Meta Analysis of Ex-Post Evaluation Reports
by Country and Sector

Country Review Report

Indonesia

Final Report

July 2003

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Foreword

This analyses ex-post evaluation reports (henceforth, evaluation report) for 143 projects to Indonesia supported by the Japan Bank for International Cooperation (JBIC).

In order to improve the quality of aid projects in developing countries, the JBIC has conducted ex-post evaluations of completed projects. Ex-post project evaluation is the assessment of how a project was implemented and administrated in comparison with the initial plan, and whether the expected results were realized after completion of the project. The ex-post evaluations are conducted with two goals in mind. The first is to compile the lessons learned from the project evaluations, and to use the lessons in the implementation of future projects. The second goal is to improve transparency of aid projects, and to increase the accountability for people both in Japan and the borrowing countries through the disclosure of evaluation results.

The goal of this review is to create an overview of the performance of the completed projects to Indonesia using ex-post evaluation reports, to analyze the data to determine the cumulative effect of the Japanese ODA loan projects to Indonesia, and to derive possible lessons or recommendations for future ODA loan projects. In addition, by reviewing and studying the evaluation indices, it is hoped that reference material for future appraisals, administration and evaluations will be provided.

This report consists of four chapters. The first chapter is a synopsis of the social and economic trends in Indonesia. Chapter two presents a summary of Japanese ODA loans to Indonesia. Chapter three analyzes the performance of the 143 projects based on the evaluation reports. Chapter four presents the comprehensive results of the analysis, and offers lessons learned and recommendations for future projects to Indonesia.

In the analysis, remarks in ex-post evaluation reports were uniformly compiled and examined in reference to DAC Criteria, as laid out in the DAC Principles for Evaluation of Development Assistance (relevance, efficiency, effectiveness, impact, and sustainability), which were further divided into 23 more detailed sub-criteria. However, the past evaluation reports targeted for analysis were not subject to uniform ex-post evaluations, and there were some that were conducted prior to the introduction of DAC's five principal criteria. In particular, the level of detailed analysis contained in the ex-post evaluation results differed in the detailed evaluations (detailed analysis conducted by JBIC staff along with outside experts and

desk evaluations (called desk evaluations for expediency, and are detailed evaluations were conducted on a portion of the projects by JBIC staff within Japan). For this reason, the spectrum of evaluation remarks covered in early reports and those of the present day are different, and in such cases, notations such as "not clear in the (past) evaluation report (in regards to a certain evaluation criteria)" have been included.

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1. Economic and social trends in Indonesia[1]

1.1 Politics, economy and society

(1) Politics

Indonesia declared its independence in 1945 under the "Founding Father of Indonesia" President Sukarno, and was later followed by the second president Suharto in 1968. While strengthening the country's relationship with western countries, President Suharto also made economic development his main principle through the establishment of a Five-Year Development Plan. During this time, Indonesia made remarkable progress in development with active assistance from abroad and with the introduction of foreign capital. On the diplomatic front, Indonesia made an impact on its neighboring regions as the leader of the Association of Southeast Asian Nations (ASEAN).

However, when the IMF demanded public utility charge hikes at the time of the 1997 Asian currency crisis in order to recover from it, criticism of the Suharto regime erupted. In May of 1998, President Suharto gave in to the criticism of Indonesian citizens and announced his resignation, installing vice president Habibie as the third President. With no significant achievements, President Habibie was left with no choice but to refrain from seeking reelection in the next term, and in October of 1999, President Wahid was elected the fourth president of the country at the People's Consultative Assembly (MPR). President Wahid, however, was ousted by a special session of the People's Consultative Assembly (MPR) in July 2001, followed by the promotion of vice president Megawati to be the fifth president. President Megawati has thus far maintained political stability in the country, and is currently working to strengthen her base of power for the general and presidential elections scheduled for 2004.

(2) Economy

Indonesia has taken a policy of proactively prioritizing economic development since the beginning of the Suharto Administration. Although the country faced economic difficulties temporarily during the mid-1980s it has worked on economic structural reforms through various measures such as deregulation since the latter half of that decade. Although current account deficits were growing and the balance of foreign debt was at a high level, economic conditions were overall good prior to the currency crisis.

However, the Asian currency and financial crisis that occurred in July 1997 dealt a major blow to the Indonesian economy. With a drastic decline in the rupiah and significant capital flight in a short period of time, the government made the transition to the de facto floating exchange system and announced a variety of measures such as postponing government-related projects. However, with the

[1] Ministry of Foreign Affairs' web cite, documents of JBIC and *Series : Economic Assistance for development country – Indonesia*, Association for Promotion of International Cooperation, 2000.

vast foreign debt that burdened the country it could not shake off the distrust of the international financial market and the rupiah continued to decline and the economy worsened significantly in 1997 and 1998. Since then, the Indonesian government has been making efforts to restore the confidence of the international market through comprehensive economic structural reforms based on an agreement with the IMF, in particular through such measures as reform programs to restore the soundness of the financial sector, the consolidation of private banks, and deregulation policies.

Under the framework of international assistance made by IMF, Paris Club and CGI, the Indonesian Government made its effort to curtail financial deficit and control inflation. As a result, its economy has started to be stabilized and economic growth rates for 2000 and 2001 were 4.9% and 3.3% respectively against recovery of consumption.

(3) Secession and independence issues

Due to the fact that Indonesia, the world's largest island nation, is made up of many ethnic groups with differing religions and languages, regional secession and independence movements have been a constant threat to the nation's cohesion from the time the country was founded.

In East Timor, a province that was integrated into Indonesia in 1976, secession and independence movements were rampant. Although the Indonesian government repressed such movements through the use of force, the movement toward independence was accelerated with the resignation of President Suharto, with the country gaining full independence in May of 2002. With East Timor's secession and independence, the special region of Aceh and the province of Irian Jaya also started actively demanding their own secession and independence, but the Indonesian government is maintaining its position of keeping unity between the nation and territories, and is working toward a resolution of the issue. In addition to this, a major conflict broke out between the Muslim and Christian populations in the provinces of Maluku and North Maluku and has been continuing since January 1999.

Table 1-1: Major Economic Indicators

	1997	1998	1999	2000	2001
Real GDP growth rate (%)	4.7	-13.1	0.8	4.9	3.3
Consumer price index increase (%, end-of-period rates)	10.3	77.5	2.0	9.4	12.6
Exchange rate (mid-term average, rupiah/dollar)	2952	9875	7809	8534	10256
Fiscal balance (% of GDP)	0.1	-1.9	-2.4	-1.6	-3.7
Current account balance (% of GDP)	-2.4	4.2	4.1	5.3	4.7
Debt/GDP (%)	100.8	126.7	95.6	106.0	92.8
Unemployment rate (%)	4.7	5.5	6.4	6.1	8.1
Population (millions)	201.4	204.4	207.4	210.5	213.5

Source: JBIC, ADB

1.2 National development plan

(1) Medium-term development plan

The Suharto Administration kicked off the First Five-Year National Development (Repelita) Plan, a comprehensive plan for economic development, in 1969 and continued to renew it every five years since that time, up to the Sixth Five-Year Plan. Under the Repelita, economic growth rates targets and sector targets were established, and the central government distributed the budget for development by region based on those targets.

The main objectives of each plan were as follows:

- First Plan (April 1969 to March 1974)
  Increase agricultural production, develop industry that supports agriculture, restore infrastructure, increase clothing production, implement positive fiscal and financial policies through foreign aid, and revitalize investment activity through preferential treatment measures for private investment
- Second Plan (April 1974 to March 1979)
  Increase agricultural and clothing production, increase employment opportunities, and increase housing
- Third Plan (April 1979 to March 1984)
  Achieve food self-sufficiency, promote labor-intensive industries and finished product processing industries
- Fourth Plan (April 1984 to March 1989)
  Reduce dependence on oil, increase employment opportunities, promote capital goods processing industries and intermediate input goods processing industry
- Fifth Plan (April 1989 to March 2004)
  Increase employment opportunities, equalize income distribution, develop balance between agriculture and industry
- Sixth Plan (April 1994 to March 1999)
  Simultaneously achieve growth, equity, and stability

In November 2000 under President Wahid, a new national development program (Propenas) was presented, replacing the Repelita. In the Propenas, major issues such as democratization, judicial reform, building of infrastructure for sustainable economic growth and poverty alleviation were raised. Although economic target values by sector have not been stipulated, as was the case with the Repelita, it is thought to be consistent with a policy that promotes autonomous development of regions from their own perspective within a decentralized framework. The Propenas also differs from the Repelita in that it was enacted after deliberations in the parliament. The major policy objectives of the Propenas (2000 to 2004) are as follows:

1) Sustain high-level economic growth and restrict population growth

2) Promote balanced regional development and eliminate gaps between regions, social strata, fields, and metropolitan and rural areas, and eradicate of poverty
3) Increase employment opportunities, improve productivity, and reduce unemployed through balancing disproportionate population distribution
4) Develop human resources
5) Develop science and technology to support Indonesia's development and independence
6) Maintain a balance between high-level economic growth and conservation of natural resources
7) Establish an adequate legal system and strengthen social groups to minimize the undesirable effects of economic growth on social values and culture

(2) Issues in development

As Indonesia takes on political, administrative, and economic reforms it is also continuing efforts toward getting back on track to sustainable economic growth. The importance of sustainable economic growth is set forth in the Propenas (2000 to 2004) with the following five central points: 1) ensure national cohesion and the creation of a democratic political system, 2) achieve good governance and the rule of law, 3) accelerate economic recovery and strengthen sustainable and equitable development, 4) develop welfare and create a vital culture, and 5) promote rural development.
In an effort to create a beneficial cycle of reform advancement and sustainable economic growth the JBIC Country Specific Work Implementation Policy identifies the tasks of alleviating poverty, creating self-reliance of local communities, diversifying industry, and expanding private investment.

2. The Japanese ODA loan Project to Indonesia

2.1 Outlook

Since the first Japanese ODA loan agreement was concluded in 1968, ODA loan for assistance has undergone a transition along with changes in Indonesia's development issues. From 1960 to 1970, the electric power sector was the main target for assistance, but aiming at improvement of the national transportation network in the 1980s, the percentage allotted to the transportation sector such as roads and ports and to the irrigation/flood control sector for the purpose of increasing agricultural production grew. Since the 1990s, the social services sector including education and healthcare has been added.

Table 2-1 shows cumulative totals by sector for ODA loan projects to Indonesia that have been approved as of March 2002. Of the cumulative total of 606 projects (based on the number of ODA loan agreement) with a cumulative amount of 3,637.7 billion yen, commodity loans represented 28 projects and 959.5 billion yen and project loans represented 578 projects and 2678 billion yen. The target sectors for project loans have covered infrastructure, agriculture/forestry/fisheries, manufacturing and mining and social services, but much of the loans were used in transportation, electric power/gas, and irrigation/flood control, with these three sectors alone accounting for approximately 70% of the total project loan amount. In the electric power/gas sector the greatest amount of loan assistance was directed at power plants, representing 15% of the total project loan amount. In the transportation sector the greatest amount of loan assistance was directed at roads and railways, representing 11% and 9% respectively. In addition, while there have been many loan projects toward telecommunications and mining and manufacturing, the size of each project's loan amount was relatively small in comparison with the other sectors.

2.2 Priority areas of economic assistance to Indonesia

In keeping with the three main concepts of 1) macroeconomic stability, 2) support for various reforms, and 3) elimination of economic bottlenecks that form the assistance policy of the Japanese government confirmed at the 2001 intergovernmental policy consultation, JBIC is committed to supporting environmental improvement in order to make a transition to sustainable growth and to eliciting the underlying development potential of Indonesia as it continues to bounce back from the economic crisis. The content of the policy is as follows:

1) Macroeconomic stability

Support macroeconomic stability through a basic agreement on a debt repayment schedule, and support of fair, transparent, and efficient fiscal management through studies and recommendations related to local finance.

2) Support for various reforms

In order to build up governance, conduct studies on improving fairness and transparency in procurement procedures and improving the capacity of local authorities. Secure continued citizen

participation and fair procurement procedures and improve the project planning and implementation ability of implementing agencies, related agencies, and local authorities through the implementation of projects that are currently being implemented.

3) Elimination of economic bottlenecks

Respond to urgent needs such as the elimination of economic bottlenecks while supporting reform for the resuscitation of the management system and administration and maintenance systems of sectors related to public services, such as the energy sector (electric power), transportation sector (railways/roads/marine transportation), and urban improvement sector (water supply/sewerage/sanitation). Look into the possibility of supporting broad sustainable methods for development through citizen participation in the water resource management, agriculture and fisheries, and forestry conservation sectors.

Table 2-1: Cumulative Japanese ODA loans to Indonesia by sector (as of March, 2003)[2]

Type of industry		Number of projects	Approved loan amount (million yen)	Composition ratio (%)	Composition ratio within loans (%)
Electric power and gas	Multipurpose dams	31	845	2.3	3.2
	Power plants	72	4,062	11.2	15.2
	Transmission lines and distribution systems	21	973	2.7	3.6
	Gas	1	491	1.3	1.8
	Others	3	159	0.4	0.6
	Sub total	128	6,530	18.0	24.4
Transportation	Roads	51	2,901	8.2	10.8
	Bridges	2	159	0.4	0.6
	Railways	37	2,350	6.5	8.8
	Airports	11	988	2.7	3.7
	Ports	24	911	2.5	3.4
	Marine transportation	20	641	1.8	2.4
	Others	6	84	0.2	0.3
	Sub total	151	8,035	22.1	30.0
Telecommunications	Telecommunications	41	1,072	2.9	4.0
	Broadcasting	13	370	1.0	1.4
	Others			0.0	0.0
	Sub total	54	1,442	4.0	5.4
Irrigation and flood control	Sub total	87	4,253	11.7	15.9
Agriculture, forestry and fisheries	Agriculture	6	443	1.2	1.7
	Forestry	2	46	0.1	0.2
	Fisheries	10	157	0.4	0.6
	Sub total	18	645	1.8	2.4
Mining and Manufacturing	Mining	37	552	1.5	2.1
	Manufacturing	34	1,776	4.9	6.6
	Others			0.0	0.0
	Sub total	71	2,328	6.4	8.7
Social services	Water supply, sewerage and sanitation	21	593	1.6	2.2
	Education	16	1,000	2.7	3.7
	Public health and medicine	7	169	0.5	0.6
	Tourism	4	130	0.4	0.5
	Urban/rural community infrastructure	5	723	2.0	2.7
	Strengthening of administrative management	7	151	0.4	0.6
	Environmental Conservation in multisector			0.0	0.0
	Others	1	297	0.8	1.1
	Sub total	61	3063	8.4	11.4
Others	Sub total	8	484	1.3	1.8
Project loan total	Sub total	578	26,780	73.6	
Commodity loans, etc.	Sub total	28	9,595	26.4	
Total		606	36,377	100.0	100.0

[2] Since figurees are rounded off, they may not add up to totals.

3. Performance Analysis

3.1 Outline of projects under review

The projects reviewed in this report are the 143[3] Japanese ODA loan projects to Indonesia that have undergone an ex-post evaluation up to and including FY2001. A table listing the project name, sector, sub-sector, and date of loan agreement (L/A) has been attached in an appendix.

The 143 total projects are divided by sector as follows: 19 electric power/gas projects, 44 transportation projects, 15 telecommunication projects, 30 irrigation/flood control projects, 6 agriculture/fisheries projects, 7 mining/manufacturing projects, 21 social service projects, and 1 commodity loan project. As for sub-sectors, roads accounted for 18 projects in the transportation sector (Table 3-1).

By year, loan agreements in the latter half of the 1980s were the most numerous with 42 projects, followed by the first half of the 1980s with 30 projects, resulting in half of the overall projects having been conducted in the 1980s. The numbers of projects in the 1970s and 1990s were 42 and 29 respectively (Table 3-2).

Table 3-1: Target project numbers by sector

Sector	Number of projects	Sector	Number of projects
Electric power and gas	19	Agriculture, forestry and fisheries	6
Multipurpose dams	2	Farming	4
Power plants	12	Fishing	2
Transmission lines and distribution systems	6	Mining and manufacturing	7
Transportation	44	Manufacturing	7
Roads	18	Social services	21
Railways	8	Water supply, sewerage and sanitation	5
Airports	2	Urban/rural community infrastructure	2
Ports	6	Education	6
Marine transportation	8	Public health and medicine	3
Others	3	Strengthening of administrative management	4
Telecommunications	15	Tourism	1
Telecommunications	12	Commodity loans	1
Broadcasting	3	Commodity loans	1
Irrigation and flood control	30		
Irrigation and flood control	30	**Total**	143

[3] In principle, projects covering multiple ODA loan agreements have been counted as one project, however, when the content of projects differs greatly even under the same project name, or when the evaluation year is distant making it difficult to wrap it up in one project, such projects have been counted as separate projects.

Note: There is one project that encompasses both a multi-purpose dam and a power plant, resulting in a discrepancy between the total number of electric power and gas sector projects and the breakdown. There is one project that encompasses port and marine transportation, resulting in a discrepancy between the total number of transportation projects and the breakdown.

Table 3-2: Number of target projects by date

Dates	Number of projects
1970-1974	16
1975-1979	26
1980-1984	30
1985-1989	42
1990-1994	27
1995-1999	2
Total	143

Note: Based on date of loan approval (the earliest in cases of multiple loan agreements).

3.2 Analysis of the five evaluation criteria

This chapter consists of a performance analysis of 143 projects based on the evaluation report for each project. The framework for analysis consists of five primary criteria. These five criteria are based upon the “Principles for Evaluation of Development Assistance” established by the Development Assistance Committee (DAC) of the Organization for Economic Co-Operation and Development (OECD) in 1991, which evaluates a project from the standpoint of project relevance, efficiency of implementation, effectiveness, impact and sustainability. To perform a more detailed analysis for this report, each of the five parameters was broken down into 23 “evaluation check items” listed in table 3-3. Also, the effects parameter has come to include the operation and effect indicators.

In preparation for conducting the performance analyses, the information in the project evaluation reports was checked against the 23 evaluation check items.

Table 3-3: The Five Evaluation Criteria and Evaluation Check Items

Project Relevance	Does the goal and the approach to the project match the priorities and policies of the target group, counterpart country and the donor?
A1. Consistency with Development Policy and Priority Issues	Do the project goals and overall goals of this project match the development policies (including the national policy and master plan) and priority issues of the country or region in question?
A2. Relevance of Project Scope	Was the project plan (scope and approach) at the time of appraisal judged appropriate to achieve the overall and project goals?
A3. Relevance of Project Scope Alteration	In cases where project scope was altered after the project was implemented, were the alterations relevant?
A4. Relevance of Project Goals at the Time of Evaluation	In cases where terms and conditions were altered after the planning stage, are the project goals still valid at the present?
Efficiency of Implementation	Was the input appropriate and achieved as planned in terms of quality, quantity and timing? Was the method used the most efficient in regard to output?
B1. Completeness of Output	Was the output (project results) completed as planned?
B2. Implementation Schedule Efficiency	Were there any problems in the project that caused the implementation schedule to exceed original plans?
B3. Project Cost Efficiency	Were there any problems in the project that caused the project costs to exceed original plans?
B4. Project Implementation System	Was the system appropriate for decision-making, monitoring and troubleshooting during the project?
Effectiveness	Achievement of Project Purpose. To what extent did the project output achieve its purpose?
C1. Output Utilization	Is the output (project results) being used adequately? (Determined primarily using the operation indicators. In cases where there is no planned value, sufficiency will be determined using absolute values.)
C2. Project Goal Realization	Was the direct effectiveness of the project sufficiently realized, and was the project goal sufficiently achieved? (Determined primarily using the effect indicators. When there is no planned value, sufficiency will be determined using absolute values)
C3. Achievement of IRR	Is the Internal Rate of Return sufficient when compared with initial project values?
C4.Effect of Technical Assistance	Were the training and technological instruction component effects sufficiently realized?
Impact	Was the intended overall goal of the project achieved? Direct, indirect and subordinate results in terms of technical, economical, socio-cultural, institutional and environmental aspects.
D1. Contribution to Overall Goal Achievement	To what level were the original overall goals of the plan achieved, and to what extent did the project contribute to their realization.
D2. Impact on Policy and Institutional System	What impact did the project have upon development policy of the country in question and the institutional system of the sector in question? Was the impact positive or

	negative?
D3. Socio-Economic Impact	What kind of impact was there on the regional society and economy? Was the impact positive or negative?
D4. Impact on Technology	What contribution did the project make to technological innovation and improvement in the country in question?
D5. Impact on Natural Environment	What impact was there on the regional environment? Was the impact positive or negative?
D6. Resident Resettlement and Land Acquisition	What impact was there on regional society in terms of resident resettlement and land acquisition?
Sustainability	After completion of aid, to what extent will the agencies and organizations of the counterpart country be able to sustain the output and effects of the project?
E1. Output Condition	Is the output (project results) being maintained and operated appropriately? Is facility in good condition?
E2. Operation and Maintenance System	Are the systems, human resources (quality and quantity), work procedures (manuals) technology, maintenance facilities and equipment, and stock and procurement of spare parts for operation and maintenance sufficient?
E3. Financial Resources for Operation and Maintenance	Are sufficient financial resources available for appropriate operation and maintenance? Are those resources expected to remain available in the future?
E4. Continuation of Needs	Is it expected that need for the project will continue in the future?
E5. External Factors	What external factors will have a major effect on project effects and sustainability (environment, politics, policy, institutional systems, market, other related projects, etc.)? Is it expected that positive factors can be maintained in the future?

3.2.1 Project relevance

In the text, the words "plan" and "objective" each refer to the initial plan and the objectives of the initial plan (in principal, at the time of appraisal); however, in cases where project alterations were approved during the implementation of the project, they refer to the revised plan and objectives. This definition will be used throughout the remainder of this document.

(1) Consistency with development policy and priority issues

Of the 143 projects, it was impossible to determine relevance due to lack of information for 20% or 29 projects. All of the remaining 114 projects, however, conformed to the government's development policies or priority development issues. Many of the projects corresponded to the six Five-Year Development Plans that have been drawn up since 1969 and are very consistent with the priority plans.

(2) Relevance of project scope

For many projects, nothing directly related to relevance of project scope was noted in the ex-post evaluation reports making it impossible to determine relevance for half of the total, or 73 projects[4]. In the 70 projects for which determination of relevance of project scope was possible, the initial plans for 49 of the projects have been determined to have been appropriate for achieving the primary objectives and project objectives, while 18 projects have been determined to be overall relevant.

There were 3 projects for which the project plan was determined to have not been appropriate. In two of those, the planned project scope was not adequate which resulted in necessary alterations to project scope after the project was started, and ultimately resulted in a decline in project effectiveness and efficiency. In the "Way Jepara Irrigation Project," not enough physical investigation including geological surveys had conducted at the time of the F/S and the detailed design that was based on the F/S also was not based on sufficient physical investigation resulting in many alterations to the plan and causing delays. In the "Ujung Pandang Water Supply Rehabilitation Project," appraisal was carried out at a stage when the preceding E/S was not yet complete resulting in the need to make major plan alterations during the implementation stage. For the remaining project, the "Djakarta Foundry Center Project," a foundry plant construction project which had been started at the beginning of the 1970s, but insufficient study on Indonesia's foundry market environment, technical evaluation, government

[4] It should be noted here that, while it is possible to interpret major alterations to project scope during the implementation phase to be the result of insufficient study during the planning stage of the project, this report does not necessarily do so. In other words, it is not surprising that differences will exist between study accuracy and external conditions from the time of the initial study and the detailed design at implementation stage. For this reason, it is likely that there will often be alterations to the plan during the detailed design phase. Therefore, even if major alterations to project scope occurred, when relevance of project plan cannot be clearly determined from the notations in the follow-up evaluation report they have been marked as "indeterminable".

industry subsidy policy, and plant operation system at the time of the F/S resulted in very low production achievements (17% of planned in the best year).

(3) Relevance of project scope alteration

While there were some types of alterations made to the plans of approximately 70% of the 143 total projects, most alterations were relevant. Alterations were made mostly to increase the project effectiveness or efficiency when geographical and technical conditions of the location or the needs of the beneficiary became clear at the detailed design stage or implementation stage. In the repair and rehabilitation projects in the transportation sector, deterioration of the target facilities progressed rapidly between the time of appraisal and the time of implementation, and cases in which project scope had to be expanded were particularly noticeable[5]. Some alterations were also made to correspond to changes such as policy changes or natural disasters that were unpredictable at the time of planning[6].

For 3 projects, relevance of plan alterations was determined to be low. In the "Development of Medical Care & Hospital Facilities" an Indonesian language manual for equipment operation was not created as had been expected, and instead only an English version was made (for reasons unknown), and this alteration became one hindrance to achieving the desired effectiveness of the project[7].

(4) Relevance of project goals at the time of evaluation

Of the 143 total projects, it was possible to determine the relevance of project goals at the time of evaluation for 111 projects. Of those, 95% or 105 projects were deemed to have been relevant. Due to changes in market conditions and progress in technology by the time of evaluation, there were 6 projects for which it was no longer possible to speak about the relevance of project goals. Among those, the "Renovation of Cilacap Spinning Mill Project" was a project to repair the state-owned textile plant. However, although development in the textile industry at the time of evaluation ('95) was expected to grow as an export-led industry, the share of the industry held by private corporations was already large and the initial ('88) goals were deemed to have become irrelevant.

[5] "South Sumatera Roads Rehabilitations Project," "Road Rehabilitation Project," "Road Rehabilitation Project (II)," "Rehabilitation of Diesel Railcars Project," and others.

[6] "Ferry Terminals in Easet Java and Bali Islands Urgent Rehabilitation Project," "Equipment Supply for Remote Area Telecommunication Network," and others.

[7] The other two projects are the "Way Jepara Irrigation Project" and "Jakarta Fishing Port/Market Development Project (Phase I, II)."

3.2.2 Efficiency of implementation

(1) Completeness of output

In over 90% of the 143 total projects, project output was attained as planned at the time of evaluation. In some cases projects were ended with output that remained below the initial planned scope, or in other cases projects were still being implemented at the time of evaluation. There were 3 projects in which specific problems were pointed out.

In the "Extension Project of Local Telephone Networks," subscriber telephone lines were supposed to have been laid, but in some cases the project was still incomplete at the time of evaluation ten years following the conclusion of the L/A. It is presumed that the cause for delay was the time needed to gain approval for digging under roads in order to bury the cables. In the "Mount Kelud Urgent Volcanic Disaster Mitigation Project," the site for which a bypass aqueduct connecting two rivers to deal with erosion was not completed because of problems in land acquisition. At the time of evaluation, the government was heading toward completion of work and was in negotiation with the residents who were to be resettled, but the impact of the project as an emergency project was mostly lost. In the "Consulting Services for Jakarta Water Supply Project" the primary distribution pipelines at the purification plant was still under construction at the time of evaluation and the tertiary distribution system and feed water pipes that were outside the scope of the loans remained incomplete due to lack of funding.

(2) Implementation schedule efficiency

Of the targeted 143 projects, 33 (approximately 20%) were completed within the schedule or fell less than one year behind schedule. Delays were common, with 63 projects (over 40%) experiencing delays of between one and three years and 45 projects falling more than three years behind schedule (over 30%). Most long delays were due to delays in the procurement phase, such as the consultant employment, bidding and contract procedures, and delays in procurement of materials[8]. There were also many cases in which project delays occurred because of the need for additional work due to alterations in scope[9]. There were also some delays in projects due to shortages in domestic funding because of financial difficulty on the part of the Indonesian government, and some due to difficulty

[8] Reasons that may account for delays in the procurement phase include lack of ability on the part of the implementing agencies ("Palembang Electric Power System Project (Phase II)") and plan alterations ("Equipment Supply for Remote Area Telecommunication Network,") but for many projects the cause for delays remained unclear.

[9] "Telephone Outside Plant Maintenance Center Project," "Overall Ular River Improvement and Irrigation Project," and others.

with land acquisition and resident resettlement[10]. There were also projects that ended up experiencing delays due to excessively tight construction schedules at the time of the initial plan[11].

Delays were observed in every sector, but long delays mostly occurred in the irrigation, and flood control, sector with 15 of the 30 projects experiencing delays that exceeded three years.

(3) Project costs efficiency

Of the total 143 projects, approximately three-quarters or 107 projects had project costs (total project costs denominated in foreign currency) that fell within the projected costs or had overruns of 10% or less, 11 projects (or just over 10%) had overruns within 50%, and 7 projects overran project costs by more than 50%. Total project costs were unclear for 18 projects[12]. The breakdown of the 7 projects for which project cost overruns exceeded 50% is: 2 each of manufacturing and road projects, and 1 each of railways, irrigation and flood control, and fisheries, and in each case overrun amounts were made up for with additional financing[13].

The main reasons for project cost overruns were construction delays and additional construction due to alterations in plans. Despite the fact that calculations in domestic funding show cost overruns, due to a drastic decline of the rupiah against the yen because of fluctuations in exchange rates the overall project costs on a yen basis were as planned, or rather, in many cases actually exhibited cost under runs[14].

(4) Project implementation system

In the ex-post evaluation reports of just under 40% of the total 143 projects, or 55 projects, notation about project implementation system was not recorded, making determination impossible. Among the remaining 88 projects, just over half or 47 projects were deemed to have had appropriate project implementation systems (“overall good”), and 33 projects (or just fewer than 40%) had some areas of concern, while 8 projects (or just fewer than 10%) were pointed out for having had problems.

The common problem areas of the project implementation system were 1) problems in the implementation and organizational competency of the agencies implementing projects and 2) competency (technical and fiscal) of the contractors[15]. There were very few projects in which there was deemed to have been a problem with the consultant[16].

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[10] Projects for which domestic funding shortages caused delays were: “North Sulawesi Highway Project (I)(II)(III)” and “Central and East Java Road Betterment Project.” Land acquisition and resident resettlement difficulties were experienced in: “Local and Urban Road Development Project” and “Krueng Aceh Urgent Flood Control Project.”

[11] “Development and Improvement Project of the Local Cable Network.”

[12] Data on actual domestic funding totals was not available or project was incomplete at the time of evaluation.

[13] In the case of “Rehabilitation of Diesel Railcars Project, “the initial project was unable to be completed within the planned scope, resulting in the implementation of a second project.

[14] The “Small Scale Irrigation Management Project,” “Family Planning Project,” and others.

[15] With respect to having selected a problematic contractor, there was a case in which there was determined to be a problem with the selection process itself (“North Sumatra Transmission Line Project”).

[16] In the Extension Project of Local Telephone Networks, the Japanese consultant was unfamiliar with the site and was lacking in leadership capability.

The breakdown of the 8 projects that were pointed out for having had specific problems is: 2 in the road sector, and 1 each in power plants, transmission lines, telecommunications, irrigation and flood control, water supply, sewerage and sanitation, and public health and medicine. Of those, the implementing agency (Cipta Karya of the Ministry of Public Works) of the “Consulting Services for Jakarta Water Supply Project” in the water supply, sewerage, and sanitation sector lacked skills in work implementation and management such as coordination with other related agencies, and the performance of the consultant, who was supposed to assist implementing agency to solve problems, was also pointed out to be unsatisfactory.

Many of the projects in which there were some areas of concern were in the railway sector and most problems were the lack of ability on the part of the Directorate General of Land Communications and the national railway, and the lack of coordination between the two.

3.2.3 Effectiveness

(1) Output utilization

Based on operational indicators, the output of two-thirds or 90 of the total 143 projects was deemed to have been utilized to a satisfactory degree, while for 31 projects output utilization was seen as having some areas for concern, but overall good. Combining those two, the output of 121 out of the 143 projects was well utilized and the degree of output utilization of the Indonesian projects on the whole was overall high. There were 10 projects for which the degree of utilization was much lower than the planned, but when considering the whole these were unusual cases. It should be noted that there were 12 projects for which there was no data on the reliability of the operational indicators and for which determination was not possible.

In each of the economic infrastructure sectors, such as electric power, transmission lines, roads, railways, ports, and telecommunication, over 70% of the projects in each case were deemed to have had high output utilization.

The breakdown of the 10 projects that had low output utilization is: 2 dredging (other transportation), 2 manufacturing, and 1 each of power plants, irrigation and flood control, agriculture, education, public health and medicine, and strengthening of administrative management. In the power plant project, the "Priok Steam Power Plant Unit 3 & 4 Rehabilitation Project," the operation of the repaired generators was stopped before they had achieved their target operation rates due to compound reasons such as delays in project completion, deterioration of power plant equipment and parts, economic losses, and changes in the roles of the power plants. In the "Equipment Supply for Replacement and Development of Dredges," the targeted area for dredging was changed. Manufacturing projects experienced problems in forecasting demand and supply. Operating rates at the rice mill in the "Equipment Supply for Pre and Post Harvest Services" did not increase because of system reform and competition with the private sector. The education and public health sector projects provided equipment and materials, but some were not installed or used. In strengthening of administrative management, data was not updated and systems were not utilized in some cases. In projects that had low output utilization, each had their own specific reasons that were not generalized.

As mentioned previously, the output utilization of the yen loan projects in Indonesia was overall good, and the above-mentioned problems were the exception.

(2) Project goal realization

The degree of project goal realization was ascertained by the performance of outcome indicators as well as the qualitative remarks in the project evaluation reports. Project goals were sufficiently realized for 99 projects, or approximately 70% of the overall project total. In 26 projects, while there were some problems, they were deemed to be overall good, and when added to the previous number, project goals were realized in 125 projects (nearly 90% of the total). The remaining 11 projects experienced some type of problem and project goals were not sufficiently realized.

Many of the projects that had high project goal realization were in the electric power and gas and telecommunications sectors. Projects that worked toward rural and remote electrification[17] improved electrification rates in rural areas and reduced the disparity between those areas and urban areas. Specifically, during the period from 1989/90 to 2000/01, as a result of an average annual increase of 8.4% in the number of rural areas with electricity nationwide, the rural electrification rate on island of Java reached nearly 100%. Meanwhile, electrification rates on outlying islands during the same time period rose from 34.9% to 74.3% (an average annual increase of 10.5%). The Japanese ODA Loan projects contributed to those results.

Through the implementation of 3 broadcasting projects in the telecommunications sector[18], goals achieved included expanding the radio and television coverage regions and populations and improve the capability of program production. For instance, in the "Equipment Supply for Enhancement of Radio & TV. Network" conducted from 1989 to 1992, the radio broadcast coverage area increased from 79.9% ('89) to 92.0% ('93), and the television broadcast coverage area increased from 64.7% ('89) to 79.2%. Furthermore, rehabilitation of obsolete equipment in the "Rehabilitation Project of Radio and Television Networks" conducted from 1993 to 1997 improved radio coverage from 94.2% ('99) while at the same time increasing the number of television programs that were made in color.

The 11 projects that had low project goal realization are by sector: 2 dredging (and other transportation), 2 manufacturing, and 1 each in power plants, irrigation and flood control, agriculture, water, sewerage, and sanitation, education, public health and medicine, and strengthening of administrative management. In each case, project goals were not realized because the utilization of project output was low.

(3) Achievement of IRR

An IRR (economic internal rate of return (EIRR) or financial internal rate of return (FIRR)) has been calculated for 68 of the total 143 projects[19]. Of those, more than 70% of the projects had an achieved value (recalculated value) that was 70% or more[20] of the planned value, and most quantitative impact goals were realized. Values for the remaining nearly 30% of projects were lower.

There were 10 projects (4 manufacturing projects, 2 power plant projects, and 1 project each of roads[21], marine transportation, and other transportation, and fisheries) in which the IRR realized less than 30% of the planned value.

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[17] "Scattered Diesel Plants & Distribution Network (Equipment Supply)," "East Java Electric Power Transmission and Distribution Network Project (IV)," "Rural Electrification Project," and others.

[18] In addition to the 2 projects in this text, there was also the "Improvement of Television Network Project" implemented between 1979 and 1981.

[19] An IRR has not been calculated for 75 projects, or more than half of the overall projects. Some were projects that were not qualitatively suited to calculation of an IRR (education, strengthening of administrative management) and some were cases in which there was insufficient data to perform a recalculation.

[20] For instance, if the planned EIRR value was 20.0%, the achieved value was over 14.0%.

[21] "Heavy Loaded Road Improvement Project." Low when compared to the time of appraisal, but the absolute level is high at 19-38% (depending on the interval).

Although the “Scattered Diesel Plants & Distribution Network” realized such goals as expanding electrification to areas without electricity and stabilizing the electric power supply to already electrified areas, great increases in administrative and maintenance costs over the planned amount resulted in an FIRR recalculation value that was much lower than the planned value. In 4 projects in the manufacturing sector[22], increases in manufacturing costs and insufficient revenues caused the FIRR to be a negative value in all cases.

(4) Technical assistance

In 60% of all projects, project scope did not include training and technical assistance or did not make any notation about the effects of such. For the 51 projects about which it was possible to make a determination, nearly 80% are deemed to have had a technical transfer impact. Specifically, training at the project implementation site or overseas improved the maintenance capabilities of the implementing agency[23] and manuals created by the consultants were also effective[24]. In the irrigation projects, there were cases in which training about farming directed at the farmers was effective[25].

Meanwhile, there were cases in which staff that had been trained and technology that had been acquired were placed in a department where they were insufficiently utilized. For instance, in the “Establishment of Geographic Information System for DKI Jakarta,” many of the approximately 60 people who received training on system operation under the project were subsequently transferred to departments unrelated to the geographic information system during personnel relocations, and did not, therefore, contribute to realization of the project impact. Also, because of insufficient leadership on the part of consultants, there were some cases in which technology transfer was insufficient. In the “Bone Sugar Factory Project,” administrative guidance for farms and plants was included in the project scope but since the administrative and maintenance guidance was not conducted thoroughly enough declining quality in products following the start of operation resulted in operating deficits[26].

[22] “Ujung Pandang Industrial Estate Project (I),” “Djakarta Foundry Center Project,” “Renovation of Cilacap Spinning Mill Project,” “Bone Sugar Factory Project.”

[23] “Gresik Steam Power Plant Project,” “Equipment Supply for Java-Bali Microwave System Expansion,” “Madiun River Urgent Flood Control Project,” “Construction Equipment Reconditioning and Rehabilitation,” “Equipment Supply for Computer Installation at Central Bureau,” and others.

[24] “North Sumatra Transmission Line Project,” “Rehabilitation of Diesel Railcars Project.”

[25] “Wonogiri Irrigation Project,” “Way Umpu & Way Pengubuan Irrigation Rehabilitation Project,” and others.

[26] Consultants were withdrawn two months after operation started. It was unclear in the project evaluation reports whether two months after operation start was too short a time period for guidance or whether there was a problem in the performance of the consultant.

3.2.4 Impact

(1) Contribution to overall goal achievement

Contribution was evaluated from two perspectives: the degree to which primary goals were achieved, and how the projects contributed to their achievement. However, in just over half of the 143 projects, the primary goals were not clearly established, or the degree of contribution or relevance of the project results to the primary objectives was difficult to ascertain. Determination on those projects was not included in this review. For over 90% of the 64 projects for which evaluation was possible, a high degree of contribution to primary goals was observed. By sector, all of the projects in the electric power and gas sector, all of the social service projects, and each of the road projects had a high degree of contribution. The only project that was deemed to have had an extremely low degree of contribution was the "Equipment Supply for Pre and Post Harvest Services." Since the degree of realization of project goals was low due to lack of use of the provided equipment, the project was also unable to contribute to the primary goal that was the establishment of a system for rice self-sufficiency[27].

(2) Impact on policy and institutional system

Most ex-post evaluation reports did not make note of this item nor the following check items related to impact. The reason for not having a notation could be because there was no impact, but it can also be assumed that at the time of evaluation there were no clear concerns regarding impact and therefore none were noted in the report. Therefore, in this review, those cases have been interpreted as "unclear".

An impact on policy and organization systems was noted in only 13 projects, or less than 10% of the total 143 projects. There were 9 projects with a positive impact. The Road Rehabilitation Project is a project implemented during the time when the Indonesian central government first really started embarking on provincial highway development projects (1980 to 1982), and the realized impact of the project is thought to have been instrumental in guiding subsequent provincial highway development. In the "ASEAN Urea Project (Indonesia)," through joint finance from ASEAN countries and Japan's economic cooperation, this project became the first ASEAN countries' interregional project to be implemented and through the project a system for jointly implementing projects was established. Know-how from this project was utilized in subsequent similar projects.

One example of a project that had an outstanding impact on the organizational side through the introduction of the participatory approach was the "Small Scale Irrigation Management Project[28]." In

[27] For projects in which the degree of goal achievement was low, it is not surprising that the degree of contribution to primary goals is also low, however, there were many cases in which primary goals themselves were not clearly noted, and therefore there were few projects for which the degree of contribution has been deemed to be "low".

[28] In addition, through the "Rural Areas Infrastructure Development Project," the central government and staff of local governments learned the participatory planning method and project monitoring method, and this contributed to the development and improvement of village communities.

this project, when ground water irrigation was developed in Oesao, East Nusa Tenggara, a 7-step participatory approach was used to organize farmers. The approach entailed 1) first having a consultant study the validity of the project and the relevance of the technology, and 2) organizing farmer groups through discussions between those involved in the project, the consultant, and the farmers. Then, 3) after confirming requests from the leader of the farmers group as well as the technical relevance a project site was selected, and 4) the consultant created maps and detailed designs while having discussions with farmers. 5) The construction work was furthered by farmer participation and through their participation a sense of ownership of the construction was built. 6) The consultant made a manual for administration and maintenance and held regularly scheduled guidance sessions with the farmers. Furthermore, 7) Technical advisors conducted intensive practical guidance at experimental farms with the aim of expanding farming technology, while consultants also gave support to farmers as the need arose. Through this type of participatory approach, the citizens of the region were able to gain necessary knowledge and know-how, which in turn created an impact on the project's autonomy and expansion.

(3) Socio-economic impact

A socio-economic impact was noted in the evaluation reports of only approximately 60% of all projects (resident resettlement and land acquisition related impacts are noted in another chapter and are not included here). In addition, the cause and effect relationship between project implementation and socioeconomic impact was not fully explained in many projects.

In the 85 projects for which there was some impact, 77 indicated that the impact was positive. There were relatively plentiful examples of impact in the reports of projects in power plants, roads, marine transport, irrigation and flood control sector projects. There were no examples of a clearly negative impact, but in some power plant projects and manufacturing sector projects there was not as positive an impact as had been expected[29].

Examples of projects that had positive impacts are as below:

1) Industrial development, job creation

Many projects are reported to have had industrial development impacts in such areas as trade, manufacturing, and agriculture. For example, in the "Local Road Development Project (II)," as a result of improving transportation between rural and metropolitan areas, agricultural produce processing plants were newly located in rural areas. Through improvements and expansion in handling of containers in the "Semarang Port Development Project (2-1)(2-2)," new container shipping routes were opened to Malaysia, Taiwan, Japan, China, and the Philippines creating a new demand that in

[29] "Priok Steam Power Plant Unit 3 & 4 Rehabilitation Project," "Ujung Pandang Industrial Estate Project (I)," "Renovation of Cilacap Spinning Mill Project."

turn revitalized regional economies with a great deal of small-to-medium-sized manufacturing. New jobs were also created through this industrial development.

2) Income improvement

Many of the irrigation projects[30] increased the income of residents through expansion of agricultural production. Also, industrial development in road projects has been reported to improve income[31].

3) Quality of life improvement

The implementation of electric power, transportation, telecommunications, and water supply and sewerage projects improved the quality of life of residents by establishing a social infrastructure that made residents' lives more safe and convenient. For example, through the implementation of several projects in the transportation sector[32], access to schools and hospitals was greatly improved. In the "Rural Areas Infrastructure Development Project" that was part of the social services projects, the construction of roads and water supply facilities reduced the amount of time required for drawing water and that time was then free to be spend on other productive activities. The project also contributed to curbing the incidence of illnesses arising from water quality.

4) Other

The "Jakarta Intra Urban Tollway Construction Projects" made major contributions to the development of the metropolitan area through dispersion of the metro population to surrounding areas and through redevelopment of the central district. In the "Expansion of National Radio Frequency Monitoring Network (II)," reduction of interference and jamming to neighboring countries contributed to promotion of international cooperation. International exchange was also furthered by education projects such as the "Professional Human Resource Development Project."

(4) Impact on technology

One would expect technical transfer to occur especially when it is part of the project goals, and even when it is not, there should be some sort of technical or know-how transfer through the implementation of a project. However, such an impact is noted in few evaluation reports, in fact, in only 30 projects, or 20% of the total.

In the "Balikpapan Airport Construction Project," there was a great deal of technical learning about construction work of coastal barriers with which Indonesia had no experience. In the "Equipment Supply for Medium Wave Radio Boacon Station," through the introduction of Indonesia's

[30] "Way Umpu and Way Pengubuan Irrigation Project," "Widas Irrigation Project," "Bila Irrigation Project (I)(II)," and others.
[31] "North Sulawesi Highway Project (I)(II)(III)," "Road Rehabilitation Project."
[32] "Local and Urban Road Development Project," "South Sumatera Roads Rehabilitation Project," and others.

first electronic air navigation aid facility, technical transfer occurred that will be extremely useful in the implementation of future projects of the same kind. Meanwhile, it took long time for the technology for the long line fishing of tuna in the "Tuna Fishery Development Project (Sabang and Benoa)" to be transffered. However, necessary level of technology was mastered and the human resource development system for fishermen was established for a certain level.

(5) Impact on natural environment

Just over 40% or 60 of the total number of projects noted an environmental impact, and most noted that there was no particular negative impact on the environment. A positive impact on the environment was noted in the "Lower Jeneberang River Urgent Flood Control Project" and in other flood control projects noting that improving the waterfront environment through river development reduced mosquitoes and unpleasant odors. Meanwhile, there were no examples of serious negative environmental impacts, but with some projects there was some concern about the environment.

(6) Resident resettlement and site acquisition

Of the 36 projects (25% of the total) that noted some type of resident resettlement or land acquisition in the implementation of the project, 20 of them had smooth resident resettlement or land acquisition with no problems. Of the remaining 16 projects, difficulty in land acquisition forced 14 projects, including the "East Java Electric Power Transmission and Distribution Network Project (IV)," into delays or to alter their scope and had an impact on the project, but these issues were ultimately resolved. At the time of evaluation, the two projects "Surabaya River Improvement Project (II- 1)" and "Mount Kelud Urgent Volcanic Disaster Mitigation Project" were the only ones that had unresolved resident resettlement. With respect to the former, 800 residents and 200 households were resettled for land acquisition and negotiations became difficult for a portion of the land, with acquisition still not complete. With respect to the latter, the planned site for the bypass water route construction was the target of resettlement of 21 households, but at the time of evaluation 3 years following the end of the project the implementing agency was still in negotiations with the residents targeted for resettlement about the land acquisition[33].

[33] For that reason, the project has ended, but in a part still remains incomplete at the time of evaluation.

3.2.5 Sustainability

(1) Output

Of the 143 total projects, approximately 30% had a satisfactory current state of output (physical situation)[34], while the other projects did not necessarily have a satisfactory state of output (55 projects), had problems (15 projects), or were not able to be judged due to insufficient information (29 projects). The breakdown of the 15 projects that had problems is: 6 irrigation and flood control, 2 each in roads and agriculture, and 1 each in other transportation (dredging boats), telecommunications, water supply, sewerage, and sanitation, education, and strengthening of administrative management.

Overall, the state of the facilities of the irrigation and flood control projects is not adequate, and of the total 30 projects only 1 has been deemed to be appropriate[35]. Of the 6 projects that were specifically noted as having had problems, there were cases in which damage to irrigation canals and river embankments due to insufficient maintenance was observed[36], cases in which heavy sediment deposits were seen in rivers[37], and cases in which the lowered river bottom affected river structures[38]. In addition to these, there were many cases in which the condition of facilities was poor due to insufficient systems and budget for maintenance in irrigation projects. There were many instances in which recipients (users) shouldered some of the financial burden for maintenance, or engaged in maintenance of the end-use facilities, but in many cases these efforts were not sufficient and as a result, triggered worsening of the conditions of the facilities or equipment.

There were 2 road projects deemed to have a poor state of output[39], mainly due to insufficient budget for maintenance and so it was deemed that maintenance was not being conducted appropriately for roads and road repair equipment.

(2) Operation and maintenance system

Of the 143 projects, 40% were judged as having good operation and maintenance systems, 40% of projects had areas of concern or problems, and 20% of projects did not provide sufficient information from which to make a determination.

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[34] In this review, the difference between 3.2.3 Effectiveness (Project goal realization) (1)Output utilization and "state of output" in this chapter is that the former shows to what degree the output (result of the project) was utilized, while the latter shows the physical state of facilities or equipment that are output of the project. While there are some cases in which although there was some aging of facilities or equipment they were still being sufficiently utilized, there were also cases in which there were facilities and equipment that had no wear and tear whatsoever, but were not being utilized. In the Indonesia projects, output utilization was high, but there were several cases in which the state of output (condition at the time of evaluation) was not good.

[35] "Way Umpu and Way Pengubuan Irrigation Rehabilitation Project."

[36] "Way Umpu and Way Pengubuan Irrigation Project," "Surabaya River Improvement Project (II- 1)."

[37] "Krueng Aceh Urgent Flood Control Project."

[38] "Madiun River Urgent Flood Control Project," "Upper Solo River Improvement Project," Porong River Rehabilitation Project."

[39] "Road Rehabilitation Project," "Road Maintenance Improvement Project."

In the electric power and gas sector, the percentage of projects judged as having good administrative and maintenance systems was extremely high[40]. An example is the "Gresik Steam Power Plant Project." In this project, following the start of operation, there was never an instance in which operation had to be halted due to inadequate maintenance, and regular maintenance and periodic inspections were conducted mainly by technicians who had received training, with in-depth checks being conducted under the guidance of a technician dispatched from the manufacturer of the generator.

In the irrigation projects, main facilities such as the head works and the primary and secondary water channels were maintained by the rural government and the end-use facilities including and below the tertiary water channels were maintained by irrigation associations comprising volunteer residents in most cases. There are some projects in which the irrigation associations functioned effectively[41], but the systemization of the associations in rural areas was low, and as a result there were also some cases in which the maintenance was insufficient[42]. For projects in the agriculture sector, the village cooperative (Koperasi Unit Desa or KUD) that was in charge of maintenance did not function to an effective enough degree and there were 2 projects in which operation and maintenance of facilities and equipment was not appropriately conducted[43].

(3) Financial resources for operation and maintenance

Only 17% of the total projects were deemed to have established a sufficient budget for future operation and maintenance. Nearly 40% of the projects had some cause for concern with respect to financial resources, just fewer than 20% clearly had problems and insufficient budget was clearly the main hindrance to appropriate maintenance. No notation was made in the ex-post evaluations reports of the remaining projects making judgment impossible.

The breakdown of the 26 projects that were criticized for having had clear problems is as follows: 2 electric power and gas projects (1 each of power plants and transmission lines), 9 transportation projects (6 roads, 2 marine transportation, and 1 other transportation), 1 telecommunications project, 5 irrigation and flood control projects, 1 agriculture project, 3 manufacturing projects, 5 social service projects (1 water supply, sewerage, and sanitation, 3 education, and 1 strengthening of administrative management), making it clear that most were in the electric power and manufacturing sectors.

Typical cases in road projects are rural road development projects such as the "Road Rehabilitation Project (II)"[44]. Budgeting for maintenance of roads is typically carried out by provincial governments, but maintenance and repair projects fall under the central government's budgeting measures. Due to

[40] 16 of 19 projects had no problems, and the remainder did not provide enough information with which to judge (2 projects), only 1 project was thought to have some areas of concern.
[41] "Wonogiri Irrigation Project," "Langkeme Irrigation Project," and others.
[42] "Way Rarem Irrigation," "Overall Ular River Improvement and Irrigation Project," "Pamarayan-Ciujung Irrigation System Rehabilitation Project," "South Sumatra Swamp Improvement Project," and others.
[43] "Equipment Supply for Pre and Post Harvest Services" and "Agricultural Development Project."
[44] The same holds true for the "South Sumatra Road Rehabilitation Project," "Local Road Development Project (II),""Local and Urban Road Development Project," "Heavy Loaded Road Improvement Project."

insufficient budget, however, maintenance was not sufficiently conducted and were left in that state until the next implementation of a repair project, creating a vicious cycle.

In two of the manufacturing sector projects, the "Djakarta Foundry Center Project" and the "Renovation of Cilacap Spinning Mill Project," the financial conditions of the plant targeted by the project in each case deteriorated significantly, and each plant accumulated losses.

(4) Continuation of needs

More than half of the 143 total projects have been judged to be needed on an on-going basis. There were 6 projects (4%) for which it was determined that there was some concern about their on-going need. The remaining 40% plus projects did not note anything in the ex-post evaluation reports, making determination impossible[45].

There were 3 projects for which it was determined there was a problem with on-going need. Among them, in the "Priok Steam Power Plant Unit 3 & 4 Rehabilitation Project," while there was a demand for electricity itself, deterioration of the facilities resulted in the generator facilities targeted by the project losing their economical efficiency. Also, because the role of that power plant in the Java-Bali electric power network was changing, the need for this project had greatly diminished. As a result, operation at the facility had been halted, and there was no plan to restart operation at this facility in the future[46]. In the "P. T. Pelitabahari Dockyard Rehabilitation" at the time of evaluation (1984), there was concern in the number of orders at the shipbuilding yard[47]. In addition, with respect to the "Renovation of Cilacap Spinning Mill Project," state-run companies were unable to sustain the need due to the growth of private companies in the textile industry.

(5) External factors

Of the 143 projects under review, only one-third commented about important external factors that had an impact on the project or its sustainability, and half of those noted that conditions were favorable for project outcome.

For instance, in 3 railway projects[48], at the time of evaluation (1991) reorganizations at the regulating authority that was the Directorate General of Land Communications resulted in clearer definition of the chain of comand, and the organization was becoming more concerned with railways. Other projects related to this project have been implemented, and examples of the continuity of a good

[45] Few reports had clear notation about on-going needs. In this review, on-going need has been determined from notations such as those regarding the project's future prospects.

[46] There are plans to rebuild the power plant or move the turbines to another facility.

[47] Due to financial difficulties on the part of the government, orders for the building of new ships were made conditional on obtaining financing by foreign banks for imported materials and parts and technical assistance from a ship-building company in a developed country. As concerned repairs to ships, the demand for repair on the part of private companies was sluggish due to an economic recession.

[48] "Diesel Railcars Project/Electric Railcars Project," the "Equipment Supply for the Jakarta Metropolitan Transport," "Improvement and Construction of Jabotabek Area Railway (I)(II)(III)."

state of this project's outcomes are the "East Java Electric Power Transmission and Distribution Network Project (IV)"[49] and the "South Sumatra Roads Rehabilitation Project[50]."

Meanwhile, some negative external factors were pointed out in the "Equipment Supply for Pre and Post Harvest Services." In this project, agricultural equipment was provided to KUD, as a result of a presidential decree issued in 1998. Howver, since regional residents were allowed to organize into cooperatives without any type of regional restriction, the significance of the existance of KUD was diminished because of the new establishment of other agricultural cooperatives. In addition, the end of the Food Agency's special procurement price for rice toward KUD, along with the end of KUD's proprietary retail sale of chemical fertilizers because of deregulation, exposed KUD to fierce competition.

[49] In addition to World Bank financed projects, it has contributed to rural electrification rates along with other rural electrification projects. While it is difficult to specifically classify other projects with the same goals as "external factors", when direct coordination and collaboration between projects was not carried out as was in this project, it has been interpreted as an "external factor". The same is true for the "South Sumatera Roads Rehabilitation Project."

[50] Repair projects through World Bank financing are planned for a related interval.

3.3 Issues unique to Indonesia

In Indonesia, from the 1970s an increase in rice production was planned at the national level and in 1984 the country reached self-sufficiency in rice. Projects carried out through yen loans contributed greatly to this achievement. This section will summarize the projects under review in this report that were related to rice production increases and will provide an overview of their impact.

(1) Rice production in Indonesia

Attainment of self-sufficiency in rice, the country's food staple, was a priority issue in the First (FY1969 to FY1973) through Third (FY1979-FY1983) National Development Plans. In the 1970s movements for increasing rice production were promoted under the state slogan of "Green Revolution" and unit yields and production of rice increased remarkably. In order to strengthen food self-sufficiency even after the Fourth Plan increases in rice production were still given great importance. As shown in Table 3-4, production volumes continued to grow steadily from 1984 when the achievement of self-sufficiency was declared until 1990. Although a persistent drought caused damage from the beginning of the 1990s, growth trends have continued. Diversification of crop commodities have been promoted since the country achieved self-sufficiency in rice.

Table 3-4: Trends in Rice Crop Yield Acreage, Production Amounts, and Unit Yields

Year	Harvested area (1,000 hectares)	Production volume of unhulled rice (1,000 tons)	Average unit yield (tons/hectare)
1975	8,495	22,331	2.63
1980	9,005	29,652	3.29
1985	9,902	39,033	3.97
1990	10,502	45,179	4.30
1995	11,439	49,744	4.35
1998	11,730	49,237	4.20

Source: JBIC

(2) Yen loan projects supporting increase in rice production

Of the projects under review, projects that had as their project goal or as one of their project goals an increase in rice production are the 16 irrigation projects and 2 agricultural projects (total 18 projects) shown in Table 3-5. By time period (based on the year the project was started), there were 4 projects in the 1970s, 10 in the '80s, and 4 in the '90s. By region, there were 16 projects in outlying islands other than the island of Java and 3 projects that targeted Island of Java (1 project targeted both outlying islands and the island of Java). There were some projects at the outlying islands that ended up supporting the lives of farmers resettled from Java and Bali, but these were projects that responded to Indonesia's national policies of increase in food production and transmigration program.

(3) Impact

In the irrigation projects, because there was a problem with the maintenance of facilities (see 3.2.5 Sustainability) there were some cases in which rice acreage and production volumes were not achieved as planned. Most of those were projects that occurred prior to the mid-1980s. Still, through construction and repair of irrigation facilities and the introduction of high yield varieties of rice, rice production levels (unit yield volume) higher than planned were achieved in most projects. In addition, after the country reached rice self-sufficiency in 1984, crop patterns were changed allowing for the increased cultivation of different types of crops. There were instances in a shift having been made to other types of crops. Although, in these cases, rice crop acreage and production volumes was not meeting the initial planned value at the time of evaluation, in most of those cases unit yields were growing. The direct impact on increasing rice production reported in 2 agriculture projects was not as good as had been anticipated, however, the projects did contribute to a certain degree to the improvement of rice production and distribution.

Table 3-5: Projects related to increases in rice production

Year of implementation	Project name	Project site and substance	Main impacts (note)			
			Rice production volume	Crop acreage	Unit yield	Other
1972-80	Way Jepara Irrigation Project	Lampung State in South Sumatra, Irrigation system construction	-	△	-	
1974-82	Way Umpu and Way Pengubuan Irrigation Project	Lampung State in South Sumatra, Irrigation system construction	△	△	-	Contributed to stabilization of the lives of resettled farmers
1979-84	Widas Irrigation Project	Bening River Basin in East Java, Irrigation system construction	△	△	○	
1979-96	Way Rarem Irrigation	Lampung State in South Sumatra, Irrigation system construction and rehabilitation	△	△	△	Increased production of alternative crops
1980-92	Wonogiri Irrigation Project	Upper Solo River in Central Java, Irrigation system construction	◎	-	◎	Major impact on farming training
1982-86	Overall Ular River Improvement and Irrigation Project	Ular River Basin in North Sumatra, Irrigation system rehabilitation	△	△	○	
1986-91	Way Umpu and Way Pengubuan Irrigation Rehabilitation Project	Lampung State in South Sumatra, Irrigation system construction	-	△	◎	Introduced high-yield crop varieties and had a major impact on farming training by the Department of Agriculture
1987-92	Way Jepara Irrigation System Rehabilitation Project	Lampung State in South Sumatra, Irrigation system rehabilitation	△	△	◎	
1987-95	Langkeme Irrigation Project	Central area in South Sulawesi State, Irrigation system construction and rehabilitation	◎	◎	◎	
1988-92	Riam Kanan Irrigation Project	Barito River Basin in South Kalimantan State, Irrigation system construction	△	△	◎	JICA conducted farming training
1988-97	Pamarayan-Ciujung Irrigation	Ciujung River Basin in West Java State, Irrigation system	-	-	-	Contributed to stabilization of crop acreage

Year of implementation	Project name	Project site and substance	Main impacts (note)			
			Rice production volume	Crop acreage	Unit yield	Other
	System Rehabilitation Project	rehabilitation				
1989-95	The Small Scale Irrigation Management Project	Each State of South Sulawesi, West Nusa Tengara, East Nusa Tengara, Irrigation system construction	◎	-	◎	Diversified crop varieties
1990-96	Rehabilitation of Irrigation and Flood Alleviation Works	Ular River Basin in North Sumatra, Upper Komering River in South Sumatra, Irrigation system improvement	◎	○	◎	
1990-97	Krueng Aceh Irrigation Project	Ache State in North Sumatra, Irrigation system construction	△	△	◎	
1991-98	Bila Irrigation Project (I)(II)	Bila River Basin in South Sulawesi State, Irrigation system construction	◎	◎	○	
1991-96	Way Curup Irrigation Project	Lampung State in South Sumatra area, Irrigation system construction	-	-	○	
1985-90	Equipment Supply for Pre and Post Harvest Services	Each State of East Java, Central Java, West Java,, Jogjakarta, South Sulawesi, Bali, West Nusa Tengara, Equipment and machine supply for pre and post harvest services	-	-	-	Improved processing and distribution base for rice after harvesting
1989-92	Rice Seed Production and Distribution Project	3 states in Sumatra area, Preparation for the system on rice seed production and distribution	-	-	-	Stable supply of high-quality rice seeds

Note: ◎=greater than planned, ○=nearly as planned, △=less than planned, －=unclear or n/a.

4. Conclusions

4.1 Performance Analysis Overview

The 143 Indonesian projects evaluated thus far have achieved nearly satisfactory results overall. The project relevance of the projects carried out in Indonesia was generally high, and almost no projects were judged to have clearly low relevance. With respect to effectiveness as well, the greater part of projects had favorable results. In particular, most projects had a high level of project goal realization. Meanwhile, with respect to the efficiency of implementation and sustainability, more than a few projects had areas of concern. While judgment about the impact of many projects has been withheld due to insufficient information, positive impacts were overall very noticeable. Although no clear trends in differences were observed by sector, it was deemed that overall the electric power and gas sector projects had excellent results.

The performance evaluation results of projects targeted for review are outlined below, using the five primary check criteria.

(1) Relevance

This is the criterion that received the highest evaluation among the five evaluation criteria. The consistency with development policy and priority issues as well as the relevance of project goals at the time of evaluation was judged to be appropriate. Many of the Indonesian projects were in line with the series of six Five-Year Plans.

Approximately 70% of the total projects experienced some alterations in scope during the implementation stage, but most of those alterations were deemed to be appropriate, as they improved the effectiveness and efficiency of the project.

(2) Efficiency

Over 90% of the total number of projects were completed or finished with output as planned. However, as regards implementation schedule, only approximately 20% of the projects were completed on time or with construction delays of a year or less, and slightly more than 30% of projects experienced delays exceeding 3 years. Thus, construction delays can be considered fairly common in yen loan projects in Indonesia. The reasons for delays were varied, from delays in procurement and insufficient domestic funding, to difficulty in land acquisition.

Project cost efficiency, showed overall good efficiency performance, with three-quarters of all projects being completed within the planned budget or coming in with overruns of 10% or less. Project implementation systems were overall good, but there were projects in which the competency of the implementing agency or contractor were pointed out to be insufficient.

(3) Effectiveness (Project Goal Achievement)

The effect of yen loans in Indonesia has been large, considering that in approximately 70% of the projects output was adequately utilized and project goals were sufficiently realized. In particular, the degree of project goal realization in the electric power and gas sector as well as the telecommunication sector was high.

In over half of the projects, the Internal Rate of Return (IRR) is recalculated. Looking at the recalculated IRR, many projects brought about the economic and fiscal benefits that had been anticipated at the time of planning and nearly met the quantitative effectiveness outcome targets.

(4) Impact

There were not a great number of evaluation reports in which contribution to overall goal achievement and various impacts were clearly noted. However, there were a relatively large number of projects in which a positive socio-economic impact was acknowledged, including industrial development, job creation, income improvement, and improvements in lifestyle conveniences. There are many examples of analysis on this type of impact in the power plant, road, marine transportation, irrigation and flood control sectors. Analysis about impact on policy and institutional system were few, but the effectiveness of the participatory approach was reported.

While there were a few projects that reported a concern about a negative impact on the environment, there were no projects whatsoever that reported a seriously adverse impact. Resident resettlement and land acquisition occurred in approximately a quarter of the projects, but most were carried out smoothly. However, in a few projects negotiations with residents prolonged and were ongoing at the time of evaluation.

(5) Sustainability

Along with efficiency, sustainability is an evaluation criterion in which a high percentage of projects had a large number of areas for concern.

In approximately 30% of projects that were judged to have satisfactory physical output conditions, there were some causes for concern in other projects. A particularly large number of problems were pointed out in the irrigation and flood control sector projects. While there were not a high percentage of projects judged to be overall appropriate in terms of the operation and maintenance system, most of the electric power and gas sector projects were deemed to have been managed under a good system. In many projects, lack of financial resources for operation and maintenance prevented appropriate maintenance and management of the facilities. This trend was particularly prominent in transportation sector including roads.

4.2 Lessons Learned / Recommendation

There were many projects in Indonesia with problems in terms of efficiency of implementation and sustainability, and descriptions about lessons learned and recommendations in the evaluation report reflecting these two areas are also plentiful. While the following lessons learned and recommendations have to do with the project relevance, effectiveness, and impact, they have been summarized from the standpoint of offering suggestions for future improvements in efficiency and sustainability.

(1) In order to attain sustainability in such projects as operation and maintenance of facilities is undertaken by recipients, a participatory approach that engages recipients in project from the planning stages will be effective.

In the irrigation projects, farmers (in most cases irrigation associations made up of farmers) who were the recipients of the project benefit filled the role of providing operation and maintenance for the end-use facilities, such as tertiary water channels. In projects other than irrigation as well, such as rural electrification and agricultural projects, village cooperatives were responsible in some cases for operation and maintenance.

There were some problems, however, with projects in which maintenance and operation is handled by an association and a cooperative. One example is an irrigation project where operation and maintenance was not sufficiently implemented by beneficiaries. Another case is an electrification project where a rural cooperative which was commissioned to maintain the equipment for electrification did not properly handle the maintenance works.

To prevent these types of problems from occurring and establish the sustainability of a project, there must first be a project plan study or the inclusion of a consulting service including a participatory approach in the scope of project implementation, a call for recipient participation from the initial stages of the project cycle, in other words, from the planning stage, and a sufficient understanding of the significance and necessity of operation and maintenance by recipients themselves on the part of all concerned. Then, various types of training, along with support for organization of recipient groups, and support for cooperation with rural governments should be carried out. One example of a project in which the effectiveness of the participatory approach was confirmed was a small scale irrigation management project.

(2) In order to contribute to the realization of project goals and overall goals, special consideration should be given to better coordination with other related projects.

The degree of goal realization of yen loan projects in Indonesia was overall high, but there were some cases for which the degree of goal realization would have been even higher or would have contributed more to the attainment of overall goals, had there been more purposeful arrangement and collaboration with related projects. For example, in a telecommunication project in which the part

implemented with JBIC fund was hindered the realization of the impact because of the delays in other related telecommunication project. Another example is that an irrigation project aimed at increase in the production of coconuts. Since the coconut tree planting was done in another separate project, the cultivation and harvesting fell short of expectations. For cases in which multiple projects are interrelated in order to improve effectiveness and efficiency of each project and to realize goals, it is essential to do sufficient coordination of project scope and schedules.

(3) Continued monitoring of progress in land acquisition and resident resettlement at each stage of a project is necessary.

Some projects were forced into significant construction delays and major alterations in scope because land acquisition was not always carried out smoothly. There were some projects that were still partly incomplete even at the time of evaluation, and it can be said that land acquisition and resident resettlement generated bottlenecks for some projects in the Indonesian yen loan projects.

In projects involving land acquisition, the progress of land acquisition and resident resettlement must be continuously monitored not only at the time of appraisal, but during project implementation as well. Based on that, appropriate measures for looking into plan alterations and for encouraging implementing agencies' efforts must be implemented.

Indonesia: List of projects under review

Project name	Sector	Conclusion of yen loan agreement (year/month) (Note)
THE WLINGI MULTIPURPOSE DAM CONSTRUCTION PROJECT	Electric Power and Gas/Multipurpose Dams	Dec-76
THE ISOLATED DIESEL POWER PLANTS AND DISTRIBUTION NETWORK PROJECT	Electric Power and Gas/Power Plant	Dec-74 ~ Mar-77
GRESIK STEAM POWER PLANT PROJECT	Electric Power and Gas/Power Plant	Oct-75 ~ Jun-77
WONDGIRI HYDRO POWER PLANT PROJECT	Electric Power and Gas/Power Plant, Multipurpose Dams	Jan-76 ~ Mar-79
EQUIPMENT SUPPLY FOR SCATTERED DIESEL POWER PLANTS	Electric Power and Gas/Power Plant	Aug-79
SCATTERED DIESEL PLANTS & DISTRIBUTION NETWORK (EQUIP. SUP)	Electric Power and Gas/Power Plant	Jul-80
PALEMBANG ELECTRIC POWER SYSTEM PROJECT (PHASE II)	Electric Power and Gas/Power Plant	Jul-80
SAGULING HYDRO-ELECTLIC POWER PLANT PROJECT (STAGE 1,2)	Electric Power and Gas/Power Plant	Dec-80
GRESIK THERMAL POWER PLANT PROJECT (III AND E/S FOR IV), (UNIT IV)	Electric Power and Gas/Power Plant	Apr-82 ~ Mar-84
BAKARU HYDROELECTRIC POWER PLANT PROJECT (I)(II)	Electric Power and Gas/Power Plant	Sep-83 ~ Mar-84
EQUIPMENT SUPPLY FOR SCATTERED DIESEL POWER PLANTS	Electric Power and Gas/Power Plant	Feb-85
PRIOK STEAM POWER PLANT UNIT 3 & 4 REHABILITATION PROJECT	Electric Power and Gas/Power Plant	Jul-88
THE GAS FIRING MODIFICATION WORKS OF GRESIK STEAM POWER PLANT UNITS III AND IV PROJECT	Electric Power and Gas/Power Plant	Dec-89
EAST JAVA TRANSMISSION AND DISTRIBUTION NETWORK PROJECT	Electric Power and Gas/Transmission Lines and Distribution Systems	Ap-71 ~ Mar-78
THE EQUIPMENT SUPPLY FOR POWER DISTRIBUTION VOLTAGE CHANGE (I)(II)	Electric Power and Gas/Transmission Lines and Distribution Systems	Dec-77 ~ Oct-79
THE EQUIPMENT SUPPLY FORDISTRIBUTION NETWORK	Electric Power and Gas/Transmission Lines and Distribution Systems	Feb-78
NORTH SUMATRA TRANSMISSION LINE PROJECT	Electric Power and Gas/Transmission Lines and Distribution Systems	Dec-80
EAST JAVA ELECTRIC POWER TRANSM. AND DISTRIB. NETWORK PROJECT (IV)	Electric Power and Gas/Transmission Lines and Distribution Systems	Feb-85
RURAL ELECTRIFICATION PROJECT	Electric Power and Gas/Transmission Lines and Distribution Systems	Nov-93
THE JAKARTA-MERAK HIGHWAY CONSTRUCTION PROJECT	Transportation/Roads	Jul-87
LAMPUNG ROADS AND BAKAUHUNI.MERAK FERRY TERMINAL PROJECT	Transportation/Ports, Marine Transportation	Dec-76 ~ Sep-77
LAMPUNG ROADS AND BAKAUHUNI.MERAK FERRY TERMINAL PROJECT	Transportation/Roads	Sep-53 ~ Dec-76
SUMATRA ROAD PROJECT (LUBUKLINGGAU-TELUKBETUNG)	Transportation/Roads	Jul-76 ~ Nov-76
MUARABUNGO LUBUKLINGGAU ROAD CONSTRUCTION PROJECT	Transportation/Roads	Apr-77
THE JAMBI-MUARA BUNGO ROAD BETTERMENT PROJECT	Transportation/Roads	Dec-77
NORTH SULAWESI HIGHWAY PROJECT (I)(II)(III)	Transportation/Roads	Nov-72 ~ Feb-77

Project name	Sector	Conclusion of yen loan agreement (year/month) (Note)
THE JAKARTA INTRA URBAN TOLLWAY CONSTRUCTION PROJECT	Transportation/Roads	Jul-78 ~ Mar-87
CENTRAL AND EAST JAVA ROAD BETTERMENT PROJECT	Transportation/Roads	Jun-80
EQUIPMENT SUPPLY FOR LOCAL ROADS SUPPORT WORKS	Transportation/Roads	Jul-80
SOUTH SUMATERA ROADS REHABILITATION PROJECT	Transportation/Roads	Jan-87
LOCAL ROAD DEVELOPMENT PROJECT (II)	Transportation/Roads	Dec-87
ROAD REHABILITATION PROJECT	Transportation/Roads	Oct-88
ROAD REHABILITATION PROJECT (II)	Transportation/Roads	Dec-89
LOCAL AND URBAN ROAD DEVELOPMENT PROJECT	Transportation/Roads	Dec-90
ROAD MAINTENANCE IMPROVEMENT PROJECT	Transportation/Roads	Sep-91
HEAVY LOADED ROAD IMPROVEMENT PROJECT	Transportation/Roads	Sep-91
CONSTRUCTION PROJECT OF THE NORTHERN EXTENSION OF THE SOUTH-WEST ARC (PLUIT-GROGOL)	Transportation/Roads	Nov-94
REHABILITATION OF AMPERA BRIDGE ON MUSI RIVER PROJECT	Transportation/Roads	Jul-88
DIESEL RAILCARS PROJECT/ELECTRIC RAILCARS PROJECT	Transportation/ Railways	Dec-74 ~ Oct-75
THE EQUIPMENT SUPPLY FOR THE JAKARTA METROPOLITAN TRANSPORT	Transportation/ Railways	Dec-77 ~ Mar-81
IMPROVEMENT AND CONSTRUCTION OF JABOTABEK AREA RAILWAY (I)(II)(III)	Transportation/ Railways	May-82 ~ Jun-84
REHABILITATION OF RAILWAY TRACK	Transportation/ Railways	Jan-70 ~ Oct-75
RAILWAY TRACK REHABILITATION PROJECT (SEMARANG-SURABAYA I,II,III,IV)	Transportation/ Railways	Aug-79 ~ Feb-85
JABOTABEK AREA RAILWAY PROJECT (VI)	Transportation/ Railways	Dec-87
NORTH JAWA LINE TRACK REHABILITATION PROJECT	Transportation/ Railways	Dec-89
REHABILITATION OF DIESEL RAILCARS PROJECT	Transportation/ Railways	Jul-88 ~ Dec-96
BALIKPAPAN AIRPORT CONSTRUCTION PROJECT	Transportation/ Airports	Dec-85 ~ Sep-91
BALI INTERNATIONAL AIRPORT CONSTRUCTION PROJECT (1)	Transportation/ Airports	Jan-87
REHABILITATION AND DEVELOPMENT OF SEMARANG PORT PROJECT, URGENT REINFORCEMENT OF SEMARANG PORT PROJECT	Transportation/Ports	Mar-81 ~ Dec-87
THE DUMAI PORT DEVELOPMENT PROJECT	Transportation/Ports	Dec-89
FERRY TERMINALS IN EAST JAVA AND BALI ISLANDS URGENT REHABILITATION PROJECT	Transportation/Ports	Dec-90
UJUNG PANDANG PORT URGENT REHABILITATION PROJECT	Transportation/Ports	Dec-90
SEMARANG PORT DEVELOPMENT PROJECT (2-1)(2-2)	Transportation/Ports	Oct-92
MARINE AIDS NAVIGATION PROJECT	Transportation/Marine Transportation	Feb-75
P.T.PELITABAHARI DOCKYARD REHABILITATION	Transportation/Marine Transportation	Mar-79
THE EQUIPMENT SUPPLY FOR MEDIUM WAVE RADIO BOACON STATIONS	Transportation/Marine Transportation	Oct-83
BAKAUHUNI-MERAK FERRY TERMINALS EXTENSION PROJECT	Transportation/Marine Transportation	Oct-85
EQUIPMENT SUPPLY FOR MARITIME SECTOR TRAINING PROGRAM	Transportation/Marine Transportation	Dec-85
MARITIME TRANSPORTATION SECTOR LOAN IN EASTERN INDONESIA (1)	Transportation/Marine Transportation	Sep-91
MARITIME TRANSPORTATION SECTOR LOAN IN EASTERN INDONESIA (2)	Transportation/Marine Transportation	Oct-92
REHABILITATION OF RIVER DREDGERS PROJECT	Transportation/Others	Feb-72
REHABILITATION OF BUS TRANSPORTATION PROJECT	Transportation/Others	May-74 ~ Dec-74

Project name	Sector	Conclusion of yen loan agreement (year/month) (Note)
EQUIPMENT SUPPLY FOR REPLACEMENT AND DEVELOPMENT OF DREDGES	Transportation/Others	Mar-79
CONSULTANT SERVICES FOR EXTENTION OF LOCAL TELEPHONE NETWORK, ARQ ON HF PROJECT, DEVELOPMENT OF DOMESTIC AND INTERNATIONAL TELEX SERVICESP PROJECT, HF RADIO CIRCUITS FOR DOMESTIC TELECOMMUNICATION IN SULAWESI, EXTENSION PROJECT OF LOCAL TELEPHONE NETWORKS	Telecommunications/Telecommunications	Aug-71 ~ May-72
DEVELOPMENT AND IMPROVEMENT PROJECT OF THE LOCAL CABLE NETWORK	Telecommunications/Telecommunications	Feb-75
EQUIPMENT SUPPLY FOR JAVA-BALI MICROWAVE SYSTEM EXPANSION	Telecommunications/Telecommunications	Mar-79
NATIONAL RADIO FREQUENCY MONITORING	Telecommunications/Telecommunications	Mar-80
EQUIPMENT SUPPLY FOR MARITIME TELECOMMUNICATION SYSTEM (I)(II)(III)	Telecommunications/Telecommunications	Sep-81 ~ Sep-91
EQUIPMENT SUPPLY FOR EXTENSION OF JUNCTION CIRCUITS IN JKT	Telecommunications/Telecommunications	Sep-81 ~ Feb-85
EQUIPMENT SUPPLY FOR REMOTE AREA TELECOMMUNICATION NETWORK	Telecommunications/Telecommunications	Apr-82 ~ Sep-83
MARITIME SAR TELECOMMUNICATIONS SYSTEM PROJECT	Telecommunications/Telecommunications	Jun-84
SURABAYA-BANJARMASIN OPTICAL FIBER SUBMARINE CABLE PROJECT	Telecommunications/Telecommunications	Jan-87
TELEPHONE OUTSIDE PLANT MAINTENANCE CENTER PROJECT	Telecommunications/Telecommunications	Dec-90
JUNCTION NETWORK FOR EXPANDED JAKARTA EXCHANGE AREA PROJECT	Telecommunications/Telecommunications	Sep-91
EXPANSION OF NATIONAL RADIO FREQUENCY MONITERING NETWORK (II)	Telecommunications/Telecommunications	Dec-87
IMPROVEMENT OF TELEVISION NETWORK PROJECT	Telecommunications/Broadcasting	Jan-77
EQUIPMENT SUPPLY FOR ENHANCEMENT OF RADIO & TV. NETWORK	Telecommunications/Broadcasting	Dec-85 ~ Dec-87
REHABILITATION PROJECT OF RADIO AND TELEVISION NETWORKS	Telecommunications/Broadcasting	Dec-90 ~ Nov-93
WAY JEPARA IRRIGATION PROJECT	Irrigation and Flood Control	Mar-73
KARI SURABAYA RIVER IMPROVEMENT PROJECT	Irrigation and Flood Control	Sep-74 ~ Jul-76
WAY UMPU & WAY PENGUBUAN IRRIGATION PROJECTS	Irrigation and Flood Control	Dec-74 ~ Jul-76
WONOGIRI IRRIGATION PROJECT	Irrigation and Flood Control	Feb-79
BRANTAS MIDDLE REACHES RIVER IMPROVEMENT	Irrigation and Flood Control	Mar-79 ~ Feb-85
WIDAS IRRIGATION PROJECT	Irrigation and Flood Control	Mar-79
WAY REREM IRRIGATION	Irrigation and Flood Control	Mar-79 ~ Sep-91
OVERALL ULAR RIVER IMPROVEMENT AND IRRIGATION PROJECT	Irrigation and Flood Control	May-81
MOUNT SEMERU URGENT REHABILITATION PROJECT/MT. MERAPI URGENT VOLCANIC DEBRIS CONTROL PROJECT	Irrigation and Flood Control	Oct-83 ~ Dec-85
WEST JAKARTA FLOOD CONTROL SYSTEM PROJECT	Irrigation and Flood Control	Oct-83 ~ Jun-84
KRUENG ACEH URGENT FLOOD CONTROL PROJECT	Irrigation and Flood Control	Oct-83 ~ Jun-84

Project name	Sector	Conclusion of yen loan agreement (year/month) (Note)
RIAM KANAN IRRIGATION PROJECT	Irrigation and Flood Control	Jun-84
LOWER JENEBERANG RIVER URGENT FLOOD CONTROL PROJECT	Irrigation and Flood Control	Feb-85
MADIUN RIVER URGENT FLOOD CONTROL PROJECT	Irrigation and Flood Control	Feb-85
UPPER SOLO RIVER IMPROVEMENT PROJECT	Irrigation and Flood Control	Dec-85
LANGKEME IRRIGATION PROJECT	Irrigation and Flood Control	Dec-85
WAY UMPU AND WAY PENGUBUAN IRRIGATION REHABILITATION PROJECT	Irrigation and Flood Control	Jan-87
WAY JEPARA IRRIGATION SYSTEM REHABILITATION PROJECT	Irrigation and Flood Control	Jul-88
PORONG RIVER REHABILITATION PROJECT	Irrigation and Flood Control	Jul-88
PAMARAYAN-CIUJUNG IRRIGATION SYSTEM REHABILITATION PROJECT	Irrigation and Flood Control	Oct-88
THE SMALL SCALE IRRIGATION MANAGEMENT RPOJECT	Irrigation and Flood Control	Dec-89
REHABILITAION OF IRRIGATION AND FLOOD ALLEVIATION WORKS	Irrigation and Flood Control	Dec-89
PADANG AREA FLOOD CONTROL PROJECT (I)	Irrigation and Flood Control	Dec-90
SURABAYA RIVER IMPROVEMENT PROJECT (II- 1)	Irrigation and Flood Control	Dec-90
KRUENG ACEH IRRIGATION PROJECT	Irrigation and Flood Control	Dec-90
BILA IRRIGATION PROJECT(I)(II)	Irrigation and Flood Control	Dec-90 ~ Oct-92
WAY CURUP IRRIGATION PROJECT	Irrigation and Flood Control	Sep-91
MOUNT KELUD URGENT VOLCANIC DISASTER MITIGATION PROJECT	Irrigation and Flood Control	Sep-91
ANCOL DRAINAGE IMPROVEMENT PROJECT	Irrigation and Flood Control	Sep-91
SOUTH SUMATRA SWAMP IMPROVEMENT PROJECT	Irrigation and Flood Control	Oct-92
AJDF FOR INDONESIA CATEGORY B/PNEC PROGRAM	Agriculture, Forestry and Fisheries/Agriculture	Nov-89
EQUIPMENT SUPPLY FOR PRE AND POST HARVEST SERVICES	Agriculture	Mar-84
RICE SEED PRODUCTION AND DISTRIBUTION PROJECT	Agriculture	Feb-85
AGRICULTURAL DEVELOPMENT PROJEC	Agriculture	Nov-93
TUNA FISHERY DEVELOPMENT PROJECT (SABANG AND BENOA)	Agriculture, Forestry and Fisheries/Fishery	May-72 ~ Aug-74
JAKARTA FISHING PORT/MARKET DEVELOPMENT PROJECT (PHASE I, II)	Agriculture, Forestry and Fisheries/Fishery	March-79 ~ Jun-80
ASEAN UREA PROJECT (INDONESIA)	Mining and Manufacturing/ Manufacturing	Oct-79 ~ Mar-81
AJDF CATEGORY B/SMALL SCALE INDUSTRY AND POLLUTION ABATEMENT	Mining and Manufacturing/ Manufacturing	Nov-92
UJUNG PANDANG INDUSTRIAL ESTATE PROJECT (I)	Mining and Manufacturing/ Manufacturing	Dec-80

Project name	Sector	Conclusion of yen loan agreement (year/month) (Note)
DJAKARTA FOUNDRY CENTER PROJECT	Mining and Manufacturing/ Manufacturing	Sep-71
RENOVATION OF CILACAP SPINNING MILL PROJECT	Mining and Manufacturing/ Manufacturing	Jul-88
BONE SUGAR FACTORY PROJECT	Mining and Manufacturing/ Manufacturing	Dec-73
CONSTRUCTION EQUIPMENT RECONDITIONINGAND REHABILITATION	Mining and Manufacturing/ Manufacturing	Jul-88
CONSULTING SERVICES FOR JAKARTA WATER SUPPLY PROJECT	Social Services/ Water Supply, Sewerage and Sanitation	May-74 ~ Apr-82
STANDARDIZED PACKAGE WATER SUPPLY FOR MEDIUM & SMALL TOWNS	Social Services/ Water Supply	Jun-81
JAKARTA WATER SUPPLY DEV. PRO.(IMMEDIATE PRO. OF 2ND STAGE) (1ST PHASE 2ND STAGE)	Social Services/ Water Supply	Feb-85
UJUNG PANDANG WATER SUPPLY REHABILITATION PROJECT	Social Services/ Water Supply	Jul-88
JAKARTA WATER SUPPLY DISTRIBUTION PIPELINE PROJECT	Social Services/ Water Supply	Dec-90
RURAL AREAS INFRASTRUCTURE DEVELOPMENT PROJECT	Social Services/ Urban/ Rural Community Infrastructure	Nov-94
HUMAN SETTLEMENTS IMPROVEMENT PROJECT (2)	Social Services/ Urban/ Rural Community Infrastructure	Dec-95
EQUIPMENT SUPPLY FOR EDUCATIONAL & RESEARCH LABORATORIES	Social Services/Education	Nov-77 ~ Dec-85
SCIENCE AND TECHNOLOGY MANPOWER DEVELOPMENT PROGRAM	Social Services/Education	Oct-88
BOGOR AGRICULTURAL UNIVERSITY (IPB) DEVELOPMENT PROJECT	Social Services/Education	Dec-95
PROFESSIONAL HUMAN RESOURCE DEVELOPMENT PROJECT	Social Services/Education	Dec-90
ENVIRONMENTAL STUDY CENTERS DEVELOPMENT PROJECT	Social Services/Education	Sep-91
DEVELOPMENT PROJECT OF INSTITUTE OF TECHNOLOGY IN BANDUNG (1)	Social Services/Education	Oct-92
DEVELOPMENT OF MEDICAL CARE & HOSPITAL FACILITIES	Social Services/Public Health and Medicine	Aug-79
FAMILY PLANNING PROJECT	Social Services/Public Health and Medicine	Apr-82
MEDICAL EQUIPMENT REHABILITATION PROJECT	Social Services/Public Health and Medicine	Jul-88
EQUIPMENT SUPPLY FOR COMPUTER INSTALLATION AT CENTRAL BUREAU	Social Services/ Strengthening of Administrative Management	Mar-79
INSTALLATION OF COMPUTER FOR INDUSTRIAL STATISTICS &PLANNING	Social Services/ Strengthening of Administrative Management	May-82
CENTRAL BUREAU OF STATISTICS COMPUTER EXPANSION PROJECT	Social Services/ Strengthening of Administrative Management	Jan-87

Project name	Sector	Conclusion of yen loan agreement (year/month) (Note)
ESTABLISHMENT OF GEOGRAPHIC INFORMATION SYSTEM FOR DKI JAKARTA	Social Services/ Strengthening of Administrative Management	Dec-89
BOROBUDUR AND PRAMBANAN ARCHAEOLOGICAL PARKS CONSTRUCTION	Social Services/Tourism	May-82
SECTOR PROGRAM LOAN	Commodity Loans	Oct-88

(Note) For projects with multiple yen loan agreements, the date of conclusion of the first and last loan agreement is shown.