Indonesia

Rural Areas Infrastructure Development Project

Report Date: March 2001
Field Survey: September 2000

1. Project Profile and Japan's ODA Loan

Project Covered Areas Dispersed Throughout Indonesia, Excluding Java and Bali

A Road Built Under This Project

(1) Background

Indonesia's Sixth Five-Year Plan, which began in 1994, set anti-poverty measures as one of its key policy targets. Specifically, it aimed to reduce the population living below the poverty line from 25.8 million in 1993 to 12 million by the end of 1998. In order to achieve this objective, growth of the economy as a whole would have to be backed up by more targeted measures. To that end the Indonesian government designated 20,633 villages as "under-developed" villages, based on a survey by the Central Bureau of Statistics.

From 1994, the government began two main policies, targeting the under-developed villages. The first was to establish the Inpres Desa Tertinggal (IDT, Special Fund by Presidential Order) to provide operating funds for village-based production activity. The second was to build infrastructure at the local level, through this and other projects. The two schemes were expected to interact synergistically to assist the development of under-developed villages. A high priority was placed on the assistance for development of under-developed villages, which would have effects beyond the targeted areas, making a strong contribution to national goals of growth for the whole country with fairness and stability.

(2) Objectives

This project aimed to target those of the under-developed villages which had latent potential but were hindered in their development by problems such as bad transport access. Such villages were to be provided with access infrastructure and simple water supply facilities in order to assist their spontaneous progress and thereby reduce poverty.

(3) Project Scope

Those under-developed villages which were selected on the basis of Central Bureau of Statistics data

(PODES)[1] on the latent development potential of villages were provided with the following infrastructure construction and improvements.

1) Access infrastructure: Simple paving of access roads to villages (including bridges). Piers in coastal areas were also improved.

2) Simple water supply facilities: Installation of pipe systems etc. for public hydrants. Hygiene facilities (wells, bathing areas, toilets, water collection areas with drainage pipes) were included.

3) Consulting services: Consulting services included monitoring of project progress.

Table 1 shows the distribution of the under-developed villages by province selected for coverage by this project. Table 2 shows the state of project implementation.

Table 1 Distribution of Target Areas (under-developed villages) by Province (at the planning stage)

Regions (21 provinces)	No. of villages	Share	Regions (provinces)	No. of villages	Share
Aceh Special Province	369	10.7%	West Kalimantan Province	110	3.2%
North Sumatra Province	215	6.2%	Central Kalimantan Province	238	6.9%
West Sumatra Province	125	3.6%	South Kalimantan Province	125	3.6%
Riau Province	134	3.9%	East Kalimantan Province	180	5.2%
Jambi Province	100	2.9%	North Sulawesi Province	80	2.3%
South Sumatra Province	201	5.8%	Central Sulawesi Province	95	2.7%
Bengkulu Province	109	3.2%	South Sulawesi Province	240	6.9%
Lampung Province	192	5.5%	Southeast Sulawesi Province	105	3.0%
West Nussa Tenggara Province	71	2.1%	Maluku Province	155	4.5%
East Nussa Tenggara Province	160	4.6%	Irian Jaya Province	319	9.2%
East Timor Province	137	4.0%	Total	3,460	100.0%

Source: Indonesian government documents.

[1] Such surveys have been carried out every three years since 1973 by the Central Bureau of Statistics (CBS) and the National Development Planning Agency (BAPPENAS). The one used to identify “under-developed villages” was conducted in 1993. Of 65,554 villages nationwide, 20,633 (31%) were designated as under developed. The proportion of under-developed villages is particularly high in the seven provinces of Irian Jaya, East Timor, Central Kalimantan, Maluku, East Kalimantan, Central Sulawesi and Aceh.

Table 2 State of Project Implementation (recorded values)

Type of facilities	FY 1995/96		FY 1996/97		Total project quantity
	No. of villages covered	Quantity built	No. of villages covered	Quantity built	
Roads:		4,963 km		5,018 km	9,981 km
-Earth		1,434 km		2,089 km	3,523 km
-Gravel	1,198	2,325 km	1,397	2,478 km	4,803 km
-Macadam		633 km		450 km	1,083 km
-Asphalt		571 km		- km	571 km
Bridges:		14,849 m		22,097 m	36,946 m
-Wood		10,645 m		19,625 m	30,270 m
-Iron	497	1,579 m	781	1,081 m	2,660 m
-Concrete		1,782 m		1,391 m	3,173 m
-Others		843 m		- m	843 m
Jetties:	212	308 unit	320	629 unit	937 unit
Water supply:		4,314 unit		4,896 unit	9,210 unit
-Piped		87 unit		212 unit	299 unit
-Reservoir		- unit		267 unit	267 unit
-Spring Water		245 unit		1,834 unit	2,079 unit
-Public Hydrant	576	245 unit	1,077	1,317 unit	1,562 unit
-Dug Well		1,409 unit		462 unit	1,871 unit
-Rain Water		789 unit		804 unit	1,593 unit
-Hand Pump		1,025 unit		100 unit	1,125 unit
-Others		514 unit		97.7 km	514 unit
Hygienic facilities	205	1,362 unit	463	2,567 unit	3,929 unit
No. of villages covered	1,644		1,813		3,457

Source: Executing agency documents

* In cases where multiple facilities are built in one village, the total for the numbers of villages where each type is built may not match the number of villages covered.
* Average village population was 1,850 people/ village, and total village population (population covered by the project) was approximately 6.4 million.

(4) Borrower/Executing Agency

Republic of Indonesia / Ministry of Housing and Regional Infrastructure (former Directorate General of Road, Ministry of Public Works and Directorate General of Housing Environment), Ministry of Interior and Home Affairs (former Directorate General of Regional Development, Ministry of Interior, Directorate General of Village Development)

The coordination and monitoring of the project as a whole are conducted by National Development Planning Agency (BAPPENAS).

(5) Outline of Loan Agreement

Loan Amount/Loan Disbursed Amount	¥21,000 million / ¥20,999 million
Exchange of Notes/Loan Agreement	November 1994 / November 1994
Terms and Conditions	Interest rate: 2.6%, Repayment period: 30 years (10 years for grace period), General Untied (Partially untied for consulting services)
Final Disbursement Date	December 1998

2. Results and Evaluation

(1) Relevance

Indonesia's protracted recession in the aftermath of the 1997 currency crisis has raised the priority of poverty reduction measures, particularly in under-developed villages, to a new level. Therefore the relevance of the project was maintained at the time of the evaluation. This project, and its successors, Phase 2 (loan agreement signed in January 1998, disbursement completed in February 2001) and Phase 3 (exchange of notes completed in March 2001) can be credited with helping to create employment and raise incomes in regional rural areas. They have served as an element of Indonesia's economic development policy. The Decentralization of National Government Law, which was passed in May 1999 (effective from January 2001), formalized the position of local governments (provinces and districts) as agents of local development. Thus the skills and abilities for community development built up through this project (and its successors) have given local governments a valuable body of expertise for driving regional development. There were no major changes in the scope of the project.

(2) Efficiency

Overall coordination and monitoring of this project were handled by Project Management Unit (PMU) established within the National Development Planning Agency (BAPPENAS). The technical aspects of the construction works were handled by the Ministry of Public Works, while administrative procedures were the responsibility of the Ministry of Interior. The two ministries supervised and directed the district governments which implemented the project works. This system of cooperation between the central government and local governments carried the project to completion largely on schedule. The project cost overran by approximately ¥726 million (approximately 3% of the planned cost), which was covered by Indonesian government expenditure. Implementation of the project was mainly efficient.

(3) Effectiveness

1) Improvement in the level of infrastructure

A survey by BAPPENAS after the completion of the project found that this project had yielded the following improvements in infrastructure levels in the target areas (1,644 villages).

- Extention of road passable by automobile.	**Increased by 32%**
- Extention of paved road:	**Approximately three times the previous length.**
-Extention of rural roads rated "good" or "very good":	**Approximately 2.5 times the previous length.**
- Number of bridges (including jetties):	**Increased by 30%.**
-Extention of bridges rated "good" or "very good":	**Approximately 2.2 times the previous length.**
- Number of water supply facilities:	**Increased by 33%.**
- Number of hygienic facilities:	**Increased by 24%.**

2) Completion, maintenance and functionality of facilities

This project was implemented over a period of approximately two years (see Table 2). Two monitoring surveys of facilities built in FY 1995/96 have been conducted since their completion. The first was conducted three or four months after completion of the 1995/96 facilities, and the second was conducted one year after completion. The surveys conducted questionnaires of each village concerning the physical

condition of their facilities, and their functionality (whether they fulfill their purpose)[2]. Table 3 shows the evaluation results on the status and functionality of the facilities, as obtained from the above surveys. The results show that the facilities were in satisfactory condition immediately after completion (the first survey) in 80% of villages, falling to 70% of villages a year after completion (the second survey).

Table 3 Evaluation of Facilities and Their Functionality from the PMU Monitoring Survey

Facilities	First survey (3~4 months after completion)	Second survey (1 year after completion)
■Physical condition of facilities and equipment		
Access roads Satisfied with the state of the facilities	84%	75%
Bridges Satisfied with the state of the facilities	93%	79%
Jetties Satisfied with the state of the facilities	96%	69%
Water supply service Satisfied with the state of the facilities concerned	84%	67%
Hygiene units Satisfied with the state of the facilities concerned	95%	86%
■Functionality of facilities and equipment		
Access roads The roads serve their purpose adequately	80%	82%
Bridges The bridges serve their purpose adequately	93%	85%
Jetties The jetties serve their purpose adequately	82%	62%
Water supply service The facilities concerned serve their purpose adequately	80%	49%
Hygiene units The facilities concerned serve their purpose adequately	84%	69%

The fact that evaluations of the physical status and functionality of all the facilities was lower in the second survey than in the first can be ascribed to two reasons for all facilities and equipment other than roads. The first is that users had become accustomed to the facilities a year after completion, and the second is that the village cooperatives (LKMD) responsible for the maintenance of the facilities were lacking in the knowledge and skills necessary for maintenance and management. In particular, the social service facilities, namely water supply and sanitary facilities, should have been backed by education and guidance to villagers, who lacked maintenance skills, and were unsure of what the facilities were for and how to use them.

3) Effects on communities

(i) Creation of employment opportunities

The implementation of this project created job opportunities in the villages. According to BAPPENAS, demand averaging 22~26 million Rupiah was created in each village, equivalent to 15~17% of the total contracting value of construction. That is the direct effect, and it can be inferred that there were still larger

[2] The survey was conducted on 133 villages selected at random by BAPPENAS, and 114 villages responded to both the first and second surveys. Survey results were collated and analyzed for those 114 villages.

economic ripple effects when indirect effects are taken into consideration. In the monitoring surveys by the PMU, described above, 80~90% of villages responded that "the implementation of the project brought employment opportunities and stimulated the local economy".

(ii) Formation of a base for economic progress

According to BAPPENAS, the improvement in the quality and quantity of access roads has greatly reduced the travel times required to reach major markets and other regional centers, ending the isolation of rural areas and forming the base for economic progress. Before the project, villagers carried agricultural products on foot to market, but since the roads have been built, buying agents collect the products to take to market. The delay in shipping products to market is a negative factor leading to lost opportunities, but that has improved greatly by now. These changes have increased villagers' incomes and enabled some to build new homes. There is now less need for villagers to leave the village in search of employment.

(iii) Lifestyle changes

The building of access roads has caused the following desirable changes in villagers' ways of life.

- Small buses have started running to the villages, making transport more convenient. For example, children traveling to school sometimes had to stay overnight at school when heavy rains affected bad roads, but that never happens now.
- Buying agents have begun collecting agricultural products, reducing the need for villagers to carry it themselves and increasing the time they have for other purposes (parents can accompany their children to hospital, make handicrafts, tend fields etc.).

(iv) Improvement in environmental health

The hygiene units (water facilities incorporating wells, bathing areas, toilets and drainage pipes) and water supply facilities improved the environmental health of the villages. The installation of hygiene units reduced the proportion of sewage and waste water being discharged to local lakes and rivers. The village monitoring surveys carried out after the implementation of this project found that the proportion of sewage disposed of in rivers and lakes fell from 42.3% before the project to 29.2% afterwards, a drop of 13.1 points. The proportion of bathing and laundering done in lakes and rivers (in dry season) dropped by 16.9 points, from 44.6% to 27.7%. This change has helped the conservation of the water environment around villages.

The building of water supply facilities has improved access to clean water, reducing the time spent in collecting and carrying water. For example, the time spent per household per day in collecting water was cut by 80 minutes in Tutoa village, Maluku Province, and by 25 minutes in Aruso village in the same province.

According to the monitoring survey described above, 75% of the villages assessed that the hygiene units and water supply facilities had made a contribution to lowering the incidence of waterborne diseases.

(v) Community's ability improvement

This project used participatory planning methods in which the villagers chose which facilities would be built in their villages, under the guidance of the central executing agency (PMU) and the local governments. This method was useful in empowering the villagers in the planning and implementation stages of the project, and in fostering their independent involvement.

4) Evaluation by beneficiaries

(i) PMU monitoring survey (initial stage after completion)

The PMU monitoring survey described above also investigated whether the project was useful in achieving its goals of "improving access to markets and relief of isolation", "improving environment of health and hygiene" and "creating local jobs".

Table 4 shows that evaluations of these effects in the survey a year after completion were better than those in the survey soon after completion. As mentioned above, evaluations of physical condition and functionality were lower in the second survey than in the first, but the evaluations of effects seem to have improved over time as the use of facilities which were never previously available in the communities (access roads, water supply facilities, hygienic facilities) became an ingrained part of life and their "facility effects" were realized. Above all, the effects of access roads are characterized by a virtuous circle of "completion of access road → village is added to buying agent collection routes and minibus service routes → opportunity losses for agricultural produce sales are reduced → free time is increased".

Table 4 Evaluation of Project Effects from the PMU Monitoring Survey

Effects	First survey	Second survey	Difference between first and second survey
Improved access to markets and relief of isolation.	68.0%	80.2%	12.2 %
Improved environment of health and hygiene.	67.3%	75.3%	8.0 %
Local jobs creation.	58.4%	66.7%	8.3 %
Improved management ability in community development.	48.7%	72.4%	23.7 %
Improved ability in planning, implementation and maintenance.	53.1%	66.6%	13.5 %

* Percentages in the table are the proportion of villages which replied that the project had been "useful" or "extremely useful" in realizing the corresponding effects.

* The first survey was conducted 3~4 months after completion of facilities built in 1995/96, while the second was conducted a year after completion of that batch of facilities.

(ii) Questionnaire survey of beneficiaries (FY 2000)

This questionnaire survey of beneficiaries was conducted approximately three years after the PMU monitoring survey to ascertain the current condition of the facilities and the realization of their intended effects[3]. The questions covered the usage and evaluation of each type of facilities, namely the roads and bridges, water supply system, and hygiene units. The number of villages covered by the survey was limited, and therefore the survey was unable to provide a complete overview of the project, but the following section described each of the main facilities such as access roads, water supply systems and hygiene units, together with the main results of the questionnaire survey and evaluation results in each region.

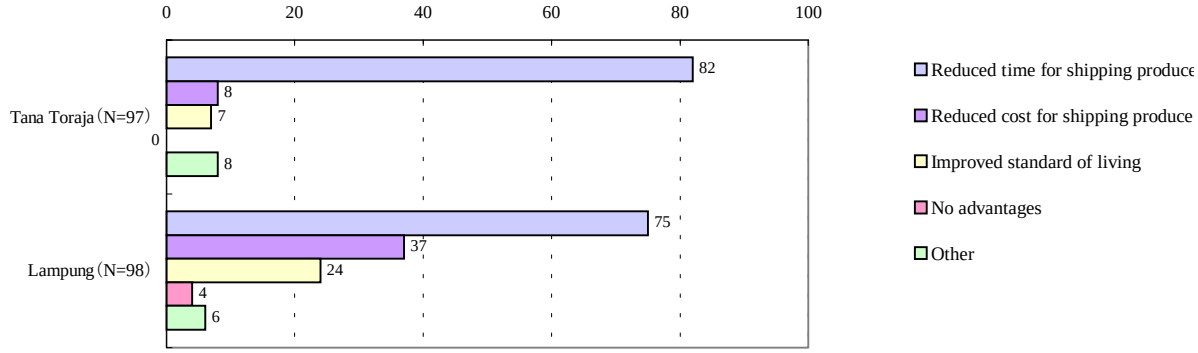
<Access improvement>

In both regions, Lampung and Tanatoraja, a majority of respondents (80% and 69% respectively) were satisfied with the improvements to the access roads, which mainly consisted of road widening. The villagers replied that the road improvements had yielded direct effects such as those listed in Table 1.

[3] Two regions were visited to make field surveys (one province in the east of the country and one in the west: Tanatoraja district in South Sulawesi Province and Lampung district in Lampung Province). With the assistance of the local governments, 100 residents (ordinary farmers, buying agents, teachers, civil servants and others) were selected randomly from each of the villages targeted by the project in the surveyed areas. The questionnaire survey was conducted on an interview basis. The number of respondents is stated as "N" for each question.

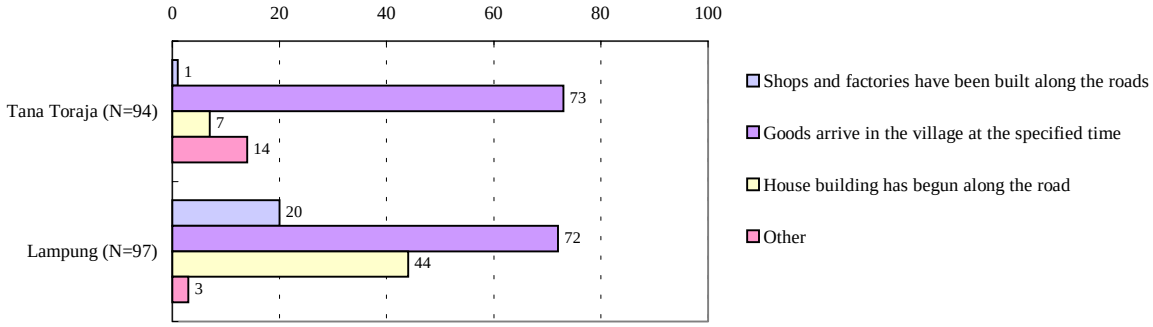
Over 80% of the residents of villages in each region targeted by this project answered that “Travel time was reduced” to main markets.

Figure 1　Effects of Access Improvement on Villagers’ Way of Life (multiple responses permitted)



Other responses included “goods arrive in the village at the specified time” and “house building has begun along the road” as induced effects (Figure 2).

Figure 2　Effects of Access Improvement on the Region (multiple responses permitted)



<Water supply systems>

There are differences between the two regions in the water sources that are normally used. In the Tana Toraja district, the proportions using spring water and using the water supply system are approximately equal, while in Lampung district 100% of respondents stated that they use the water supply system.

Figure 3　Normally Used Water Sources (multiple responses permitted)

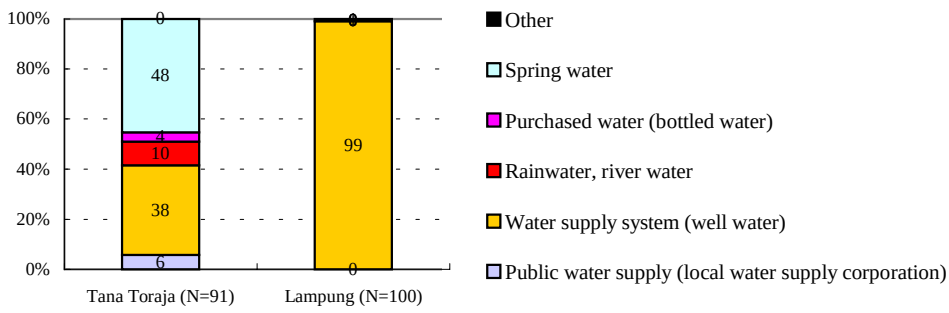
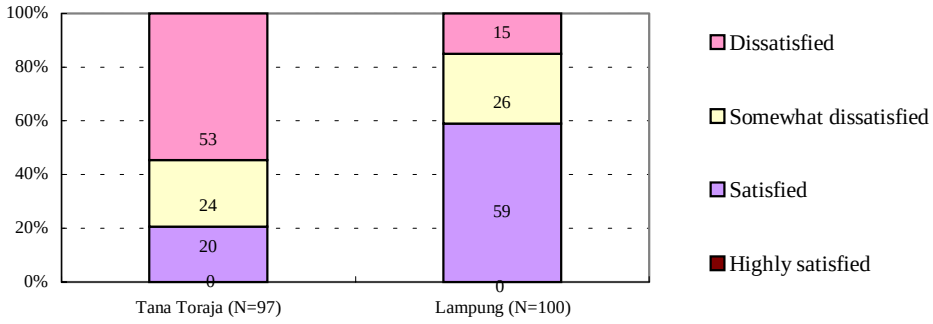


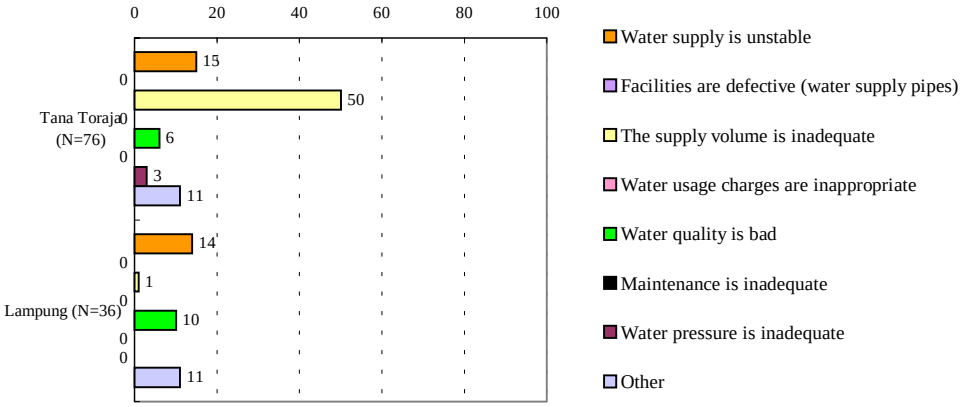
Figure 4 shows satisfaction with the water supply system in both regions. In Tana Toraja, where the proportion using the water supply system was low, a majority were “dissatisfied”, and the total of “dissatisfied” and “somewhat dissatisfied” respondents was nearly 80% overall. In Lampung, where almost all respondents used the water supply system, none were “highly satisfied” but nearly 60% were “satisfied”.

Figure 4 Satisfaction with the Water Supply System (single choice)



When respondents were asked for the reasons for their dissatisfaction with the water supply system, many in Tana Toraja, where 80% were dissatisfied with the system, said “the supply volume is inadequate” (Figure 5). In that area the volume of water that could be supplied to meet demand was limited, apparently forcing many to go back to using spring water.

Figure 5 Reasons for Dissatisfaction with the Water Supply System (multiple responses permitted)

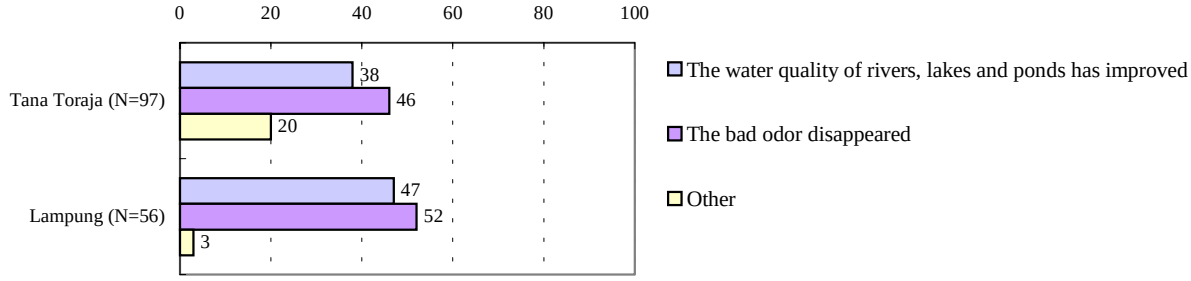


The most commonly selected positive influence of the water supply system in both regions was that “less time is consumed in collecting water”. It was observed that the time saved from water collection was available for household chores and other activities.

<Hygiene units>

Figure 6 shows the results of questions on the influence of the hygienic units on the local environment. A high proportion of respondents selected “the bad odor disappeared” and “the water quality of rivers, lakes and ponds has improved”.

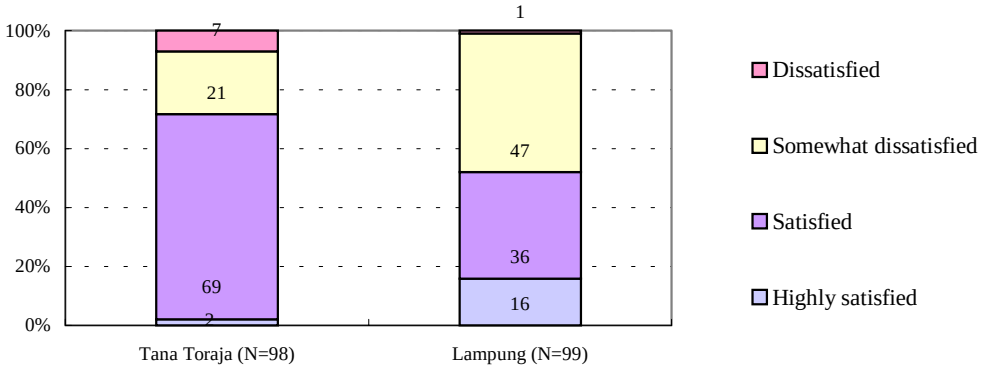
Figure 6 Positive Influence of Hygiene Units (multiple responses permitted)



<Overall evaluation of this project>

In the overall evaluation (level of satisfaction) of this project over 70% of respondents in Tana Toraja district were either "highly satisfied" or "satisfied", while such respondents were slightly more than half in Lampung district. Looking at the responses given above concerning each type of facilities, the main reason was the improved base for local economic activity yielded by the improvement in access, and it can be inferred that evaluation of the access improvement led to the overall evaluation.

Figure 7 Overall evaluation of the project



(4) Impact

1) Environmental impact

According to BAPPENAS, there have been no reports of negative environmental impact from this project. Rather, as the questionnaire survey of beneficiaries indicated, the installation of hygiene units improved the water environment around the villages, and it is reasonable to assume that the same beneficial impact occurred in other villages.

2) Improvement of staff skill levels

Central and local government personnel were able to acquire skills in participatory planning methods, project monitoring and effect assessment in the course of the project. Village community leaders, such as village heads and development committees (LKMDs), experienced the participatory development process

as they selected the facilities to build, by collating and summarizing residents' opinions and studying orders of priority.

That experience appears to have enhanced skills which will be needed in future as regional development is promoted through decentralization.

3) Improvement of the level of poverty

The prime objective of this project was to "improve the level of poverty in the villages targeted by this project and, by extension, lift some villages out of the under-developed category". From the time of the appraisal, poverty was to be monitored quantitatively, using a "nationwide poverty map" for use in later ex-post evaluation. However, according to BAPPENAS, the surveys of poverty in each province and village were conducted only once in 1995, during the implementation of the project, and no further surveys were conducted after the currency crisis. Therefore no such data exists.

The state-by-state population poverty rates[4], which were obtained for reference, show that there was a nationwide improvement in poverty rates between 1993 and 1996, including the rates for Java and Bali, which were not covered by this project. However, the impact of the 1997 currency crisis caused a nationwide worsening of poverty rates between 1996 and 1999. In particular, the impact of the currency crisis caused a nationwide setback between 1996 and 1999. The worst rises in poverty rates were in Nussa Tenggara, Maluku and Irian Jaya. The "improvement of poverty levels" was this project's prime objective, but the deterioration of Indonesia's entire social and economic situation (the external environment) makes it difficult to make a quantitative evaluation of the project's effects in reducing poverty.

(5) Sustainability

1) Operation and Maintenance

At the time of the appraisal, the operation and maintenance of the facilities after completion were to be carried out by district governments, under the direction of the central government. The subsequent policy shift towards decentralization later made the development committees (LKMDs) of each village the bodies in charge of maintenance.

2) Operation and Maintenance Status

The village development committees (LKMDs) are obliged to obtain all the resources (people, materials, money) they need for maintenance work. Apart from the provision of technical guidelines for maintenance, there is no significant support from higher-level government agencies. Maintenance work is usually carried out using the materials available within each village, with the labor contributed by residents. However, in cases where materials must be obtained from outside the village, it is difficult for the villages to cope because they cannot provide the money.

When this study visited project-targeted villages in Tana Toraja district in South Sulawesi Province and Lampung district in Lampung Province, the access roads linking villages to trunk roads (provincial and

[4] Population in poverty: The standard level of income defined is that necessary to provide each person with at least 2,100kcal/day and a minimum level of other items (non-food items) necessary for life, including costs of housing, clothing, transport and education.

district roads) were relatively well maintained, but on the link roads between villages, the gravel surface is peeling and uneven, with ruts, in which some vehicles could get stuck. The level of road maintenance clearly differs according to the position and functions of the roads.

3) Sustainability

It is not easy to keep maintenance ability above a certain level in over 3,000 target villages. When the project was completed, the central government PMU provided motivational, educational and technical training concerning maintenance in each village, but it is important to provide such training in a sustained way. The central government must go on providing support so that as many villages as possible are able to maintain the effects of the project by their own efforts. The country is now in a transition period, transferring authority and responsibility over administration and finance from central to local governments. At this time it is important to ensure, in advance, that the local governments will be able to secure adequate maintenance budgets from their own funding sources.

Comparison of Original and Actual Scope

Item	Plan	Actual
① Project Scope		
a) Development and improvement of villages access roads	・ Improvement for the paving of existing access roads. The targeted roads (including bridges) link villages to provincial or district roads. Jetties are built for villages where waterborne transport is the main means of access.	・ Same as left
b) Installation and improvement of water supply facilities	・ Water supply systems and hygiene units (MCK) of types tailored to local conditions are provided.	・ Same as left
c) Consulting service	75M/M	198M/M
② Implementation Schedule		
1. L/A	・ Nov. 1994	・ Nov. 1994
2. Selection of consultant	・ Jul. 1994 ~ Feb. 1995	・ Dec. 1994 ~ Jun. 1995
3. Construction works	・ Jun. 1995 ~ Feb. 1997 (Completion of construction)	・ Apr. 1995 ~ Mar. 1997 (Completion)
4. Consulting service	・ Mar. 1995 ~ Mar. 1997	・ Aug. 1995 ~ May 1997
③Project Cost		
Foreign currency	¥4,046 million	¥160 million
Local currency	¥20,852 million	¥25,464 million
Total	¥24,898 million	¥25,624 million
ODA loan portion	¥21,000 million	¥20,988 million
Exchange rate	1Rp. ＝¥0.05 (Apr. 1994)	1Rp. ＝¥0.047