8,339	11,390	4,839	2,432						
Total Investment Cost	1,902	346	2,468	4,072	7,870	8,339	11,390	4,839	2,432						
Recurrent cost - 5%		95	112	236	439	833	1,250	1,819	2,061	2,183	2,183	2,183	2,183	2,183	2,183
Total Cost	1,902	441	2,580	4,308	8,309	9,172	12,640	6,659	4,494	2,183	2,183	2,183	2,183	2,183	2,183
BENEFITS															
Area served - ha			1,440	2,880	4,320	5,760	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200
Incremental benefit/ha - Rp million		0.00	0.23	0.46	0.69	0.92	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Total Benefits		0	331	1,324	2,978	5,294	8,273	8,273	8,273	8,273	8,273	8,273	8,273	8,273	8,273
Net benefits	1,902	-441	2,249	2,984	5,331	3,877	-4,367	1,614	3,779	6,090	6,090	6,090	6,090	6,090	6,090
EIRR	15.81	%													

Table A7.13: Economic Cost and Benefits of Roads and Trails Subcomponent
(Rp million)

2008 Constant Prices			1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Items	Trips														
COST															
Investment Cost															
Roads, tracks, and bridges			2,557	1,861	13,406	10,633	7,878	20,869	33,281	16,850	5,234				
Total Investment Cost			2,557	1,861	13,406	10,633	7,878	20,869	33,281	16,850	5,234				
Recurrent cost - 5%				128	221	891	1,423	1,817	2,860	4,524	5,367	5,628	5,628	5,628	5,628
Total Cost			2,557	1,989	13,627	11,524	9,301	22,685	36,141	21,374	10,600	5,628	5,628	5,628	5,628
BENEFITS															
D. No of Users	no/day														
1. Car	100				4,380	8,030	10,220	18,250	29,565	36,500	37,595	38,723	39,885	41,081	42,314
2. Bus	50				2,190	4,015	5,110	9,125	14,783	18,250	18,798	19,361	19,942	20,541	21,157
3. 4-Wheel Drive	30				1,314	2,409	3,066	5,475	8,870	10,950	11,279	11,617	11,965	12,324	12,694
4. 5-ton Lorry	80				3,504	6,424	8,176	14,600	23,652	29,200	30,076	30,978	31,908	32,865	33,851
6. Motor bike	300				13,140	24,090	30,660	54,750	88,695	109,500	112,785	116,169	119,654	123,243	126,941
Benefits/vehicle/trip – Rp	000 Rp														
1. Car	60				263	482	613	1,095	1,774	2,190	2,256	2,323	2,393	2,465	2,539
2. Bus	150				329	602	767	1,369	2,217	2,738	2,820	2,904	2,991	3,081	3,174
3. 4-Wheel Drive	80				105	193	245	438	710	876	902	929	957	986	1,016
4. 5-ton Lorry	200				701	1,285	1,635	2,920	4,730	5,840	6,015	6,196	6,382	6,573	6,770
6. Motor bike	30				394	723	920	1,643	2,661	3,285	3,384	3,485	3,590	3,697	3,808
Total Benefits					1,791	3,284	4,180	7,464	12,092	14,929	15,376	15,838	16,313	16,802	17,306
Net benefits			-2,557	-1,989	11,836	-8,240	-5,121	15,221	24,049	-6,445	4,776	10,209	10,684	11,174	11,678
EIRR	10.04 %														

Table A7.14: Economic Cost and Benefits of Health Care Subcomponent
(Rp million)

2008 Constant Prices														
Items	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
COST														
Investment Cost														
Primary health care	2,872	348	3,037	7,593	13,696	6,479	2,896	5,003	2,449					
Total Investment Cost	2,872	348	3,037	7,593	13,696	6,479	2,896	5,003	2,449					
Recurrent cost - 10%		287	322	626	1,385	2,755	3,402	3,692	4,192	4,437	4,437	4,437	4,437	4,437
Total Cost	2,872	636	3,359	8,218	15,081	9,233	6,299	8,695	6,641	4,437	4,437	4,437	4,437	4,437
BENEFITS														
No. of households served		1,200	3,200	6,000	8,800	9,400	29,100	29,100	29,100	29,100	29,100	29,100	29,100	29,100
Value of Labor saved per household - Rp million		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Total Benefits		600	1,600	3,000	4,400	4,700	14,550	14,550	14,550	14,550	14,550	14,550	14,550	14,550
Net benefits	-2,872	-36	-1,759	-5,218	10,681	-4,533	8,251	5,855	7,909	10,113	10,113	10,113	10,113	10,113
EIRR	23.26	%												

Table A7.15: Economic Cost and Benefits of Water Supply Subcomponent
(Rp million)

2008 Constant Prices														
Items	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
COST														
Investment Cost														
Village water supply	2,898	527	4,012	8,689	10,662	7,061	16,834	11,654	3,707					
Total Investment Cost	2,898	527	4,012	8,689	10,662	7,061	16,834	11,654	3,707					
Recurrent cost - 5%		145	171	372	806	1,339	1,692	2,534	3,117	3,302	3,302	3,302	3,302	3,302
Total Cost	2,898	672	4,183	9,060	11,468	8,400	18,526	14,188	6,824	3,302	3,302	3,302	3,302	3,302
BENEFITS														
No. of households served		800	2,800	4,600	6,400	8,800	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Value of Labor saved per household		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Total Benefits		750	2,625	4,313	6,000	8,250	11,250	11,250	11,250	11,250	11,250	11,250	11,250	11,250
Net benefits	2,898	78	-1,558	-4,748	-5,468	-150	-7,276	-2,938	4,426	7,948	7,948	7,948	7,948	7,948
EIRR	16.78 %													

Table A7.16: Economic Cost and Benefits of Project
(Rp million)

2008 Constant Prices

Items	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
COST														
Investment Cost														
1. Part A: Community Development	4,087	4,128	4,834	2,631	3,364	2,647	2,939	1,749	3,718					
2. Part B: Park and Buffer Zone Management	4,011	3,387	12,993	14,466	5,027	4,314	4,696	3,230	1,761					
3. Part C: Rural Support & Infrastructure Services	4,133	1,201	18,328	24,927	31,439	35,876	60,907	37,625	7,835					
4. Part D: Project Management and Institutional	6,352	4,476	9,758	11,732	5,951	5,477	4,614	3,175	5,288					
Total Investment Cost	18,582	13,192	45,914	53,756	45,782	48,314	73,156	45,779	18,602					
Recurrent cost	0	1,113	1,779	4,096	7,171	10,356	13,334	17,208	19,800	20,934	20,934	20,934	20,934	20,934
Total Cost	18,582	14,305	47,693	57,853	52,953	58,670	86,490	62,986	38,402	20,934	20,934	20,934	20,934	20,934
BENEFITS														
Park and buffer zone management	0	0	3,728	7,456	11,184	14,912	18,640	19,106	19,584	20,073	20,575	21,089	21,617	22,157
Primary health care	0	600	1,600	3,000	4,400	4,700	14,550	14,550	14,550	14,550	14,550	14,550	14,550	14,550
Village water supply	0	750	2,625	4,313	6,000	8,250	11,250	11,250	11,250	11,250	11,250	11,250	11,250	11,250
Agriculture support	0	0	331	1,324	2,978	5,294	8,273	8,273	8,273	8,273	8,273	8,273	8,273	8,273
Roads, tracks, and bridges	0	0	1,791	3,284	4,180	7,464	12,092	14,929	15,376	15,838	16,313	16,802	17,306	17,825
River training	0	0	29	58	86	115	144	144	144	144	144	144	144	144
Village irrigation	0	0	0	0	896	1,792	2,390	2,987	2,987	2,987	2,987	2,987	2,987	2,987
Micro hydropower	0	0	0	0	22	36	41	41	41	41	41	41	41	41
Total Benefits	0	1,350	10,104	19,434	29,746	42,564	67,380	71,279	72,205	73,156	74,133	75,137	76,168	77,227
Net benefits	18,582	12,955	37,589	38,419	23,207	16,106	19,110	8,293	33,803	52,222	53,199	54,203	55,234	56,294
EIRR		16.15	%											
NPV (10%) Rp Million		96,217												

Table A7.17: Comparison of Subcomponent EIRR at Appraisal and at Project Completion Review

No	Items	Appraisal	PCR	Percent of Project Cost
1	Total Project	18.0	16.2	100.0
2	Community Development and Agriculture	18.0	15.8	11.7
3	Community Development, Roads, and Tracks		10.0	30.0
4	Park Management	22.0	18.5	21.8
5	Health Care	11.0	23.3	11.9
6	Water Supply	17.0	16.8	17.6
7	Village Irrigation and Mini-hydropower	31.0		
	Village Irrigation – ha		19.7	3.8
	Mini-hydropower Station		negative	0.6
8	River Training	27.0	negative	2.6

Table A7.18: Project EIRR and Sensitivity Analysis

Item	EIRR
Base Case	16.2%
O&M Cost +20%	15.4%
Benefits –20%	13.2%
O&M Cost +20% and Benefits –20%	12.2%

EIRR = economic internal rate of return, O&M = operation and maintenance.

Source: Asian Development Bank.