EX-POST EVALUATION FOR ODA LOAN PROJECTS 2000 (SUMMARY)

MARCH 2001

PROJECT DEVELOPMENT DEPARTMENT

JAPAN BANK FOR INTERNATIONAL COOPERATION

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Introduction

Japan Bank for International Cooperation (JBIC) is a government-affiliated financial institution which was founded on October 1 1999 through the merger of the Export-Import Bank of Japan (JEXIM) and the Overseas Economic Cooperation Fund (OECF). Its main objectives are to provide lending that contributes to the following:

– Promoting Japan's exports and imports and economic activity overseas and helping to stabilize the international financial order (international lending and related operations).

– Promoting social and economic development and economic stability in regions of developing countries (overseas economic cooperation operations).

JBIC is responsible for undertaking Japan's bilateral governmental loans (ODA Loans) in the "overseas economic cooperation operations", among Japan's Official Development Assistance (ODA), to support a wide range of development projects and other endeavors in developing countries.

In the course of its operations, while providing the loans to meet the diversified needs of developing countries, JBIC is laying emphasis on follow-up of the development projects it finances, in the form of ex-post evaluation and post-monitoring. This point is in line with the "Medium-term Policy on ODA" which was announced by Japanese Government in August 1999. The promotion of ex-post evaluation was also stated as an important element of JBIC's project implementation and operation in the Medium-term Strategy for Overseas Economic Cooperation Operations, which were prepared by JBIC itself in December 1999. The main objective of ex-post evaluation activities is to make as much use as possible of the experience and lessons gained from past projects in future projects. It is essential for the efficient and effective implementation of ODA projects, and its importance has been rising in recent years.

JBIC's ex-post evaluation aims not simply at investigating the effects generated by individual projects, but also at using the diverse body of evaluation records and experience built up in all previous projects and thereby helping to build up the kind of high-quality development aid that brings sustainable development. Therefore the findings of ex-post evaluation surveys are used as feedback both inside and outside JBIC in an effort to make effective use of the report. In particular, as enhanced ability on the part of the borrowers (governments and executing agencies in developing countries) is essential for efficient and effective ODA projects, these reports are published in English-language editions so that they can be shared widely.

This "Ex-post Evaluation Report for Japan's ODA Loan Projects 2000" is an anthology of the reports for ex-post evaluations implemented in 1999. The most notable points of ex-post evaluations in 1999 were the increased number of evaluations, the expansion of third-party evaluation (increased number of such evaluations commissioned and greater diversity in the parties commissioned to conduct them) and the use of some of the evaluation reports in theme-based evaluations (evaluation by theme). This report comprises summaries of each of the evaluation reports. Separate full-text versions of each report are available on the JBIC homepage.

This is the first ex-post evaluation report after JBIC was founded , and I would like to take this opportunity to thank all those who have been involved in our ex-post evaluation activities to date for their ongoing support and cooperation. I also hope that everyone will continue to provide us with his or her opinions and suggestions in order to keep our ex-post evaluation work at the highest standard we can achieve.

Yozo Sakai
Director General
Project Development Department

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I Ex-post Evaluation by JBIC

1. Purpose of Ex-post Evaluation

Japan's economic assistance takes many forms. Japan Bank for International Cooperation (JBIC) has committed most all Japan's ODA loans to developing countries. To date, JBIC has assisted large numbers of projects in developing countries, primarily for economic and social infrastructure development, by providing ODA loans.

In addition to the provision of loans, JBIC aims to enhance the quality of aid to developing countries by conducting its ex-post evaluation of projects which have been completed using ODA loans. Ex-post evaluation compares the implementation, operations and maintenance of projects against the initial plans to discover how the project was conducted, whether it has yielded the anticipated benefits, and other aspects to test the project retrospectively. The primary objective of this inspection work is to gain an understanding both of the factors behind the successes of each project in implementation, operations and maintenance and effects, and of the problems faced. From this understanding, we can draw lessons which will feed back to assist us in the formation, appraisal, implementation and post-monitoring of new projects. These lessons will enhance the effects of our aid to developing countries in the future, and further advance the accountability through disclosure of findings.

2. Ex-post Evaluation Work of JBIC

JBIC began conducting ex-post evaluations of ODA loan projects in 1975. After entering into the 1980s, a special section was established in 1981 to deal with the ex-post evaluation work in line with the increasing number of projects completed with ODA loans. Through reorganizations conducted in the past, the ex-post evaluation works of ODA loan projects are currently implemented by the Evaluation Division, Development Assistance Operations Evaluation Office, Project Development Department. Over the years JBIC has striven to steadily build up a body of evaluation experience, and establish evaluation methods. As a result, the number of projects subjected to ex-post evaluation between the start of the program and the end of 1999 is over 660.

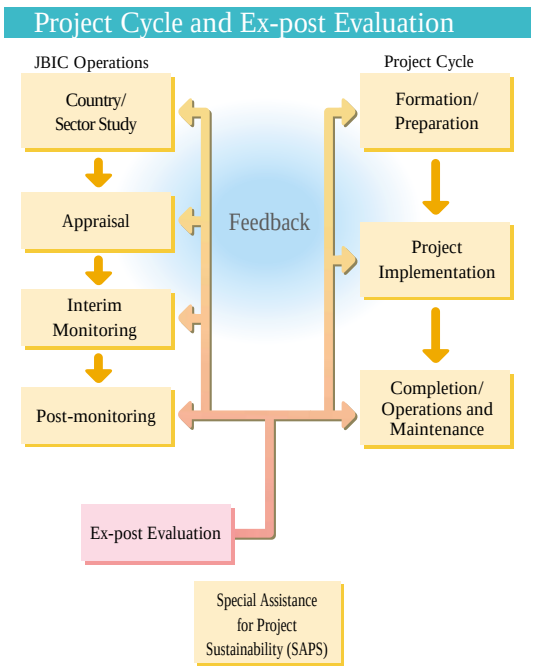
JBIC has endeavored to publish the content of its ex-post evaluation investigations so that they should be understood and recognized as widely as possible. The results are released in the form of “Ex-post Evaluation Reports for ODA Loan Projects”.

For the convenience of our readers, the summaries of each evaluation report are included in this report. Full-text report editions are published separately. The advance of data communications now allows us to publish the full-text report editions on the JBIC homepage (URL http://www.jbic.go.jp), where they can be accessed freely.

3. Ex-post Evaluation in the Context of Project Cycle

3.1 Flow of Development Projects and Ex-post Evaluation

The flow of projects subject to ODA loans from JBIC is shown in the chart. The process leading to provision of an ODA loan starts with a detailed appraisal to determine based on a request by the developing country whether or not the proposed project is a suitable subject for an ODA loan. The appraisal is multi-faceted in approach, covering the project's necessity, urgency and validity of its implementation, operations and maintenance. Project implementation begins if JBIC decides, as a result of the appraisal, to provide the loan and the project is completed after a certain period of time. Ex-post evaluations will be performed for completed projects.



3.2 Post-monitoring and Ex-post Evaluation

Some projects require long periods of time before their effects are manifested, accordingly ongoing follow-up at regular intervals is required after project completion to observe the effects and whether or not they are sustainable. As for the projects which require improvement are confirmed in this phase, the possibility of providing additional assistance should be considered, provided the developing country handles the situation to the best of its abilities.

The examination of operations and maintenance conditions, and

additional assistance provided should the need arise, is termed "post-monitoring". The aim of post-monitoring is to grasp the status of operation and maintenance of a project after its completion, and to maintain or enhance its benefits by considering suitable countermeasures when a necessary improvement is observed. As part of its post-monitoring work, JBIC conducts regular investigations to keep track of the status of completed projects. These investigations are combined with SAPS (Special Assistance for Project Sustainability) and rehabilitation grants to sustain and extend project effects.

(1) Special Assistance for Project Sustainability (SAPS)
SAPS is one of the intellectual assistance with an aim to execute a detailed field survey, followed by proposals of specific solutions or improvements when the existence of a problem which impairs the project effects or prevents its improvement becomes clear. The operations and maintenance of completed projects is the responsibility of the developing country concerned, but if the results of ex-post evaluation of a specific project indicate the necessity of some improvement measures and the developing country requests assistance with the implementation of such measures, they will be implemented following consideration of the necessity and urgency of the assistance.

(2) Rehabilitation Grant
When changing circumstances affect a completed project, necessitating additional funding, rehabilitation grants can be provided as grant-type financial aid in cases where it would be difficult to use an ODA loan for reasons such as urgency, profitability and scale. The rehabilitation grant scheme was introduced in 1998, and the grants are implemented in close cooperation with JICA.

4. Types of Ex-post Evaluation

Since FY 1999, JBIC's ex-post evaluations have been grouped into the classifications listed below according to the executing body and the content of the evaluation.
(1) Evaluations by JBIC
(i) Evaluation by Theme
These evaluations focus on a certain theme (regional development, environmental considerations, social development etc.) and are carried out by the JBIC staff, using the knowledge and experience of the external experts and agencies.
As a variation of evaluation by theme, there are three evaluation types as follows.
– "Impact survey" which evaluates multiple projects together to grasp overall effects on a certain region or sector.
– "Joint evaluation" which is implemented with other aid agencies or other parties (jointly evaluating a single project)
– "Mutual evaluation" (in which each agency evaluates the counterpart agency's projects)
These evaluation types are employed as appropriate.

(ii) Project Evaluation
JBIC staff evaluate all aspects of a project. As a general rule, a field survey is conducted.

(iii) Evaluation by Representative Offices
The evaluation implemented by the local representative office of JBIC. The JBIC office conducts the evaluation work including the field survey, and the participation of local specialists and research organizations may be requested as needed.

(2) Evaluation by External Third-parties
A "third-party evaluation" is one in which the evaluation is commissioned from a specialist person or institution from a point of view that only such an evaluator can provide. Having ex-post evaluations conducted by evaluators with specialist knowledge can be expected to yield profound observations, particularly in the area of project effects. Furthermore, by having projects evaluated by observers other than JBIC staff, the evaluation is made far more objective. Therefore JBIC is working to expand third-party evaluations by commissioning them from evaluators such as researchers at universities and other institutions, members of the press, administrators, specialist engineers, and NGOs.
In cases where the evaluations delivered by the specialist or institution differs from that made by JBIC, both views are included in the report, with JBIC views labeled as such.
Third-party evaluations conducted in 1999 are listed below in section III.1 "Third-party Evaluation Projects and Introduction of Their Contributors".

5. Selection of Projects for Ex-post Evaluation

Projects for evaluation are selected from those completed projects meeting the priority criteria listed below, with care to maintain a balance

between regions, countries and sectors.
(1) Projects able to provide valuable hints and lessons for the implementation of future ODA projects.
(2) Projects which have large and measurable impacts in their sectors or regions.
(3) Projects which fit specific research themes.
(4) Projects concerned with environmental and social development.

6. Points to be considered in Ex-post Evaluation

JBIC evaluation compares the implementation and operation of the project with the original plan, and aims to confirm retrospectively whether or not the project is yielding the anticipated benefits. The main specific factors which are examined are listed below.

(1) Project Scope:
The planned content of the project and the actual results are compared. If there are changes, the reasons for changes and the validity for changes of contents are analyzed and evaluated.
(2) Implementation Schedule:
The dates of starting and completion of construction and the duration are compared between the plan and the actual results. If there are delays, the causes and countermeasures attempted are analyzed and evaluated.
(3) Project Cost:
Planned and actual costs are compared by items of expenditure. If there are differences, they are analyzed and evaluated.
(4) Project Implementation Scheme:
The system adopted by the developing country's executing agency, the role of consultants, the forms of contracts with consultants and other aspects are analyzed and evaluated to gauge their impact on the project implementation.
(5) Operations and Maintenance:
The appropriateness of the operations and maintenance scheme are analyzed and evaluated from the aspect of securing sustainability of the project.
Data illustrating the current operating status (e.g. work rate, production volume etc.) are analyzed and evaluated by comparing the recorded results with the original plan. The operation and maintenance situation are also evaluated. Furthermore, if the managing body employs a self-supporting accounting system, additional study of its financial capability will be performed as needed [1].
(6) Project Effects and Impacts:
The socio-economic effects of the project are analyzed and evaluated on the basis of (6) Operations and Maintenance above. Moreover, the internal rate of return (IRR)[2] is required in some cases for that project effects and impacts can be quantifiable.

1 If, as the result of analyses and evaluations, insufficiencies in the financial or management capabilities are suspected, JBIC may provide support to raise these capabilities through SAPS. If the executing agency or managing body of the project is a government office, its operating costs normally depend in their entirety on the national budget, so that the executing agency itself is not the subject of financial analysis, even though the analyses of internal rate of return for individual projects are made.

2 Internal rate of return (IRR): One of the indices of profitability, which is the discount rate to make the present value of the project's benefits equal to the present value of its costs. In the case of post-evaluations, the cost (achievements) required for the project's implementation and the profits (projections based on achievements of several years after start of operation) obtained for the entire period of the project's operation (project life). There are two types of IRR: the economic internal rate of return (EIRR) that measures social benefit of the project from the viewpoint of the national economy, and the financial internal rate of return (FIRR) that measures profitability of individual projects, in other words FIRR obtained based on the profits of the project's executing agency. They are used with distinct meanings depending on the nature of the project (depending on the project, it may also be possible to obtain both).
However, in many cases qualitative aspects that cannot be quantified are also involved. Moreover, it some cases it may be difficult to obtain the rate of returns based on the nature of the project, (for instance in social development projects, medical care projects, education projects, environmental projects, etc.), and in such cases, the rate of return is not calculated.

II Features of This Report

1. Third-party Evaluation Projects and Introduction of Their Contributors

Seven third-party evaluations were carried out in FY 1999, as introduced briefly, their summaries and contributors below.

(1) For the “Eastern Seaboard Development Plan Impact Evaluation” in the Kingdom of Thailand, Professor Yasutami Shimomura of the National Graduate Institute for Policy Studies was asked to carry out evaluation on ownership in the developing countries and effective use of aid from the political economic point of view.

Mr. Yasutami Shimomura

Born in Tokyo in 1940. Graduated from Keio University, Fuculty of Economics. Completed master course of Business Administration, Graduate School of Columbia University. Entered Overseas Economic Cooperation Fund (OECF) in 1972. Dispatched to the Central Bank of Indonesia and was assigned as a representative in OECF Offices of Jakarta, New Delhi and Bangkok. Became a professor at Saitama University in 1992 and Hosei University in 1999. Worked as Chief Representative at OECF Bangkok Office during an initial period of implementing Thai “Eastern Seaboard Development Plan” between 1985 and 1988. Authored “Thinking at the Site of ODA” and others.

(2) For "Hengshui-Shangqiu Railway Construction Project" in the People's Republic of China, Dr. Lin Jiabin of the Development Research Center, State Council, PRC was entrusted to carry out evaluation primarily on economic development effects which the Hengshui-Shangqiu Railway brought about along the railway line as a part of Beijing-Kowloon Railway.

Mr. Lin Jiabin

Born in Beijing in 1957. Graduated from Qinghua University, Civil Engineering Department in China. Entered University of Tokyo, Graduate School as a student dispatched by Chinese government and majored in regional planning. After completion of master and doctor course of the Graduate School, studied at CTI Engineering Co. Ltd. as a trainee of the Association for Overseas Technical Scholarship and engaged in research at UN Regional Development Center for five years from 1990. Has been a research fellow of Development Research Center, State Council, PRC since 1995, and currently Vice-Director of Development Strategy and Regional Economic Research Department at the Center. Specialized in regional development. Authored in Chinese “Cooperation and Development Strategies in China Toward the 21st Century” (jointly authored), “Big Trend of Chinese Economy in the 21st Century” (jointly authored), and in Japanese “Vicissitudes of Concept for Road Development Effects”, “Regional Divide and Role of National Land Policy Contributing to its Correction”, “National Land Development Policy in China and National Land Planning Administration” etc.

(3) For the "Yangtze River Four-Bridge Construction Project" in People's Republic of China, Mr. Nobuhiro Mori of Koei Research Institute, Ltd. and Mr. Toshisada Katsurada of Alphaten Co., Ltd were entrusted to carry out the evaluation based on the comparative analysis of the Four-Bridge Construction Project mainly from the view point of planning, implementation, operations and maintenance, and effects and impacts.

Mr. Nobuhiro Mori

Born in Chiba Prefecture in 1948. Graduated from Hokkaido University, Faculty of Engineering. Engaged in construction supervision of hydraulic power plants and dams. Currently a research director of Koei Research Institute, Ltd. Engaged in ex-post evaluations on roads, electricity, bridges, water supply and sewage in Indonesia, Thailand and other countries. Specialized in project evaluation and economic financial analysis. Authored “Research Study on Economic Analysis and Evaluation of Project”(JICA), “Q & A ; Everything about Japan’s PFI” (Toyo Keizai Shimposha) etc.

Mr. Toshisada Katsurada

Born in Tokyo in 1944. Graduated from Kyoto University, Graduate School, Faculty of Engineering. Specialized in traffic planning and economic analysis. President of Alphaten Co., Ltd. Has been engaged in development studies including preparation of master plans of road and bridge projects by JICA in Malaysia, China, Indonesia, Colombia etc. Presented many papers on urban road traffic at civil engineering meetings and seminars.

(4) For the "Batangas Port Development Project" in the Republic of the Philippines, Dr. Emma Porio of Ateneo de Manila University was entrusted to carry out evaluation focusing on problems involving relocation of residents and its measures.

Dr. Emma Porio

Professor of Social Anthropology Department, Ateneo de Manila University in the Philippines. Acquired master degree of anthropology at Ateneo de Manila University (1976) and Ph.D. of Sociology at University of Hawaii (1988). Has gained many experiences in research and studies on urban poverty, development and relocation of residents in Southeast Asia primarily in the Philippines and working as a consultant in World Bank, the United Nations etc. Authored many writings including "Partnership with the Poor, Pathways to Decentralization, Urban Children in Distress", "Urban Governance and Poverty Alleviation in Southeast Asia" etc.

(5) For the "Tourism Development Program" in the Kingdom of Thailand, Mr. Masaharu Shinohara of the International Tourism Development Research Center was entrusted to carry out evaluation on the implementation status of the overall project, operation and maintenance status of the sub-project in the relevant area based on a field survey as well as effectiveness on Thai tourism sectors.

Mr. Masaharu Shinohara

Born in Gunma Prefecture in 1955. Graduated from University of Tokyo, Faculty of Engineering Dept. of Civil Engineering and completed master's course of Dept. of Technology, Stanford University. Worked at the Ministry of Transport, currently Director of International Tourism Development Research Center. Engaged in tourism studies in the Philippines, Indonesia, Lebanon, Tunisia etc. Specialized in research and studies on tourism development.

(6) For the "Rural Electrification Project" in the Islamic Republic of Pakistan, the local NGOs, the "National Rural Support Programme" and "Ghazi Brotha Taquiati Idara" that are skillful in conducting interview surveys with residents, were entrusted to carry out third-party evaluation specifically on the project effects and impacts.

(7) For the "Monterrey Water Supply and Sewerage Project" in the United Mexican States, Associate Professor Shunji Matsuoka of Hiroshima University, Graduate School, Dept. of International Cooperation Research was entrusted to carry out evaluation from five viewpoints: validity, degree of goal achievement, efficiency, effect and independent development.

Mr. Shunji Matsuoka

Born in Hyogo Prefecture in 1957. Graduated from Osaka University of Foreign Studies, Faculty of Foreign Studies, completed doctor course of Dept. of Economics Research, Graduate School of Kyoto University and a scientific doctor (environmental planning) at Hiroshima University. Was also a visiting professor of Malaya University, visiting research fellow at American University etc. Specializing environmental economics, project evaluation theory and international environmental cooperation theory, had experience as a coordinator in JICA training course "The Sustainable Development and Environmental Resources Administration Policies". Major papers included

"Economic Growth in the Developing Countries and Environmental Problems: Does Environmental Kuznets Curve exist?" by Shuji Matsuoka, Reiji Matsumoto and Ikuho Kawauchi, "Environmental Science Journal 11(4)" pp.349-362, 1998, Matsuoka, S. et al.," Sustainable Use of Environmental Resources: Ecology and Economy in the Resource Economics," Journal of International Development and Cooperation, Vol.1, No.1, pp61-85, 1995 etc.

2. Enhancement of Feedback

One of the most important objectives of ex-post evaluation is to provide the project executing agency with feedback of evaluation results and make beneficial recommendations concerning improvements to the operation of the project concerned and to the implementation of future projects. JBIC prepares an English version of all ex-post evaluation reports, which are presented to project executing agencies. Field seminars are conducted in cases where it is particularly necessary to deepen the understanding of the evaluation results among many of the people concerned, such as the staff concerned in executing agencies and borrower governments. Among the ex-post evaluations of the projects included in this report, a feedback workshop was held in Thailand in August 1999, and a feedback seminar in Vietnam in June 2000 concerning the Thai "Eastern Seaboard Development Plan Impact Evaluation".

In some cases, this kind of feedback activity inspires the borrower country to plan new projects in line with the suggestions contained in the ex-post evaluation report.

3. Introduction of Evaluations by Theme

As mentioned in "1.4 Types of Ex-post Evaluation", the forms of evaluation were revised from FY 1999, with some evaluations being "evaluation by theme" based on a specified theme.

The evaluations by theme conducted in FY 1999 and their themes are as follows:

(1) China "Yangtze River Four-Bridge Construction Project": Impact of bridge construction on the surrounding areas
(2) China "Guanyinge Multi-purpose Dam Project (1) – (3)": Relocation of residents
(3) China "Hengshui-Shangqiu Railway Construction Project (1) – (4)": Development effects along the railway lines
(4) China "Fujian Province Zhang Quan Railway Construction Project": Capabilities of self-governing communities in China
(5) The Philippines "Batangas Port Development Project": Relocation of residents
(6) The Philippines "ASEAN-Japan Development Fund(AJDF) for Republic of the Philippines Category B, Industrial and Support Services Expansion Program": Promotion of small and medium businesses
(7) Papua New Guinea "Agriculture Development Project": Social economic effects
(8) Thailand "Small Scale Industry Promotion Program (SSIPP) (I) and (II)": Promotion of small and medium businesses
(9) Thailand "Tourism Development Program": Regional and social development
(10) Thailand "Eastern Seaboard Development Plan Impact Evaluation": Regional economic development
(11) Vietnam "Rehabilitation Loan": Regional development-type project evaluation
(12) Mexico "Monterrey Water Supply and Sewerage Project": Evaluation based on five items, DAC Evaluation Criteria

III Content of This Report

1. Evaluation reports included in this Report

The results of all evaluations (By Theme, Third-party, Project, and Representative Office-conducted Evaluations) reported in the fiscal 1999 are included in this report except a third-party evaluation (environmental monitoring and pollution control policies) of Map Ta Phut Industrial Complex Construction Project.
(The third-party evaluation of Thai Map Ta Phut Industrial Complex Construction Project was included in the last year's report)

2. Summary of the Ex-post Evaluation in fiscal 1999

The number of evaluations reported in fiscal 1999 amounted to 38, and the total number of projects subject to the evaluation was 59 (since one evaluation can cover more than one project).
Distribution of the 59 projects by geography shows that the great majority of projects are located in Asia. Adding to the fact that many of the recipients of JBIC loans are in Asia, the project selection was influenced by the availability of information on the projects after completion. As a matter of fact, this is a regular trend every year.

Classification by Sector/Region of Projects Evaluated in fiscal 1999
(Number of projects in parentheses)

Sector/ Region	Asia	Middle East	Africa	Central & South America	Others	Total
Electric Power and Gas	6 (7)		1 (1)			7 (8)
Transportation	11 (20)					11 (20)
Telecommunications	3 (3)					3 (3)
Mining and Manufacturing	3 (8)					3 (8)
Agriculture, Forestry and Fisheries	3 (6)				1 (1)	4 (7)
Irrigation and Flood Control	2 (2)			1 (1)		3 (3)
Social services	4 (8)			1 (1)		5 (9)
Others	2 (1)					2 (1)
Total	34 (55)	0 (0)	1 (1)	2 (2)	1 (1)	38 (59)

*Two projects in the "Others" are a commodity loan of the Vietnam "Rehabilitation Loan" and Thailand "Eastern Seaboard Development Plan Impact Evaluation".
The numbers by sector for "Eastern Seaboard Development Plan Impact Evaluation" are as follows; Electric power and gas:1, Transportation: 6, Mining and manufacturing: 3 and Social services: 4.

Description of Terminology

Basic Terms of Development Assistance

1. Loan Agreement (L/A)

A contract made between the lender and the borrower, after an Exchange of Notes (E/N) is concluded between the donor and recipient governments. The L/A defines the detailed procedures, the rights and responsibilities of the involved parties, and all other matters regarding the loan.

2. Exchange of Notes (E/N)

An E/N is a form of written agreement exchanged between governments, or between a government and an international institution. An E/N on foreign aid is an inter-governmental (or government-to-multilateral) written agreement that defines the content and conditions. The E/N is made between the full representative of the donor government (usually the ambassador to the recipient country) and the counter-part government. This is followed by an official note in return by the latter to the effect that his/her government agrees to the content and conditions stated in the former note.

3. General Untied

This is a type of condition on procurement of goods and services. Under the general untied condition, the countries from which a recipient is permitted to procure are now open to all countries and areas.

4. Partial Untied /LDC Untied

This is another type of procurement condition. “Partial untied” or “LDC untied” means that the procurement of goods and services is restricted to all the developing countries and the donor country (which is Japan in the case of Japan’s ODA). In addition, all “the countries in transition” have also been possible procurement sources for the partial untied ODA loans since February 1997.

5. Master Plan (M/P)

This is a plan for regional or sectorial development in a developing country. An M/P should clearly state the activities and the priorities among them, with reference to the circumstances of the economic and social development, and any conditionality or restriction, of the country. A master plan (M/P) must also be consistent with the higher-level national and regional development plans. In general, a master plan is essential to the planning of an individual project and the feasibility study (cf. the next section).

6. Feasibility Study (F/S)

This is a prerequisite study on technical and economic feasibility of an ODA loan by an executor (or a subcontracted consultant). The F/S is essential for the executor to formulate the project and seek the funding sources. The creditor regards the F/S as significant material for a lending decision. The F/S should include market surveys, technical studies, budget plan and economic evaluation of the project.

7. Engineering Service (E/S) Loan

This is a form of an ODA loan that JBIC extends. An E/S loan is extended to research and designing activities of a project, after a F/S and before construction. The items to be covered by E/S loans include revisions of F/S results, detailed designs and preparation of bidding documents. However, providing an E/S loan does not automatically guarantee extending a loan for the subsequent construction phase. A loan decision on a construction facility is made separately, at the completion of the E/S loan.

8. Detailed Design (D/D)

A designing plan is used in the preparation of bidding documents and serves as the most important guide in the implementation of the actual construction works. At the completion of the F/S, the executor (or a consultant commissioned by the executor) prepares/gathers the

study materials necessary for the implementation of construction works, considers construction methods and produces the design plans and specifications. The detailed design requires site investigations, surveillance, analysis and other detailed works.

9. BOT (Build, Operate and Transfer)

This is a project scheme with the transfer of ownership from private to public sectors after an operational period. In a BOT project, a private enterprise (typically a project company) builds and operates the project facility, and transfers all the project assets to the government or a public entity. The advantages of the BOT scheme are: that the recipient government does not owe any debt for construction and operation. It is also expected that the private sector operates the project more efficiently than the public sector, and that transfer of technology is available for the recipient country. The key criteria of BOT projects will be whether the invested funds will be recovered during the operational period.

10. JBIC Guidelines on Environmental Considerations in ODA Loans

JBIC drafted the Guidelines in October 1989, with reference to the recommendations of the OECD Board of Directors, to check whether environmental measures in development projects are being conducted effectively and efficiently. A revised edition was published in August 1995 and this version was adopted by JBIC in December 1999. The Guidelines include checklists of environmental matters, such as pollution and problems in the natural and social environments, for 17 sectors to be financed or invested in. The borrower should consider the environmental issues on the checklist at the planning stage before applying for a JBIC loan. JBIC appraises each item on the list in line with the Guidelines, and sets policies on countermeasures that should be taken. The Guidelines are also distributed to the executing agency and other related parties in the borrower country, to encourage consideration of environmental issues at the project planning stage.

11. Project Completion Report (PCR)

This is a report that the executing agency should submit to JBIC at the project completion, to clarify the development status. JBIC utilizes the basic information therein for more efficient ex-post evaluation and post-monitoring after the project completion.

12. Cost Underrun/Overrun

This covers the status that the amount of actual cost falls short of, or exceeds, the initial estimation respectively.

13. Man Month (M/M)

This concept is generally used in service contracts, particularly for consultants. It is the unit of human resources and the duration required to perform a service. One specialist working for one month constitutes one man month (M/M).

14. Two-Step Loan (TSL)

This name is commonly used for a "financial intermediary loan" which is provided to strengthen sectors such as manufacturing or agriculture. The funds are disbursed first to a financial intermediary institution within a developing country, then sub-loaned to multiple end-users. It also enhances the financial system of the country through the administration of the loan.
The projects for which the sub-loans are provided are called "sub-projects".

Agencies around the World in the Development Assistance Field

1. Japan International Cooperation Agency (JICA)

JICA is a special governmental agency that was established in August 1974 by the Japan International Cooperation Agency Act to contribute to social and economic progress in developing countries and elsewhere, and to promote international cooperation. It carries out a wide range of international cooperation projects, the content of which can be broadly classified as follows: (i) Project-Type Technical Cooperation, (ii) Dispatch of Japan Overseas Cooperation Volunteers (JOCVs), (iii) Support for Grant Aid Programs, (iv) Development Studies, (v) Recruitment and Training of Qualified Personnel, (vi) Emigration and (vii) Emergency Disaster Relief

2. World Bank

World Bank was established in December 1945 as an international development finance agency, based on the Agreement of the International Bank for Reconstruction and Development adopted at the Allied Powers Conference on Currency and Finance held at Bretton Woods in July 1944. The aim was to aid the post-war reconstruction and economic development of the member countries, but by now it is effectively an agency for aid to developing countries. In order to accommodate the varying stages of development and financial needs of developing countries, the World Bank Group comprises the following five agencies; (i) International Bank for Reconstruction and Development (IBRD), (ii) International Development Association (IDA), (iii) International Finance Corporation (IFC), (iv) Multilateral Investment Guarantee Agency (MIGA) and (v) International Center on the Settlement of Investment Disputes

World Bank had 181 member countries as of 1999. Japan joined in August 1952. The headquarters of World Bank is in Washington D.C.

3. Asian Development Bank (ADB)

This is an international development finance agency established to encourage economic growth and development in the developing countries of the Asia-Pacific region. ADB was established in 1966 based on the agreement at the 21st General Meeting of the Asia-Pacific Economic Council (now ESCAP) in 1965. As of May 1999 the ADB had 57 member countries (including 16 countries from outside the region). Its operations include loans for development funds, loan guarantees, investment, promotion of mutual economic systems for the effective use of resources, and assistance to enlarge intra-regional trade and technical assistance. The headquarters is located in Manila. Japan is the largest contributor to the ADB.

Eastern Seaboard Development Plan Impact Evaluation

Report Date: September 1999
Field Survey: November 1998

1 Project Summary and Japan's ODA Loan

(1) Background

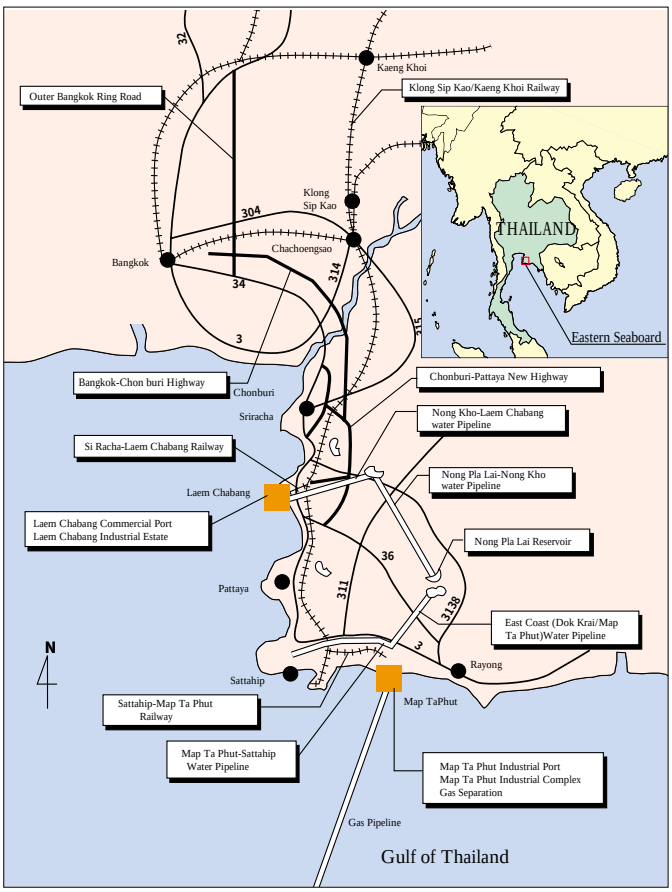
Eastern Seaboard Development Plan (ESDP) aims to create a new industrial cluster in three provinces (Chachoengsao, Chonburi and Rayong), collectively called Eastern Seaboard (ESB), located about 80 - 200 km southeast from Bangkok. ESDP, implemented during the 1980s to early 1990s, is composed of two major areas: Map Ta Phut area, a heavy-chemical industry base which utilizes natural gas from the Gulf of Thailand; and Laem Chabang area, an export-oriented light-industry base which is simultaneously a location for a new international commercial port.

(2) Objectives

To create a new industrial cluster to alleviate over-concentration of economic activities in Bangkok metropolitan area.

(3) Project Scope

JBIC financed 27 ODA loans through the following 16 projects, which account for around 10% of its total cumulative loan commitments to Thailand (¥ 1,630,096 million).



Map Ta Phut area Development	1.Mat Ta Phut Industrial / Urban Complex Project 2.Map Ta Phut Port Project 3.Gas Plant Project
Laem Chabang area Development	4.Laem Chabang Port Project 5.aem Chabang Industrial Estate Project
Water Resource Development/ Water Pipeline Project	6.Nong Pla Lai Project 7.East Coast (Dok Krai - Map Ta Phut)Water Pipeline System Project 8.Map Ta Phut - Sattahip Water Pipeline Project 9.Nong Kho-Laem Chabang Water Pipeline Project 10.Nong Pla Lai - Nong Kho Water Pipeline Project
Railway Project	11.Siracha - Laem Chabang Railway Project 12.Sattahip - Map Ta Phut Railway project 13.Klong Sip Kao - Kaeng Khoi Railway Project
Road Project	14.Chonburi - Pattaya Construction Highway Project 15.Bangkok - Chonburi Highway Construction Project 16.Outer Bangkok Ring Road (East Portion) Construction Project
Loan Amount	¥178,768 million
Loan Disbursed Amount	¥133,799 million [1)]
Date of Exchange of Notes	June 1982 to September 1993
Date of Loan Agreement	July 1982 to September 1993
Final Disbursement Date	July 1985 - January 2000 (Expected)

Note: 1) As of July 1999

2 Impact on Industrial Development in Eastern Seaboard

(1) Development in Eastern Seaboard

(i) Eastern Seaboard

Regional economy in Eastern Seaboard grew significantly during the course of implementation of EDSP from the 1980's to the early 1990's. As a result, the region established its status as the second largest industrial cluster in Thailand next to Bangkok metropolitan area.

	Nationwide	Bangkok & Vicinities	Eastern (ESB)	Centra	Western	Northeastern	Northern	Southern
GDP per capita								
1981	20,278	63,198	26,212 (35,564)	17,845	18,610	7,860	12,402	15,740
1995	49,514	149,592	80,232 (121,376)	48,558	37,295	16,631	23,681	31,735
GDP per capita growth rate								
(Annual average)	3.4%	2.2%	5.8% (7.6%)	2.5%	3.5%	3.7%	3.5%	3.0%
1981-86	9.3%	11.0%	8.4% (8.5%)	9.5%	5.5%	6.2%	5.3%	7.2%
1986-91	7.3%	6.0%	11.5% (12.1%)	11.2%	6.6%	7.0%	5.5%	5.2%
1991-95								
Manufacturing Value Added (Ratio to Whole Kingdom)								
1981	100%	72.2%	11.2% (10.6%)	3.3%	3.1%	3.9%	3.5%	2.7%
1995	100%	63.2%	15.8% (14.9%)	6.5%	3.6%	5.0%	3.8%	2.1%

Note : Valued at 1988 price level, "ESB" stands for Eastern Seaboard.

(ii) Map Ta Phut Area

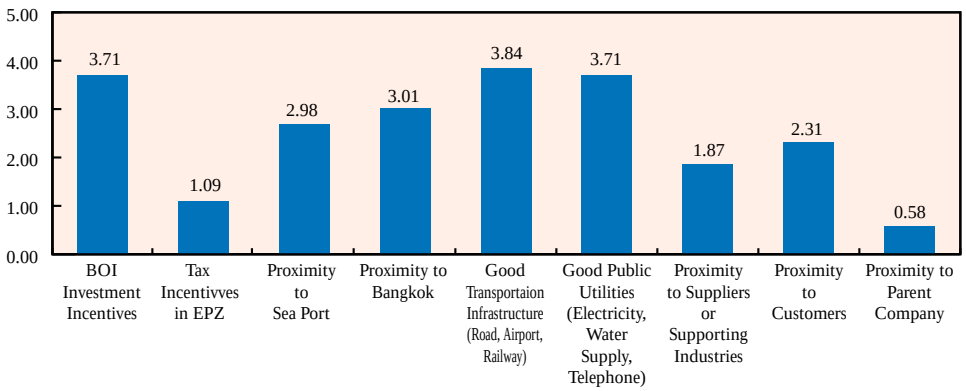
Petrochemical industry in Thailand has clustered mostly in Rayong province, especially in Map Ta Phut area, endowed with natural gas from the Gulf of Thailand. The area has become the country's largest base of petrochemical production.

(iii) Laem Chabang Area and Its Inner Vicinity

Other industries, such as automobiles and electronics, have clustered in Laem Chabang area in the west coast of Chonburi province and its inner vicinity mostly along the route 331 connecting Chonburi and Rayong provinces, thanks to this area's geographical advantage of being close to the Laem Chabang commercial port.

(2) Impact of Eastern Seaboard Development Plan(Triggering effect for private investment)

The increase in private investments (factory establishment) including those from abroad brought about the industrialization of Eastern Seaboard. To know the impact of government investments made under ESDP on private companies' decision of factory establishment in ESB, interview surveys of 113 factories in the area (83 factories from 5 industrial estates and 30 outside the estates) were conducted in this ex-postevaluation. According to these interviews, there are three major factors affecting the decision of factory establishment in the ESB: Investment incentives granted by Board of Investment (BOI); good transportation infrastructure; and good public utilities (See below). Good transportation infrastructure and public utilities are the results of the public investments made through ESDP, and these factors clearly differentiate ESB from other regions which are also granted the same investment incentives from BOI. This result supports the argument that the government investments made under ESDP have had triggering effect for private investment.



5=Most important, 1=Least important, 0=Irrelavant Figures are the average from interviewed companies.

(3) Factors for the Successful Industrial Development in Eastern Seaboard

(i) Heavy-chemical Industry Development in Map Ta Phut Area

There were originally four heavy-chemical industries, planned as national projects of the Thai government, which utilize natural gas from the Gulf of Thailand. These include petrochemical, fertilizer, soda ash, and steel industries. After the cautious review of the plan, the national projects of heavy-chemical industry were reduced to petrochemical project only. In implementing this petrochemical project, an upstream production was arranged to be implemented by joint venture between the Thai government and four private companies, while the downstream production was implemented by these four private companies respectively. This active involvement of private sector is considered to have contributed to preventing uneconomical project decision and to leading to its commercial success. Other factors contributed, too. For example, there was no competition in petrochemical industry since entry into the industry was regulated and the project was the first of this kind in Thailand. Moreover, demand for petrochemical products expanded rapidly when the project started operation in 1989 thanks to high economic growth of Thai economy at that time.

(ii) Industrial Development in Laem Chabang Area and Its Inner Vicinity

Industrial development in Laem Chabang area and its inner vicinity can be regarded as an extension of industrial cluster in the Bangkok metropolitan area, which is made possible by development of industrial infrastructure, such as Laem Chabang port and land transportation networks, in the area not far (more or less 100km) from Bangkok. The successful development of Laem Chaban area and its inner vicinity can be attributed to the timely investment in new industrial infrastructure, when the Thai economy plunged into high growth era after it experienced macroecnomic stabilization with Structural Adjustment Lending (SAL) in the early 1980's and appreciation of yen since the Praza accord in 1985, and when over concentration of economic activities in Bangkok metropolitan area hampered further factory establishment in the metropolis.

(iii) Disputes among Donor Agencies and Royal Thai Government

In implementing ESDP, there were disputes between the Thai government and World Bank about appropriate scale and timing of public investment because of difference in judgment of macroeconomic situation and development potential of Eastern Seaboard. As a result of the disputes, ESDP was reviewed thoroughly, including temporary suspension due to review of overseas borrowing plan, and it was finally implemented according to the Thai government's independent decision. In ESDP, disputes between donor agencies and the Thai government resulted in careful review of the plan by the Thai government, and its final judgment is considered to be generally appropriate.

3 Impact on Local Communities

(1) Influx of Population into ESB and Increase in Demand for Public Service

From the latter half of the 1980's to the first-half of the 1990's, when industrialization has proceeded in ESB, a large population migrated from the other regions to ESB (growth rate of population in ESB surpasses national average and that of other regions). As a result, demand for public services, such as urban infrastructure, education, and medical care, increased in the urban areas.

	Nationwide	Bangkok	Eastern (ESB)	Central	Western	Northeastern	Northern	Southern
Population Growth Rate (annual average)								
1981-86	1.9%	2.9%	2.2%(1.5%)	1.1%	1.6%	1.7%	1.4%	2.5%
1986-91	1.5%	2.6%	2.1%(2.5%)	1.3%	0.8%	1.3%	1.1%	3.6%
1991-96	1.4%	0.6%	2.3%(1.9%)	0.7%	1.9%	1.4%	2.0%	1.0%

(2) Influx of Population into ESB and Increase in Demand for Public Service

To know the impact of ESDP on local communities in urban areas in ESB, interviews were conducted with officers of the Laem Chabang city government and city residents as part of this post-evaluation field survey (November 1998).

(i) Employment Generation

Both officers of the Laem Chabang city government and local residents appreciated that ESDP activated economic activities in the city and created large amount of new employment (Leam Chabang industrial estate alone creates jobs for thirty thousand employees).

(ii) Increase in Population

Population of the Laem Chabang city increased in accordance with industrial development. Registered population of the city increased at 5.1% annually from 1993 to 1998 and reached approximately forty thousand. In addition, unregistered population, most of whom are migrants from other regions, is also estimated to be forty thousand.

(iii) Increasing Demand for Public Services

The city government of Laem Chabang strives to upgrade its public services responding to rapid industrialization; for example, it made efforts to improve road network and maintenance of road conditions, which was necessitated by increased road traffic concerning port and industrial estate. The city government also endeavors to ameliorate social services, such as primary school and primary health care, responding to rapid increase in the population. Its efforts are appreciated by the residents to certain degree. Due to some difficulties, such as budget constraints, however, the city government could not afford to respond all the increased demands for public services.

(3) Issues to be Addressed

In urban areas in ESB generally, like the Laem Chabang city, local governments strive to upgrade their public services to cope with the increased demand caused by industrialization and increase in population; however, these local governments cannot afford to respond all the increased demands for public services due to certain difficulties, such as budget constraints and limited institutional capacities. In Thailand today, emphasis is placed on the role of local governments and decentralization reform is about to be proceeded with. It is desirable, hereinafter, that increased demands for local public services in urban areas brought about by industrialization of ESB are coped with, through appropriate delegation of authorities to, expansion of revenue base of, and strengthening of institutional capacities of local governments.

4 Lessons Learned

(1) In a large-scale industrial development plan or regional development plan, it is important to review the scale and timing of public investments carefully and repeatedly in various stages of implementation. If necessary, it is desirable to modify the plan in any stage, including reduction of the scale of the plan. In reviewing such large-scale public investments, it is effective for various donor agencies and the government of particular developing country to thoroughly discuss the scale and timing of the investments.

(2) A large scale industrialization brings about an influx of a number of population into the region industrialized from other regions and increased demands for public services in urban areas. Local governments in these areas play major roles in coping with these increased demands for public services. To upgrade public services provided by these local governments, it is necessary to secure their revenue base and to strengthen their institutional capacities. Therefore, it is recommended for the (central) governments of developing countries and JBIC to provide assistance to the strengthening of local governments.

THAILAND

The Vicissitudes of Eastern Seaboard Development Plan and Their Significance

-The ownership and effective use of aid in developing countries-

Yasutami Shimomura
Professor, National Graduate Institute of Policy Studies

1. Introduction

The mechanism by which ownership and institutional capability in developing countries enables the effective use of aid is considered in this report by presenting Thai Eastern Seaboard Development Plan as a case study.

Specifically, this report examines how it became possible for the Thai government to manage the implementation of a large-scale, complex plan such as Eastern Seaboard Development Plan, while accommodating the views of the major donors.

2. Overview and Background of Eastern Seaboard Development Plan

Eastern Seaboard Development Plan is a comprehensive regional development plan covering the three provinces of Chachoengsao, Chonburi and Rayong, which are situated to the southeast of Bangkok on the coast of the Gulf of Siam. The program comprised heavy industry based on natural gas in the Map Ta Phut area, labor-intensive export-oriented industries in the Laem Chabang area and tourism in the Pattaya area, together with infrastructure groups to support them, such as ports, roads, railways, dams and service pipelines.

The discovery in 1973 and 1977 of the natural gas fields which form the commercial base of the Gulf of Siam prompted the formation of the basic concept for the plan in the late '70s, and it was developed into a master plan in 1982. The plan was designed to tackle two major tasks facing the Thai economy:

– Advancing industrial structures (the change of the dominant industry from agriculture to manufacturing, and the shift in the main exported goods from primary products to industrial goods).
– Alleviation of the concentration of economic activity in Bangkok.

3. The Vicissitudes of the Program

(1) Up to October 1985

From 1980, the Thai government started working in earnest on Eastern Seaboard Development Plan, and in October 1981 the plan was adopted as part of the Fifth Five-Year Plan. From 1981, the Japanese government stepped up its aid to Eastern Seaboard Development Plan, and the interim report on the Master Plan was published in 1982 with financial aid from the World Bank and the British government.

However, until the mid '80s Thailand was suffering from macroeconomic imbalances such as a current account deficit and an expanding foreign debt under the circumstances of disadvantageous international economic environment. In 1982 and 1983 the country received structural adjustment facilities from the World Bank and adopted fiscal austerity policies, as well as devaluing the Baht twice. Thailand's economic future was regarded with almost universal pessimism.

As a result, the fiscal austerity faction (the technocrats in charge of macroeconomics), who took a cautious attitude to large-scale economic development plans, increased their criticism of the progressive fiscal faction (technocrats in charge of development). This tendency led to a polarized debate in the Thai government in the fall of 1985. In November 1985 the Thai government froze all projects connected with Eastern Seaboard Development Plan for a 45-day period, and a three member committee of cabinet members was established to review the Plan. At the same time as the review, the World Bank declared that investment in

the ports at Map Ta Phut and Laem Chabang were uneconomical, and proposed that both projects should be substantially postponed and replaced by the expansion of Bangkok Port and greater use of Sattahip Port. (On the other hand, the World Bank judged that the NFC fertilizer factory, which was the focus of the debate, was economical).

(2) Progress since November 1985

The review policy draft produced by the three cabinet ministers was passed by the cabinet in December 1985. As a result, the World Bank proposal was not adopted, and the continuation of the framework of Eastern Seaboard Development Plan, including the ports of Map Ta Phut and Laem Chabang, was approved. However, the decision was taken to delay the implementation of the Plan by a substantial period.

After that, the Yen strengthened following the 1985 Plaza Agreement, and direct investment from Japan increased. The situation concerning Laem Chabang Port Development Plan improved, and the implementation of projects in the Laem Chabang area was approved in October 1986. In the Map Ta Phut area, the construction of a plant for the NPC (National Petrochemical Company) in the industrial complex area got under way, leading to approval of the construction of the industrial complex in February 1987. Approval for the implementation of the Map Ta Phut Port Project followed in January 1988. The fertilizer factory has never been built due to pessimism in the Thai private sector, the rise of the Yen and fluctuations in the international fertilizer market, which reduced the economic viability of the project.

4. Evaluation on the Thai Government's Choices

Increased direct investment and the recovery of the economy after 1986 highlighted the lack of infrastructure, particularly the undercapacity of Bangkok Port. Even if the economic recovery and the investment boom fueled by the strong Yen had not happened, the construction of Laem Chabang Port would have been made inevitable by structural problems of Bangkok Port which is located on a river. The major development of the heavy chemical industry in the Map Ta Phut area, which took place later, would not have been possible without Map Ta Phut Port. Thus it can be judged that the Thai government made the right choice in proceeding with the port projects rather than following the World Bank's proposal of shelving them indefinitely.
However, as a result of a cabinet resolution of December 1985, the delay in the start of construction work on the ports at Laem Chabang and Map Ta Phut was extended from 16 months to 43 months. The supposed merits of postponing the project were that fiscal expenditures and foreign borrowing would be reduced, but as the projects were mainly to be covered by ODA loans on soft terms, and the Thai economy recovered in the second half of the '80s, the postponement did not have any great financial effect. On the other hand, it had a severe economic impact as the cost of the project postponement that the economic activities had to be actualized and the sharp increase of direct investments had to be dealt with while the concentration on Bangkok went uncorrected. If the development of the Laem Chabang area had gone ahead as scheduled, the worsening infrastructure bottleneck would have been relieved to some extent, and thus the postponement lost a good opportunity. Comparing the costs and benefits of the project postponement, the positive effects on government finances and debt handling were small, and costs such as aggravated infrastructure bottlenecks emerged later. Consequently it is hard to say that the Thai government made a proper decision. At the time, most observers held pessimistic views on Thailand's economic outlook, and there was great uncertainty over the economy's future. Therefore it is inappropriate to criticize the decision to postpone with the benefit of hindsight by viewing later results. (Refer to the table below).

Table Choices Faced by Thai Government at the End of 1985

	Continued economic slump (Probability?)	Return to previous economic growth track (Probability?)
Implementation of Eastern Seaboard Development Plan as scheduled (option one)	Increased fiscal burden and foreign debt (2 nd Philippines)	Creation of an internationally competitive coastal industrial belt Increased direct investment and the modernization of economic structures (export structures).
Postponement of Eastern Seaboard Development Plan (option two)	Decreased fiscal burden and foreign debt	Aggravated infrastructure bottlenecks, worsening living and environmental conditions in the Bangkok capital regions and worsening investment environment.

*"Economic slump" means dual deficits of around 5%, declining exports, worsening trade conditions, worsening debts indices etc.

As for the NFC fertilizer factory, a harsh business outlook was foreseen due to the increased investment cost caused by the rise of the Yen, and the decline of the international market in fertilizers. Therefore the Thai government made an appropriate decision

in abandoning the project.

5. Conclusions and Lessons Learned

There were differences of opinion over Eastern Seaboard Development Plan between the Thai government and the main donors, that were World Bank and the Japanese government, but the decisions made by the Thai government were basically appropriate. But how was the Thai government able to reach appropriate decisions? Are there any lessons for other developing countries and donors to learn from this example?

(1) The Nature of the Thai Government's Success

There appear to be four factors that allowed the Thai government to reach appropriate decisions:

(i) The technocrats concerned had a certain level of ability and were effectively isolated from political pressure, which meant that the debate over Eastern Seaboard Development Plan revolved around economic rationality, rather than political vested interests, and reached sound conclusions.

(ii) The military, the splinter parties, the technocrats, the conglomerates, the mass media and other groups continued to restrain each other in a unique web of checks and balances, and accordingly no single group was able to wield excessive power.

(iii) The Prame government, which was in power at the time, set economic development as the top priority of its administration, and it followed a development-oriented system in which a large degree of authority over economic management was ceded to technocrats.

(iv) The mass media reported frequently on the debate within the government over Eastern Seaboard Development Plan, enabling an open and transparent policy debate to be carried on. This led to a higher standard of debate that reached a prudent conclusion.

The lesson that can be derived as the central lesson of Thailand's experience in the mid-'80s is that for a developing country to make independent and appropriate decisions it needs more than a developed administrative system and able technocrats. A framework of checks and balances which make use of the country's unique social and cultural characteristics, coupled with free elections and a free press, were extremely effective in this case. The situation illustrates the importance of a democratic, development-oriented system, such as that possessed by the Prame administration.

(2) Lessons Learned for Donors

Experts on the Japanese side proposed a vision of building up a coastal industrial belt through the combination of deep-water ports and industrial complexes. In contrast, the World Bank's experts proposed a "catch-up" form of passive, short-term public investment, which would try to follow behind demand for infrastructure. The World Bank's position was based on its analysis of the Thai economy that was biased towards financial policy, without an adequate awareness of the shifts in industrial and export structures. In short, the experts did not know enough of the changes that were happening on the ground. If they were paying closer attention to the important structural changes that were going on in the substance of the Thai economy, the debate over Eastern Seaboard Development Plan would have followed a very different course.

Thai people who were concerned with the Program at the time evaluated highly the technical content of Japan's advice. However, Japan's view concerning the program concentrated on saying "this is feasible as a project". It did not go on to enter into close discussions with the government on how to adjust the plan in light of the major macroeconomic changes going on and the Thai government's financial reserves. The results made the importance of adequate linkage between macroeconomic trends and the feasibility of individual projects painfully clear.

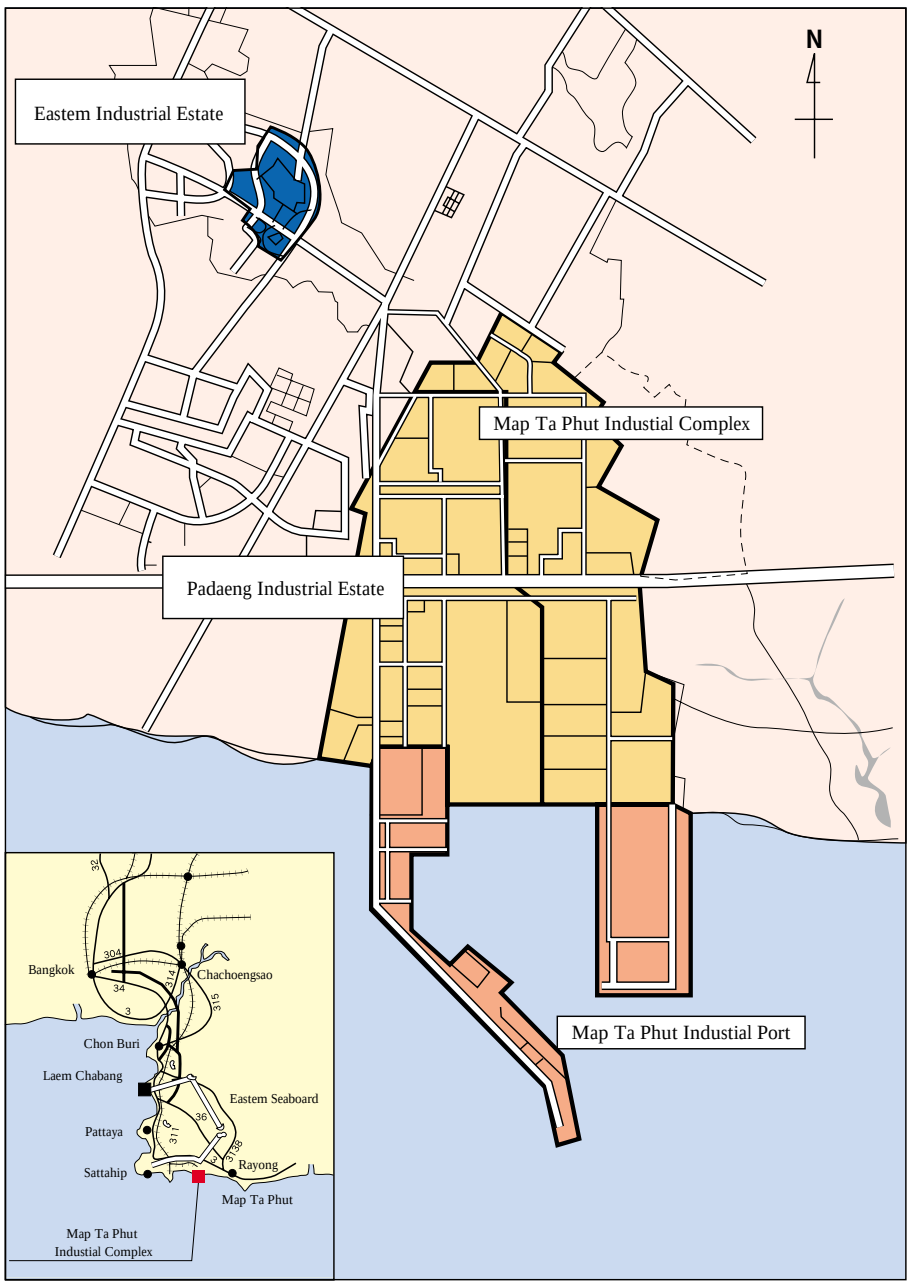
Eastern Seaboard Development Plan
Map Ta Phut Port Project (1) – (3)
Map Ta Phut Industrial/Urban Complex Project

Report Date: September 1999
Field Survey: November 1998

1 Project Summary and Japan's ODA Loan

(1) Background

Conventionally, Thai industry had focused on light industrial fields, but the government of Thailand attempted to promote the first large scale petro-chemical industrial project in Thailand as a part of Eastern Seaboard Development Plan. Specifically, Map Ta Phut area in Rayong Province, where the natural gas pipeline from the Gulf of Thailand landed, was to be developed as a heavy-chemical industrial district. Thus, construction was being pursued of an industrial complex to support location of heavy-chemical industry and an industrial port for filling shipping demands of the industrial complex.



(2) Objectives

Promoting location of heavy-chemical industry in Map Ta Phut area and accommodating the growing transport demand of the industry

(3) Project Scope

Construction of Map Ta Phut Port (one multipurpose berth and two berths dedicated for liquid cargo) and Map Ta Phut Industrial /Urban Complex (380.8 ha).The ODA loan covered the full amount of foreign currency for construction. For both projects, IEAT has expanded the facilities sequentially after completion of the work portion covered by the ODA loan.

(4) Borrower/Executing Agency

Both are Industrial Estate Authority of Thailand (IEAT) (Loan guarantee by the Government of Thailand)

(5) Outline of Loan Agreement

	Port Project			Industrial/Urban Complex Project
	Phase (1)	Phase (2)	Phase (3)	
Loan Amount	¥5,611 million	¥16,045 million	¥3,395 million	¥3,207 million
Loan Disbursed Amount	¥3,112 million	¥3,017 million	¥2,267 million	¥1,415 million
Date of Exchange of Notes	July 1984	September 1985	September 1991	September 1985
Date of Loan Agreement	September 1984	October 1985	September 1991	October 1985
Loan Conditions				
Interest Rate	3.5%	3.5%	3.0%	3.5%
Repayment Period (Grace Period)	30 years(10 years)	30 years(10 years)	25 years(7 years)	30 years(10 years)
Final Disbursement Date	March 1995	September 1993	February 1997	October 1991

Note: Three loan agreements were concluded corresponding to the scope of project (dredging and landfill, other construction work, and equipment procurement) for the Port Project.

2 Analysis and Evaluation

(1) Project Scope

Map Ta Phut Port Project was halted for two years and three months in line with temporary suspension of Eastern Seaboard Development Plan because of review of the Government of Thailand on the foreign loan borrowing plan. At the time of restart, the scope of project was modified by stopping construction of the fertilizer berth, by adding construction of the liquid berth, etc. on the basis of change of situation during the suspension. These changes are considered reasonable because they were closely geared to changes in development of industries to be located in this complex. Concerning Map Ta Phut Industrial/Urban Complex, slight adjustment was made to the scale of each facility after examination in the detailed design. To meet the increase in the number of enterprises coming into the complex, IEAT is expanding the complex facilities (424 ha) even after the completion of the work portion covered by the ODA loan (380.8 ha).

(2) Implementation Schedule

The construction of Map Ta Phut Port was delayed about three years from the original plan due to temporary suspension of Eastern Seaboard Development Plan and subsequent reconsideration of the project scope. The time required for the construction becomes rather shortened, however. Concerning equipment (port cargo handling equipment, etc.), procurement was delayed from more one year to two years depending on items due to delay in the selection of contractors, but the time required for procurement and installation were approximately as planned. About two-year delay observed in Map Ta Phut Industrial/Urban Complex is also attributed to temporary suspension of Eastern Seaboard Development Plan.

(3) Project Cost

Construction costs (in bahts) for both Map Ta Phut Port and Complex were actually about 50 - 60% of those of the original plan due to heated competition for contract award. The equipment procurement costs (in bahts) for the port were actually more than 60% of that of the original plan as a result of bidding.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
Port Project		
West breakwater/Shore Protection	1,550 m/7,550 m	1,560 m/5,033 m
Dredging, landfill	12.8 million m^3	6.9 million m^3
Berths	Dedicated for fertilizer (2) / multipurpose (1) /anchoring place for small vessels (1) road,	Dedicated to liquid cargoes (2) / multipurpose (1) /anchoring place for small vessels (1)
On-Land Facilities	pavement, buildings, etc.	road, pavement, buildings, etc.
Navigation Aids	1 set	1 set
Equipment Procurement (vessels/gantry crane)	7 vessels/2 cranes	7 vessels/2 cranes
Consulting Services	677 M/M	687 M/M
Industrial/Urban Complex Project		
Ground Leveling (industrial complex/urban area)	380.8 ha/40 ha	380.8 ha/40 ha

Water Facilities		
Purification Plant	10,000 m^3 per day	5,100 m^3 per day
Wastewater Treatment Facilities (for industry/for city)	4,000 m^3 per day / 2,400 m^3 per day	4,000 m^3 per day / 2,400 m^3 per day
Other Facilities	Road, drainage ditches, etc.	Road, drainage ditches, etc.
Consulting Services	175 M/M	124 M/M
2. Implementation Schedule		
Port Project		
Construction Works (commencement to completion)	May 1986 to December 1988	November 1989 to February 1992
Equipment Procurement	May 1992 to May 1993	June 1993 to December 1994
Consulting Services (Construction Works/Equipment Procurement)	May 1985 to December 1988 / May 1992 to May 1993	November 1989 to December 1994 / (Continuation of the same consultant)
Industrial/Urban Complex Project		
Construction Works (commencement to completion)	April 1986 to March 1988	December 1987 to May 1990
Consulting Services	June 1985 to March 1988	December 1987 to May 1990
3. Project Cost		
Port Project		
Construction Works		
Foreign currency	¥21,656 million	¥6,129 million
Local currency	1,155 million bahts	764 million bahts
Total	3,535 million bahts (¥32,167 million)	1,989 million bahts (¥9,949 million)
Exchange Rate	1 baht = ¥9.1	1 baht =¥5.0
Equipment Procurement		
Foreign currency	¥3,395 million	¥2,267 million
Local currency	286 million bahts	54 million bahts
Total	927 million bahts (¥4,912 million)	607 million bahts (¥2,488 million)
Exchange Rate	1 baht = ¥5.3	1 baht =¥4.1
Industrial/Urban Complex Project		
Foreign currency	¥3,207 million	¥1,415 million
Local currency	638 million bahts	269 million bahts
Total	991 million bahts (¥9,015 million)	517 million bahts (¥2,948 million)
Exchange Rate	1 baht = ¥9.1	1 baht = ¥5.7

(4) Project Implementation Scheme

The executing agency is Industrial Estate Authority of Thailand (IEAT) for both projects. Though it did not have prior experience of constructing ports, IEAT completed construction works without substantial delay other than the effects of suspension of Eastern Seaboard Development Plan; its performance can be appreciated.

(5) Operations and Maintenance

In this industrial port, operation of the berths and anchorage place of small vessels are commissioned to three private enterprises selected from competitive bidding. As regards the industrial complex, operations and maintenance of the water supply facility, wastewater treatment facility, and drainage ditches are commissioned to a private enterprise. Other facilities including roads are under control of IEAT. In addition, careful measures are taken by IEAT by holding a regular monthly meeting participated by representatives of enterprises in the complex to discuss problems in terms of operations and maintenance.

(6) Operational Performance

The multipurpose berth of Map Ta Phut Port is handling general cargoes for export and import by enterprises in the complex while the liquid berth handles petro-chemical related cargoes of these enterprises. In addition, there are berths operated independently by these enterprises, apart from above public berths. The berth utilization is shown below.

Year	1992	1993	1994	1995	1996	1997	1998[1)]
Multi-purpose berth (Berth occupancy ratio: %)[2)]	103 15%	254 20%	553 60%	1,116 80%	1,501 80%	1,840 80%	1,555 70%

Liquid berth	28	104	190	731	1,232	2,314	1,900
(Berth occupancy ratio of Berth I: %)	0%	2%	2%	6%	25%	35%	38%
(that of Berth II: %)	3%	10%	15%	35%	42%	45%	44%

Sources: Documents of IEAT, TTT, TPT

Note: 1)Estimated by multiplying the achievement up to May 1998 by 12/5.
2)The occupancy of multipurpose berth is the approximation based on oral reports from TPT due to limited data.

The number of enterprises and employees of the Map Ta Phut Industrial/Urban Complex grew steadily as shown in the table below. Facilities of this industrial complex were expanded by IEAT to meet the growing demand and to provide these enterprises with adequate public services. The wastewater treatment facility for the urban area is not used because the number of occupants in this area is less than planned.

Year	1991	1992	1993	1994	1995	1996	1997	1998
Number of Enterprises(operating)	14	17	24	27	31	34	46	48
Number of Employees*	3,248	3,731	4,435	5,172	6,725	8,891	12,814	13,464

Sources: IEAT

Note: Excluding construction workers.

(7) Management Performance of IEAT

IEAT, compared to its business scale, has earned sizable profits every year (ratio of recurring profit to sales in 1995 - 1997: 30% - 34%), and its management performance can be said to be favorable. As the income has increased greatly from the land lease and various services to enterprises along with increase in the number of enterprises in this industrial complex, the operation revenue grew by 1.5 times from 1,158 million bahts in 1995 to 1,811 million bahts in 1997.

(8) Projects Effects and Impacts

(i) Quantitative Effects

(a) Cargo Handling Amount of Map Ta Phut Port

Demand generated was approximately equivalent to the estimation in the appraisal for general cargoes while exceeding substantially that estimated for liquid cargoes. This port can be said to well manage these demands and to support development of the heavy chemical industry in this complex.

(b) Number of Enterprises in Map Ta Phut Industrial/Urban Complex

As of 1998, the number of enterprises in this complex amounted to 48 and all of land available for industrial usage (5,030 rai or about 800 ha) was contracted. Petro-chemical and related enterprises account for the largest share in the occupants.

(c) Creation of Employment in Map Ta Phut Industrial Complex

There are at present 13,464 employees, so that the employment creation effect was far above the level projected at the time of appraisal (9,800).

(d) Financial Internal Rate of Return (FIRR)

FIRR of Map Ta Phut Port and Complex is 4.5% and 13.1% respectively.

(ii)Qualitative Effects

(a) Development of the Heavy Chemical Industry, Mainly the Petro-Chemical Industry

The construction of Map Ta Phut Industry/Urban Complex was intended to develop the heavy-chemical industry using natural gas from the Gulf of Thailand. This complex achieved substantial development mostly in the petro-chemical industry. It may be said that this project contributed greatly to the development of the petro-chemical industry of Thailand.

(b) Industrialization of the Eastern Seaboard

From 1991 to 1996, the real GDP per capita of Thailand achieved an annual average growth rate of 6.6%. The same index of Eastern Seaboard and Rayong Province where this project is located exceeded the national average substantially, achieving annual average growth rates of 11.7% and 15.4% respectively.

3 Lessons Learned

(1) Flexible changes of the plan to meet variation of economic situations and demands must be accepted positively as long as such changes are necessary to achieve the project objective and ensure its effects and impacts. In particular, the projects related to industry promotion tend to be governed by changes in economic situation and trends of individual industries. It is advisable that the borrower country, the executing agency, and JBIC perform continuous monitoring of these projects in the implementation stage and determine whether a change of situation is so significant that the original plan needs modification.

(2) It is suggested that the support to the central secondary treatment facilities of domestic wastewater be implemented corresponding to the priorities based on the understanding of overall condition of this sector of the country concerned (for

example, the support must be started where people are already concentrated and the flow of sewage is assured, such as a metropolitan area or existing local cities).

Map Ta Phut Industrial Port

Map Ta Phut Industrial Complex

Gas Separation Plant in Map Ta Phut Industrial Complex

Eastern Seaboard Development Plan
Laem Chabang Industrial Estate Project (1) (2)

Report Date: September 1999
Field Survey: November 1998

1 Project Summary and Japan's ODA Loan

(1) Background

As part of the Eastern Seaboard Development Plan, the development of the Laem Chabang area was planned to keep up with the necessity of an international deep port which will work as a substitute for Bangkok Port as well as the necessity of development of an industrial estate receiving export oriented industries. Laem Chabang area is expected to be a light industries' core base by constructing an industrial estate of export processing industries and general light industries in the neighboring land of the new international deep port which will take over the functions of Bangkok Port in the future.

(2) Objectives

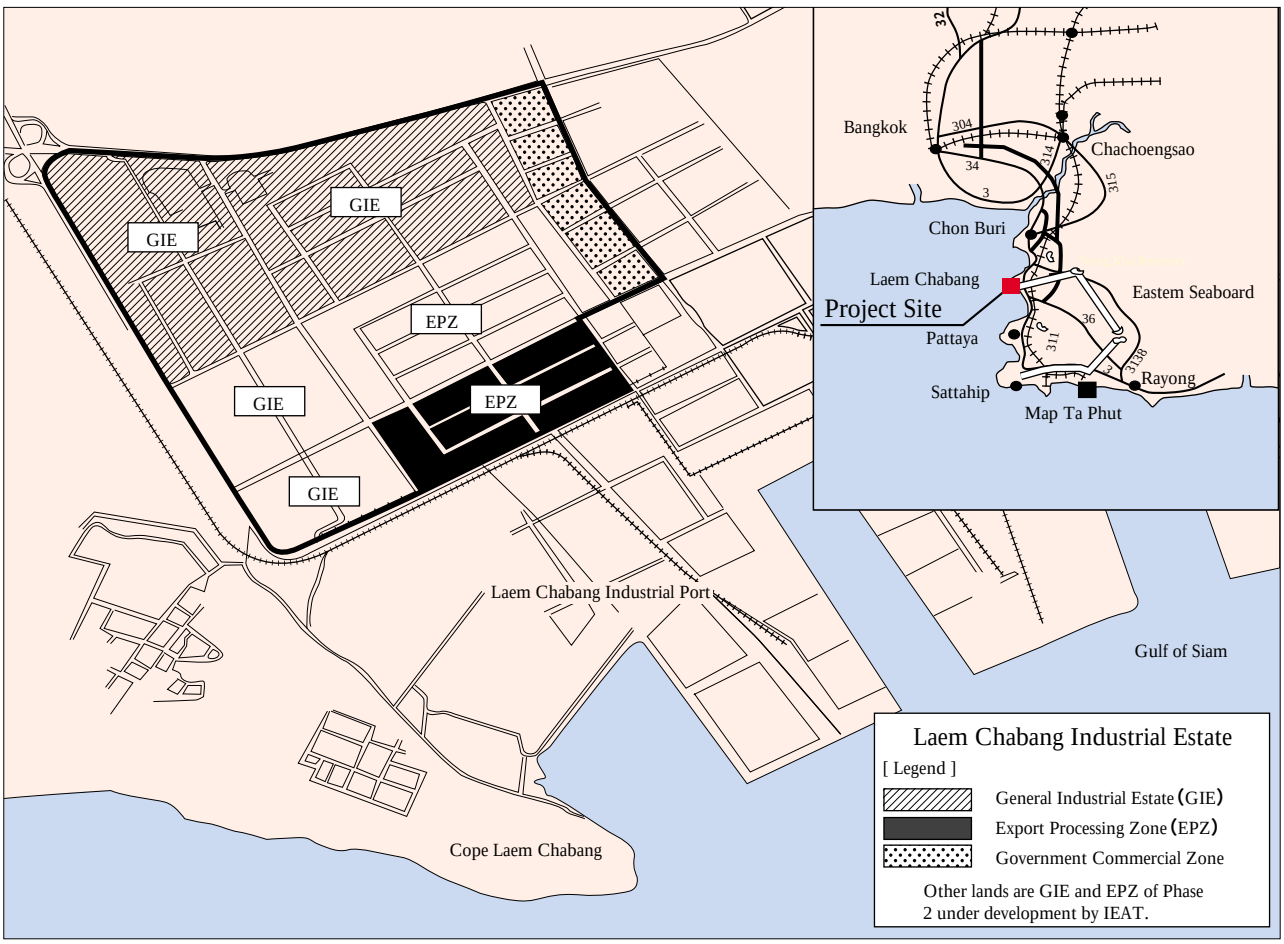
To provide a high-quality and low-cost industrial estate for light industries of export oriented type.

(3) Project Scope

Construction of Laem Chabang Industrial Estate (formation of lands, and development of the infrastructure). ODA loans are intended to supply full amount of foreign currency portion and a part of local currency portion for total project expenses.

(4) Borrower/Executing Agency

Both are Industrial Estate Authority of Thailand (IEAT) (Loan guaranteed by the government of Thailand)



(5) Outline of Loan Agreement

	Phase (1)	Phase (2)
Loan Amount	¥2,922 million	¥3,003 million
Loan Disbursed Amount	¥2,576 million	¥1,989 million
Date of Exchange of Notes	September 1985	September 1987
Date of Loan Agreement	October 1985	September 1987
Loan Conditions		
Interest Rate	3.5%	3.0%
Repayment Period(Grace Period)	30 years (10 years)	30 years (10 years)
Final Disbursement Date	October 1992	September 1992

2 Analysis and Evaluation

(1) Project Scope

This project was halted for one year and one month, due to temporal suspension of the Eastern Seaboard Development Plan as a consequence of the reevaluation by the government of Thailand of foreign loan borrowing plans. When implementation was restarted, the project scope needed to be reviewed taking into consideration the changes in circumstances which had occurred during the suspension, and as a result, the area for development in the industrial estate was nearly doubled to respond to the increasing number of foreign companies moving into Thailand. Currently, considering that most of the land lots in the industrial estate are already contracted (occupancy agreement is lease-based for this industrial estate), the expansion was proper. Furthermore, the purification plant in the industrial estate constructed by this project is originally planned to supply water to the new housing complex which accompanies the development of the industrial estate, but this plan was canceled so that the installed capacity of the purification plant and that of the sewage treatment plant were reduced accordingly. We can say that this change was also proper, reflecting the situation at that time. Moreover, regarding solid waste treatment, as a result of the study in the detailed design, an incinerator was installed.

(2) Implementation Schedule

Compared with the revised plan after restarting the project, the schedule was one year behind. The primary causes of the delay were the construction boom in Thailand at the time which caused hindrances in procuring building materials, and the rainy season which was not considered well in designing the construction process.

(3) Project Cost

Compared with the revised plan after restarting the project, slightly more than 60% of the original project cost had been expended. The primary reason for the decrease in project expenses is the reduction in expense for the purification plant and sewage treatment plant. The capacity of these facilities has been reduced to approximately two thirds of the initial plan.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
Land Formation	368 ha/96 0,000 m^3	569 ha/3,706,200 m^3
(Preparation work / soil improvement)		
Purification Plant	35,800 m^3/day	27,000 m^3/day
(Treated water supply capacity)		
Sewage plant	33,200 m^3/day	20,500 m^3/day
(Sewage treatment capacity)		
Solid Waste Treatment	Scheduled to be studied in the detailed design stage	One incinerator
Standard Factory etc.	24,450 m^2	19,920 m^2
Other Facilities	Roads, bridges, drainage, etc.	Roads, bridges, drainage, etc.
2.Implementation Schedule		
(commencement to completion)	July 1988 to March 1990	October 1988 to March 1991
3.Project Cost		
Foreign currency	¥5,024 million	¥3,711 million
Local currency	836 million bahts	505 million bahts
Total	¥9,590 million	¥6,110 million
Exchange Rate	1 baht = ¥5.5	1 baht = ¥4.75

Note: Original Plan is that of appraisal of the Phase (2) of the project (after restarting the project).

(4) Project Implementation Scheme

The executing agency was Industrial Estate Authority of Thailand (IEAT). IEAT was founded in 1972 for the purpose of construction, operation, and maintenance of industrial estates and export processing zones. As of 1998 it had jurisdiction nationwide over 29 industrial estates (including those developed jointly with private firms). Construction of this project was delayed, but most of the reasons thereof were external causes. It can be said that there is no major problem with the capability of IEAT as an executing agency.

(5) Operations and Maintenance

An on-site office is built for each industrial estate by IEAT. In the case of this project, operation and maintenance of purification plant, sewage treatment plant and rainwater drainage ditches have been commissioned to a private company. IEAT operates and maintains roads and other structures. Furthermore, IEAT holds a regular monthly meeting with four organizations composed of firms occupying the estate. Problems of maintenance are discussed with due consideration; however, some investors point out the problem of inadequate maintenance, for example, roads, and the attention should be paid to these claims.

(6) Operational Performance

The number of firms occupying Laem Chabang Industrial Estate is increasing steadily as shown in the following table (the figures are the number of firms signing contracts in the given year). Occupants are manufacturers of electrical products, automobile related products, etc.

Year	1991	1992	1993	1994	1995	1996	1997	1998	Total
General factory district	10	8	6	10	4	2	4	2	46
Export processing district	5	—	8	6	9	4	7	4	43
Standard factories	—	—	1	4	3	—	3	1	12
Total	15	8	15	20	16	6	14	7	101

The utilization ratio of facilities for water and sewage treatment in Laem Chabang Industrial Estate are shown in the table below, which represents a utilization rate of approximately 40% of capacity. This might be because firms moving into the industrial estate are those not using much water since there are many types of industries that recycle a large percentage of water (electric products and automobile related industries), and because some firms planning for future factory expansion are not yet utilizing a portion of their area. Compared with the facilities of other industrial estates, the capacity of these facilities is not overly large, rather appropriately sized when we consider the nature of the industrial estate which should provide satisfactory facilities no matter what types of firms move in. Thus, as long as maintenance is adequate, the current utilization status is not a major problem.

Year	1991	1992	1993	1994	1995	1996	1997	1998*
Water treatment (%)	2.0	7.1	20.3	33.5	34.0	44.4	43.4	46.9
Sewage treatment (%)	0.9	4.0	12.0	20.0	20.5	30.4	33.3	39.8

Note: *The figures for 1998 are performance values for January through September.
The years 1991 - 1994 are IEAT estimates. The years 1995 and later are actual BJT values.

The incinerator for sold waste is not being used, since landfill disposal by the neighboring municipality, Si Racha, is less expensive. (IEAT is maintaining the incinerator for future utilization.) The capacity may be limited for the landfill disposal, so it may be desirable to begin discussions with the municipality of Si Racha regarding the timing and quantity of waste to be treated in the incinerator to achieve the reduction of waste amount from the estate in the future. On that occasion, however, consideration must be given to new environmental problems that will arise due to exhaust gasses from the incinerator.

(7) Management Performance of IEAT

IEAT, compared to its business scale, has earned sizable profits every year (ratio of recurring profit to sales in 1995 - 1997: 30% - 34%), and its management performance can be said to be favorable. As the income has increased greatly from the land lease and various services to enterprises along with increase in the number of enterprises in this industrial complex, the operation revenue grew by 1.5 times from 1,158 million bahts in 1995 to 1,811 million bahts in 1997.

(8) Project Effects and Impacts

(i) Quantitative Effects

(a) Occupancy

The number of firms occupying the industrial estate at the time of field survey (1998) has reached a total of 101 companies. The occupancy of the General Industrial Zone and standard factories is 100%, and that of the Export Processing Zones was about 93% of the sites.

(b) Creation of Employment

At the time of appraisal, it is expected that jobs for 25,000 workers will be created in firms occupying the Laem Chabang Industrial Estate by the year 2000, while the 30,402 workers were employed at the end of 1997, so it can be said that the impacts of employment creation far exceeds the initial assumptions.

(c) Financial Internal Rate of Return (FIRR)

Calculating based on performance, FIRR of this project is 12.8%.

(ii) Qualitative Effects

(a) Industrialization of the Eastern Seaboard

By implementing Eastern Seaboard Development Plan, the Eastern Seaboard achieved a rapid economic growth. From 1991 through 1996, the real GNP per capita for all of Thailand achieved an annual average growth rate of 6.6%, but the real GNP per capita for the Eastern Seaboard and Chonburi Province exceeded that of Thailand remarkably, achieving annual average growth rates of 11.7% and 10.9% respectively. Furthermore, looking at the value added of manufacturing, Chonburi Province grew at a rate twice that of the nation. The value added of manufacturing by said province occupies as much as 11.3% of that of the nation. Laem Chabang Industrial Estate is the main one among the five industrial Estates in Chonburi Province, so it can be said that it has played a major role in the industrialization of this province.

Offices of Industrial Estate Authority of Thailand,the executing agency

A Thai Plant in the Estate

Sewage Treatment Plant in the Estate

Eastern Seaboard Development Plan
Laem Chabang Port Project (1) – (3)

Report Date: September 1999
Field Survey: November 1998

1 Project Summary and Japan's ODA Loan

(1) Background

Since Bangkok (Klong Toey) Port, which handled almost all of Thailand's shipping, is a river harbor with shallow water and narrow channel, large container ships are unable to enter there. For this reason, in order to be able to handle larger container ships, it was essential to construct a deep sea port to supplement and substitute for Bangkok Port. Furthermore, the construction of a commercial port to meet shipping demands (export and import) of the industrial estates built in the Eastern Seaboard was indispensable as a key element in the Eastern Seaboard Development Plan.

(2) Objectives

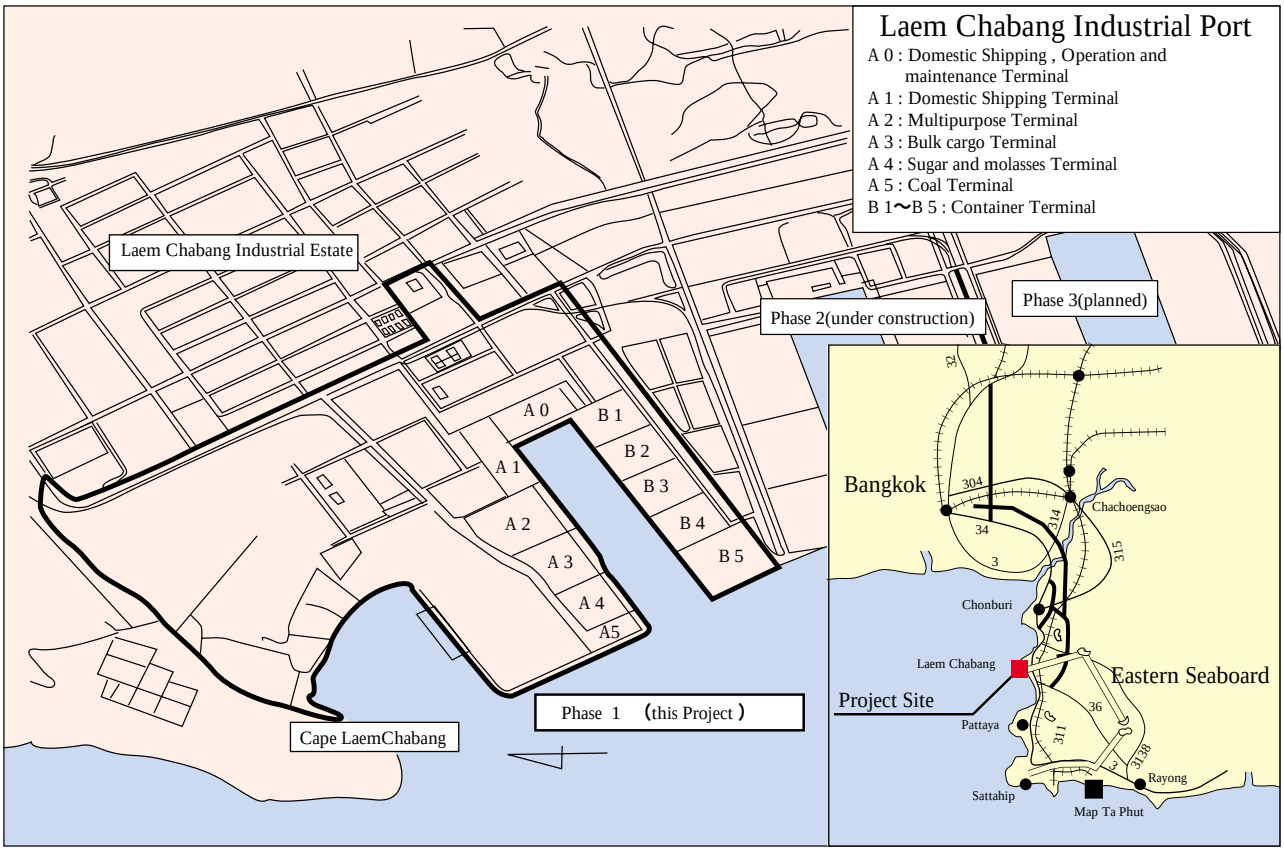
To supplement and substitute for Bangkok Port to cope with entry of larger container carriers

(3) Project Scope

New construction of a deep sea commercial port. The ODA loan covered the total sum of foreign currency cost for construction. PAT has established the master plan in three phases (Phase 1 through 3) to meet the container demands by the year 2025. Phase 1 (annual capacity to handle containers: 1.65 million TEU) includes the portion covered by the ODA loan plus the portion expanded by PAT.

(4) Borrower/Executing Agency

Both are the Port Authority of Thailand (PAT) (Loan guarantee by the Government of Thailand)



(5) Outline of Loan Agreement

Three loan agreements were concluded according to the scope of project (dredging and landfill, other construction work, and procurement of equipment) for the portion covered by the ODA loan in Phase 1 for Laem Chabang Commercial Port.

	Phase (1)	Phase (2)	Phase (3)
Loan Amount	¥4,172 million	¥12,283 million	¥6,436 million
Loan Disbursed Amount	¥3,178 million	¥4,843 million	¥5,868 million
Date of Exchange of Notes	July 1984	September 1985	February 1990
Date of Loan Agreement	September 1984	November 1986	February 1990
Loan Conditions			
Interest Rate	3.5%	3.5%	2.7%
Repayment Period (Grace Period)	30 years (10 years)	30 years (10 years)	30 years (10 years)
Final Disbursement Date	June 1993	November 1993	May 1995

2 Analysis and Evaluation

(1) Project Scope

Construction of a terminal for tapioca and that for sugar and molasses was a part of the project scope in the detailed design stage, but these were excluded from the scope of loan in consideration of the Thai government's capacity to bear the loan at the time of appraisal. These terminals were included in the scope of bidding as an option because of a concern for delay in meeting the increasing transport demand. Consequently, this option was executed since the whole expenses including this option could be covered by the loaned fund. On the other hand, the Government of Thailand changed the terminal utilization plan, due to substantial increase of expected volume of container cargo, and PAT independently executed the additional work associated with above change because it was considered a change of the original scope, so it was not approved to be covered by the loan. The actual performance of cargo handling of the Laem Chabang Port exceeded substantially the projection at the time of appraisal, so that implementation of the additional works is considered reasonable.

(2) Implementation Schedule

Construction works lagged by about one year behind the original plan. The reason is that the Government of Thailand temporarily suspend the Eastern Seaboard Development Plan so as to review the foreign loan borrowing plan to stabilize its macroeconomy. But the time required for the construction remained almost as planned and the delay was limited only to the suspended period. Equipment procurement (port cargo handling equipment, etc.) was originally scheduled for the latter half of the project and therefore implemented approximately according to the original plan, without being affected by the suspension.

(3) Project Cost

The construction costs was about 80% of the original plan (in bahts). Reduction in the costs was due to heated competition for contract award. (Note that the project cost here does not include the additional costs due to change in the terminal utilization plan.)

Comparison of Original Plan and Actual

Item	Plan	Actual
1. Project Scope		
Construction works		
Dredging, landfill	8.3 million m^3	8.3 million m^3
Breakwater/ Shore Protection	1,700 m / 2,900 m	1,300 m / 2,900 m
Terminals		
Container	300 m × 2	300 m × 3
Bulk cargo	300 m × 1	-
Multipurpose	-	300 m × 1
Tapioca	-	300 m × 1
Sugar and molasses	-	300 m × 1
Domestic Shipping	200 m × 1	200 m × 1
Operation and maintenance	100 m × 1	-
Other Facilities	Roads, buildings, etc.	Roads, buildings, etc.
Equipment procurement		
Container crane	6 units	6 units

Vessels (tugboat, etc.)	11	11
Navigation aids	1 set	1 set
Consulting Services	550 M/M	681 M/M
2. Implementation Schedule		
(commencement to completion)		
Construction works	September 1986 to August 1990	December 1987 to October 1991
Equipment procurement	January 1990 to August 1991	June 1990 to August 1991
3.Project Cost		
Construction works		
Foreign currency	¥16,445 million	¥8,012 million
Local currency	957 million bahts	660 million bahts
Total	2,765 million bahts	2,172 million bahts
	(¥25,162 million)	(¥11,510 million)
Exchange Rate	1 baht = ¥9.1	1 baht = ¥5.3
Equipment procurement		
Foreign currency	¥6,436 million	¥5,868 million
Local currency	641 million bahts	525 million bahts
Total	1,790 million bahts	1,632 million bahts
	(¥10,024 million)	(¥8,651 million)
Exchange Rate	1 baht = ¥5.6	1 baht = ¥5.3

Note: The Performance column shows the portion completed in 1991. Subsequently, PAT expanded the port facilities.

(4) Project Implementation Scheme

The executing agency is Port Authority of Thailand (PAT) which was founded in 1951 for the purpose of administration of Bangkok Port. Although this was the first large-scale port construction project for PAT, its performance was evaluated highly for completing the construction safely without delay.

(5) Operations and Maintenance

Operations and maintenance of Laem Chagang Commercial Port is under control of PAT. In order to ensure more efficient management, the operation of terminals is commissioned to private contractors. The operation performance of seven contractors can be considered satisfactory.

(6) Operational Performance

Since opening of the port, the cargo handling amount, mainly of container cargoes, has grown steadily.

Year	1991	1992	1993	1994	1995	1996	1997	1998
Number of ship call	68	223	664	1,158	1,549	2,359	2,864	3,050
General cargoes (Unit :tons)	681	1,207	485	420	913	1,573	2,211	1,197
Container (Unit :thousand tons)	15	85	1,582	3,423	5,030	7,030	10,076	12,693
(Unit :thousand TEU)	(1)	(9)	(169)	(333)	(504)	(729)	(1,036)	(1,425)

Note: Year is the fiscal year in Thailand (example:1998 = October 1, 1997 to September 30, 1998).

(7) Management Performance of PAT

PAT relies mainly on Bangkok (Klong Toey) and Laem Chabang ports for its revenue. With abundant cargo handling, its management performance can be considered satisfactory. When only the Laem Chabang Port is viewed independently, its recurring income is growing yearly.

(8) Resettlement of Residents

To construct Laem Chabang Port, PAT acquired the land of 6,341 rai (about 10 km^2), resulting in resettlement of 1,726 households. As of 1998, 235 households have not yet moved. Since they do not cause any hindrance to operation of the port, PAT is not planning to force resettlement of these households. It is a responsibility of PAT and the Government of Thailand for the future measure, but it is advisable to continue the measure with due attention to these residents.

(9) Project Effects and Impacts

(i) Quantitative Effects

(a) Cargo Handling Amount

Concerning container cargoes, which are major handling cargoes for Laem Chabang Port, the port has achieved the record (12.7 million tons in fiscal 1998) which is more than double of the estimation in the appraisal. It may be said that Laem Chabang Port has supported the rapid economic growth of Thailand through handling of increasing container cargoes.

(b) Supplementation and Substitute of Bangkok Port

Laem Chabang Port (1.4 million TEU) exceeded Bangkok Port (1.1 million TEU) in terms of the container cargo handling

quantity for 1998. In the future, the ratio may increase further. This project can be said to have well achieved the original project objective of making this port to be a supplement and substitute of Bangkok Port.

(c) Efficient Operation of Container Terminal

Laem Chabang Port offers more efficient container cargo handling than traditional Bangkok Port because it was specifically designed for such purpose and operation of the container terminals is commissioned to private contractors (for the container handling quantity per crane, 28 pieces/hour in the case of Laem Chabang Port and 20 pieces/hour in the case of Bangkok Port).

(d) Economic Internal Rate of Return (EIRR)

Calculation based on the actual performance shows that EIRR of Laem Chabang is 11.6%.

(ii)Qualitative Effects

(a) Development of the Eastern Seaboard

With construction of Laem Chabang Port, parts import or product export of local factories became more convenient in the Eastern Seaboard. As a result, establishment of factories in this area grew, pushing forward industrial development here.

(b) Effect on Traffic Congestion of Bangkok

With construction of Laem Chagang Port, the reduction in cargo handling in Bangkok Port caused the decrease of transport with trucks which convey the cargo to and form Bangkok Port. In consequence, construction of this port may be considered to limit further worsening of traffic congestion in Bangkok, although that impact is not so large compared to the total traffic volume in Bangkok.

3 Lessons Learned

(1) From a viewpoint of efficient utilization of loan amount, it is essential that JBIC judges feasibility of any change of the original plan necessary for achievement of the project objectives and effects, and responds to such changes in a mobile and flexible manner using the available budget such as reserves.

(2) It is important for JBIC to positively support the survey and planning contributing to improvement of the operation efficiency, such as review of the operation scheme of the port terminals, etc.

(3) For the project which causes resettlement of residents, it is essential to consider and support the residents from the early stage.

Eastern Seaboard Development Plan Road Project

Report Date: September 1999
Field Survey: November 1998

1 Project Summary and Japan's ODA Loan

(1) Background

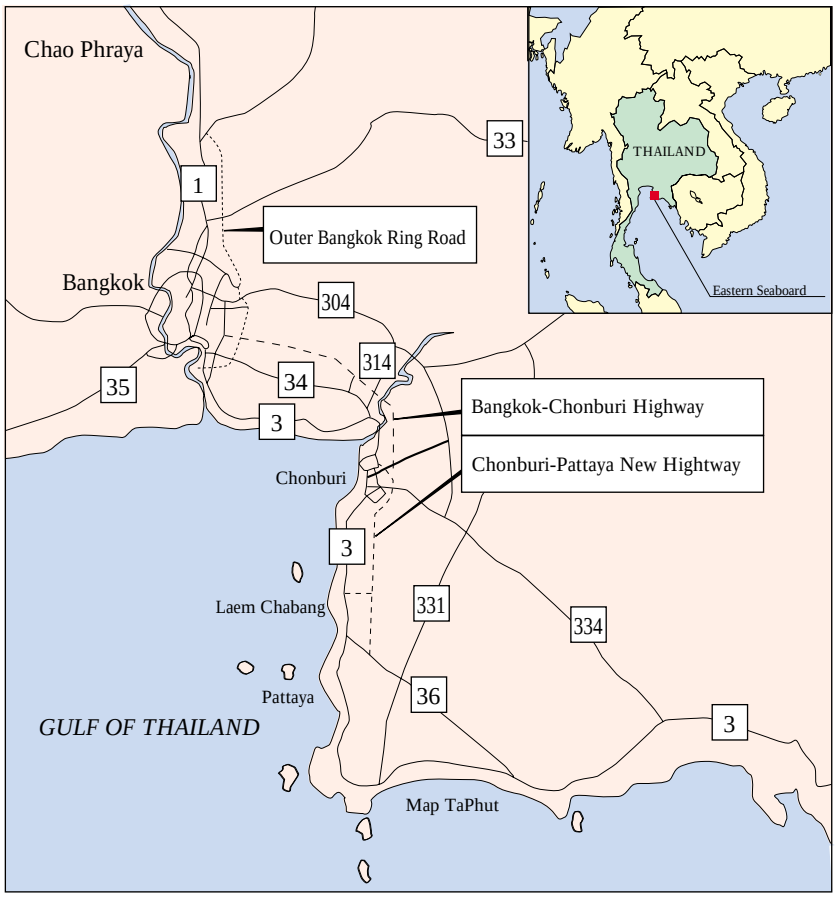
Since new heavy demands for inland transportation were anticipated to arise in accordance with development of the Eastern Seaboard, the preparation of road and railway networks for handling these demands was necessary. In the said seaboard, since early in the 1980's, the expansion of national roads has progressed, financed by the Thai government's own funds and financial assistance from donor agencies such as World Bank. Then the preparation of the inter-city expressway known as the "Motorway" was accelerated with the ODA loan. These motorways in the Eastern Seaboard form the first project in the development plan of nation-wide Motorway network in Thailand.

(2) Objectives

To meet the increasing demand for inland transportation for industrial developments of the Eastern Seaboard.

(3) Project Scope

This report deals with only the Chonburi-Pattaya Highway construction project (about 68 km long, four lanes), which is one of the three motorway construction projects included in the Eastern Seaboard Development Plan. The ODA loan covers full amount of the foreign currency portion and part of local currency portion required for the motorway construction. Since the three motorway projects are aiming at building an integrated network, the other two projects will be mentioned briefly in this evaluation.



Project name	Purpose	Remarks
Chonburi - Pattaya Highway (about 68 km)	Meet the demand for traffic between the Bangkok metropolitan area and Eastern Seaboard.	In the scope of present evaluation
Bangkok - Chonburi Highway (about 82 km)		Not yet completed at the time of field survey
Outer Bangkok Ring Road (East Portion) (about 63 km)	Meet the demand for traffic between the Eastern Seaboard and the other regions by passing the congested Bangkok.	

(4) Borrower/Executing Agency

Kingdom of Thailand/Department of Highways (DOH), Ministry of Transport and Communications

(5) Outline of Loan Agreement

	Phase (1)	Phase (2)
Loan Amount	¥4,117 million	¥5,670 million
Loan Amount Disbursed	¥4,074 million	¥4,512 million
Date of Exchange of Notes	September 1988	September 1991
Date of Loan Agreement	November 1988	September 1991
Loan Conditions		
Interest Rate	2.9%	3.0%
Repayment Period (Grace Period)	30 years (10 years)	25 years (7 years)
Final Disbursement Date	March 1994	November 1997

Note: Phase (2) is an additional loan due to increased project cost

2 Analysis and Evaluation

(1) Project Scope

A four-lane motorway was built between Chonburi and Laem Chabang (sections 1 to 3) and a two-lane motorway between Laem Chabang and Pattaya (section 4), as planned. Four of five projected interchanges have been constructed. The construction of six flyovers (overpasses) was included in the project later, but only two of them have been completed because of a delay in land acquisition. (There is no problem with the use of the motorway, however.)

(2) Implementation Schedule

The delay of about one year in selecting consultants and a contractor occurred due to a delay in the detailed design which was implemented by DOH using its own budgets. Since the project cost bulged due to an increase in building material costs (see"Comparison of Original Plan and Actual"), it needed much time to prepare additional funds (financed by the additional ODA loan). Finally, the project was finished about two years behind the initial schedule at the time of appraisal in the first loan and about one year behind the revised schedule at the time of appraisal of the additional loan. This project, however, can be said to be successfully implemented by and large when considering it is construction of a new, large scale motorway.

(3) Project Cost

Originally, the project was to be financed by the 14th ODA loan alone. But as a result of the bidding, the total project cost was escalated to about 1.8 times higher than the original plan, because the construction costs bulged suddenly, reflecting a construction boom in Thailand. As the project cost increase was caused by unpredictable factors such as high growth of the Thai economy and its accompanying construction boom, an additional loan was granted in 1991 to cover the excess cost. Since then, the project could have been completed successfully within the cost estimated at the time of appraisal of the additional loan.

Comparison of Original Plan and Actual

Item	Plan	Actual
1. Project Scope		
Motorway Construction		
Section 1 (Chonburi bypass)	Widening of the two-lane road to four lanes. (13.851 km)	Widening of the two-lane road to four lanes. (13.851 km)
Section 2 (Chonburi bypass - Laem Chabang intersection)	Construction of a new four-lane motorway (24.548 km)	Construction of a new four-lane motorway (24.548 km)
Section 3 (Laem Chabang intersection - Laem Chabang Industrial Estate)	Construction of a new four-lane motorway (7.625 km)	Construction of a new four-lane motorway (7.425 km)

Section 4 (Laem Chabang intersection - National road 36)	Construction of a new two-lane motorway (17.384 km)	Construction of a new two-lane motorway (17.384 km)
Interchange Construction	Five locations	Four locations
Consulting Services[1)]	F37 M/M / L30 M/M	F52 M/M / L30 M/M
2. Implementation Schedule		
(commencement to completion)		
Motorway Construction	July 1990 to September 1992	June 1990 to May 1993
Interchange Construction	October 1991 to May 1993	December 1991 to June 1994
3. Project Cost		
Foreign currency	¥6,046 million	¥7,712 million
Local currency	1,321 million bahts	474 million bahts
Total	2,462 million bahts (¥13,049 million)	2,425 million bahts (¥9,943 million)
Exchange Rate	1 baht = ¥5.3	1 baht = ¥4.1

1) Consulting service: F: Foreign consultant; L: Local consultant
2) The original plan of implementation schedule and project cost was at the time of appraisal of the additional loan.

(4) Project Implementation Scheme

The executing agency is DOH. DOH has long experience in many ODA loan projects and is familiar with the loan procedure. Although DOH needed an additional loan to make up for the shortage of the project cost, DOH was able to minimize the delay in completing the project, and the efforts by DOH for this purpose should be highly appreciated.

(5) Operations and Maintenance

DOH has created a practical road maintenance manual based on its long experience. The Chonburi - Pattaya Highway has been maintained properly, but the rate of traffic volume of heavy vehicles (large and medium-sized trucks) to the whole traffic in 1997 was 40.1%, which is much higher than the initial projection (14.9% in 2000). Thus, the highway may be subject to severe loads more than expected, and it is necessary to implement due maintenance and to make sufficient budgetary request and their execution, taking account of such conditions.

(6) Operational Performance

The daily average traffic volume of the Chonburi-Pattaya Highway is as follows:

(Unit:vehicles)

Year	1994	1995	1996	1997
Section 1	22,178	24,155	26,308	28,461
Section 2	22,513	24,520	26,705	28,890
Section 3	45,024	49,037	53,408	57,779
Section 4	12,576	13,695	14,913	16,131

This motorway connects Chonburi, one of large cities in the Eastern Seaboard, and Pattaya, an international tourism resort, to accommodate the need of transporting many passengers travelling for tourism or on business. This motorway also provides a direct access to the Laem Chabang Port, a major international port in Thailand, and to Laem Chabang City, where Laem Chabang Industrial Estate is located, responding to the demand of cargo transportation from/to said port and industrial estate.

(7) Motorway Tolling

The Chonburi-Pattaya Highway was originally planned as a toll road with full access control, but no fee was charged as of 1998. Motorways, including the Chonburi-Pattaya Highway, are designed to provide the service with higher value added than national roads. The toll fees of motorways should be chiefly borne by their beneficiaries, from the standpoint of economic-efficiency. Construction of the motorway network in Thailand is at its initial stage, therefore it is now necessary and useful for Thai government to examine a proper tolling policy for said network, considering the increasing financial burden in the future.

(8) Project Effects and Impacts

(i) Quantitative Effects

(a) Chonburi - Pattaya Highway Traffic Volume

The traffic volume of the Chonburi - Pattaya Highway accounts for about 56% of the south-north traffic volume in the Eastern Seaboard (Chonburi-Pattaya Highway plus two national roads paralleling said motorway) (see Table below), and functions as a trunk road in the Eastern Seaboard.

Year	1990	1997
National road 3	77.1%	31.0%
Chonburi - Pattaya higwhay (Section 2)	–	56.3%
National road 331	22.9%	12.7%

(b) Effects of ODA Loan Projects on the Road Traffic in the Whole Eastern Seaboard

The simulation based upon the Thai traffic model which was created by the Office of the Commission for the Management of Land Traffic (OCMLT) demonstrates that, if all the road projects of the Eastern Seaboard Development Plan had not been implemented, the traffic volume would have been less than 80% and the average speed would have been about 70% of the level achieved when these projects are implemented (as of 1997). It also predicts that, if the ODA loan projects including the Chonburi - Pattaya Highway had not been implemented, the traffic volume would have been less than 80% and the average speed would have been about 75% of the level when all of the road projects are implemented. From this simulation, it is clear that construction of the motorway has a significant positive effect on the road traffic in the entire Eastern Seaboard.

(c) Economic Internal Rate of Return (EIRR)

EIRR of the Chonburi - Pattaya Highway is calculated to be 23.3% based on the actual performance.

ii) Qualitative Effects

(a) Promotion of Industrial Developments in the Eastern Seaboard

The road network developed around the Chonburi - Pattaya Highway in the Eastern Seaboard makes a great contribution to the industrial development of said seaboard through the provision of inland transportation of raw materials and products from various factories therein and of cargoes handled at the Laem Chabang Port.

(b) Smooth Land Transportation between the Eastern Seaboard and Other Regions

The Chonburi-Pattaya Highway, connected with the Bangkok-Chonburi Highway and the Outer Bangkok Ring Road (East Portion) which were completed just at the end of 1998, is expected to function as an integral motorway network to make great contribution to ensuring a smooth transportation route between the Eastern Seaboard and the Bangkok metropolitan region, and to extending the route from said Seaboard to the northern and north-eastern parts of Thailand, by forming a new route bypassing the Bangkok metropolitan region.

Eastern Seaboard Development Plan Railway Project

Report Date: September 1999
Field Survey: November 1998

1 Project Summary and Japan's ODA Loan

(1) Background

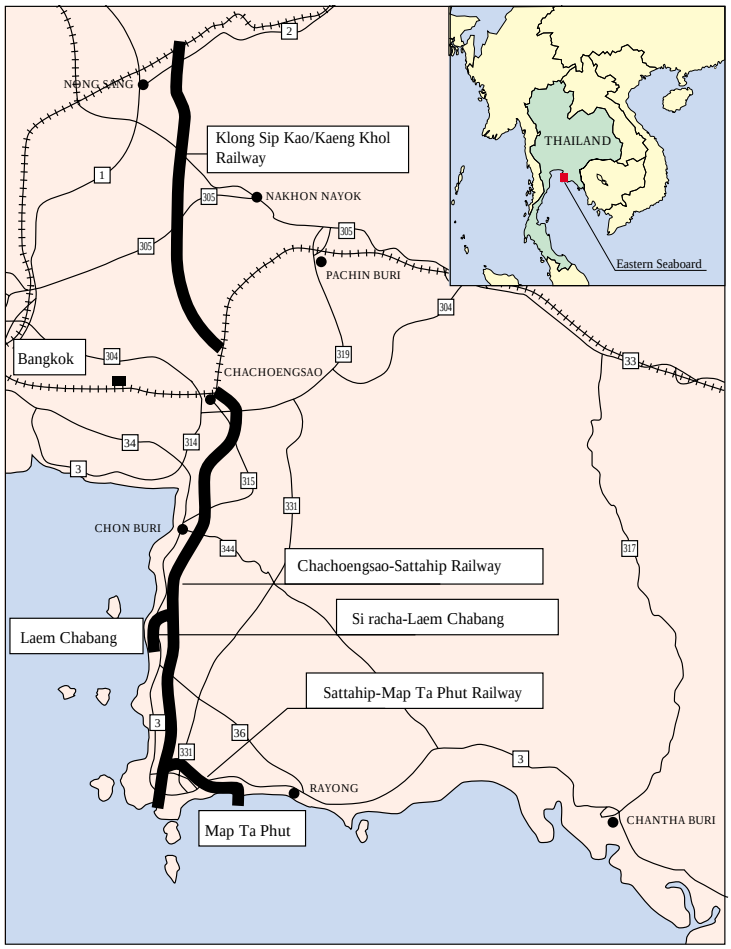
Development of new transportation network was urgently required to meet the transportation demands arising from implementation of Eastern Seaboard Development Plan, in particular the construction of an international commercial port at Laem Chabang and the industrialization of the region as a whole driven by the industrial estates. The transportation network development was planned to target both modes of road and railway transport. Of these two modes, the railway network was primarily objected to handle long distance, large volume transport of freight for the region.

(2) Objectives

To accommodate the demand for massive transport of cargoes (containers, etc.) handled in Laem Chabang Port, and for long distance, large-volume transport of resources and energy (LPG, etc.) for the development of Map Ta Phut Industrial Complex.

(3) Project Scope

The following five railway projects are involved in Eastern Seaboard Development Plan. Among these five projects, three are ODA loans. Subjects of this evaluation were two out of these three projects, for which the loan covered the full amount of foreign currency for the required cost. Since these five railways jointly work as an integral railway network, the assessment of the operation, maintenance, project effects and impacts in this report covers all the five projects.



Project Name	Application	Remarks
Chachoengsao - Sattahip Railway	Lines exclusively for freight to satisfy the transportation demand for the ports and industrial estates to be constructed in the Eastern Seaboard.	Thai government project
Siracha - Laem Chabang Railway		Post-evaluation completed
Sattahip - Map Ta Phut Railway		In the scope of this evaluation
Klong Sip Kao - Kaeng Khoi Railway	Lines exclusively for freight, bypassing Bangkok where the traffic is heavily congested, to regularly satisfy the transportation demand between the Eastern Seaboard and other regions.	In the scope of this evaluation
Lat Krabang ICD*	Inland intermediate yard for freight containers	Thai government project

Note: *ICD: Inland Container Depot

(4) Borrower/Executing Agency

Both are State Railways of Thailand (SRT) (loan guarantee by the Thai government)

(5) Outline of Loan Agreement:

	Sattahip - Map Ta Phut Railway	Klong Sip Kao - Kaeng Khoi Railway
Loan Amount	¥3,002 million	¥8,158 million
Loan Disbursed Amount	¥2,826 million	¥7,370 million[1)]
Date of Exchange of Notes	September 1988	February 1990
Date of Loan Agreement	September 1988	February 1990
Loan Conditions		
Interest Rate	2.9%	2.7%
Repayment Period(Grace Period)	30 years (10 years)	30 years (10 years)
Final Disbursement Date	January 1997	December 1999[2)]

Note:1) as of August 1999
2) Expected

2 Analysis and Evaluation

(1) Project Scope

Both for Sattahip-Map Ta Phut Railway (hereinafter referred to as S-M Railway) and Klong Sip Kao-Kaeng Khoi Railway (hereinafter referred to as K-K railway), the tracks and auxiliary facilities were constructed, according to by and large the original plan.

(2) Project Implementation Schedule

Delay of about four years occurred both in S-M and K-K railway projects. In the case of S-M railway, much time was spent for coordination with the relating agencies (Industrial Estate Authority of Thailand, etc.), and there was a delay in preparation for placing orders for construction work by SRT. In the case of K-K railway, a delay was occurred in the selection of consultant. In either case, the delay could have been shortened if SRT had taken appropriate measures such as higher performance of administrative procedures.

(3) Project Cost

Project cost for S-M railway was 1.5 times the planned amount. This is due to the rise of construction unit cost reflecting the bullish situation of the construction industry in Thailand at the time. The additional cost was covered by additional allotment of the local currency budget. For K-K railway, the work volume was increased because the more extensive soft ground was encountered than estimated in the detail design phase, resulting in increased local currency cost. As a whole, however, this railway work was completed at the total cost close to the initially planned amount.

Comparison of Original Plan and Actual

Sattahip - Map Ta Phut Railway

Item	Plan	Actual
1. Project Scope		
Civil work/track construction [1)]	24 km	24 km
Signaling system/communications equipment	1 set	1 set (including additional pieces of equipment)
Consulting Service [2)]	F 55 M/M・L 187 M/M	F 72.5 M/M・L 267.7 M/M
2. Implementation Schedule		
(commencement to completion)[3)]	September 1989 to March 1991	May 1992 to April 1995
3. Project Cost		
Foreign currency	¥3,002 million	¥2,823 million
Local currency	300 million bahts	1,085 million bahts
Total	¥4,502 million	¥6,946 million
Exchange Rate	1 baht = ¥5.0	1 baht = ¥3.8

Klong Sip Kao – Kaeng Khoi Railway

Item	Plan	Actual
1. Project Scope		
Procurement of construction/ maintenance equipment	1 set	1 set (partially deleted)
Civil work/track construction	82.55 km	82.42 km

Signaling system/communications equipment	1 set	1 set
Consulting Services		
Civil work/track construction	F 119 M/M・L 85 M/M	F 109 M/M・L 141 M/M
Signaling system/communications equipment	F 53.2 M/M・L128.5M/M	F 56.2 M/M・L 134.5 M/M
2. Implementation Schedule		
(commencement to completion)		
Civil work・Track construction	January 1991 to December 1992	April 1993 to May 1995
Signaling systemÅECommunications equipment	November 1991 to October 1993	September 1995 to October 1997
3. Project Cost		
Foreign currency	¥8,158 million	¥7,370 million [4)]
Local currency	1,269 million bahts	1,956 million bahts
Total	¥15,265 million	¥14,910 million
Exchange Rate	1 baht = ¥5.6	1 baht = ¥3.9

Note : 1) Including construction of the station buildings.
2) The letter "F" for the consulting service represents "foreign consultant", and "L" means "local consultant".
3) Not including the maintenance period.
4) as of August 1999

(4) Project Implementation Scheme

The executing agency is State Railways of Thailand (SRT) for both projects. With the railway projects in Eastern Seaboard Development Plan, some difficulties were found in coordination with the simultaneously ongoing projects of highway network and industrial estates. Nevertheless, the remarkable delay could have been limited by improved strategies such as more prompt proceeding of administrative procedures in SRT.

(5) Operations and Maintenance

SRT has been operating the railway business for 81 years, having well established guidelines and manuals for maintenance and inspection of tracks, signaling system and communications equipment. Though no significant problem is pointed out for the maintenance of the railways evaluated here, it is necessary to tackle some issues including aged equipment and facilities, and unsatisfactory maintenance because of insufficient budget.

(6) Operational Performance

The transportation record of each railway in 1998 is summarized in the table below. The Chachoengsao-Sattahip railway, as the trunk line in the Eastern Seaboard, mainly conveys freight containers and LPG. The Siracha-Laem Chabang railway (hereinafter referred to as S-L railway) achieved a traffic volume 1.5 times as large as the amount projected in the appraisal, showing an operational performance exceeding the initial estimation. Though the operation efficiency needs to be improved further by increasing the traffic frequency, and providing regular operation conforming to the timetable, it can be said that the S-L railway project attained success. In contrast, S-M railway achieved no more than 10% of the initially estimated freight transport volume, failing to fully accomplish the project objectives and providing a limited project effects. For this railway, around 50% of the initially projected transport volume (mineral resources and agricultural products) could not be achieved because of change in the preconditions, so it was unavoidable. The remaining 40% or so (energy, industrial products) was absorbed by other transportation means. Some demand for railway transportation may be created by improvement of SRT's train operation. Though the achieved transport volume of K-K railway is less than 40% of the projection, it is reasonable to say that the project objectives were attained, since some freight transportation was impossible without this railway that bypasses Bangkok. Further effects can be expected of this railway through enhancement of the operation efficiency. The Lat Krabang ICD is handling a container volume as large as the full installation capacity. This ICD has ameliorated the convenience and availability of railway transportation of containers.

Project Name	Projection at the time of appraisal	Actual Transportation Volume	Main Freight
	1998	1998	
Chachoengsao - Sattahip Railway	-	4,188	Container, crude oil, LPG
Siracha - Laem Chabang Railway	2,200	3,283	Container, crude oil
Sattahip - Map Ta Phut Railway	4,000	421	Petroleum
Klong Sip Kao - Kaeng Khoi Railway	5,017	1,760	Crude oil, LPG, petroleum
Lad Krabang ICD (1998)	437 thousand TEU (Truck 47%, Railway 53%)		Container

(7) Management Performance of SRT

Increased freight transportation in the Eastern Seaboard has raised the fare income of SRT. Nevertheless, the operating income of this company has been adverse for many years. Its business is therefore supported by Thai government's subsidy. The deficit tends to be on the rise, and cash flow tends to become tight. More effective management of SRT is essential for keeping the effects of the ODA loan projects. Furthermore, to limit the outlay of the Thai government, improvement of the financial status and management of SRT is indispensable.

(8) Project Effects and Impacts

(i)Quantitative Effects

(a) Transportation of Freight Handled in Laem Chabang Port

The railway network in the Eastern Seaboard transports approximately 21% of the containers handled in Laem Chabang Port (12,693 thousand tons in 1998). As shown by this figure, the contribution by the railways is great, as they are the nucleus of the land transportation network originating from and bound for Laem Chabang Port.

(b) Transportation of Energy Between the Eastern Seaboard and Other Regions

The energy transported by the Eastern Seaboard railways to the northern and northeastern regions accounts for about 27% of the Thai LPG production (approximately 1.80 million tons), and approximately 52% of the production of the Petroleum Authority of Thailand (PTT). As demonstrated by these figures, the railways notably contribute to long distance transportation of LPG produced in the Eastern Seaboard.

(c) Financial Internal Rate of Return (FIRR)

Since it is difficult to divide the benefit of the five railways in Eastern Seaboard Development Plan, it is desirable to consider the FIRR of these five projects as a whole. The FIRR calculated from the records is low, that is, 0.7%. As SRT has been running a deficit, however, it can be rightly said that the investment in these railways is relatively efficient.

(ii) Qualitative Effects

(a) Support to the Industrial Development of the Eastern Seaboard

The projects remarkably contributed to the industrial development of the area, through inland transportation of cargoes handled in Laem Chabang Port and massive transportation of energy.

(b) Diversifying Transportation Modes

The railway network in the Eastern Seaboard perform freight transportation in conjunction with highways and other national roads, playing a role of diversifying the massive transportation into different modes.

(c) Effect on the Traffic Congestion in Bangkok

The newly constructed K-K railway provides a direct link between the Eastern Seaboard and northern/northeastern regions of Thailand, bypassing Bangkok. This results in reduction of closing time span at grade crossings. Though it is not so significant if viewed from the total traffic volume in Bangkok, some mitigating effect has been achieved.

3 Lessons Learned

(1) When a state-owned enterprise implements the ODA loan project and performs its operation and maintenance, considerable attention should be devoted to the financial sustainability of the state-owned enterprise.

(2) For assisting the railway sector, it is important to provide supports to the improvement of financial performance and the enhancement of operational efficiency of the enterprise implementing the project.

Laem Chabang Port Station on the Siracha-Laem Chabang Railway

Eastern Seaboard Development Plan
Water Resource Development / Water Pipeline Project

Report Date: September 1999
Field Survey: November 1998

1 Project Summary and Japan's ODA Loan

(1) Background

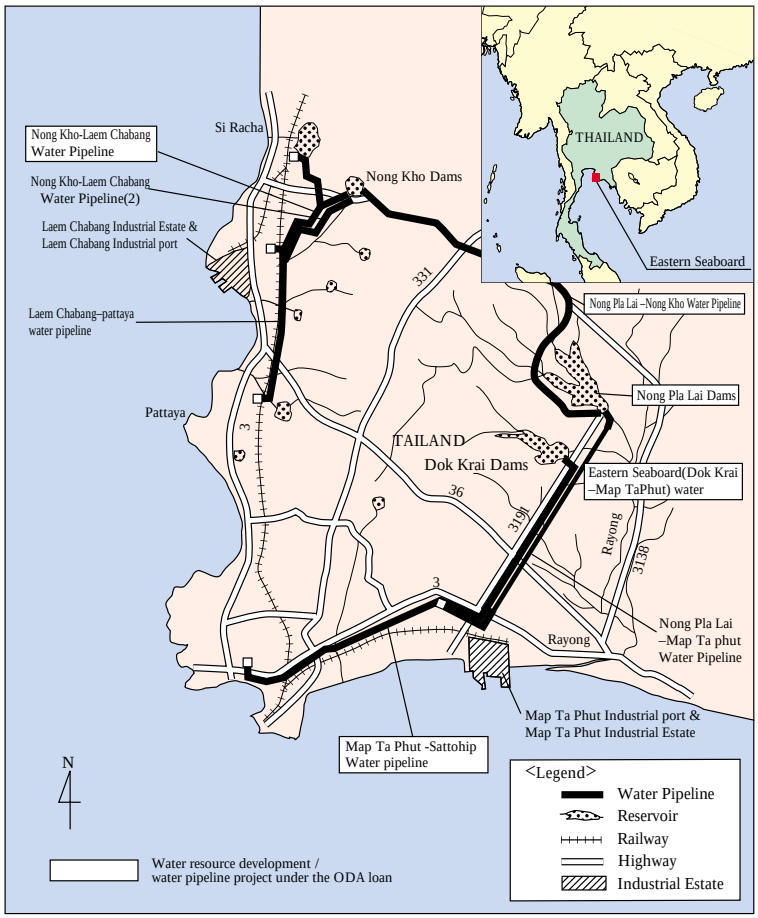
Since there are few large rivers and rainfall is scarce throughout the year in the Eastern Seaboard, the apprehension arose that Eastern Seaboard would fall short of water as a result of large-scale industrial development. In order to meet the increasing demands for water from development of the seaboard and to avoid water shortages which would interfere with economic and social activity, development of water resources (dams) (see (3),1) and water pipeline projects (see (3),2~5) were planned. In addition, these projects were to be part of Eastern Seaboard Development Plan.

(2) Objectives

To keep up with the growing demand for domestic and industrial waters in the western coastal area of Eastern Seaboard, including Laeam Chabang, and in the southern coastal area of Eastern Seaboard, including Map Ta Phut.

(3) Project Scope

The ODA loan applies to full amount of the foreign currency and a part of the local currency for Projects 1, 3 and 5, and the ODA loans covered the full amount of the foreign currency with regard to Projects 2 and 4. The evaluation items for this time are 1, 3 and 5; however since the five projects including 2 and 4, as a whole, are to exhibit the desired effects as a network, all of the five projects are evaluated in terms of their operation and maintenance performance.



Project Name	Executing Agency	Remarks	
1. Nong Pla Lai Reservoir Project	RID[1)]	Development of reservoirs	In the scope of present evaluation
2. Nong Kho - Laem Chabang Water Pipeline Project	PWD[2)]	Water transmission to the western coastal area	Ex-post evaluation was conducted before
3. Nong Pla Lai - Nong Kho Water Pipeline Project	PWD		In the scope of present evaluation
4. Eastern Seaboard (Dok Krai - Map Ta Phut) Water Pipeline Project	RID	Water transmission to the southern coastal area	Ex-post evaluation was conducted before
5. Map Ta Phut - Sattahip Water Pipeline Project	RID		In the scope of present evaluation

Note: 1) RID: Royal Irrigation Department, Ministry of Agriculture and Cooperatives
2) PWD: Public Works Department, Ministry of Interior

(5) Outline of Loan Agreement:

	Nong Pla Lai Reservoir Project	Map Ta Phut - Sattahip Water Pipeline Project	Nong Pla Lai - Nong Kho Water Pipeline Project
Loan Amount	¥4,357million	¥1,459 million	¥6,362 million
Loan Disbursed Amount	¥3,226 million	¥1,052 million	¥4,102 million
Date of Exchange of Notes	September 1988	September 1988	December 1992
Date of Loan Agreement	September 1988	November 1988	January 1993
Loan Conditions			
Interest Rate	2.9%	2.9%	3.0%
Repayment Period (Grace Period)	30 years (10 years)	30 years (10 years)	25 years (7 years)
Final Disbursement Date	January 1995	March 1994	May 1999

2 Analysis and Evaluation

(1) Project Scope

Nong Pla Lai Reservoir Project (hereinafter referred to as ND Project), Nong Pla Lai-Nong Kho water pipeline project (hereinafter referred to as N-N water pipeline project) and Map Ta Phut-Sattahip water pipeline project (hereinafter referred to as M-S water pipeline project) were respectively implemented almost as scheduled. As part of the consulting services for the project of ND project, preliminary feasibility study for the construction of the underground dam and training of experts for such a study were added to the scope of the project.

(2) Implementation Schedule

ND project was finished 4 months earlier than the original schedule, and this performance can be said to be good. N-N water pipeline project was completed about one year behind the schedule. This delay was due to the time required for evaluating tenders and for purchasing the land, but after the construction began, the construction proceeded as scheduled without significant delay. This performance can be said to be generally good. M-S water pipeline project was completed about 2 years later than the schedule. Since the case of the delay was slow progress in selecting a consultant and contractor, administrative procedures at RID are expected to be improved further.

(3) Project Cost

The total project cost of the ND project was slightly over the original plan, and the major reason thereof was that the cost for purchasing the land was more than 1.5 times that of the original plan. The total project cost for N-N water pipeline project was about 60% of the original plan, due to tax-exemption for purchasing equipment, heated competition in biding, and depreciation of baht's exchange rate to yen. The total project cost for M-S water pipeline project was approximately the same as the original plan (around 90% of the original plan).

Comparison of Original Plan and Actual

Item	Plan	Actual
1. Project Scope		
・ND project		
Reservoir (storage area/effective	22.9 km²/151.9 million m³	22.9 km²/151.2 million m³
storage capacity)	Homogenous earth-fill dam	Homogenous earth-fill dam
Dam body height/dam body length	23.5 m/4,060 m	24.0 m/4,060 m
Other facilities	Roads, administration building etc.	Roads, administration building etc.
・N-N Water Pipeline Project		
Water pipeline	Steel pipe 1,350 mm x 38.78 km	Steel pipe 1,350 mm×38.78 km
	Steel pipe 900 mm x 4.5 km	Steel pipe 900 mm×4.5 km
Pumping system	9 units	9 units
Other facilities	Flow control system	Flow control system
・M-S Water Pipeline Project		
Water pipeline	Steel pipe 1,600 mm x 22.6 km	Steel pipe 1,600 mm×22.6 km
	Steel pipe 900 mm x 8.3 km	Steel pipe 900 mm×8.3 km
	Steel pipe 700 mm x 14.3 km	Steel pipe 700 mm×14.3 km
Pumping system	3 units	3 units
Other facilities	Administration building, etc.	Administration building, etc.
2. Implementation Schedule		
(commencement to completion)		

・ND Project	January 1990 to November 1993	September 1990 to July 1993
・N-N Water Pipeline Project	September 1993 to February 1996	April 1994 to April 1997
・M-S Water Pipeline Project	August 1989 to December 1990	July 1991 to March 1993
3. Project Cost		
(Unit: million yen)	(Total/ ODA loan portion)	(Total/ ODA loan portion)
・ND Project	8,615/4,357	9,255/3,226
・N-N Water Pipeline Project	12,532/6,362	7,626/4,102
・M-S Water Pipeline Project	1,570/1,459	1,450/1,052

(4) Project Implementation Scheme

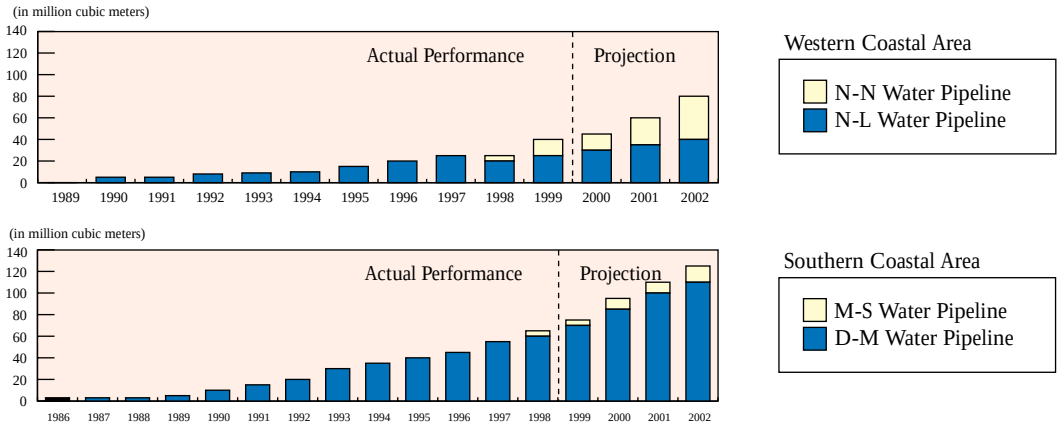
The executing agencies are RID and PWD. Both agencies have necessary experience and capability in waterworks projects, and for the projects for this evaluation, both of them generally exhibited good performances. As noted in "Implementation Schedule," however, in the case of the M-S water pipeline project, there is some room for further improvement in administrative procedure at RID.

(5) Operations and Maintenance

Operations and maintenance of Nong Pla Lai Reservoir is conducted by RID, as in the case of its construction project implementation. With regard to the water pipeline projects, their operation and maintenance, after the foundation of East Water Resources Development and Management Public Co., Ltd. (East Water) in 1992, were commissioned to East Water, the only agency responsible for supplying raw water in the Eastern Seaboard of Thailand. Initially, East Water was established as a state owned enterprise, and since then, privatized by opening 51% of the stock publicly. After being placed in operation, East Water has continued improving operation efficiency through automation, and East Water is a representative case in which privatization brought improvement in operational efficiency in water supply in Thailand.

(6) Operational Performance

The water transmission amount by each water pipeline is as shown in graphs below, and the data in 1999 and in the subsequent years are based upon projections by East Water.



The water transmission pipelines in the western coastal area supply industrial water mainly for Laem Chabang Industrial Estate and domestic water for Laem Chabang City and Chonburi City. The water transmission pipelines in the southern coastal area supply industrial water in Map Ta Phut Industrial Complex and domestic water in Sattahip City and Ban Chiang District. In both N-N water pipeline and M-S water pipeline, their utilization rate still remains low, because operation just started in 1998, but it is projected to grow along with the development of domestic water distribution facilities in Sattahip City, Ban Chiang District, etc. In addition, the water supply amounts from Nong Pla Lai Reservoir are shown in the table below, and as known from this table, the supply amount has grown year by year after the completion of the dam.

	Projection at the time of appraisal (2001)	1994	1995	1996	1997
Supply amount (million m^3/year)	104	50	56	76.8	78.8

(7) Management Performance of East Water

The financial status of East Water in charge of operation and maintenance of water transmission pipelines, recorded more than 40% net profit, and as a private company, is in a stable management.

(8) Project Effects and Impacts

(i) Quantitative Effects

(a) Water Transmission Amount

The water transmission amount achieved by five projects (in fiscal 1998) consists of 9.4 million cubic meters of industrial water and 13.7 million cubic meters of domestic water in the western coastal area, and of 58.6 million cubic meters of industrial water and 1.9 million cubic meters of domestic water in the southern coastal area. These projects have achieved their project objectives as designed in keeping up with the growing demand of waters associated with industrialization and urbanization of Eastern Seaboard.

(b) Financial Internal Rate of Return (FIRR)

FIRR based on the actual performance is 1.9% (5.2% if the uniform rate between N-L and N-N water pipeline projects is assumed) for the western coastal area water transmission project, and 9.7% for the southern coastal area water transmission project. Furthermore, FIRR of Nong Pla Lai Reservoir project takes on 5.9%, even if the calculation assumes the benefit coming from water transmission project only.

(ii) Qualitative Effects

The five projects have played an important role in realizing industrial development of Eastern Seaboard including both Laem Chabang and Map Ta Phut areas, through stable supply of waters indispensable for the industrial development.

3 Lessons Learned

Entrusting of the operations and maintenance for the water supply system to the private sector can lead to the efficient performance in the operation and maintenance system, if necessary preconditions are sufficiently met. These preconditions include the limitation of the contents of services entrusted, the initial arrangement of the business environment by the government, and so forth. Considering the importance of meeting these preconditions, it is necessary for the developing country's government and its executing agency to examine these preconditions sufficiently and then to determine what should be entrusted.

Pump Room in the Estate of East Water Company

Nong Pla Lai Reservoir Spillway

THAILAND

Feedback Seminar on "Thai Eastern Seaboard Development Plan Impact Evaluation"

One of the most important objectives of ex-post evaluation is to feed the evaluation findings back to the project executing agency, in order to provide valuable recommendations for the operation of the relevant project and for the implementation of future projects. Local feedback seminars are held in cases where it is highly important to ensure that the evaluation findings are fully informed and understood by the executing agency, the staff concerned in the recipient government and other interested parties. Among the ex-post evaluations represented in "Ex-Post Evaluation Report for ODA Loan Projects 2000," a feedback workshop and a seminar were staged in Thailand and in Vietnam respectively concerning Thai Eastern Seaboard Development Plan Impact Evaluation.

In August 1999, a feedback workshop was held in Bangkok, Thailand on the evaluation results of the "Thai Eastern Seaboard Development Plan Impact Evaluation." As the feedback of ex-post evaluation results on the plan was considered highly relevant to infrastructure improvements in Vietnam, a further feedback seminar was held in Hanoi, Vietnam in June 2000. Thai government officials concerned with the Eastern Seaboard Development Plan and Vietnamese government officials responsible for planning and implementation of infrastructure improvements displayed high degree of interest in both opportunities. Many participants commented that "the opportunity to receive this kind of feedback was very meaningful." The following is a brief report on the two local events.

1. Feedback Workshop in Bangkok, Thailand (August 1999)

This workshop aimed to feedback and discuss the results of the Eastern Seaboard Development Plan Impact Evaluation among executive-level officials of related Thai government ministries and agencies. The outcome of the discussion was reflected in the final Evaluation Report. The workshop was comprised of the following three parts:
[1] A presentation on the overall impact of the Plan, delivered by a JBIC evaluation officer in charge of the impact evaluation,
[2] A presentation from political economy perspectives on the changes in the Plan and their significance, delivered by Professor Yasutami Shimomura, then of National Graduate Institute for Policy Studies, who conducted the third-party evaluation of the Plan, and
[3] A presentation on the results of the third-party evaluation on environmental monitoring and pollution control policies in Map Ta Phut Industrial Complex (featured in "Post-Evaluation Reports for ODA Loan Projects 1999").
The presentations were followed by a spirited question-and-answer session which developed into a very fruitful debate.

JBIC vigorously promotes the sharing of evaluation results between those who conduct the evaluation (the ODA donors) and the developing country's government and executing agency (the recipients). In accordance with this attitude, the progress of this evaluation work has been accompanied by continuous dialogue with the Thai side since the start of the evaluation. This workshop was an extremely valuable way of furthering the sharing of evaluation results. The conclusions of the discussions have been reflected, to the fullest extent possible, in the final evaluation report.

A Scene of Workshop

JBIC Technical Advisor Demonstrating Triangle Bag Method for Odor Sensory Measurement

Feedback to the Industrial Estate Authority of Thailand concerning Evaluation on Environmental Monitoring and Pollution Control Policies in Map Ta Phut Industrial Complex (appeared in "Post-Evaluation Report For ODA Loan Projects 1999").

2. Feedback Seminar in Hanoi, Vietnam (June 2000)

As around thirty of the ODA loan projects under implementation in Vietnam will reach each completion in the coming few years and will become subject to ex-post evaluation, this seminar was staged to explain the "Objectives and Methodology of Ex-Post Evaluation," and to provide feedback of the ex-post evaluation results on the Thai Eastern Seaboard Development Plan as an established example. The seminar appealed to 87 participants from 30 agencies, including local JICA, JETRO and representatives of the embassies of some of ASEAN countries. Most participants came from Department of Infrastructure and Foreign Economic Relations Department of Ministry of Planning and Investment in Vietnam and the PMU (Project Management Units) of individual ODA projects.

The most notable point of the seminar was that, in addition to the JBIC evaluation officer and Professor Yasutami Shimomura, National Graduate Institute for Policy Studies (at the time of evaluation), the third-party evaluator, it was able to welcome a Thai government official who had been involved with the Development Plan. His participation created an opportunity for a so-called "South-South Cooperation."

Vietnamese project executing agencies at the seminar seemed to be very interested in the ex-post evaluation and in monitoring methodology of their future completed projects. The audience asked so many questions that the chairmen were hard pressed to divide the limited time available among them. Some participants made a comment that the seminar was a very significant and timely event and were well aware of the importance of ex-post evaluation. Others also commented that Vietnam had much to learn from Thailand, who has made effective use of aid in its development process.

Speaking from his experience in the actual implementation of the Eastern Seaboard Development Plan, Mr. Suranan Wognvithayakamjorn (Assistant Secretary-General, National Economic and Social Development Board of Thailand), the guest speaker from Thailand, emphasized the importance of delegating authority to the executing agency. His presentation encountered frank and earnest questions from Vietnamese officers, such as "Could a development of a specific region, such as the Thai Eastern Seaboard, impede the progress of nationally-balanced development?," which was developed from the same standpoints responsible for project planning and implementation.

Prof. Shimomura Introducing Evaluation Results

Attentive Audience

Hengshui-Shangqiu Railway Construction Project (I) ~ (IV)

Report Date: March 2000
Field Survey: August 1999

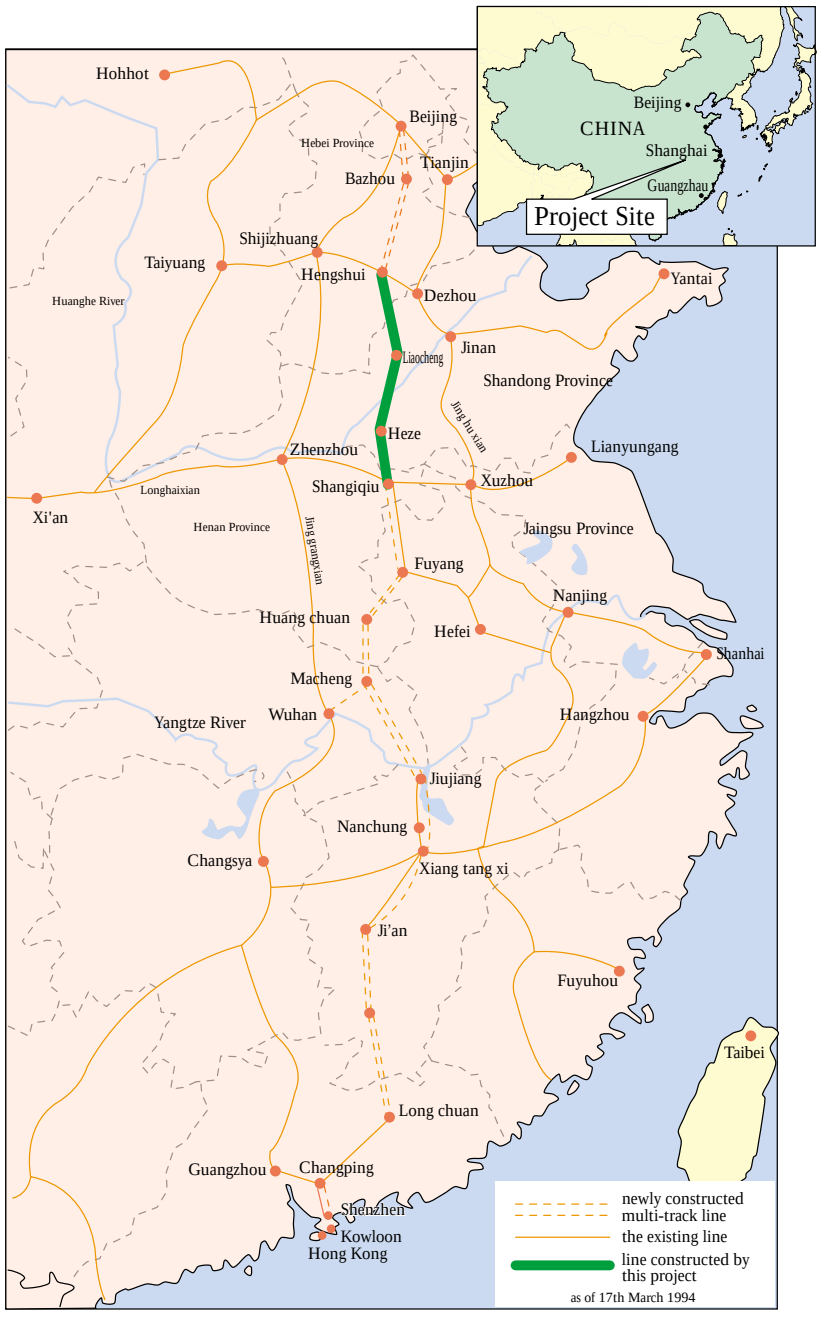
1 Project Summary and Japan's ODA Loan

(1) Background

China's coalfields are concentrated in the northern part of the country, while manufacturing industries which consume three quarters of the country's energy are concentrated in the southeast. Therefore the long-distance transport of coal between the coalfields and the consumption center has been a controlling factor in the country's economy. The existing Beijing-Guangzhou railway (the Jingguang Line) and the Beijing-Shanghai railway (the Jingko Line) which carry the coal produced in the north to the industrial areas of the south coast were, at the time of appraisal, already operating at full capacity. A need to build another trunk line was urgent.

This project aimed to build a new railway that would serve as a bypass route for the above two railways, carrying coal mined in Taiyuan in Shanxi province from Hengshui to Shangqiu, and on via Shijiazhuang to the southeast.

In 1991 the Eighth Five-Year Plan set railways as a pillar to the rapid expansion of China's transport capacity. The plan called for a construction of a railway between Beijing and Kowloon (Hong Kong) (the Jingkow Line). Studies on the specifics of the construction, technical standards and others began in October 1992, when this project was incorporated into the plan, comprising a part of the Jingkow Line.



(2) Objectives

This project was intended to expand the coal supply capacity to the coastal industrial zones in the southeast, and to reinforce the country's north-south transport capacity for freight and passengers. It was constructed as a bypass route of the Jingguang and Jingko Lines, which were already laden to capacity.

(3) Project Scope

The project comprised 401km of non-electrified, multi-track railway starting in Hengshui in Hebei province and running south through Shanxi province to Shanqiu in Henan province. The ODA loan covered the entire foreign-currency portion of the project cost.

(4) Borrower/Executing Agency

Ministry of Foreign Trade and Economic Cooperation of P.R.C./Ministry of Railways of P.R.C.

(5) Outline of Loan Agreement

Loan Amount	¥23,603 million
Loan Disbursed Amount	¥22,216 million
Date of Exchange of Notes	March 1991 to August 1993
Date of Loan agreement	March 1991 to August 1993
Loan Conditions	
Interest Rate	2.6% (Interest Rate for Phase I (¥5,695 million) was 2.5%)
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	September 1998

2 Analysis and Evaluation

(1) Project Scope

Construction was to be of single-track until the loan appraisal was conducted in 1992, with the plan of future conversion to multiple tracks. 1992 was when the project was redefined as a segment of the Jingkow Line, and the decision was taken to convert to multiple tracks at the earlier stage. As a result, the scale of construction and the quantities of equipment and materials were substantially altered compared to the time of the first phase appraisal. In spite of the scope expansion, the project was completed largely according to plan set at 1993 appraisal. The ODA loan covered the construction of the single track and the relate facilities, as originally planned.

(2) Implementation Schedule

Despite the change to multiple tracks, the schedule was carried out largely as planned.

(3) Project Cost

The foreign currency expenditure covered by the ODA loan was as planned. The additional equipment and materials necessitated by the conversion to multiple tracks was procured by the Chinese side using its own funds.

Comparison of Original Plan and Actual

Item	Unit	Plan (A)	Plan at the time of appraisal (in 1993) (B)[1]	Actual (C)	Difference (C) – (B)
Roadbed	m^3	21,050,000	34,900,000	36,349,510	1,449,510
Bridges	nos.	173	162	160	–2
Culvert	nos.	1,237	1,358	1,630	272
Rail truck	km	414	1,071	1,085	14
Main depot, station	nos.	5	5	5	–
Intermediate depot, station	nos.	23	27	27	–
Signals	set	0	436	436	–
Signal cable	km	538.3	1,626	1,626	–

Note: 1) The plan after the project scope was largely revised due to incorporation into the Jingkow Line.

(4) Project Implementation Scheme

The executing agency of this project was Ministry of Railways. No significant problems were observed in its implementation capability. No consultants were employed. The design was prepared by the Design Institute at Ministry of Railways. Construction was supervised by the Ministry's Regional Railway Offices. The contractors were the relevant Construction Offices (offices responsible for the construction of new lines) within the Ministry, whose performance displayed no significant problem.

(5) Operations and Maintenance

The maintenance is handled by the Railway Offices, which are the local agencies of Ministry of Railways.

Operational status: According to the Ministry of Railways, the impact of the economic crisis which originated in the Southeast Asia in 1997 slowed the growth of the Chinese economy, and as a result, the volume transported has not reached the planned levels. However, by all indicators, Jingkow Line is carrying increasing numbers of passengers and quantities of freight every year. The segment covered by this project was completed in 1996 and has carried increasing traffic every year since then.

Transport of Passengers for Each Section of this Project (Unit: person-km)

	Hengshui – Linqingxi	Linqingxi – Liangditou	Liangditou – Shangqiu	Overall Hengshui-Shangqiu Line
1996 (completed in September)	58,860,000	145,000,000	7,360,000	211,220,000
1997	341,000,000	840,000,000	42,670,000	1,223,670,000
1998	478,500,000	1,168,000,000	53,550,000	1,269,400,000

Source: Prepared from materials provided by the Ministry of Railways.
Note: Liangditou Station is one stop north of Shangqiu Station. It is a local station where limited-express and rapid trains do not stop.

Transport of Freight for Each Section of this Project (Unit: ton-km)

	Hengshui – Linqingxi	Linqingxi – Liangditou	Liangditou – Shangqiu	Overall Hengshui-Shangqiu Line
1996 (completed in September)	433,400,000	108,000,000	68,510,000	609,910,000
1997	1,651,100,000	4,349,000,000	264,520,000	6,264,620,000
1998	1,915,100,000	4,853,000,000	309,230,000	7,077,330,000

Source: Prepared from materials provided by the Ministry of Railways.

(6) Project Effects and Impacts

Hengshui-Shangqiu Railway Construction Project (1)~(4), was originally planned with the main purpose of increasing coal transportation capacity. Having been incorporated into a new trunk line from Beijing to Kowloon (Hong Kong), it came to bring about effects in inducing development along the route which were not anticipated before. Therefore, of all the project's effects, this evaluation focuses on its impact on development along its route. The evaluation has been commissioned to the State Department Development Research Center, one of China's leading research agencies. The findings of the third-party evaluation are as follows.

This project forms one segment of JingKow Line, China's new north-south rail route. As such it has gone beyond attaining the project's initial goals of easing the transport of coal and the supply of energy to exert far-reaching effects, including the following:

– Encouraging economic development along the route.
– Broadening opportunities available to the people.
– Easing congestion on the older lines and spacing out excessively dense timetables.
– Adding redundancy (spare transport capacity) to the network as a whole, which enables emergency rerouting of traffic.

All the regional governments along the route of this project, which is part of the Jingkow Line, were aware of the opening of the line as an unparalleled opportunity for development of their local economies. They are working on related development projects to maximize the railway's impact for the development of their economies. In the cities of Hengshui and Shangqiu, which were visited in the course of the evaluation, officials of the municipal governments expressed their deep gratitude for the fact that the construction of the project had been facilitated by Japan's ODA loan.

Hengshui Railway Station Building

Shangqui Yard.Timber and Garlic are being Loaded.

Power Station in Hengshui City,using Coal transported by the Jingkow Line

Yangtze River Four-Bridge Construction Project

"Hefei-Tongling Highway and Tongling Yangtze River Highway Bridge Construction Project (1) (2)"
"Huangshi Yangtze River Bridge Construction Project"
"Second Wuhan Yangtze River Bridge Construction Project" "Second Chongqing Yangtze River Bridge Construction Project"

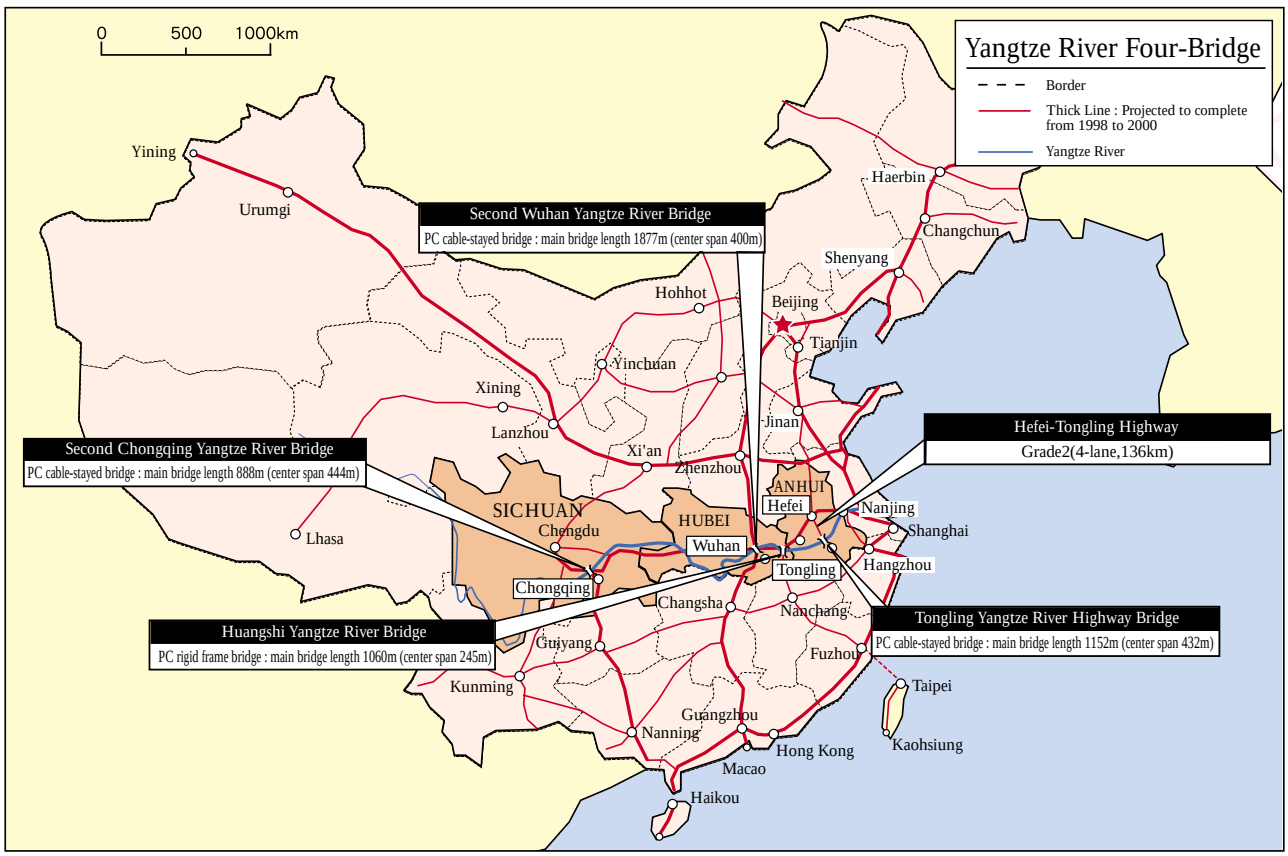
Report Date: March 2000
Field Survey: July 1999
Third-party Evaluator:
Mr.Nobuhiro Mori Koei Research Institute
Mr.Toshisada Katsurada Alphaten co.,LTD

1 Project Summary and Japan's ODA Loan

(1) Background

Since Third Plenary Session of the Eleventh Central Committee of the Chinese Communist Party adopted openness policies in December 1978, a succession of areas along the Eastern Seaboard have been designated as Special Economic Zones, Free Economic Zones and Free Coastal Zones. The Eastern Seaboard has been the center of rapid growth in foreign trade. In order to pursue balanced regional development, the Seventh Five-Year National Plan for Economic and Social Development (1986~1990, the "7-5 Plan") proposed regional economic development policies which emphasized creating close linkages between the Eastern Seaboard and the central and western regions. In particular, the central was seen as important for creating an organic link between the coastal and western regions and for gradually propagating coastal development inland. Within the central region, the land along the banks of the Yangtze River was expected to play a vital role as a belt joining the other two regions, and its development was promoted accordingly. The Eighth Five-Year Plan (1991~1995, the "8-5 Plan"), which followed on from the 7-5 Plan, also proposed directing the progress of development in ways which harmonized the coast and the interior. The 8-5 Plan added transport to the list of priority development sectors, alongside agriculture, energy and communications. Construction in the roads sector was to target trunk roads at the provincial level and roads at the district level, in addition to national routes and other trunk routes, expressways and automobile-only roads. Specifically, the priority roads for construction were:

(i) Those linking coastal cities with large cities in the hinterlands.



(ii) Those linking ports to cities.
(iii) Those linking provinces.
(iv) Those linking industrial cities with economic cities.

The 8-5 Plan included the construction of approximately 90,000km of roads and the improvement of approximately 50,000km (comprising 10,000km of expressways and 42,000km of automobile-only) roads.

From the completion of the Wuhan Yangtze River Bridge in 1957 to the start of this project, the Yangtze was bridged in five more places, Nanjing, Zhicheng, Chongqing, Luzhou and Jiujiang, for a total of six bridges. This project bridged the Yangtze at four more places, Tongling, Huangshi, Wuhan (No.2) and Chongqing (No.2). All of these bridges were designated as key projects under the 8-5 Plan.

(2) Objectives

The purpose of Hefei-Tongling River Highway Bridge was to construct a road and bridge to link Hefei, the provincial capital, with Tongling, a mining city to the south, in order to promote the development of mining in Tongling and, by extension, contribute to the development of Anhui province as a whole.

The purpose of Huangshi River Bridge was to link Huangshi with the opposite bank of the river. There was no previous bridge in the city, and the ferry link was unable to cope with increasing demand for traffic across the river. The bridge was constructed to improve the situation, and to promote development on the Yishui district side of the river.

The purpose of Second Wuhan Yangtze River Bridge was to alleviate construction in the city caused by cross-river vehicular traffic exceeding the capacity of the First Wuhan Yangtze River Bridge, to make economic activity more efficient and to accommodate future increases in cross-river traffic demand.

The purpose of Second Chongqing Yangtze River Bridge was to create closer linkages within the city's traffic system, which is segmented by the Yangtze and Jialing Rivers, and to encourage economic development and traffic improvement in the southwest of the city. The construction of the bridge, which completed a ring road around the city, was also intended to reduce traffic pressure on the city center. By enhancing links with major national-level trunk roads, such as road No. 210, 212 and 319, the project was expected to contribute to economic progress in the area around Chongqing, and also, by extension, in southern China as a whole.

(3) Project Scope

Hefei - Tongling Highway and Tongling Yangtze River Highway Bridge Construction Project consisted of two projects, the construction of a new 123km-long grade two road between Hefei and Tongling and the construction of a PC cable-stayed bridge across the Yangtze (main bridge length 1,152m) to link the road with Tongling. The construction of a north-south trunk road within the province was to provide a base for the economic development of Anhui province by encouraging Tongling's mining industry.

Huangshi Yangtze River Bridge Construction Project was to build a PC rigid frame bridge (main bridge length 1,060m) over Yangtze, which flows through the city, between the West Bank (the Huangshi side) and the East Bank (the Yishui side). The project was intended to meet increased demand for crossings to the Yishui side and help to stimulate economic activity and development along the opposite bank.

Second Wuhan Yangtze River Bridge Project built Second Yangtze River Bridge (PC cable-stayed bridge, main bridge length 1,877m) in Wuhan, which is divided into the Hankou and Wuchang districts by the Yangtze River. It was intended to alleviate traffic congestion in the city and make economic development more efficient.

Second Chongqing Yangtze River Bridge Project built Second Yangtze River Bridge (PC cable-stayed bridge, main length 888m) in Chongqing, which is divided by two large rivers, the Yangtze and Jialing. The project was intended to create closer traffic links within the city, to promote economic development and a better traffic situation in the southwest of the city, and to reduce traffic pressure in the city center.

The content of the projects consisted of bridge and road construction, land acquisition and technical assistance. The technical assistance only concerned the cable-stayed bridges. The ODA loan covered the entire foreign currency portion of the cost of buying materials (cement, timber, asphalt and steel etc.), construction machinery and technical assistance necessary for the construction of the roads and bridges listed above. The procurement of materials and equipment covered by foreign currency portion was arranged by international competitive tender through the Chinese Mechanical Equipment Import Export Corporation (a procurement agency).

(4) Borrower/Executing Agency

Ministry of Foreign Trade and Economic Cooperation, People's Republic of China/
Ministry of Communications (Hefei-Tongling Highway and Tongling Yangtze River Highway Bridge, Haungshi Yangtze River Bridge)
Ministry of Construction (Second Wuhan Yangtze River Bridge, Second Chongqing Yangtze River Bridge)

(5) Outline of Loan Agreement

	Hefei-Tongling Highway and Tongling Yangtze River Highway Bridge	Haungshi Yangtze River Bridge	Second Wuhan Yangtze River Bridge	Second Chongqing Yangtze River Bridge
Loan Amount	¥8,603 million	¥3,700 million	¥4,760 million	¥4,764 million
Loan Disbursed Amount	¥8,505 million	¥3,674 million	¥4,757 million	¥4,660 million
Loan Conditions				
Interest Rate	2.6%	2.5%	2.5%	2.6%
Repayment Period (Grace Period)	30 years (10 years)	30 years (10 years)	30 years (10 years)	30 years (10 years)
Final Disbursement Date	November 1997	December 1995	May 1995	November 1996

2 Analysis and Evaluation

(1) Project Scope

Within Hefei Tongling Yangtze River Highway Bridge Construction Project, the route of the road portion was partially revised at the construction stage, shortening it to 123km from the planned 136km. The river bridge portion of the project was carried out as planned, with no alterations.

Huangshi River Bridge was altered as follows. Due to geological conditions, the main bridge was moved 27m towards the North Bank, in the direction of the bridge's axis, but the structure of the bridge itself was unchanged. The approach road was altered from 5km of grade two road to 1.5km of grade one road, which was an appropriate alteration due to a change in the route to the connection point.

For Second Wuhan Yangtze River Bridge, the span sub-divisions and their lengths were altered on the approach bridge on the Wuchang side, and the interchange overpass was lengthened on the Hankou side. These were both appropriate alterations. The specification of the main bridge was not altered.

For Second Chongqing Yangtze River Bridge, the approach road on the Lijiatuo side was partially rerouted due to site conditions, increasing its length from the initial 4,130m to 4,411m. The specification of the main bridge was not altered.

Therefore the main bridge sections of the four bridges were built as planned, without alterations to their structures or specifications. Three of the bridges had alterations in the specification of the approach roads and approach bridges, but all the changes were minor and appropriate to the content of the project. All projects achieved their objectives.

(2) Implementation Schedule

Work on Hefei Tongling Yangtze River Highway Bridge began and was completed as scheduled. The road was completed in December 1994 and the river bridge in December 1995.

The start of construction work on the Huangshi River Bridge was delayed for six months due to loan procedures after Tiananmen Incident and other factors, including design changes. Flooding after the completion of the bridge construction caused a further delay of seven months, meaning the project was completed 13 months later than planned, in December 1995.

The start of work on Second Wuhan Yangtze River Bridge was delayed for 13 months for similar reasons to Huangshi River Bridge, but measures taken to accelerate the construction works were successful, and the bridge was finished only six months late in May 1995.

Work on Second Chongqing Bridge began as planned, but the lack of budgetary allocation to cover the local currency cost overrun slowed its progress and it was not completed until December 1996, a year late.

Of the three bridges which were completed late, in Huangshi, Wuhan and Chongqing, Chongqing Bridge was set back by budget allocation delays and the others were due to acts of God and other unavoidable circumstances beyond the responsibility of the executing agencies. In general, major projects in China are named in honor of events such as the foundation of the Republic, and there is a strong desire to finish on time. The construction of Wuhan Bridge was an example of this approach, as the delay in beginning construction was covered by efforts to accelerate progress. Completion was delayed, but the delay was kept to a minimum, and it is reasonable to say that performance in connection with implementation schedules was good.

(3) Project Cost

The ratios of planned to actual project costs in the foreign currency portions were 97.2% for Hefei-Tongling Highway, 99.5% for Tongling River Bridge, 99.3% for Huangshi River Bridge, 99.9% for Second Wuhan River Bridge and 97.8% for Second Chongqing River Bridge. Thus the foreign currency portions were largely as anticipated.

The local currency portions all overran by large margins. The overruns, relative to the planned costs, were 32% for Hefei-

Tongling Highway, 60% for Tongling River Bridge, 310% for Huangshi River Bridge, 310% for Second Wuhan River Bridge and 60% for Second Chongqing River Bridge. The planned values for the projects were based on 1992 prices for Hefei Tongling Yangtze River Highway Bridge, 1989 prices for Huangshi and Wuhan Bridges and 1990 prices for Chongqing Bridge. The main reason for the cost overruns was price rises triggered by the introduction of market economic. At the time of appraisal, a local currency inflation rate of 12% per year was anticipated, but the prices of major construction-related items leapt up by 2~3 times over the four years between 1990 and 1993.

(4) Project Implementation Scheme

Executing agency for Hefei Tongling Yangtze River Highway Bridge and Huangshi River Bridge was the Ministry of Communications. It is a central ministry which carries out policy determination and plan formulation tasks, such as overall planning, plan coordination and selection of projects for application of loan funds. Its remit covers roads and other areas of transport infrastructure. The implementation, operation and maintenance of individual projects are delegated to the provincial level (Department of Communications) and municipalities from the feasibility study stage.

Ministry of Construction was the executing agency for Second Wuhan River Bridge and Second Chongqing River Bridge. Ministry of Construction is another central ministry which carries out policy determination and plan formulation tasks, such as overall planning, plan coordination and selection of projects for application of loan funds. Its remit covers water supply, gas, roads and other infrastructure in 600 cities throughout China. The implementation, operation and maintenance of individual projects are delegated to the provincial level (Construction Committee) and city governments from the feasibility study stage.

All four bridges constructed under this project were built by approved contractors (those with superior qualifications) chosen for each part of the project by competitive tender. The best applicants were selected and the construction works were monitored appropriately by a third-party organization. Thus we can judge that there were no problems with the implementation scheme.

(5) Operations and Maintenance

Systems for direct management by the provinces or cities concerned were set up for Hefei Tongling Yangtze River Highway Bridge and Huangshi River Bridge, which were Ministry of Communications projects. For Second Wuhan River Bridge and Second Chongqing River Bridge, which were Ministry of Construction projects, limited-liability corporations were set up under the jurisdictions of the cities to handle operations and maintenance (O&M). Both organizational systems were meant to operate on the basis of independent profitability.

Past policy on the setting of tolls by public-interest corporations in China emphasized the public interest, with profitability viewed as an irrelevance. With the shift to market economics, the central government's policy has changed and the idea of placing the burden on the beneficiaries has been taking root. The management offices for each river bridge are asked to operate them on the basis of independent profitability, but the toll settings are finally approved by Pricing Office and the People's Government after comparison of tolls with those of other transport agencies and other provinces. The table below shows average tolls per vehicle, as calculated from traffic volume and charge income for 1998.

Comparison of Crossing Toll per Vehicle (Unit: Yuan/vehicle)

		Hefei-Tongling Highway and Tongling Yangtze River Highway Bridge	Tongling River Bridge	Haungshi Yangtze River Bridge	Second Wuhan Yangtze River Bridge	Second Chongqing Yangtze River Bridge
Toll system	Small car	25 (Below 2.5t)	20 (1.5～4t)	20 (Below 2t)	2～10 (Below 2t)	3～10 (Below 5t)
	Medium car	50 (2.5～7t)	50 (2～10t)	40～50 (4～8t)	20～30 (2～8t)	15 (5～8t)
	Large car	75 (7t or more)	80 (8t or more)	60 (10t or more)	50 (8t or more)	20 (8t or more)
Average toll per vehicle (Actual results in 1998)		23.8	24.5	27.5	5.0	3.6

As the table below shows, the actual traffic volumes on each of the Ministry of Communications projects (Hefei - Tongling Highway, Tongling River Bridge and Huangshi River Bridge) were lower than those predicted at the time of appraisal. On Chongqing River Bridge, traffic volume reached 85% of the predicted volume. In Wuhan, the actual traffic exceeded the predicted volume. In general, traffic volume is thought to vary in line with the toll for crossing the bridge, but for Tongling and Huangshi bridges the level of crossing tolls does not seem to have much impact. In Tongling, the ferry crossing was closed, leaving the bridge as the only way of making the crossing, and meaning that there is little price elasticity. In Huangshi

the ferry fare is five Yuan per ton, and accordingly the average toll of six Yuan per ton for crossing the bridge does not seem particularly high in comparison. Therefore, the likely reasons for the gap between predicted and actual include the following:

1) Wuhan and Chongqing are large cities and they are growing extremely rapidly, but the pace of growth in regional cities such as Tongling and Huangshi is relatively slow.
2) After the bridges were opened, there was little change in the volumes of traffic using ferries in outlying areas, which indicates that the volume of traffic transferring from ferries in outlying areas was small.
3) The building of peripheral roads in Huangshi and Tongling is overdue.

After the bridges opened, the growth rates in traffic crossing Tongling and Huangshi bridges were large (around 20% and 40% per year, respectively) and there is potential for greater growth as progress is made in the development of peripheral roads.

Comparison of Traffic Volumes (Unit: Vehicles/day)

	Hefei-Tongling Highway and Tongling Yangtze River Highway Bridge	Tongling River Bridge	Haungshi Yangtze River Bridge	Second Wuhan Yangtze River Bridge	Second Chongqing Yangtze River Bridge
Predicted traffic volumes (at the time of appraisal)	6,677 1)	8,649 2)	7,795 3)	77,420	14,737
Actual traffic volumes (1998)	2,249 1)	2,425 2)	3,534 3)	116,863 (47,151)	12,572
Notes	Figures for the time of the appraisal, and the recorded figures, are averages over the three zones. 1) is estimated from traffic volumes in 1995 and 2000	2) is estimated from traffic volumes in 1995 and 2000	3) is estimated from traffic volumes in 1995 and 2000	Figures for the time of the appraisal, and the recorded figures, are for traffic crossing the Yangtze (including First Bridge). Figures in ( ) are for the Second River Bridge	

(6) Environmental Impact

Traffic on Hefei - Tongling Highway and Tongling River Bridge is low and there are no problems with noise or atmospheric pollution. Huangshi River Bridge exceeds environmental standards for NOx (nitrogen oxides) and TSP (Total Suspended Particulates), but only by a small margin in each case, and the situation does not appear to have worsened significantly, relative to other measurement stations. At monitoring stations near the heavily-trafficked Second Wuhan and Second Chongqing River Bridges, some measurement results for air pollution and noise pollution exceed environmental standards. In both cities the background environment is very bad, and the river bridges are not the sole causes. According to the bridge maintenance offices in the two cities, the construction of the bridges has actually improved overall air quality by alleviating traffic congestion in the city centers. At present, moves are under way to implement city-wide measures, such as the prohibition of leaded gasoline.

Continuing attention will have to be paid to the air pollution situation around Huangshi River Bridge, Second Wuhan River Bridge and Second Chongqing River Bridge.

3 Project Effects and Impacts

(1) Direct Impact

In terms of EIRR, the values recalculated on the basis of this survey were lower than those calculated for the appraisal for all the projects. The rate of EIRR shortfall relative to the appraisal value was relatively low in Ministry of Construction projects (Second Wuhan and Second Chongqing River Bridges) and much higher in the other three projects. The shortfall is closely related to the actual traffic volumes using the projects, compared to the volumes predicted for the appraisal. Ministry of Communications projects (Hefei - Tongling Highway, Tongling river Bridge and Huangshi River Bridge) have less than half the traffic predicted at the time of the appraisal, while the volumes of traffic on Ministry of Construction projects exceed the forecast or are only slightly below.

The local currency portion of the construction cost overran in every project, which also drove the EIRR values down. The

local currency portion overrun was particularly large on Second Wuhan River Bridge, but the overrun was offset by the traffic volume, which is 50% higher than forecast for the appraisal. Overall the EIRR for this project was only slightly less than expected.

For all projects other than Huangshi River Bridge, the values of FIRR recalculated for this project were lower than those calculated for the appraisal. The reasons include the following:

(i) The increased local currency portion of construction.

(ii) Changes in the exchange rates for the foreign currency portion of the construction cost.

(iii) Increased operation and maintenance costs.

Furthermore, in the case of Tongling River Bridge, the actual traffic volume is only around 30% of that forecast for the appraisal, which is one factor behind the large drop in FIRR, even after future growth in traffic volume is included in the calculation. On Second Chongqing River Bridge, charges are only collected in one crossing direction. This arrangement reduces the average charge per vehicle and is one factor reducing FIRR.

Huangshi River Bridge has only half the traffic volume predicted for the appraisal, and the local currency portion of its construction cost tripled, but its FIRR was unchanged because the charge was set at 3.7 times more than was anticipated at the time of the appraisal.

Comparison of EIRR and FIRR

(Unit: %)

		Hefei-Tongling Highway and Tongling Yangtze River Highway Bridge	Tongling River Bridge	Haungshi Yangtze River Bridge	Second Wuhan Yangtze River Bridge	Second Chongqing Yangtze River Bridge
At the time of appraisal	EIRR	16.8	8.7	11.6	9.4	19.5
	FIRR	7.9	11.1	11.1	4.0	2.7
At the time of evaluation (recalculated value)	EIRR	6.4	3.7	5.6	8.0	16.6
	FIRR	2.3	0.8	11.1	3.6	0.4

(2) Ripple Effects

The ripple effects of transport infrastructure such as roads and bridges are manifested as increased private-sector building of facilities and increased freight movement due to improved transport conditions in the project area. They extend to the stimulation of production activity in the area. In this case we examined two ripple effects: "impact on transport condition in the surrounding area" and "regional development effects". These two effects are summarized below.

Summary of Ripple Effects

		Hefei-Tongling Highway and Tongling Yangtze River Highway Bridge	Haungshi Yangtze River Bridge	Second Wuhan Yangtze River Bridge	Second Chongqing Yangtze River Bridge
Impact on transport in the area	Alleviation of traffic congestion in the cities	―No particular changes in Hefei or Tongling.	―Cars waiting for ferries, which caused congestion in Huangshi city center, disappeared, solving the congestion problem.	―The opening of the Second River Bridge completed the city's ring road. ―Cross-river traffic, which had been concentrated on one bridge, was split between two, making transport within the city smoother. ―Growth in cross-river traffic is rapid and the area around the First River Bridge is still congested.	―The Second River Bridge takes a share of the through traffic which previously passed through the center and caused congestion. ―Growth in cross-river traffic is rapid, and the areas around the First River Bridge and the city center are still congested.
	Impact on inter-regional transport	―The project contributed to smoother north-south travel in Anhui province.	―The project formed a part of China's East - West expressway. ―Travel to Yishui district, on the opposite bank from Huangshi, was stimulated.	―Travel time for through traffic is reduced because it no longer has to pass through the busy streets around the First River Bridge.	―Travel time for through traffic is reduced because it no longer has to pass through the busy streets around the center of Chongqing.

Regional development impact	Industry location and expansion of business scale	—Businesses have been established along the Hefei - Tongling road, including plastics factories, pharmaceuticals factories and sawmills. —Existing industries along the route of the road have been encouraged to expand.	—Cement factories using the bridge to ship their products have expanded their operations. —A Sino-Japanese joint venture textile factory has been established. It uses the bridge to ship its products to Shanghai.	—A fresh fruit wholesale market has been established to take advantage of the improved accessibility afforded by the construction of the Second River Bridge.	—Industries using local capital, such as factories for motor cycles, cement and ceramics have opened since the Second River Bridge opened.
	Establishment of economic development zones	—Eight economic development zones have been established along the road. — Plans are under way for an agricultural development zone on the south side of the bridge.	—A new economic development zone with an area of 680,000km^2 has been established in Sanhua Zhen.	—	—The new Huaxi economic and technical development zone has been established on the south side of the bridge.
	House construction	—Small-scale housing construction is going on along the road.	—Houses are being built for people who work in the development zone in Yishang and for those who commute to Huangshi.	—Construction of housing estates is proceeding rapidly in the Heinihu and Shahu residential zones and elsewhere on both banks.	—Residential zones have been set at one point on the south bank and four points at the north bank. Rapid residential construction can be anticipated.
	Impact on the regional economy	—The project has had a favorable economic effect on the cities of Hefei and Tongling at the ends of the road, and development is proceeding in regions along the road.	—The project contributes to the economic development of Huangshi. —The development of Yishang district, where the new economic development zone has been established, is not making much progress.	—Development of the Second River Bridge, which was overdue. —Traffic and population were concentrated around the First River Bridge, but now they can be more dispersed, contributing to city development.	—The project made a great contribution to development on both sides of the river, particularly in the Banan zone on the south bank.

4 Lessons Learned

Based on the evaluation findings, we can raise the following points which should be used as feedback for future operations.

(1) Local currency cost overrun

The final local currency cost of each of the four projects was far higher than the planned amount. The main reason for the cost overruns was that domestic prices rose more than expected due to the introduction of market economics. In a transition economy such as China's, it should be remembered that the introduction of market economics can cause domestic price increases which lead to major local currency cost overruns.

In the case of Second Chongqing River Bridge, the budgetary allocations to cover the extra costs were delayed, which caused further delays in the construction. Attention must be paid to the local currency budget allocation situation during implementation.

(2)The importance of preparation for weak ground and groundwater countermeasures in cuttings

The construction of Hefei - Tongling Highway did not include adequate preparation of weak ground or countermeasures against groundwater in cuttings. Even though the project area is damp, with high rainfall, which makes the road surface vulnerable to damage, not enough attention was given to drainage facilities. Therefore the road has already suffered surface cracking and subsidence in many areas only four years after completion, necessitating repair works. This problem may be related to change of the road route and the fixed-price order placed for the road. It is important to enhance checking performance by consultants during construction by putting more specialist staff on site for longer.

If road construction projects require treatment for weak ground and countermeasures against groundwater in cuttings, experts in those fields should be placed on site, and special attention should be paid to the design conditions employed at the design stage, and to supervision at the construction stage to avoid problems of the kind seen in this project. The executing agency

should be advised to take such steps.

(3) Close examination of traffic predictions

Both Hefei - Tongling Highway and Tongling Yangtze River Bridge have actual traffic volumes considerably lower than those predicted at the time of the appraisal. At the planning stage there were many unknown variables, such as improvements to nearby road networks and traffic transfer from ferries, which made it difficult to produce a more precise prediction, but as traffic volume is an important factor which affects EIRR and FIRR, it would be desirable to give more careful consideration to demand prediction.

(4) Confirmation of toll collection methods

At the time of appraisal for Second Wuhan River Bridge, the predicted traffic volume (return crossings) was multiplied by the crossing toll per vehicle to calculate future revenue from crossing tolls. However, in practice tolls are only collected for one crossing direction. This arrangement does not pose an obstacle to loan repayment, bridge repair or other needs, and the bridge is delivering its effects as a bridge construction project, but the matter of toll collection should have been checked more carefully, as far as possible, at the appraisal stage.

(5) Confirmation of the role of second river bridges

At the time of appraisal for Second Chongqing River Bridge, the necessity of the second bridge was argued based on the projection that the demand for traffic across the Yangtze would exceed the capacity of the First River Bridge and the ferry. However, most of the traffic on the First River Bridge was for journeys within the city, while the Second River Bridge was mainly used for intercity traffic. Thus the natures of the two bridges were very different. From the point of view of the Second River Bridge, there is a problem with handling cross-river traffic as a single homogenous volume. It should have been considered in more detail to confirm the role of the second bridge.

A General View of Tongling Yangtze River Bridge

A General View of Huangshi Yangtze River Bridge

A General View of Second Wuhan Yangtze River Bridge

A General View of Second Chongqing Yangtze River Bridge

Batangas Port Development Project

Theme:Resettlement of residents (JBIC evaluation focuses on the resettlement of residents and commissions the third-party to evaluate this issue separately).

Report Date: March 2000
Field Survey: May and November 1999
Third-Party Evaluator:Prof. Emma Porio , Ateneo de Manila University

1 Project Background and Japan's ODA Loan

(1) Background

Since the 1980s, the Philippines government has been planning to develop Batangas Port, 110km south of Manila, as the country's second largest port after Manila Port. At the time, the berthing facilities and the hinterland of the port were narrow and crowded, making orderly and efficient harbor operation impossible. In response to a petition from the Philippine government, JICA conducted a feasibility study in 1984 and prepared short-term and long-term development plans. This project corresponds to the short-term plan, while phase II of the project covers a portion of the long-term plan. The loan agreement for phase II was signed in September 1998.

(2) Objectives

To improve and expand the cramped and inadequate facilities of Batangas Port, in order to make transportation more efficient and promote development in the surrounding regions .

(3) Project Scope

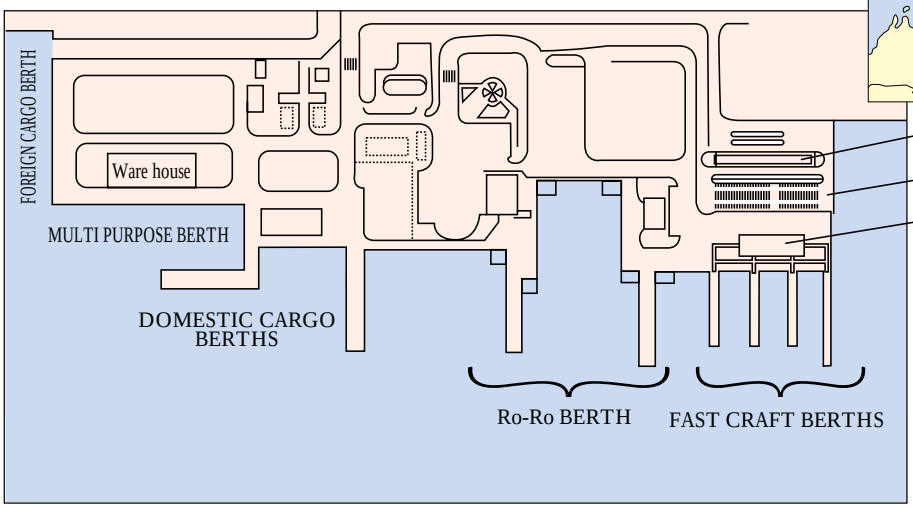
Construction of berthing facilities, terminals and other buildings, construction of facilities to support relocated residents, and consulting services (the loan covered the entire foreign currency portion of the project and some of the local currency portion).

(4) Borrower/Executing Agency

Republic of the Philippines / Philippine Ports Authority (PPA)

(5) Outline of Loan Agreement

Loan Amount	¥5,788 million
Loan Disbursed Amount	¥5,497 million
Date of Exchange of Notes	March 1991
Date of Loan agreement	July 1991
Loan Conditions	
Interest Rate	2.7%,
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	July 1999



1 Dr. Emma Porio, Professor and Chair, Department of Sociology and Anthropology
Graduated doctor of sociology at Hawaii University. Has conducted numerous investigations and research projects into urban poverty and relocation, particularly in the Philippines. Has also worked as a consultant for the World Bank and UN etc.

2 Analysis and Evaluation

(1) Project Scope

There were a number of changes to the scope of the project. The main changes were as follows:

i) Changes from groyne/breakwater to fast craft berths.

ii) Cancellation of the construction and improvement of domestic cargo berths.

iii) Construction of additional facilities to support relocated residents.

The first two changes were due to changes in the types of ships used, while the third was added to provide adequate support for relocated residents.

(2) Implementation Schedule

Construction was completed in March 1999, three years and seven months later than planned. The main reason was a delay of one year and seven months in reaching the contract concurrence with JBIC due to problems with relocating residents. The above-mentioned alterations to the scope of the project caused a further delay of around one and a half years.

(3) Project Cost

The cost of this project (port construction) was kept within the planned amounts. The cost of the resettlement of residents (not covered by the loan) increased approximately four times from the planned 46 million Peso to 181 million Peso.

Comparison of Original Plan and Actual

Item	Plan	Actual
1. Project Scope		
i) Port construction		
・Construction & improvement of Ro-Ro berths	Construction of 4 berths, Improvement of 2 berths (Water depth 5m, Length120-130m)	Construction of 6 berths
・Foreign cargo berths	1 berth (Water depth 10m, Length 185m)	Same as left
・Multi-purpose berths	1 berth (Water depth 10m, Length 220m)	Same as left
・Creation of reclaimed land, construction of various buildings	Passenger terminal, warehouse, parking lot etc.	Same as left
・Small craft berth (with breakwaters)	1 place	Change to 7 fast craft berths
・Construction & improvement of domestic cargo berths	2 berths (Water depth 10m, Length 220m)	Cancelled (postponed to Phase II Project)
ii) Construction of facilities supporting relocated residents		
・Roads pavement from resident relocation site, Sico to city center	–	9km (addition)
・Vendors terminal within the port site	–	1 building (addition)
iii) Consulting Services	310 M/M	390M/M
2. Implementation Schedule		
(Start of tendering for port construction to Completion of construction)	January 1992 to August 1995	January 1992 to March 1999
3. Project Cost		
Total project cost	¥7,717 million	¥7,308 million
ODA loan portion	¥5,788 million	¥5,497 million
Exchange Rate	1 peso = ¥6.8 (Rate at the time of appraisal)	1 peso = ¥3.8 (Average rate at the time of loan disbursement)

(4) Project Implementation Scheme

Executing agency was Philippine Ports Authority (PPA), which is a public corporation established in 1974 under the supervision of Department of Transport and Communications (DOTC). It is responsible for the construction, operations and maintenance of state-owned ports. PPA set up a project team with 30 staff for this project. For the resettlement of residents, PPA carried out all legal procedures and provided the relocated residents with various kinds of assistance. Even though it was not possible to gain the agreement of a part of the residents and their houses were demolished, the problem-solving efforts of the executing agency were commendable.

There were no significant problems which can be attributed to shortcomings of the consultants or contractors, and the overall performance of the parties involved in the project was satisfactory.

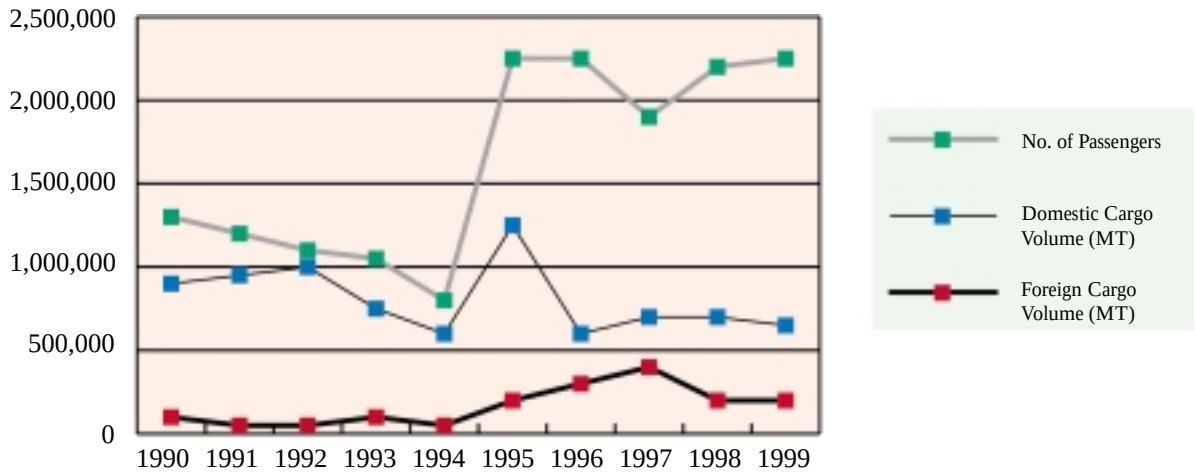
(5) Operations and Maintenance

The current port became operable in November 1998, with PPA handling the operation and maintenance of the facilities and a private-sector operator commissioned to operate the cargo handling terminal. At this stage there are no notable problems in the operation and maintenance situation.

(6) Port Operation

As the graph below shows, the passenger traffic of Batangas port had increased largely over the past ten years (due to the introduction of the fast craft, vessels in 1995), while the volume of cargo handling was stagnating. However, other statistics show that the volume of vehicles carried on Ro-Ro vessels has been growing considerably, which indicates that the actual volume of domestic cargo may have been increasing. Since June 1999 foreign container vessels have been using the foreign cargo berth, which can be expected to bring further increases in cargo volume.

Changes of Cargo and Passenger Traffic at Batangas Port (1990-1999)



Source: PPA materials

(7) Project Effects and Impacts

(i) More Efficient and Orderly Port Operation

The construction and expansion of the port under this project made efficient and orderly port operation possible. In particular, the construction of specialized berths to handle Ro-Ro vessels, fast craft vessels and general cargo vessels, separated the flows of vehicles, passengers and freight. This made the movement of passengers and freight more efficient and safer. Furthermore, the crossing time for the Ro-Ro vessels to Calapan Port on the opposite coast has been shortened by 1~2 hours because the vessel does not have to wait for a berth.

(ii) Regional Impacts

This project made the transport of freight and passengers between the islands of Mindoro and Luzon more efficient, and can be expected to promote the future development of Mindoro. Batangas Port is also attracting investment. In 1995 Batangas state had only one industrial estate, but by now there are 15, and some of the companies which moved into the industrial estates have begun exporting containers through Batangas Port. Considering the worsening traffic conditions in the Manila capital region, there is likely to be large potential demand for Batangas Port as an alternative to Manila Port. The phase II project is going to expand the foreign cargo container facilities, which will make Batangas Port more effective as a supplement to Manila Port.

(iii) EIRR

The provisional figure calculated at the time of the initial plan was 15.37%, and the actual figure is 15.22%, which indicates that the project is delivering the anticipated level of quantitative benefit. The benefits counted in the calculated EIRR figure are the economic effects of i) reduced waiting times, ii) greater passenger numbers, and iii) increased container traffic.

3 Problems and Countermeasures Concerning the Resettlement of Residents

<In addition to the JBIC evaluation of this part of the project, JBIC commissioned Professor Porio of Ateneo de Manila University in the Philippines to conduct a third-party evaluation.>

(1) Process

The implementation of this project necessitated the relocation of 718 households (survey in 1986) in the vicinity of the port. These were illegal settlers with no land ownership. The PPA consulted Batangas City, National Housing Authority and Barangay

Council* and selected Balete (7km from the port) and Sico (15km from the port) as the relocation sites. However, a group strongly opposed to relocation arose among the residents facing relocation. They refused to relocate to Balete and Sico and came to lead the negotiations with the government side. The negotiations made little progress and the start of construction was delayed. In the meantime, the number of residents subject to relocation doubled to 1,467 households, of which 500 consented to relocation. The majority still would not agree to be relocated. From January 1994 the government issued a number of notices to vacate, which were ignored by the residents. Eventually the houses were demolished between June 27th and July 3rd 1994, and several people were injured in the turmoil of the first day. The mass media and NGOs in Japan and the Philippines strongly criticized the project as an "inhumane project".

Note: * A barangay is the smallest administrative division in the Philippines. A barangay council is run by residents' representatives and led by a barangay captain elected by the residents.

(2) Response from PPA and the Philippine Government

Republic Act No.7279, which was enacted in 1992, stipulated for the first time that relocation sites must be provided even for illegal settlers who must be unavoidably relocated due to public works projects. The act included detailed rules to the effect that, when there is no alternative to demolition, the process should be carried out in a humane manner. The Philippines government carried out all procedures related to the relocation of residents for this project, including the demolition, in accordance with the law, and the relocated residents were provided with a level of assistance exceeding that prescribed in the act. The benefits provided include a core house* provided free of charge or a supply of cash, 15,000 Pesos Disturbance Pay, basic services in the relocation destination, and loans for livelihood program. Furthermore, as the negotiations with the residents were not proceeding well, high officials of the central government took on responsibility for direct negotiations with the residents after 1993. Thus the Philippines government was involved at a national level in efforts to solve the issue of resident relocation.

Note: * Houses where only the structural frame and outer frame are prepared.

(3) Response from JBIC and the Japanese Government

Since the time of the appraisal for this project (1990), JBIC and the Japanese Government have been calling for relocations to be carried out peacefully under the responsibility of the Philippine government. JBIC received the request from PPA for contract concurrence in May 1993, but agreement was withheld due to the lack of progress on the issue of resident relocation. In July 1994 the Japanese government expressed its strong dissatisfaction to the Philippine government on the fact that demolition was carried out without notification to the Japanese side, and the injuries which resulted. The Japanese government halted the loan procedure for this project. After the Philippine government's efforts to win the consent of the residents were recognized, and the number of consenting households increased, the Japanese government resumed the loan procedure. At that time the Philippine government promised to continue the efforts to persuade the dissenting residents, and to improve the standard of living of relocated residents. In order to support the above efforts, the Japanese government built a clinic in Sico and supplied medical equipment to the existing clinic at Balete on a grant basis. In addition, the road between Sico and the city center (9km) was repaired using a portion of this loan.

(4) Findings of the Third-Party Evaluation

(i) Resettlement Process under this Project

All procedures relating to the resettlement of residents for this project were conducted in accordance with the law, and relocation package was far more expensive than other resettlement projects in the Philippines. The fact that, despite these efforts, demolition took place without the consent of some residents was partly due to the emergence of a strong opposition group from among the residents, which distanced the government and residents from each other's positions from then on. The government side selected the relocation sites through discussions with representatives of the residents, but those representatives did not systematically pass on information to the residents they represented. The government should have made the discussions with the residents in more participatory manner by checking the transmission of information to the residents from their representatives and confirming the existence of a consensus among the residents.

The relocation of residents for the second phase of the project in 1998 was intricately planned, drawing on the lessons of the first phase, and enough discussions were held with the residents before the relocation.

(ii) Impact on the relocated residents

A majority of the residents are satisfied with their houses and basic infrastructure. However, as is typically the case with offsite relocation (relocation to a site away from the initial location), the major negative impact is in the form of reduced income and employment opportunities. This occurred because most of the relocated residents were involved in informal jobs closely related to the port, working as vendors and stevendors. The government has attempted some livelihood programs, but they did not necessarily bear fruit, partly due to the lack of entrepreneurial skills on the part of the residents. The residents should be given

opportunities for training to gain organizational and business skills.
The problems of resident relocation differ from case to case, and there is no generally applicable solution. However, in the case of the resettlement under this project, the parties involved (including JBIC) can draw the following lessons:

4 Lessons Learned

(1) In addition to consultations with the residents' representatives stipulated by law, more participatory forms of discussion should also be considered where necessary to accommodate the diversity of the residents.
(2) The list of relocated households should be finalized at one time before the project.
(3) Infrastructure development in the relocation sites should be completed prior to the relocation.
(4) The residents should participate in the formation of livelihood programs.

Batangas Port (Parking in the Port is now possible after its expansion)

Relocation Site , Balete

Relocation Site , Sico

Tourism Development Project

Report Date: December 1999
Field Survey: June 1999

1 Project Summary and Japan's ODA Loan

(1) Background

Job creation and redistribution of income to the rural area are pressing economic and social tasks for Thailand. The tourism industry plays an important role under the national development plan as a means of solving such problems as well as securing foreign exchange earnings. However, the building of nation-wide transport networks and facilities in tourist areas were not fully developed, and risked becoming bottlenecks impeding the development of the tourism industry. In particular, the improvement of roads and other aspects of transport networks was an essential element, and remedial measures were needed.

(2) Objectives

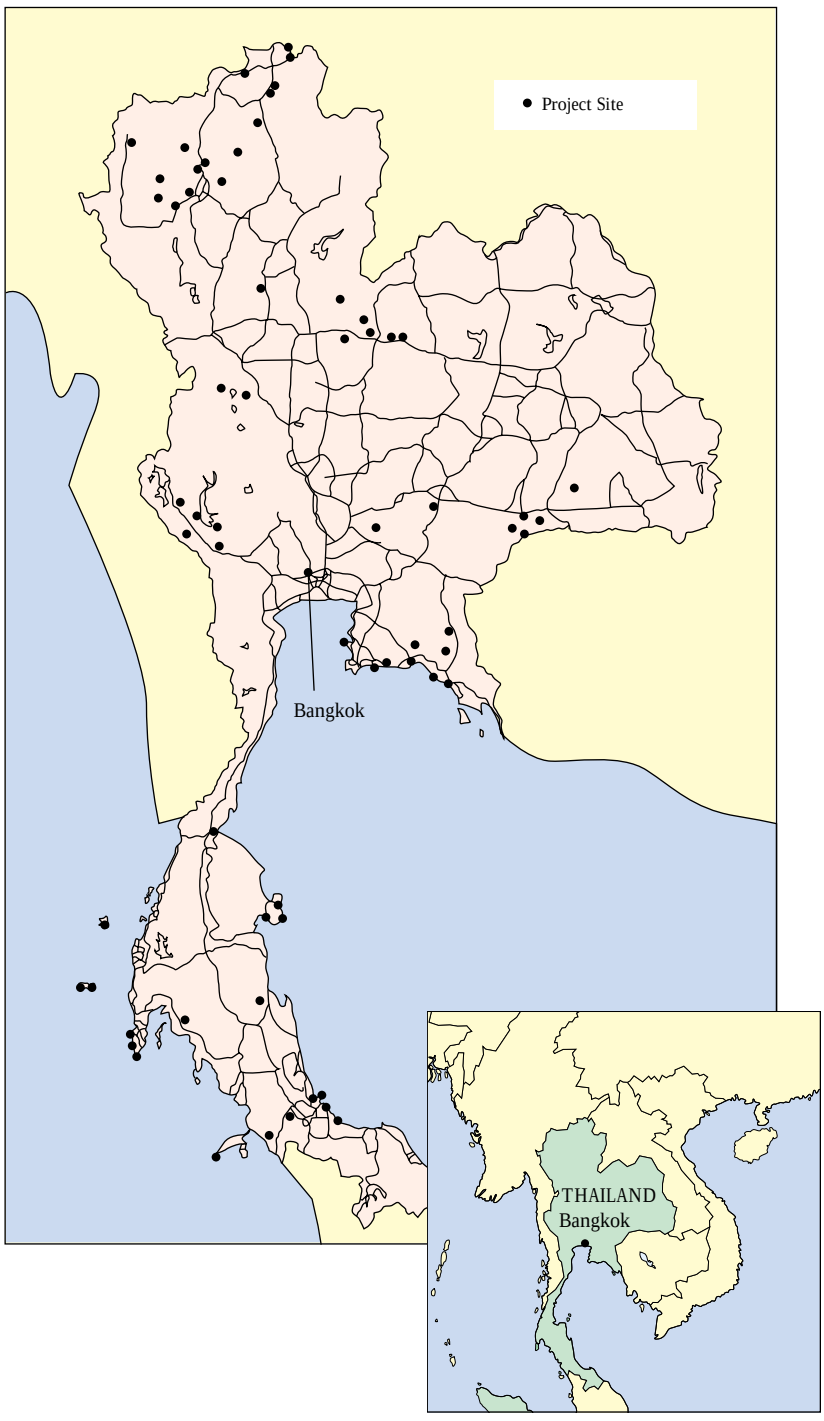
This project is designed to construct infrastructure in regions throughout the country with tourism resources in order to promote the development of tourism, to further regional development by modernizing the country more widely, to redistribute income, to create jobs and to earn foreign exchange.

(3) Project Scope

This project is designed to implement 71 small-scale tourism infrastructure projects (hereinafter referred to as "sub-projects") in eight regions outside the Greater Bangkok area, as well as marketing and promotion activities related to tourism in Thailand. The ODA Loan covered the entire foreign currency portion and a part of the local currency portion.

(4) Borrower , Executing Agency

Ministry of Finance, Kingdom of Thailand / Tourism Authority of Thailand



(5) Outline of Loan Agreement

Loan Amount	¥6,252 million
Loan Disbursed Amount	¥5,411 million
Date of Exchange of Notes	September 1987
Date of Loan Agreement	January 1988
Loan Conditions	
Interest Rate	3%
Repayment Period(Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	January 1997

2 Analysis and Evaluation

(1) Project Scope

A review of sub-projects was conducted after the start of this project, resulting in cancellations and new additions, as well as alterations to the contents and locations of sub-projects. The final number of sub-projects was seventy.

(2) Implementation Schedule

The initial plan was for completion by March 1993, but in fact the last sub-project was only completed in December 1997, a delay of four years and nine months. The reasons for the delays include the following.

(i) Difficulties in land acquisition.

(ii) Extensions of the preliminary survey periods for sub-projects.

(iii) Delays in the implementation of sub-projects due to shortages of local funds.

(iv) Changes in the content of projects.

(3) Project Cost

The project cost of the portions covered by the ODA Loan was initially planned at ¥6.252 billion, but it eventually came to ¥5.411 billion, cost underrun of approximately 13%. The main causes were reductions in Yen-based prices due to the appreciation of Yen, and alterations to the costs on sub-projects.

Comparison of Original Plan and Actual

Item	Plan	Actual
1. Project Scope		
Sub-project		
Group A	21 sub-projects	14 sub-projects
Group B	37 sub-projects	29 sub-projects
Group C	9 sub-projects	13 sub-projects
Group D	4 sub-projects	14 sub-projects
Sub-total	71 sub-projects	70 sub-projects
Marketing Promotion	1	1
Consulting Services	1	1
Total	71 sub-projects + 2	70 sub-projects + 2
2. Implementation Schedule		
	January 1988 to September 1992	October 1988 to December 1997
3. Project Costs		
Foreign currency	¥4,376 million	¥4,023 million
(ODA loan portion)	(¥4,376 million)	(¥4,023 million)
Local currency	762 million Baht	687 million Baht
(ODA loan portion)	(341 million Baht)	(267 million Baht)
Total	¥8,570 million	¥7,607 million
(ODA loan portion)	(¥6,252 million)	(¥5,411 million)
Exchange Rate	1 Baht = ¥5.5	1 Baht = ¥5.2

(4) Project Implementation Scheme

The executing agency for this project was Tourism Authority of Thailand (TAT), which made a strong effort in the management of this project's diverse sub-projects, in close cooperation with consultants. At the start of this project, TAT, only one corporation under the Prime Minister's Office, was not equal to the task of coordinating between the various government agencies which worked as sub-project executing agencies, and it faced considerable difficulties in its coordination role. As a result, the steering committee (representing various government agencies), which held final authority over approval for fund disbursements, also performed coordination tasks between the related agencies. This scheme enabled the completion of all sub-projects to high standards. The performance of consultants and contractors was also good.

(5) Operations and Maintenance

The maintenance status of the sub-projects is good. There are no maintenance problems where it is the responsibility of the sub-project execution agency, which are divisions of the central government, but where local governments handle the maintenance, there are some cases where the level is inadequate in aspects such as budget, skills and personnel.

(6) Project Effects and Impacts

(i) Impact in Income Improvement and Job Creation: This project consists of a large number of sub-projects to make wide-ranging improvements to tourism infrastructure. Its effects in areas such as income improvement, foreign exchange earning and job creation are indirect, and therefore hard to quantify. However, a number of sample surveys conducted after the implementation of the project reported that the project had contributed to increased income in the regions and to job creation in the target areas before and during the construction of the projects and in their operation.

(ii) Promotion of Local Government Participation in Infrastructure Improvement Project: In the past, local governments had no independent budget and passively benefited from regional development projects, which were planned and implemented by central agencies. The experience of this project led to some local governments taking an active role in the building of local amenities, including preparing their own overall plans for infrastructure improvement and asking for budget allocations to carry them through. Thus this project made a great contribution as an opportunity for local governments to start participating in the building of amenities in their regions.

3 Lessons Learned

(1) In regionally-dispersed projects which involve multiple agencies, a maintenance system including monitoring after the completion of the project must be built. Even if policy changes such as the promotion of local governance put maintenance in the hands of the local authorities, some lack the personnel and funding they need to carry out maintenance appropriately. After the completion of the project, some kind of system or organization needs to be determined that will carry out centralized information gathering and monitoring of the maintenance position of each sub-project.

(2) In projects of this kind where the executing agency serves as the coordinator rather than executing each sub-project, and where the sub-projects are numerous, the sub-project executing agency must receive and comprehend a thorough explanation of the nature of the overall project and its sub-projects if the project is to start and proceed smoothly.

THAILAND

Tourism Development Project

Masaharu Shinohara, Director for Research
International Tourism Development Research Institute of Japan

1. Project Effects and Impacts

(1) Contribution to Regional Societies and Culture

Officials with TAT and other related organizations told us that after the implementation of this project, local citizens developed a heightened awareness of the region's history and culture, especially in the case of projects for excavating and preserving ruins and creating facilities in the surrounding areas. These sub-projects also resulted in a newfound pride in the culture and history of the entire Thai Kingdom. Furthermore, these sub-projects provided a tremendous educational effect as the excavated and preserved ruins, as well as newly established information centers and other facilities, are visited by elementary and middle school students as part of their studies of regional cultures and histories.

(2) Effects and Impacts of Sub-projects Observed at the On-sight Inspection

(i) Effects of Chiang Rai Sub-Projects

Nam Kok Jetty

This sub-project was executed along the embankment of the Mae Kok River (Mekong River tributary) in Chiang Rai City and involved the establishment of a landing (step river wall) for small touring boats, a walkway on top of the embankment and other scenery-improvement projects. Since the water level has decreased due to changes in the flow of the Mae Kok River, this jetty itself has not been used as a landing pier for tourist boats. However, Chiang Rai City drafted a 10-year plan for improving the scenery of a 12.5km shore protection loop in this region that included this sub-project. The role that this sub-project played as part of the initial project for this master plan was actually quite large.

Doi Luang National Park

The number of people using the park before the start of the project was from 200,000 to 250,000 annually. However, this number jumped to 350,000 in 1993 when the sub-project was completed. This clearly shows the effect of this tourism development program financed by the ODA loan. However, this number later decreased a little to around from 250,000 to280,000 in recent years. Facilities in the park are excellently developed and maintained. However, the park faces the drawbacks, which needs to be improved, such as not having provided accurate and updated information to the users, and lack of maintenance of the access road to the park. The poor condition of the access road is due to the budgetary and manpower restrains of the local government who is responsible for the maintenance.

Chiang Saen Town

Chiang Saen, the ancient capital of the Rana Dynasty that flourished in the 14th century, is a very calm and elegant city. The Fine Arts Department (FAD), the organization responsible for implementing this sub-project, has developed a master plan for excavating and preserving all of the Chiang Saen ancient capital surrounded by the castle wall (3.8km). This sub-project was involved at the start of this master plan and helped to construct the Visitor Center and prepare the surrounding environment, restore one of the five gates, and excavate and preserve the pagoda of Wat Pa Sak. As the project progresses, it

has become necessary to relocate some residents already living in the target area. FAD has complete authority over the use of the land in the Chiang Saen ancient capital, or the land within the castle walls, in other words. Still FAD has not forcibly driven people from the land, but has taken the time to carefully persuade each individual citizen. Such a process produces a positive effect for the regional society. Excavation and preservation projects provide the very valuable secondary effect of an increased public awareness among the regional people about their own history and culture. The FAD's attitude towards the local citizens has positively effected on the increased public awareness.

Mae Sai – Chiang Saen Highway

This sub-project, implemented by the Department of Highways (DOH), has prepared 45km of roadways to support smooth tourism excursions in the region. These roadways have had a huge impact on tourism development. DOH said that the roadways are being effectively used with traffic volume increasing to around 5,300 vehicles per day. The completion of this roadway established a tourism circuit running from Chiang Rai to Chiang Saen, the Golden Triangle, Mae Sai and back to Chiang Rai. There is no question that this roadway has played a huge role in developing tourism for the relevant regions.

Ban Tha Ton – Mae Chan Provincial Highway

This sub-project was carried out by DOH to prepare a roadway running along the boarder between Thailand and Myanmar. In the same manner as with the above-mentioned Mae Sai – Chiang Saen Highway, this road serves as part of the tourism circuit traveling around the Golden Triangle region starting and stopping at Chiang Rai and Chiang Mai. This roadway is not as important as the Mae Sai – Chiang Saen Highway in terms of serving as a tourism circuit. Rather, this roadway seems to play a more important role for maintaining security in the frontier regions.

(ii) Effects of the Phuket Sub-projects

Ra Wai Beach – Surin Beach Provincial Highway

This highway was prepared by DOH to provide smooth transport among the many beaches running along the southwestern section of Phuket Island. The main effect brought about by this roadway was a sharp increase in beach hopping. The southwestern section of Phuket Island has many beautiful beaches running along this highway. A secondary project effects and impacts related to this road is the fact that a large theme park was opened this year near Kamala Beach. Visitors staying at the many resort hotels located along the beaches in the southwestern section of the island can easily access the new theme park using this road.

Phuket Link Road – Erosion Control

This sub-project was enacted to protect the slope face along the above-mentioned Ra Wai Beach – Surin Beach Provincial Highways. The Department of Local Administration (DOLA) is the organization in charge of implementing this sub-project. As much of the foundation for this roadway consists of sand, sharply inclining surfaces can become easily weakened and eroded by heavy rains. Shotcrete and plant cover are the two methods used to protect the slope face.The results of our on-site inspection showed that this sub-project had fully achieved its goal of protecting the slope face.

2. Future Tasks and Recommendations

(1) Improving Maintenance Scheme after Project Implementation

Even though TAT is no more than a public corporation under the Prime Minister's Office, it has been expected to act as the main coordinator for this project and carry out preliminary negotiations with the relevant government agencies, while selecting and monitoring the implementation of sub-projects. In this project TAT was dealing with many of the government agencies for the very first time, and this resulted in various obstacles and difficulties. Some examples of these problems are as mentioned below.

(i) TAT could not obtain the understanding from the sub-project executing agencies for applying for the ODA loans.

(ii) There were many cases in which project priorities determined by the sub-project executing agencies were not in

agreement with those of TAT.

(iii) TAT had to visit and make local arrangements for 70 sub-projects all on its own.

(iv) It was difficult for all of the executing agencies to have a complete understanding of tourism development and promotion concepts.

(v) In accordance with the loan agreements, it was decided that DOLA would serve as the sub-project executing agency and in this role control the local governents. However, in reality it failed to smoothly serve this function.

(vi) Projects are pushed forward on TAT initiatives, but some sub-project executing agencies have not shown a positive understanding of these efforts.

(vii) TAT has absolutely no authority in maintenance after project implementation and so careful follow-ups have not been possible.

The above problems (i)~(v) are not seen as critical to the on-going related projects as we are seeing a greater degree of understanding on the part of the sub-project executing agencies as progress is being made with regional development projects, SIP (Social Investment Project) and regional development project (II). In fact, the sub-project executing agencies have become very positive toward participating in the projects. They hope to use the TAT project as a cause for aggressively realizing their own administrative strategies.However, problems such as (vi) and (vii) are still occurring. As for the problem mentioned in (vii), the greatest obstacles occur when the coordinating, executing and maintaining agencies are all different. The Steering Committee has the authority to execute overall control from the project planning stage to the execution stage. However, the fact that a system responsible for post-implementation aftercare and follow-ups has not been established either institutionally or in practical terms is the greatest problem to be addressed. Therefore, we strongly want to suggest that a system must be established before hand to assume responsibility for post-implementation maintenance. This is especially true for cases such as this project where the executing agencies are quite diverse.

(2) Effective Use of Consultants during the Coordination Process

As mentioned earlier, TAT had to assume the leadership role at the start of the project in terms of coordinating the various related organizations and local regions. According to officials with TAT, consultants played a comparatively large role in this coordination process. In other words, TAT is essentially responsible for tourism promotion (soft policies in the fields of advertising and tourism promotion) and does not have the needed manpower to effectively serve as a project manager responsible for various projects including infrastructure-building projects. Fortunately, local consultants have been able to step in and help compensate for some of these shortcomings. In order to advance future projects, we must consider ways that TAT can effectively use these consultants and bring forth their abilities to the greatest extent possible.

(3) TAT Organization and System

Executives with TAT told use that the Thai government is currently reorganizing TAT. Details of this reorganization were not readily available, but we were told that the government wants to abolish TAT and replace it with a new Ministry of Tourism and Culture. This would result in an overall restructuring of the organization including plans to reduce the number of employees. The purpose of this reorganization is to better define the position of tourism within the overall organization of the national administration. Since TAT is now a public corporation, its positioning has not been clearly defined. TAT employees have been asked to perform duties that do not fall under the authority of TAT. This is especially true in the case of promoting projects for building tourism-related infrastructures. As a result, TAT has had considerable difficulties in trying to coordinate government agencies and other autonomous bodies in carrying out these duties.It has been suggested that the fact that TAT is responsible for managing this series of ODA loan projects is one of the reasons that triggered the decision to make this reorganization. In other words, this administrative reorganization has been requested so that the central government can clearly redefine and reconfirm the framework for developing and promoting tourism as a nation. Elevating TAT to the status of a government ministry puts TAT on the same level as other government agencies, and so should eliminate the problems TAT has had in trying to coordinate such agencies. However, the paradox is that by promoting TAT to the status of a tourism ministry, it will likely find itself battling with other agencies for authority, and as such these organizations could increase their resistance to TAT initiatives.

(4) Methods for Managing Project Progress and Information Disclosure

It is difficult to manage the progress of projects that are made up of many different sub-projects, such as is the case with this project. The progress of individual items is particularly hard to manage. Many sub-projects encountered delays in implementation. The reasons of the delays of implementation needs to be thoroughly investigated and clarified, and moreover, an adequate managing system needs to be established.As a further issue to be addressed in the future, we would like to see the establishment of a system that can provide general on-line information in real-time about the status of the overall project, as well as individual sub-projects. Such a system would support smooth management of the project and improve transparency of the administrative process.

<JBIC's Opinions on Information Disclosure>

If such a proposal is made, consideration must be given to securing the full support of the government, because:
(1) As the project is mainly implemented by an executing agency in the recipient country, the necessity and propriety of information disclosure generally needs to be determined by the borrower (and/or executing agency), (2) The borrower (and/or executing agency) may not be able to easily provide information disclosure due to the many constrains, and (3) Information disclosure would be time-consuming and likely increase administration costs.

(5) Transferring Authority and Financial Resources to Local Governments

Thailand has recently amended its constitution to promote decentralization. However, there is the concern that the central government will simply pass on responsibility to the local governments without solving the problem of budgetary shortfalls among local governments and without providing the collateral needed for securing an adequate budget.Still, in order to promote greater authority in the local governments, the central government will need to also transfer funding to autonomous bodies in these regions. On this point we were unable to confirm exactly what changes there would be in how the central government allots tax revenues to the local governments.However, the person in charge of DOLA said that undoubtedly efforts are being made to expand the base of tax revenues for the local governments. In order to further these efforts, this author would like to propose the establishment of a tax system by which special taxes, such as a tax on guests staying at hotels, would be collected in order to create a special source of financing for tourism infrastructure building projects, with a potion of these funds going to the local governments.

Visitors center at Doui Luang National Park

Wat Pa Sak Historical Park

Ra Wai Beach-Surin Beach Provincial Highway, Phuket

Rural Electrification Project

Report Date: December 1999

1 Project Summary and Japan's ODA Loan

This project forms one element of the "Rural Electrification Program" (approved in December 1985), which aimed to electrify 24,085 villages nationwide. ODA loan covered the electrification of 6,300 of those villages.
The ODA loan covered the entire foreign currency portion of the project cost, as well as local currency portion equivalent to 30% of the loan value.

Borrower	President of Islamic Republic of Pakistan
Executing Agency	Water and Power Development Authority (WAPDA)
Loan Amount	¥20,738 million
Loan Disbursed Amount	¥17,590 million
Date of Exchange of Notes	August 15, 1988
Date of Loan Agreement	November 1, 1988
Loan Conditions	
Interest Rate	2.75%
Repayment Period(Grace Period)	30 years (10 years)
Procurement	General Untied (Partial Untied for consulting portion)
Final Disbursement Date	December 31, 1998

2 Analysis and Evaluation

(1) Project Scope

Among the planned 6,300 villages, 5,977 (95%) were electrified.

(2) Implementation Schedule

The implementation schedule was nearly four times long as planned. The main reasons were as follows:
(i) Delays in the identification, selection and approval of target villages
The selection of villages to be electrified was carried out by federal and state assembly members within the budget available for each financial year, which made it impossible to determine all the target villages at once, and the selection process was slow. In some cases the villages designated by assembly members did not match the selection criteria and negotiations were required.
(ii) Delay in the Selection of Local consultants
Separate consultants were selected for nine regions, but the selection of the consultants

was prolonged by these problems:
(a) WAPDA Rural Electrification Office did not understand JBIC procurement guidelines.
(b) The consultant in Sind province was forced to resign due to prevailing law and order situation in the region.
The employment period for the consultants was scheduled to begin in November 1988 and end in April 1991, but it actually began in March 1989 and ended in April 1992.
(iii) Delays in the procurement of equipment and materials
The procurement of equipment and materials was delayed for various reasons, including the following:
(a) Shortage of local currency budget on the Pakistani side.
(b) WAPDA Rural Electrification Office was unable to appropriately monitor the large number of procurement procedures.
(c) WAPDA Rural Electrification Office lacked the ability to estimate the quantities of materials that should be procured for each village.
(d) This project was monitored centrally, together with other projects, which reduced the quality of inventory management. (WAPDA's procurement department handled procurement of materials for all projects together, with the result that it was often impossible to get the necessary materials for this project when they were needed because of the circumstances of other projects and the procurement department's priorities).
(e) There were many small-scale local suppliers and they often lacked the ability to deliver to order.

(3) Project Cost

The total project cost (Yen based) came to a substantial cost underrun, which was largely due to the depreciation of the Pakistani Rupee during the implementation period.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
i) New electrification and enhancement of capacity for exiting distribution lines accompanying new electrification and demand increase		
Punjab Province	3,297 villages	3,112 villages
Sind Province	1,317 villages	1,196 villages
Baluchistan Province	1,072 villages	927 villages
Northwest Frontier Province	614 villages	742 villages
Total	6,300 villages	5,977 villages
ii) Consulting Services	Study on villages to be electrified	As planned
	Making of bidding documents	As planned
	Making of completion reports by village	As planned
2.Implementation Schedule		
	36 months (Dec. 1988 to Dec. 1991)	120 months (Dec. 1988 to Dec. 1998)
3.Project Cost (ODA loan portion)		
Foreign currency portion[¥ 1 million]	14,517 (14,517)	11,564 (11,564)
Local currency portion[¥ 1 million]	41,551 (6,221)	10,198 (6,008)
Total [¥ 1 million]	56,068 (20,738)	21,984 (17,573)
Exchange rate	Rs.1 = ¥ 8.18	Rs.1 = ¥ 4.40

(4) Project Implementation Scheme

The executing agency, WAPDA, lacked institutional capacity (with centralized decision-making processes and slow response to problems) and managerial ability, and these deficiencies contributed to the project's severe delays (see 2. above). The other problems were as follows:
(i) WAPDA Rural Electrification Office was not used to handling small works contracts. This resulted in late payments to consultants and contractors, causing conflicts with both groups, which reduced working efficiency and invited implementation schedule delays.
(ii) A project director was appointed to coordinate between the departments within WAPDA and liaise with JBIC, but he was not given independent authority to manage all stages of the project, which made it difficult for him to take swift action.

(5) Operations and Maintenance Scheme

(i) Operations and maintenance is under the authority of directors (executive engineers) of the local offices of the Rural Electrification Office of WAPDA, the executing agency. Each local office has jurisdiction over its village. Operations and maintenance are carried out by standard procedures according to standard design manuals. WAPDA is aware of the need to use cranes and other vehicles in the installation of electrical distribution equipment and materials, and to provide more training to avoid accidents during such operations.

(ii) In some regions planned power cuts are carried out, and in some villages they can be prolonged. The safety standards laid down by WAPDA are largely attained, and there are no particular problems. However, some accidents due to inadequate earthing are reported.

(iii) As part of this evaluation, an impact assessment survey was carried out using participatory methods in eight villages which had been electrified between four and seven years ago. The survey was commissioned from a local NGO (see appendix for details). It found that most residents were satisfied with WAPDA's electricity services, but there were complaints in some villages, including the following: (a) When power cuts occurred, WAPDA is slow to restore power and tends to restore it first in areas where important people live,(b) In areas far from WAPDA offices, bills are issued without actual meter readers but based on estimate from the previous bills, and(c) Bills are issued late.

(6) Environmental and Social Impact

The positive effects of electrification are as listed below. One negative effect that has been reported is that electrification has led people to pump up excessive amounts of groundwater, lowering the water table.

(7) Project Effects and Impacts

This project electrified approximately 6,000 villages. The impact assessment survey mentioned above was conducted as a case study to investigate the specific effects of the project. The survey found that 70% of all households receive electrical supply. The following direct effects of the project have been confirmed.

(i) Improved Standard of Home Life

The use of electric lighting, fans, televisions and other appliances has made home life more convenient and comfortable.

(ii) Reduced Domestic Works

The use of fans, electric irons, washing machines, water supply pumps, electrical cooking tools and other appliances has reduced a housewife's daily household labor by between one and five hours.

(iii) Propagation of Information

Nearly half of households have televisions, and other than entertainment programming, people can access important information on world news, social life and economic activity.

(iv) Improved Hygiene

The use of fans avoids mosquito stings, thus reducing the incidence of malaria. Water pumps make it easier to get water, which encourages improvements in hygiene.

(v) Improved Educational Environment

In villages which have schools, the classrooms are equipped with lights and fans, which improve the educational environment. Lighting at home enables children to study at night.

(vi) Expanded Economic Activity

The use of electric lighting and fans increases the number of hours available for economic activity in shops and workshops by between two and four hours a day, and work itself has been made more efficient by electrical appliances. The reduction in the amount of housewives' time taken by household chores has increased the hours they can work from home in weaving and sewing.

(vii) Expanded Use of Groundwater for Irrigation

Pumps have been bored for use with electric pumps, enabling the use of abundant groundwater for irrigation in place of rainwater or water from irrigation watercourses.

(viii) Increased Public Order and Safety

The installation of lights has reduced thefts of livestock and household goods. People can move about even late at night without fear or thieves, dogs, snakes or other dangers.

By reducing the burden of housework and increasing work from home, the project has had some effect in increasing the economic strength of women. In some of the villages, women are extremely active in cottage industries. In rural Pakistani society, women are generally put in very low positions in society, but the increase in their economic power due to electrification is reported to have expanded their authority to speak out about matters in the home. However, even when a village is electrified, some households remain without their own connections to the supply, and in some villages conditions

are not ready for the expansion of economic activity, even with electricity. The poor who cannot afford the cost of electrical connection works or pay electricity bills, and some villages that lack natural advantages and have limited access to markets are not benefitted from the project.

3 Lessons Learned

(1) The conditions for realizing the effects of electrification projects (economics, infrastructure and natural conditions etc.) should be clarified and the village selection process should reflect those conditions as far as possible.

Realization of the benefits of electrification appears to depend in part on conditions in the electrified villages, such as economic, infrastructure and natural conditions. For this project the only criteria were population and distance from electrical trunk lines. If the various factors which influence the realization of benefits could be clarified and reflected in the criteria for selecting villages to receive electrification, the project effects and impacts could be strengthened. However, these factors can be expected to be very diverse, and therefore the process of defining them should use the same participatory survey methods (such as the PRA method) used in the impact assessment survey to gather and analyze a wide range of data. The findings should be used to examine what selection criteria should be applied and what would be the fastest and most realistic procedure for applying them.

(2) Synergistic effects can be gained by combining electrification with other projects to build infrastructure for rural life.

Access to roads is an important factor in carrying projects and fully realizing their benefits. During the implementation of the project, it was extremely difficult to transport equipment and materials to villages with no access to roads. Conversely, even in villages which were relatively poor, electrification was recognized to yield benefits if the village in question was connected to a road. If electrification is combined with other ODA loan projects (such as rural promotion road construction projects and poverty alleviation projects) from the building stage, synergistic effects can be expected.

(3) Where the ability of the executing agency has not been proven by experience, or where the executing agency has no experience of similar projects, its ability to carry out the procedures and mechanisms of project implementation must be examined carefully at the time of the appraisal to make sure the plan devised is feasible.

The main reason for the delays in this project was that the procedures for selecting villages included political processes, and therefore took longer than anticipated. At the same time, the executing agency, WAPDA itself, had some experience of ODA loan projects, but the WAPDA offices in charge (the Rural Electrification Office) had no such experience. Neither did they have the ability to efficiently manage multiple sub-projects, and their shortcomings were a further factor behind the delays. Countermeasures that could be taken at the appraisal stage include the following:

(i) All the organizations which could contribute to the implementation of the project should be listed in detail, and the specific details of implementation procedures should be closely examined.

(ii) The examination of implementation ability should go into quantitative details of technical, financial and systematic aspects, as well as processing capacity (i.e. how many villages the executing agency would be able to deal with in one year).

(iii) If it is judged that the executing agency lacks the ability, an effective implementation system should be constructed with the use of technical assistance and other aid, as necessary.

PAKISTAN

Rural Electrification Project

National Rural Support Programme
Ghazi Barotha Taraqiati Idara

1. Survey Summary

As part of its ex-post evaluation work, JBIC Pakistan Representative Office commissioned a survey of the impact of the electrification of eight villages which were electrified between 1992 and 1995. The survey was conducted by NGOs with experience in anti-poverty measures in Pakistan (National Rural Support Programme: NRSP and Ghazi Barotha Taraqiati Idara: GBTI). The surveyed villages were two in each of four provinces covered by the project. In each village the PRA (Participatory Rural Appraisal) method was used to efficiently gather a wide range of information, and evaluate it from the point of view of the beneficiaries. The project effects and impacts were analyzed through comparison with villages that had not been electrified. The main findings of the survey are summarized below.

2. Household Electrification Rate

Even if a village is electrified, it does not necessarily follow that all households in it will be electrified. Bringing the electricity supply into each house requires expensive construction work (approximately Rs4~5,000, equivalent to approximately ¥20,000). Therefore there is a strong tendency in each village for electrification rates to be higher in the more prosperous households. Households too poor to afford the wiring work cannot bring electricity into their homes. One alternative is to bring in cables from a neighbor with electricity and pay them for the amount used, which cuts down initial costs. In the villages surveyed, 70% of households had electricity supplies, but 11% of those obtained their electricity from neighbors.There were major differences in electrification rates among villages. Of the eight villages, two had household electrification rates of 30% or less, while two reached 100% household electrification. Both the 100% electrified villages are newer and relatively small, but they are not necessarily more prosperous than the other villages. More detailed investigation is required to reach general conclusions on the factors which control household electrification rates.

3. Usage of Electricity

Electricity is used in the ways described below in the surveyed villages.

(1) Home life: The range of electrical appliances used in the surveyed homes has increased with the economic level of the household. The most basic applications are lighting, fans and radio cassette players, which are used in almost all electrified houses. Irons and televisions are used in around half of households. Refrigerators, water pumps, washing machines, heaters, food processors and other such appliances are only used in wealthier households.

(2) Commercial objectives: Besides illumination and refrigeration in shops, electricity is also used in mills, welding workshops, bicycle repair workshops, electrical repair shops, building materials shops and sewing workshops.

(3) Agricultural objectives : Tube wells for irrigation, animal feed cutters, chicken farms etc.

(4) Social facilities : Illumination and fans for schools, illumination for medical facilities, refrigeration for drug depositories etc.

In general, wealthier households with more financial resources can own more electrical appliances and can afford to pay larger electricity bills. Therefore they derive more benefit from electrification. Comparing electricity usage among households with electricity between those which are poor and those which are wealthy, there is a threefold or fourfold gap in the amount of power used, and a fivefold or sixfold gap in the amount of electricity charges paid (the electricity billing scheme is organized so that those who use more pay higher unit rates).

4. Benefits and Impacts

Electrification yields the kinds of impacts and benefits listed below in the surveyed villages.

(1) Increased living convenience and comfort

According to the villagers, the things that brought the biggest changes in their home lives were electric light and fans. Electric lights, in place of lanterns, give more light and more convenience. Families can spend the evenings together, or attend to household chores, work at home or get together with neighbors. Also, in the time before electric fans, the air had to be constantly fanned manually until the children went to sleep, to guard against heat and mosquitoes. That was a task for the women. In hot seasons it was almost impossible for them to sleep at night. Now all the family can sleep soundly at the same time. In addition, television and radio provide people with entertainment.

(2) Reduction of women's household labor

The introduction of household electrical appliances has greatly reduced the amount of work women must do in the home. The labor of fanning the children while putting them to bed, ironing with coal heating, laundering, water collection, cooking and so on has been made much easier by electric fans, electric irons, washing machines, water pumps, food processors and other devices. The amount of time spent on housework in homes with electricity is reported to have been reduced by between one and five hours, depending on the types and number of appliances used.

(3) Propagation of information and raising of awareness due to access to the mass media

Electrification has allowed access to television. The television diffusion rate was 46% in the eight villages surveyed. Besides providing entertainment, television delivers important information on world news, social life and economic activities. Through television and radio, many of the villagers came to realize the importance of matters such as education, medical treatment, maternal health and family planning, as well as learning about environment, health and clean water. Agriculture-related programming raised interest in ideas such as the use of fertilizers and insecticides.

(4) Improvement in hygiene

In half of the villages surveyed, the use of fans was reported to protect the residents from mosquito stings, reducing the incidence of malaria. In five villages electric pumps made it easier to use water, resulting in reported improvements in hygiene. In three of these villages, the use of flush toilets increased. The causal relationships between electrification and disease and health have not been proven, but there is no doubt that the electrification of these villages encouraged improvements in hygiene.

(5) Improvement of educational environment

Among the eight villages, five has elementary schools and one has a junior high school. Electrification enabled these schools to use fans and electric light. The changes in enrolment rates are unclear, but the villagers are satisfied with the facilities of the electrified schools, and this appears likely to have a positive effect on enrolment. The use of electric light in homes is thought to increase the time children can spend studying at home.

(6) Expanded and more efficient economic activity

Electrification has increased the number of hours villagers can spend on economic activity. Firstly, the use of electric light and fans allows shops and workplaces to operate for between two and four hours longer than before. Also women spend less time on housework than they did before, increasing the time they can spend on work from home, in jobs such as sewing and

embroidery. In one village, which was favored by a good market, the women threw themselves into cottage industry, operating it skillfully with the time saved from household chores.The installation of refrigeration in stores made it possible to sell foodstuffs which require refrigeration. New types of business appeared which were only made possible by electrification, such as electrical repair shops. Also, equipment driven by electricity, such as motorized sewing machines and animal feed cutters, made it possible to work more efficiently.In five of the eight villages, the numbers of shops and small businesses had increased substantially, although this cannot be credited solely to electrification. In the four to six years since electrification, the number of shops in these five villages had gone from ten to 37, and the number of small businesses from two to nearly 20. These increases expanded the number of jobs available in the villages.

(7) Improvement of irrigation

Four of the eight villages built tube wells with electric pumps which enabled them to irrigate a total of 950 acres with groundwater. This was land previously dependent on rainfall or on irrigation from water channels. In one village it was confirmed that irrigation from tube wells had increased productivity.

(8) Population stabilization

In four of the eight villages, population outflow reduced after electrification and population inflow increased. In the other four villages, there were no major movements of population. However, once again it is impossible to attribute this phenomenon entirely to electrification, as it appears to be a composite impact in combination with other factors such as the construction of roads and water. In one village, the increase in population is reported to have resulted in a major increase in land prices.

(9) Safety and public order

In five of the eight villages, the installation of street lighting is reported to have reduced the incidence of theft of livestock and goods. Lighting is also thought to allow people to return home safely late at night, without fear of thieves, dogs, snakes and other hazards.

It is important to note that not all of the villages enjoyed all of the above benefits. For example, in the two villages where household electrification rates were low, only the more wealthy households, amounting to less than 30%, enjoyed the benefits of electrification. In three of the villages, where there was almost no economic activity such as shops and businesses, there was no increase in economic activity after electrification. The three villages which do not have elementary schools did not benefit from any improvement in their educational environments.In short, whether or not benefits such as those listed above are realized in a given village depends on whether the preconditions for such benefits are in place. These preconditions include economic conditions (whether households have enough income to buy electrical appliances, whether the market, skills and capital are adequate for the establishment of shops and small businesses), infrastructure conditions (accessibility of the village, existence of educational facilities etc.), and natural conditions (hydrological conditions, productivity of the land etc.).

Negative impacts of the program include some erosion of traditional values among villagers due to the arrival of television, and the pressure placed on household budgets by electricity bills. Also, in some densely populated areas, and particularly in the province of Baluchistan, the pumping of groundwater had an adverse effect on the level of the water table. This problem arose because the billing system charges a flat rate, rather than charging for the amount of electricity used, encouraging pump owners to run their pumps constantly.

Tube Well operated by the Electricity.

Electric Fan in a Rural Household.

MEXICO

Monterey Water Supply and Sewerage Project

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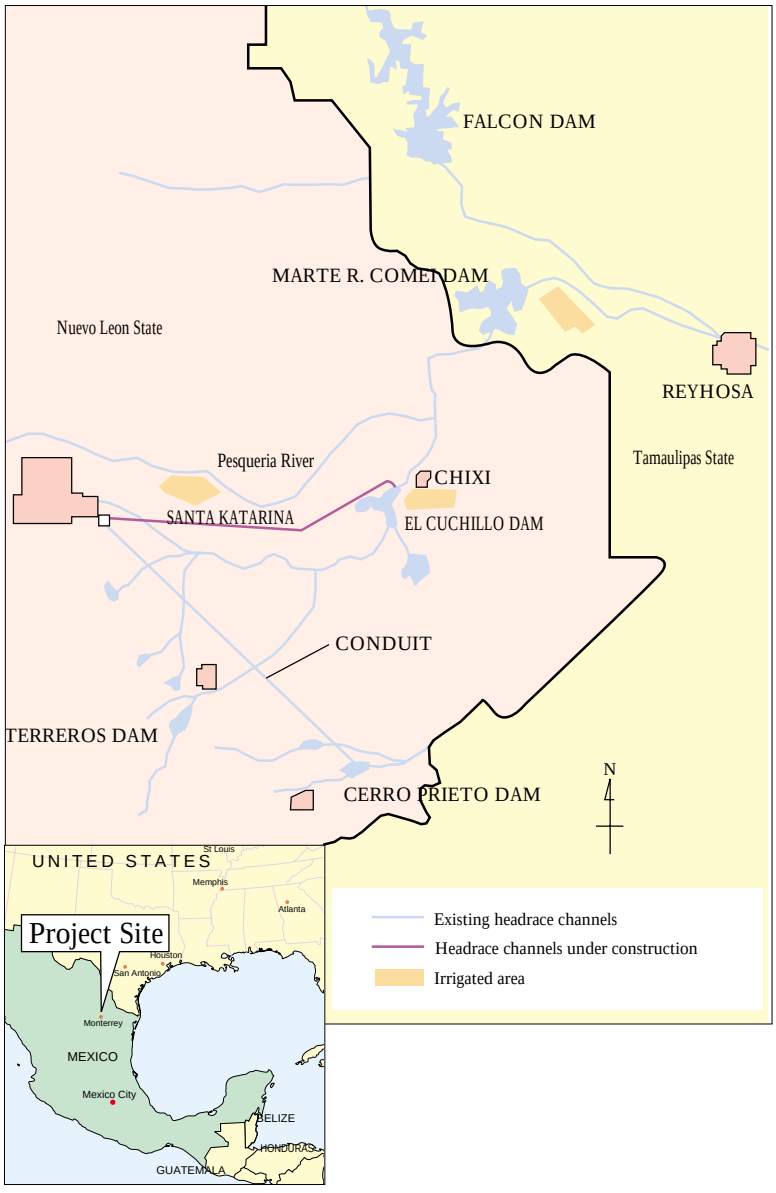
1. Introduction

Between 18th and 29th April 1999, a third-party evaluation was conducted on Mexico "Monterey Water Supply and Sewerage Project", ODA project of Japan Bank for International Cooperation (JBIC).

The project which was evaluated consisted mainly of the construction of three sewage treatment plants with average treatment capacities of 5.0m³/s, 2.5m³/s and 0.5m³/s with the aim of improving river water quality in the Monterey area, which is Mexico's third largest metropolitan area.

We will first explain the criteria for this evaluation and then proceed with a summary of the evaluation and findings based on these criteria.



2. Evaluation Method

Based on international trends and the characteristics of third-party evaluations, the evaluation criteria were based on the DAC's five evaluation criteria, but with the evaluation procedure rearranged. The five criteria are effectiveness, efficiency, sustainability, impact and relevance. These points were evaluated from project-related documents as well as interviews and observations in the field.

3. Attainment Degree of Project Target

The target year for the project was 1997. Its quantitative target was that "all sewage treatment plants should achieve 100% work rates" and its qualitative target was "that the quality of the treatment water shall be BOD 30mg/l, TSS 30mg/l, N-NH3 2.0mg/l, coliform bacteria not exceeding 1,000/100ml".

The quantitative target was not achieved as the average work rate of the three treatment plants was less than 70% in 1997. That was largely due to an external factor, that the volume of water supply reduced with water shortages in recent years. The work rate figure appears to be within a reasonable range for effective usage. However, the Noreste Sewage Treatment Plant, with a capacity of 0.5m^3/s, is in a state of overflow for around 17 hours a day. The volume of overflow averaged around 0.112m^3/s in 1997, which is small compared to the overall volume, but it is discharged to the river after only debris removal, sedimentation and chlorination, which risks degradation of water quality.

The only water quality target was not met in 1997 was the N-NH3 value at the Norte Sewage Treatment Plant. All other targets were met.

Thus the target attainment degree of project in general was high and it can be deemed to have met its initial targets.

4. Operations and Maintenance and Efficiency of the Water Treatment Plants

At the time of feasibility study and the Japan's ODA loan appraisal, it was decided that it would be most cost effective for all three plants to use the same treatment method (the long-term aeration method). After that, the bidding method was altered and different treatment methods were adopted for each of the three plants. Each plant was constructed with its own water quality testing office. However, after the contract period the maintenance plan was changed to centralized maintenance by the Servicios de Agua y Drenaje de Monterey (SADM), and there is now space in each plant that is not being put to effective use. As the treatment methods of the plants differ, it is very likely that maintenance problems will emerge in future. Nevertheless, the actual maintenance costs are below the level forecasted in the plan and there does not appear to be any major problem with efficiency.

5. Maintenance Scheme for the Sewage Treatment Plant and its Sustainability

The executing agency, SADM, is said to have a charge collection rate of over 90%. It is the sole organization with jurisdiction over the whole of Nuevo Leon State and is a powerful water and sewerage company that is unusual in developing countries. The number of SADM's sewerage service contractees grew steadily from the time the project was planned until 1998 to cover 97.21% of the target users. Charge collection is going well and the SADM is taking business initiatives to sell treated water to factories as coolant. It also imposes extra charges for treatment of industrial waste water that exceeds standards. These are signs of a high level of managerial ability in the executing agency, which indicates a very high level of sustainability for this project.

6. Project Effects and Impacts

This project has clearly been beneficial, as it has brought an enormous improvement in water quality in the rivers within the city and in the downstream areas of the Pesqueria River near the discharge pipe. However, the discharge of water to the Pesqueria River has sparked intense water disputes between farmers along the river who draw water without having water usage rights and others downstream in Tamaulipas State who hold water usage rights. This disturbance of the established order of water usage in the river area was observed as a negative effect of the project.

7. Project Relevance

Considering the level of Mexico's development, this sewage treatment plants construction project to protect the environment is very suitable for the country. The role of the executing agency as the counterpart of this loan is a decisive factor in the efficient and effective implementation of this project. It is good that the presence of SADM as a water supply and sewerage company with a level of managerial ability outstanding in Mexico raised the priority of the Monterey metropolitan area.

Borrwer	Mexican Government
Executing Agency	Servicios de Agua y Drenage de Monterey
Loan Amount	¥13,482 million
Loan Disbursed Amount	¥13,482 million
Date of Exchange of Notes	June 1992
Date of Loan Agreement	October 1992
Loan Conditions	
Interest Rate	3.0%
Repayment Period(Grace Period)	25years(7years)
Procurement	General United
Final Disbursement Date	December 1997

8. Conclusion

This project earns high marks on three points: effectiveness, efficiency and sustainability. As for the relevance of the project, it can be described as an appropriate environmental project for Mexico. However, the effects of the project were mixed.

Secondary Sediment Facility of Noreste Water Treatment Plant

Sludge Fertilizen Plant in SADM,next to the Dulces Nombres Swage Treatment Plant

Sewage being discharged before the project in the Monterrey area

Guanyinge Multipurpose Dam Project

Report Date: March 2000
Field Survey: May 1998

1 Project Summary and Japan's ODA Loan

This project aimed to construct a concrete gravity-type dam with a water catchment volume of 2.168 billion m^3 at Xiaoshi, Guanyinge, 40km up from Benxi on the Taizi River that runs through Liaoning province. The executing agency was Liaoning Provincial Water Resources and Electricity Department (currently Liaoning Provincial Water Resources Department). The project was approved under the Seventh Five-Year Plan in April 1985, and construction began in 1986. The primary objective of this dam is flood control, but it has a number of secondary objectives, such as water supply for urban and industrial demand, water supply for irrigation, power generation and raising aquatic produce.

The ODA loan covered the entire foreign currency potion of the project cost.

Borrower	Ministry of Foreign Trade and Economic Cooperation , People's Republic of China (currently Ministry of Finance)
Executing Agency	Liaoning Provincial Water Resources and Electricity Department (currently Liaoning Provincial Water Resources Department)
Loan Amount Loan Disbursed Amount	¥18,225 million ¥18,062 million
Date of Exchange of Notes Date of Loan agreement	(3 times) July, 1988 / May, 1989 / November, 1990 (3 times) August, 1988 / May, 1989 / November, 1990
Final Disbursement Date	(3 times) August, 1988 / May, 1996 / December, 1997

2 Analysis and Evaluation

(1) Project Scope

The construction works can be divided into four phases:

– Preparatory works (including rerouting of rail tracks, outside the scope of the ODA loan).

– Dam construction (Dam wall construction, civil works, curtain grouting, and metalwork).

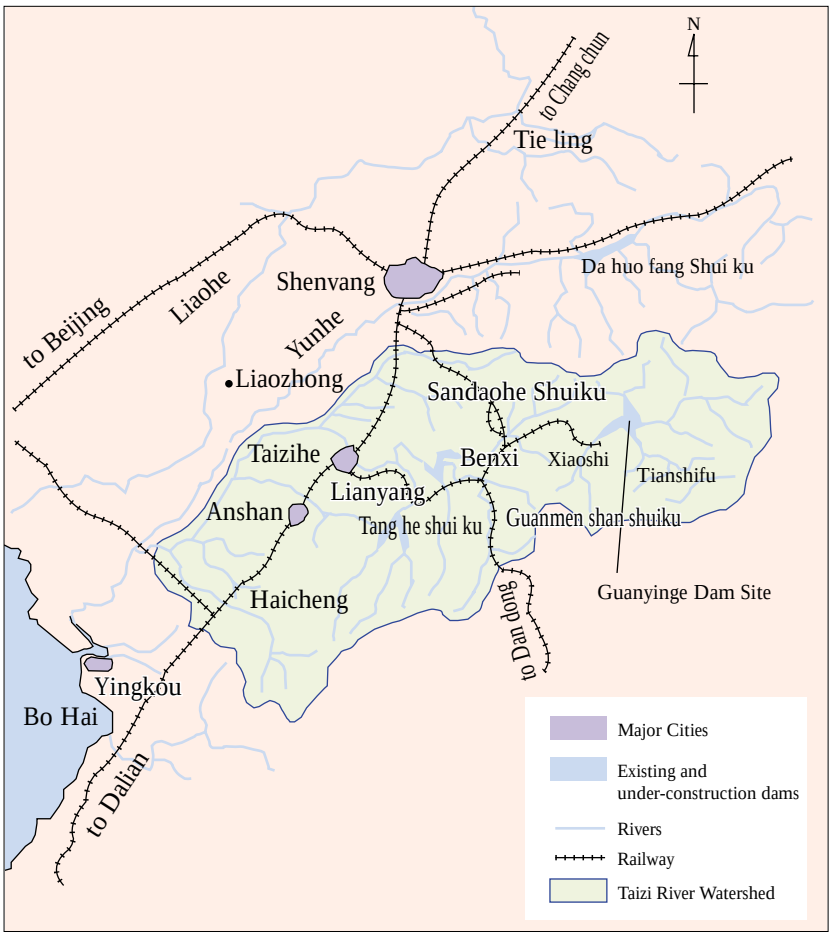
– Power station construction.

– Flood prediction and warning system.

Most of the construction was carried out as planned, but there was some alteration to the scope of the consultant's work concerning the flood prediction and warning system.

(2) Implementation Schedule

The construction was scheduled for completion at the end of 1995, but it was actually ready by September 1995, when the completion ceremony was conducted. Most of the construction works were completed ahead of schedule. However, the curtain grouting works was delayed by nearly a year because part of the area to be grouted overlapped with



the area of rail rerouting, and grouting could not proceed until the rail rerouting was finished.
The flood prediction and warning system was modified from the initial plan to use simpler monitoring devices, because it was judged that a modest number of monitoring systems would reduce operating costs. This change delayed both the start and the completion of construction by nearly two years.

(3) Project Cost

The total cost of the projects was 1.205 billion Yuan of local currency and ¥18.062 billion in foreign currency, which puts the equivalent total project cost, when converted at the 1995 rate for the Yuan (1Yuan=¥12.36), at ¥32.959 billion. Comparing planned and actual costs, the local currency cost overran by approximately 10%, from 1.06 billion Yuan to 1.2 billion. The foreign currency portion cost approximately ¥18.06 billion, close to the planned ¥18.2 billion. However, during the project construction period the value of the Yuan against the Yen dropped by nearly two thirds, from ¥34.44 to ¥12.36. Therefore the total construction cost in Yen terms was down to ¥32.96 billion from the planned ¥54.86 billion, a major reduction.

Comparison of Original Plan and Actual

Item	Plan	Actual
1. Project Scope		
	Dam wall construction	No changes
	Dam civil works	
	Dam curtain grouting	
	Dam metalwork	
	Power generation facilities	
	Flood forecasting and warning system	Partly changed
2. Implementation Schedule		
Preparatory works	July. 1986 to Dec. 1992	Jul. 1986 to Apr. 1992
Dam wall construction	Jul. 1986 to Dec. 1995	Jul. 1989 to Oct. 1995
Civil works	Oct. 1989 to Oct. 1995	Oct. 1989 to Oct. 1995
Curtain grouting	Jul. 1991 to Sep. 1995	Jul. 1991 to Jul. 1996
Metalwork	Jul. 1991 to Dec. 1995	Jul. 1991 to Sep. 1995
Power generation/transmission facilities	Apr. 1992 to Dec 1995	Apr. 1992 to Jul. 1995
Forecasting and warning system	Feb. 1991 to Sep. 1996	Feb. 1991 to Jun. 1998
Consultant	Aug. 1988 to Dec. 1995	Aug. 1988 to Oct. 1995
3. Project Cost		
Foreign currency	¥18,225 million	¥18,061.55 million
Local currency	1,063.77 million Yuan	1,205.30 million Yuan
Total	¥54,861.24 million	¥32,959.06 million
Exchange Rate	1 Yuan = ¥34.44	1 Yuan = ¥12.36

(4) Project Implementation Scheme

Liaoning Provincial Water Resources and Electricity Department (currently Liaoning Provincial Water Resources Department) established Guanyinge Dam Management Office (in February 1989) to handle the operation and maintenance of the dam. The office has a staff of approximately 300.

(5) Operations and Maintenance

The operations and maintenance costs (recorded figures for 1988) were 16.59 million Yuan (not including depreciation costs) and there was a further personnel cost of 580,000 Yuan. These costs are covered by income from irrigation water supply and power generation (48.04 million Yuan), which means the operation and maintenance budget is sufficient. As the equipment is still new, there is apparently little expenditure for replacement parts and other costs. There are no problems with the generation equipment, or with maintenance from the Dam Management Office.

(6) Project Effects and Impacts

(i) Quantitative Effects

The Economic Internal Rate of Return (EIRR) for the project was calculated for a project life of 50 years, taking the benefits as construction, operation and maintenance costs for alternative facilities and the average value of flood damage, and the costs as dam construction cost and operation and maintenance costs. This EIRR was put at 12.6% at the time of the appraisal, but

when EIRR was reviewed in 1998 with the benefits limited to the sale of electricity, the figure was down 4.5 points, at 8.1%. However, when the EIRR was calculated with all benefits taken into account, EIRR rose to 15.5%. This figure was strongly influenced by the dam's role in preventing flooding in 1997 (averting damage estimated at 860 million Yuan).

(ii) Qualitative Effects

Standards of living have been improved by water supplies for homes, industry and agriculture, and progress in industry and agriculture has been promoted. The lives of farmers before the dam were poorly provided with water supply, electricity, gas and roads, as well as with facilities such as schools, hospitals and community centers. The standard of their housing was also low. The huge investment involved in the construction of this dam has enabled a major improvement in social and economic infrastructure.

A General View of Guanyinge Dam

Water being Discharaged

The Power Station

Fujian Province Zhangquan Railway Construction Project

Report Date: March 2000
Field Survey: March 1999

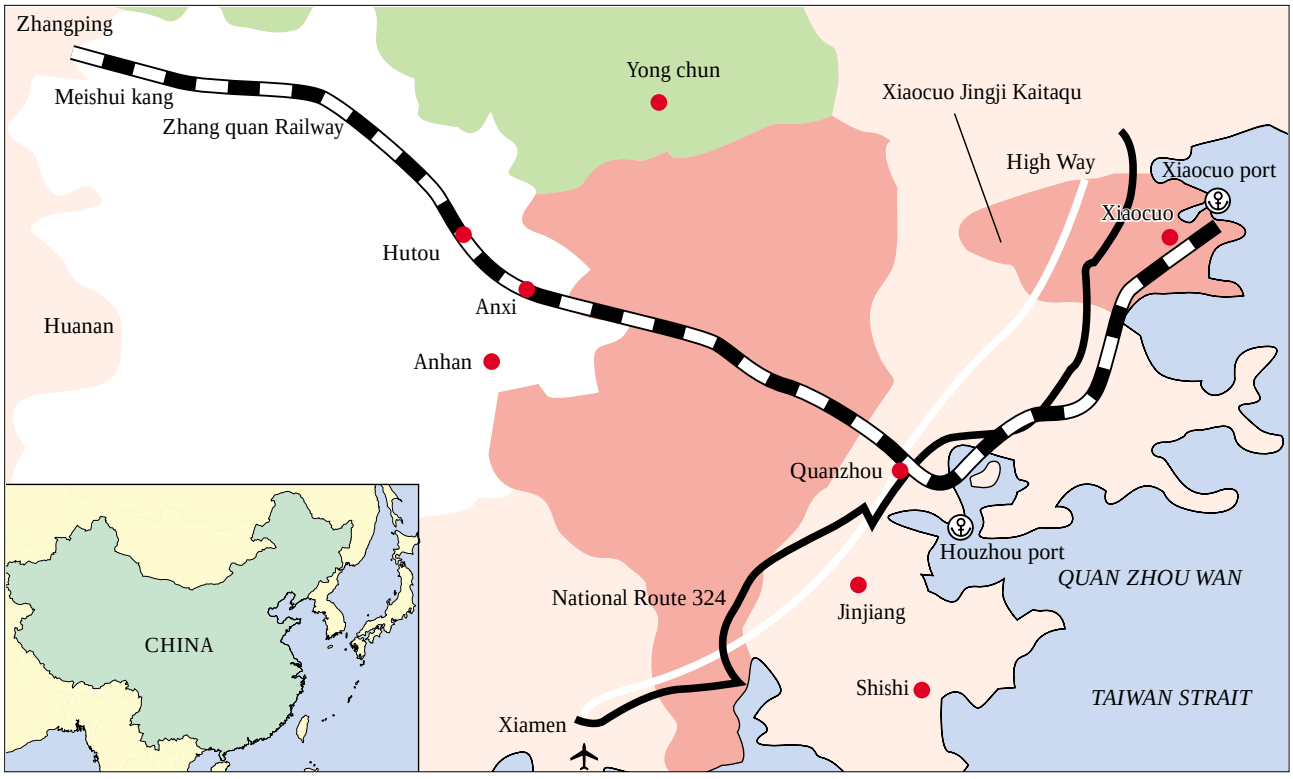
1 Project Summary and Japan's ODA Loan

The volume of freight handled in Quanzhou City, Fujian province, China, was increasing in line with economic development. This project was intended to build a new railway to the city, which did not have a rail connection before, in order to meet demand for freight handling and to ship freight more efficiently, as a means of encouraging further economic development.

The project aimed to construct a total of 145.7km single-track unelectrified railway line consisting of 128.2km of main line from Hutou to Xiaocuo and two branch lines, one of 10.5km from Xiaocuo to Xiaocuo Port and one of 7.0km from Quanzhou to Houzhu Port.

The ODA loan covered the entire foreign currency portion of the project.

Borrower	Ministry of Finance, Government of People's Republic of China
Executing Agency	General Corp. of Zhangquan Railway Development, Fujian Province
Loan Amount	¥6,720 million
Loan Disbursed Amount	¥6,711 million
Date of Exchange of Notes	August 1993
Date of Loan agreement	August 1993
Loan Conditions	
Interest Rate	2.6%
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	September 1998



2 Analysis and Evaluation

(1) Project Scope

The main line from Hutou to Xiaocuo via Quanzhou was constructed largely according to plan. The branch lines have not yet been completed, but all facilities are expected to be completed by 2000, largely as planned.

(2) Implementation Schedule

The plan called for the line to enter service from October 1996, but in fact it formally began operating in December 1998, over two years delay. The branch lines have not yet been completed, but the one between Xiaocuo and its port is expected to go into service from October 1999, followed by the one between Quanzhou and Houzhu Port within 2000. The main reason for the delay is that the local currency cost increased and it took time to make the necessary funding arrangements.

(3) Project Cost

The foreign currency portion was funded largely as planned, with the contingency utilized. The local currency cost more than doubled, with a cost overrun of approximately ¥9.4 billion at the end of FY 1998 exchange rate.

Comparison of Original Plan and Actual

Item	Plan	Actual
1. Project Scope		
Main line	128.2km	127.35km
Branch line (Xiaocuo ~ Xiaocuo Port)	10.5km	9.31km (under construction)
Branch line (Quanzhou ~ Houzhu Port)	7.0km	6.32km (Land acquisition procedures under way)
2. Implementation Schedule		
Main line	July 1992	July 1992 to December 1998
Branch line (Xiaocuo ~ Xiaocuo Port)	—	Scheduled to be completed in October 1999
Branch line (Quanzhou ~ Houzhu Port)	September 1996	Scheduled to be completed in 2000
3. Project Cost		
Foreign currency (ODA Loan portion)	¥6,720 milion	¥6,711 million
Local currency	55,628.9 yuan	1,204,050,000 yuan (Including forecast figures for branch lines)
Exchange Rate	1 yuan = ¥20.9 (at the time of appraisal)	1 yuan = ¥12.98 (at the time of loan disbursement)

(4) Project Implementation Scheme

General Corp. of Zhangquan Railway Development, Fujian Province was established in May 1988 with investment from the Fujian provincial government, the Quanzhou municipal government and the Ministry of Railways to serve as the executing agency for this project only. The executing agency had to coordinate between Fujian provincial government, the Quanzhou municipal government, the Ministry of Railways and a number of other related agencies, and arrange the procurement of a very large amount of local currency funding. Although there were delays in implementation schedule, the project can now be expected to reach completion largely as planned, and the implementation capability of the executing agency can be regarded as significant.

(5) Operations and Maintenance

Quanzhou Railway Corporation was established in December 1997 with investment from the Fujian provincial government, the Quanzhou municipal government and the Ministry of Railways to operate this project. There are no problems with the technical level of the operation and maintenance, for the majority of the Quanzhou Corporation's staff are experienced as former staff at the Ministry of Railways.

3 Project Effects and Impacts

The alleviation of congestion on ordinary roads between Quanzhou and Xiamen, which was one of the objectives of the project, has been attained, as the future increase in freight handling demand will be absorbed by this project, and the expressway between Quanzhou and Xiamen has already been completed. Demand for freight traffic on this project can be expected to grow with future development in the Xiaocuo Economic Zone, and will serve once the branch lines to the ports are completed (together with the private lines to link companies to the branch lines). Thus another of the project's objectives, contribution to the economic development of Quanzhou, can be expected to be attained, with appropriate operational work from the operating agency in aspects such as timetable setting.

Anxi Station

Luo yang jiang te Da qiao

ASEAN-Japan Development Fund for Republic of the Philippines Category B (AJDF), Industrial and Support Services Expansion Program (ISSEP)

Report Date: December 1999
Field Survey: January 1999

1 Project Summary and Japan's ODA Loan

(1) Background

The Medium Term Philippines Development Plan for 1987~1992 named the promotion of micro, small and medium businesses as one of 13 key national policies. The plan included support for such businesses in terms of both finance and technology. It was decided that such support should be provided through the ASEAN Japan Development Fund (AJDF) within the period of the development plan, and the Fund was expected to meet the growing demand for finance from the private sector in the Philippines, where it is difficult to obtain long-term finance at low and fixed interest rates.

(2) Objectives

To supply long-term finance at low and fixed interest rates, which is hard for small and medium businesses to obtain in the Philippines, in order to help those businesses to develop and succeed. The use of private sector financial institutions as intermediary agencies was intended to improve the skills of these institutions in financing small and medium businesses. By nurturing and strengthening small and medium businesses, the project was expected, by extension, to strengthen the foundations of the Philippines economy.

(3) Project Scope

This project was a financial intermediary loan in which the funds lent to the borrower by the JBIC are channeled through Participating Financial Institutions (PFIs) to the small and medium businesses that are the end-users. The conditions for sub-loans are as follows:

Eligible businesses:Both AJDF and ISSEP (Industrial and Support Services Expansion Program) lend to businesses with total assets of less than 200 million Pesos before the loan.

Eligible purpose of loans:[1]The construction, expansion or modernization of factories and related works, the purchase of mechanical equipment and spare parts, and startup funds (ISSEP includes additional working capital).

[2]Installation of environment-related medical equipment (ISSEP only).

Finance terms:[1]Loan amount of at least 50,000 Pesos and less than 100 million Pesos from both AJDF and ISSEP.

[2]Interest from the AJDF is (WAIR* - 2%) + maximum 5% and from ISSEP is (WAIR* - 2%) + maximum 5% for

variable interest rate and (WAIR - 2%) + 2~3.5% + maximum 5% for fixed interest rate (all at the time of the appraisal).
(*WAIR: Weighted Average of Interest Rates)
[3]Repayment period between three and 15 years from both the ADJF and the ISSEP.
[4]The ODA loan ratio was 80% of the cost of sub-projects.
(The details of finance conditions between JBIC and DBP, DBP and PFLs, and PFIs and the end-users are presented below in 2.(2)[1])

(4) Borrower/Executing Agency

In each case this was the Development Bank of the Philippines (DBP) (Guaranteed by the Philippine government).

(5) Outline of Loan Agreement

	AJDF	ISSEP
Loan Amount	¥30,084 million	¥22,500 million
Loan Disbursed Amount	¥30,084 million	¥22,500 million
Loan Conditions		
Interest Rate	2.5%	3.0%
Repayment Period (Grace Period)	30years(10years)	30years(10years)
Procurement	General Untied	General Untied
Date of Loan Agreement	June 1991	December 1994
Final Disbursement Date	March 1995	July 1997

2 Analysis and Evaluation

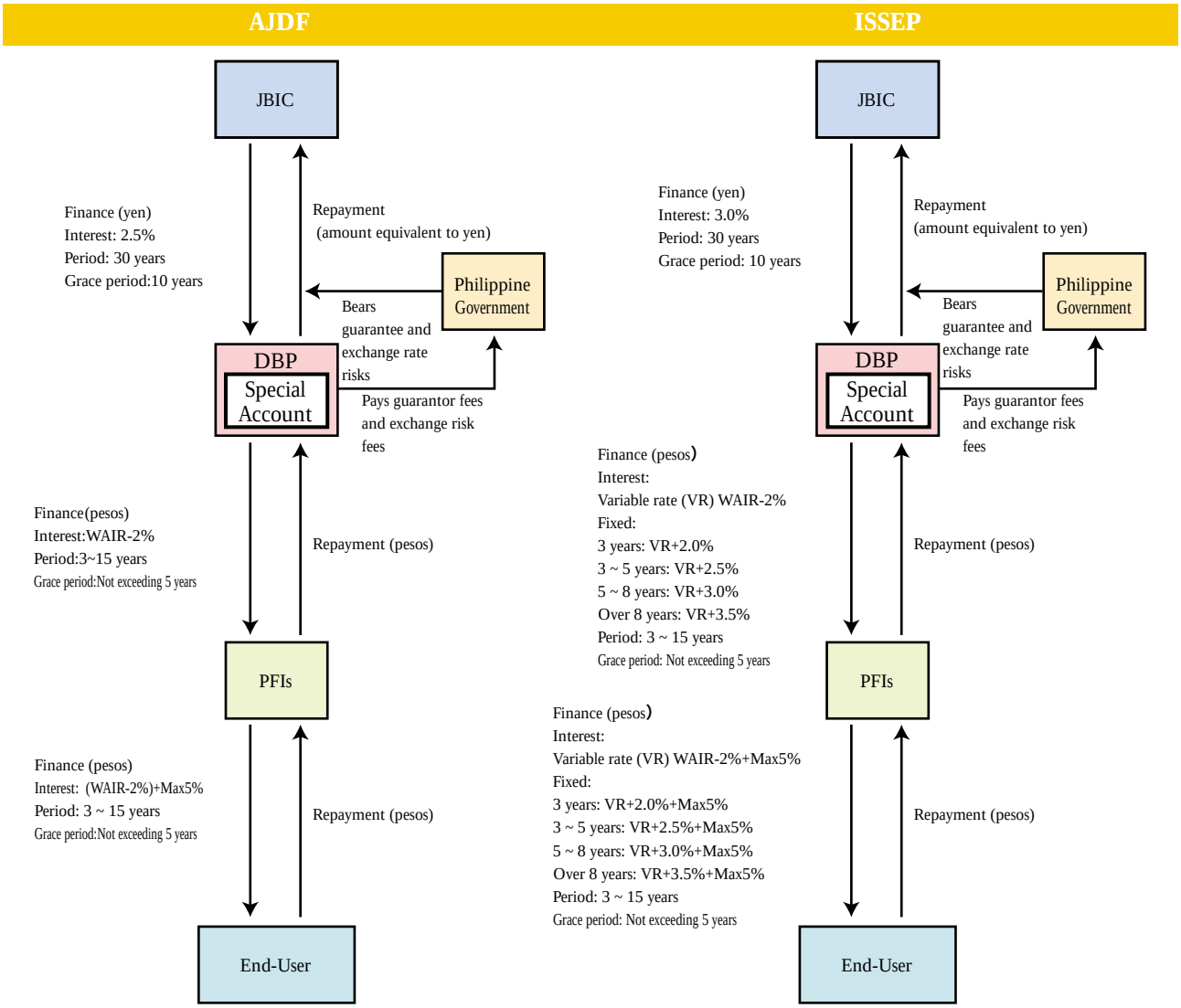
(1) Record of Loans Disbursed

(i) Project Scope: The project was carried out with eligible end-users, loan targets and terms as planned.
(ii) Disbursement Record:AJDF; 227 loans, 7,304,440,000 Pesos. ISSEP; 184 loans, 5,605,560,000 Pesos.
(iii) Breakdown by Scale:AJDF; micro-scale businesses 0.8%, small businesses 14.6%, medium businesses 35.7% and large businesses 48.9%.
ISSEP; micro-scale businesses 1.2%, small businesses 14.2%, medium businesses 37.6% and large businesses 47.1%.
* The classifications used by the AJDF are based on total assets before the loan, such that micro businesses had 100,000~1 million Pesos, small businesses had 1~10 million, medium businesses had 10~40 million and large businesses had 40~200 million Pesos. The ISSEP classifications were that, similarly, micro businesses had 150,000~1.5 million Pesos, small businesses had 1.5~15 million, medium businesses had 10~60 million and large businesses had 60~200 million Pesos.
(iv) Breakdown by Industry:The breakdown of borrowers by their type of business is as tabulated below:

	AJDF	ISSEP
Manufacturing of foodstuff and beverage	13.7%	15.0%
Textiles and apparel related industries	14.9%	9.3%
Metal goods	8.9%	11.5%
Paper, paper products	8.2%	4.9%
Timber, cork, furniture	7.7%	6.4%
Petroleum and chemical products	7.8%	8.9%
Plastic products	0.0%	7.5%
Electric and industrial machinery	0.0%	1.4%
Manufacturing industry and others	13.9%	1.0%
Total of manufacturing industries	**75.1%**	**66.0%**
Transport, communications	15.9%	26.5%
Marketing distributor	2.8%	0.0%
Publishing, printing	1.1%	0.0%
Hospital and medical treatment related	0.0%	2.6%
Education	0.0%	1.9%
Non-manufacturing industries	5.1%	3.0%
Total of non-manufacturing industries	**24.9%**	**34.0%**
Grand Total	**100.0%**	**100.0%**

(2) Project Implementation Scheme

Sub-loans under this project were made through the flow of funds shown below :



(i) Sub-loan Recovery Situation

No arrears have occurred in payments from the PFIs to the DBP, and it is reported to DBP that there has been basically no problem in repayments from end-users to the PFIs. However, after the economic crisis some PFIs discussed rescheduling of their payments with the DBP, and some end-users fell somewhat into arrears in their payments to the PFIs. The situations of the end-users and PFIs appear to warrant some caution.

(ii) Revolving Fund

The revolving fund was set up within the DBP, and the secondary loans were made from the revolving fund. The activity of the revolving fund is reported to JBIC in progress reports every three months. The revolving fund is well managed.

3 Project Effects and Impacts

(i) Developing and Strengthening Small and Medium Businesses

In line with the original objective, long-term finance at fixed and low interest is being channeled to small and medium businesses which are keen to invest, and the finance serves to encourage their growth. The experience of having received a loan under this project has given many end-users credit history, which makes it possible for them to obtain long-term funds from private-sector financial institutions, which would have been extremely difficult before.

(ii) Enhancing the Ability of the Executing Agency and Intermediary Agencies

This project included technical support to DBP to establish rule-based systems for loan appraising and to enhance credit management ability. As a institution for the implementation and supervision of “directed credit”, DBP is pushing to change

perceptions and attitudes and to raise the skill levels of staff. As a result, DBP has been able to build up the managerial ability of the PFIs which serve as the intermediary institutions and achieve the smooth operation of the project. Training for the staff of PFIs has made a valuable contribution to raising their skill level of financing small and medium businesses, and particularly for project finance.

4 Lessons Learned

Technical assistance to the executing agency and related institutions is valuable for ensuring the swift and smooth operation of financial intermediary loans.

End-user's Project, a Canning Plant

End-user's Project, a Candy Plant

Containers purchased by an End-user for Cold Storange of Imported Fruits

Small Scale Industry Promotion Program (SSIPP) (1) (2)

Report Date: March 2000
Field Survey: January 1999

1 Project Summary and Japan's ODA Loan

(1) Background

Since the beginning of the 1980s, the absorption of surplus labor from the agricultural sector and the correction of income disparities between the cities and the rural areas have been major policy objectives in Thailand. Small businesses in the rural areas have been nurtured as a means of achieving those ends. Since the mid-'80s the strengthening and encouragement of small businesses has been regarded as an essential policy for reinforcing the Thai economy and specific small business promotion policies have been sought.

(2) Objectives

This project aims to strengthen and nurture Thai small businesses by providing them with the loans at low and fixed interest rates over medium and long terms which are normally difficult for them to obtain. By strengthening and nurturing Thai small businesses, the project was expected to reinforce the Thai economy.

(3) Project Scope

This project was a development loan through banking system (DLBS), with sub-loans provided under the following conditions:

Eligible businesses:

SSIPP (1): companies with net fixed assets not exceeding 10 million Baht before the loan.

SSIPP (2): companies with net fix assets not exceeding 20 million Baht before the loan.

Purpose of loans:

Construction, expansion and modernization of factories, and the purchase of machinery & equipment and spare parts.

Finance conditions:

The limits of loan are 200,000 ~5,000,000 Baht for SSIPP (1) and 200,000~10,000,000 Baht for SSIPP (2).

Interest rates were 12.65% for SSIPP (1) and 13% for SSIPP (2) (both rates as set at the time of appraisal).

Repayment periods were 6~8 years for SSIPP (1) and 5~15 years for SSIPP (2).

ODA loan ratio was 70% of sub-loan amount.

(Refer to 2.(2) below for details of loan conditions set by JBIC for the executing agency).

(4) Borrower/Executing Agency:

Industrial Finance Corporation of Thailand (IFCT) respectively (guaranteed by Thai Government)

(5) Outline of Loan Agreement

	(1)	(2)
Loan Amount	¥1,500 million	¥1,000 million
Loan Disbursed Amount	¥1,500 million	(¥995 million)
Loan Conditions		
Interest Rate	3.0%	2.7%
Repayment Period (Grace Period)	25years(7years)	30years(7years)
Procurement	General Untide	General Untide
Date of Loan Agreement	September 1987	February 1990
Final Disbursement Date	September 1992	June 1995

2 Analysis and Evaluation

(1) Sub-loan Results

(i) Project Scope: Loans were implemented with all eligible end-users, applications and conditions as initially planned.

(ii) The Number and Amount of Sub-loans Approved:

(1) 156 loans, 409.1 million Baht (286.4 million Baht from the ODA loan).

(2) 64 loans, 286.6 million Baht (200.6 million Baht from the ODA loan).

(iii) Breakdown by Size: (1) Ten employees or less: 12%, 11~50: 63%, 51 or more: 25%.

(2) Ten employees or less: 11%, 11~50: 45%, 51 or more: 44%.

(iv) Breakdown by Usage: (1) Construction of new factories: 42%, expansion of equipment: 53%, factory relocation etc.: 5%.

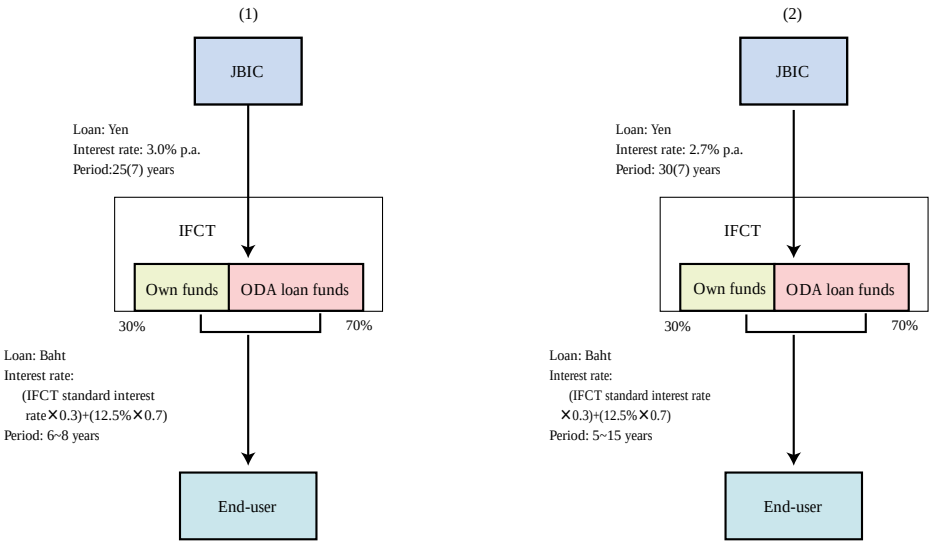
(2) Construction of new factories: 43%, expansion of equipment: 56%, factory relocation etc.: 1%.

(v) Breakdown by Industry: Breakdown by business type is as follows.

	(1)	(2)
Agricultural produce related, mining, food and beverages	34.5%	23.5%
Textiles, apparel, leather goods	5.4%	13.2%
Wooden ware, furniture	7.5%	7.2%
Paper, printing, publishing	2.7%	6.5%
Chemical, rubber, refined oil, petroleum products	13.4%	14.1%
Nonmetal (mineral) products, pottery, glass products	7.8%	0.3%
Metal processing, electric equipment, general machinery	17.8%	16.6%
Industrial gas, water supply, warehouse etc.	3.8%	0.0%
Building materials	0.0%	8.6%
Service industry	4.6%	9.1%
Other industries	2.5%	0.9%
Total	100.0%	100.0%

(2)Project Implementation Scheme

Under this project, the flow of funds to deliver the sub-loans was as shown below.



(i) Sub-loan Repayment
The proportion of overdue sub-loans in arrears of less than three months is declining every year, but the number and amount of sub-loans in arrears of one year or more is static, which indicates that some countermeasures should be taken.
(ii) Revolving Fund
IFCT has established a revolving fund and disburses secondary loans. However, in recent years IFCT has been limiting loans to small businesses, and the impact of the economic crisis in the country makes the revolving fund somewhat limited.

(3) Project Effects and Impacts

(i) Nurturing and strengthening small businesses
In line with the initial objective of the project, it has supplied long-term loans at low and fixed rates of interest to small businesses which are eager to invest, thus promoting their growth. Many end-users were able to use this project to obtain long-term finance which had previously been extremely hard to obtain from private-sector financial institutions.
(ii) Enhancement of the Executing Agency's Ability
IFCT took this project as an opportunity to build up their expertise in providing finance to small businesses. The result is a steady decline in the incidence of arrears for short-period and a general improvement in the IFCT's credit management ability.

3 Lessons Learned

Policy-based directed credit program to small (and medium) businesses (financial intermediary loan) produces direct effects by enabling end users to access long-term funds at fixed and low interest rates. It also has the secondary effect of giving end users experience of borrowing from DLBS, which strengthens their credit-worthiness and makes it easier for them to obtain fund from various sources.


End-user's Project, a Lathe Plant


End-user's Project, an Operating Lathe Plant


End-user's Project, a Hog Rasing Farm

Rehabilitation Loan

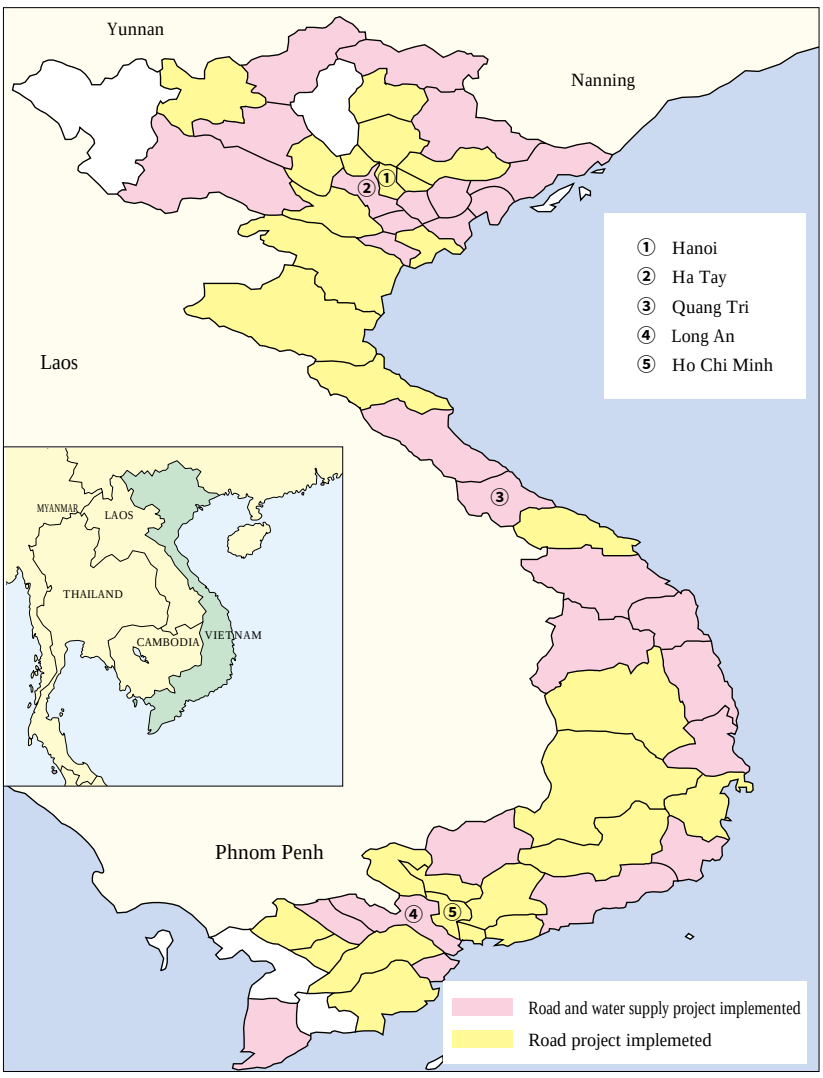
Report Date: March 2000
Field Survey: July 1999

1 Project Summary and Japan's ODA Loan

Borrower	Government of Socialist Republic of Vietnam
Executing Agency	State Planning Committee (currently Ministry of Planning and Investment)
Loan Amount	¥2,500 million
Loan Disbursed Amount	¥2,479 million
Date of Exchange of Notes	January 1994
Date of Loan agreement	January 1994
Loan Conditions	
Interest Rate	1.0%
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	February 1997

This loan aimed to alleviate the economic difficulties faced by Vietnam in its transition to a market economy, and particularly to promote the country's "Rehabilitation Program" for underdeveloped provincial roads and water supply.

The ODA loan covered the foreign currency portion of the cost of importing equipment and materials for road and water supply construction projects and the entire cost of consulting service.



2 Analysis and Evaluation

(1) Project Scope

After the loan agreement was signed, MPI narrowed down the range of sub-projects and confirmed the project scope based on the "Rehabilitation Program (the original program)". As a result, bridge improvement was exempted from the project scope, and changes were made in matters such as the number of cities to be provided with water supply. Further changes were made later, such as removing eight of the 40 cities scheduled for water supply improvement from the project scope. The changes in the scope of the project were made to keep the project within its original budget. Considering the fact that a considerable proportion of the project cost was borne by the Vietnamese government, the changes appear to have been an unavoidable measure. However, to enhance the efficacy of the road improvement elements of this project, JBIC should follow up on the bridge improvement situation.

(2) Implementation Schedule

The road improvement was completed nine

months late, but, considering the fact that this loan was the first to Vietnam after the resumption of ODA loans to the country, and the Vietnamese side took a certain time to complete unfamiliar procurement procedures, the timing appears to have been realistic.

The improvement of water supply system is greatly delayed and some sub-projects have not yet been completed in some provinces (as of July 1999). This major delay was caused by the detailed investigation of water supply works and the contract agreements for equipment procurement that aggregate took 22 months. The delay appears to have been unavoidable, because rehabilitation of water supply requires more detailed investigation than new construction, and because there were more than 30 sub-projects.

(3) Project Cost

As the scope of the project was changed after the loan agreement was concluded, the eventual project cost was largely as planned and the Vietnamese government's budgetary allocations were made without problems. The cost was kept within the planned amount by cutting back the scope of the project after the loan agreement was signed. The original program at the time of the loan agreement did not specify the details of project scope and cost, so it appears to have been unavoidable that the content of the project was changed somewhat for the main program.

Comparison of Original Plan and Actual

Item	Plan	Actual
1. Project Scope		
Road improvement		
・No. of targeted provinces	53	50
・No. of sub-project	221	211
・Extention of rehabilitation roads (km)	984	949
Water supply improvement		
・No. of targeted provinces	34	34
・No. of targeted cities	40	32
2. Implementation Schedule		
(start of procurement to completion of construction work)		
i) Road improvement	April 1995 to March 1996	January 1995 to December 1996
ii) Water supply improvement	April 1995 to March 1996	August 1995 to (completed in 30 provinces by 1997)
3. Project Cost		
ODA loan portion	¥2,500 million	¥2,479 million
Total project cost	¥8,635 million	N.A
Exchange Rate	¥1 = 110.8 Dong	¥1 = 84.7 Dong

(4) Project Implementation Scheme

At the time of the loan agreement (January 1994), the executing agency was the State Planning Committee (SPC), but SPC was reorganized in 1995, into the Ministry of Planning and Investment (MPI). MPI is an overall coordinating agency at the central government level with central authority over the drafting of development plans and the allocation of development budgets. It coordinated between the related central government ministries and ensured the generally smooth completion of the project.

(5) Operations and Maintenance

This project covered what were then all 53 provinces of the country with approximately 250 sub-projects. For this post-evaluation we chose six projects in three provinces at random as case studies. The evaluation confirmed that the maintenance position of all the sample sub-projects was good, but it also found that the omission of bridge improvement from the road improvement plans caused bottlenecks preventing growth in transport volume, and confirmed that some water supply equipment had not yet been installed. JBIC and MPI will have to monitor these points in future.

(6) Project Effects and Impacts

The findings of interviews with people who use the roads improved by this project showed that most thought that the quality of the roads was higher than before and, as a result, road usage had increased. The results of case studies in three provinces underlined this finding (see Table 1 on the next page).

Table 1 Changes of Traffic by Implementation of the Project

Province Name	Road Name	Traffic Volume (vehicles/day)		Difference	Journey time (minute)		Difference
		Before project implementation	After project implementation		Before project implementation	After project implementation	
Ha Tay	Road No. 430	500	1,000	+500	N.A	N.A	N.A
Quang Tri	Road No. 68	1,200	1,824	+624	24	12	△12
Long An	Tan An-Chau Thauh road	N.A	N.A	N.A	25	15	△10

Source: Executing agencies in each province
Note: Traffic volume does not include motorcycles and bicycles.

Most of the water supply improvements have only just been completed. Recorded data on impact indices for water supply improvements due to this project as a whole are to be reported later, but in the three provinces investigated as case studies, increased water supply diffusion rate and improved public health were confirmed (see Table 2 below).

Table 2 Changes in the Water Supply Diffusion Rate for Each Water Corporation

Province Name	Name of Water Supply Corporation	Water Supply Diffusion Rate (%)		Difference
		1997	1999	
Ha Tay	Ha Dong	70	70	±0
Quang Tri	Dong Ha	55	75	↑20
Long An	Tan An	65	80	↑15

Source: Materials of each Water Supply Corporation

Widened Road in Ha Tay Province

Large Pumps procured by this Loan

Laboratory next to Filtration Plant in Long An Province,where All Instruments were procured by this Loan

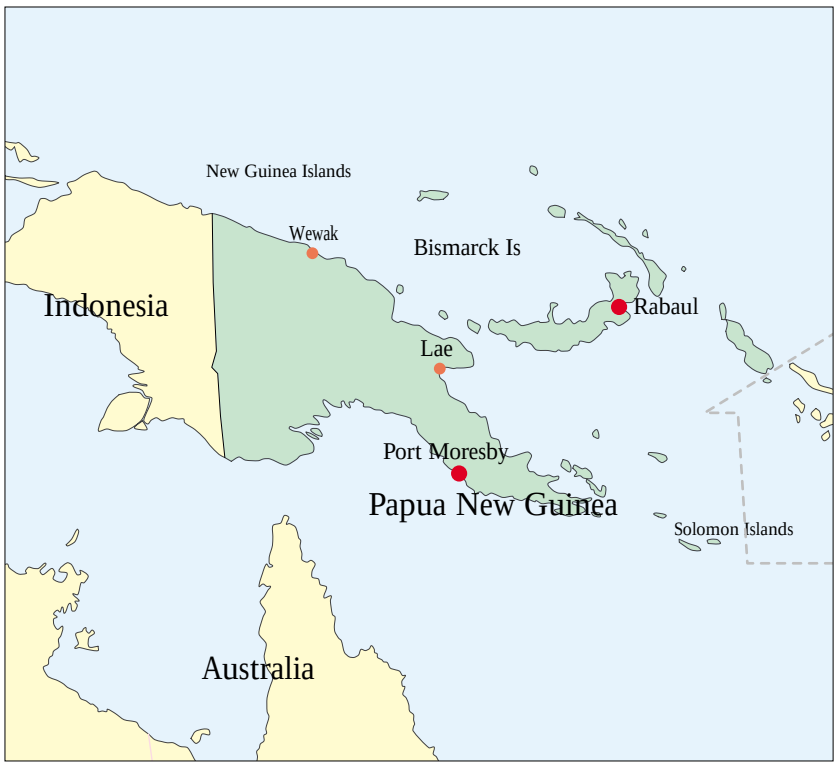
Agriculture Development Project

Report Date: October 1999
Field Survey: July 1999

1 Project Summary and Japan's ODA Loan

(1) Objectives

The objectives of this project are to maintain the coffee and cocoa production standards and raise the quality of these products, as well as to contribute to the improvement of the international balance of payments by increasing agricultural income through the diversification of other agricultural products by providing sub-loans to small-scale farmers through Agriculture Bank of Papua New Guinea (later, Rural Development Bank, hereunder, RDB).



(2) Project Scope

This project is Two-Step-Loan, with the funds lent by JBIC channeled to RDB, which is the executing agency for this project, via the PNG administration, and thereafter, sub-lent to end-users. The scope of sub-loans at the time of planning were coffee, cocoa, and other agricultural products, new export cash crops, food crops for import substitution, and crops for nutrition improvement. The loan period and sub-loan interest rate were as follows at the time of planning.

	Loan Period	Sub-loan Interest Rate
Less than 10,000 Kina	Within 8 years (within 4 years for grace period)	8.5% per year
10,000 Kina or more	Within 15 years (within 5 years for grace period)	10.5% per year

(3) Project Cost

(Unit: ¥1,000)

	Plan	Actual	Difference
Sub loan	2,557,000	2,029,350	△527,650
Purchase of vehicles	48,000	72,360	+24,369
Consulting service	66,000	111,513	+45,513
Total	2,671,000	2,213,232	△457,768
Contingency	11,000		△11,000
Grand total	2,682,000	2,213,232	△468,768

(4) Borrower/Executing Agency

Government of Papua New Guinea / Agriculture Bank of Papua New Guinea (later, Rural Development Bank)

(5) Outline of Loan Agreement

Loan Amount	¥2,682 million
Loan Disbursed Amount	¥2,213 million
Date of Exchange of Notes	August 1988
Date of Loan agreement	November 1988
Loan Conditions	
Interest Rate	2.7%
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	April 1999

ExchangeRate: 1 Kina = ¥148, Rate at the time of appraisal (1988)

2 Analysis and Evaluation

(1) Project Implementation

Loan Status by Project/Product

Project	No. of loans	Loan amount (1,000 Kina)	Composite ratio
Coffee	902	4,926,662	24.4%
Transport (passenger)	222	3,068,743	15.2%
Fishing	991	2,144,080	10.6%
Poultry	418	1,473,106	7.3%
Cattle farming	95	1,356,866	6.7%
Transport of produce	132	1,307,514	6.5%
Cocoa	418	1,205,962	6.0%
Cocoa processing	485	1,093,815	5.4%
Transport (goods)	49	991,318	4.9%
Oil palms	632	779,128	3.9%
Housing	157	689,825	3.4%
Gardening	62	413,360	2.0%
Others	193	718,427	3.6%
Total	4,756	20,168,806	100.0%

(Source: PCR)

Target Projects and Loan Conditions

Sub-project	Planned Target	Actual Target	Loan Limit	Loan Period	Loan Interest
				(Year)	(%)
Small-scale agriculture	○	○	Less than K10,000	8	8.5~10
Large-scale agriculture	○	○	K10,000 or more	15	1.5~12
Small-scale coastal fishing	○	○	Less than K10,000	8	8.5~13
Small-scale oil palms (not including new fields)	○	○	Less than K10,000	8	8.5~12
Small-scale oil palms (new fields)		○	Below K10,000	15	11~12
Transportation vehicles		○		2~3	20~22
Small-scale forestry		○		3~7	13~15
Livestock industry		○		5~15	10~12
Processing of agricultural products		○		3~15	10~15
Large-scale fishery		○		2~7	14.5~22
Rural housing		○	Below K5,000	10	5~10
Small loans for women and young persons		○	Below K5,000	2	8~10
Loans for disadvantaged underdeveloped areas		○	Below K10,000	12	5~8

(i) Provision of Sub-Loans

Project formation was delayed due to commodity rate sluggishness, but on the other hand the strong yen and weak kina increased the possibility of kina-denominated loans, and consequently loan disbursements took longer than initially planned. However, the loan period was extended in two times a total of 4 years, and as the result of Special Assistance for Project

Implementation (SAPI) from JBIC, thus strengthening the implementation scheme, ¥2,029 million were lent in the end, compared to the initially estimated amount of ¥2,557 million.
The target of the sub-loans were coffee, cocoa, and other agricultural products, including new export cash crops and crops for import substitution, and crops for nutrition improvement. However, based on the SAPI recommendation of December 1995, 9 new projects were added for sub-loans as matching the project objective of agricultural promotion.
The sub-loan recovery status stands at 1,643 loans recovered out of 4,756 loans made, and 184 loans that are irrecoverable. Moreover, there were 428 loans whose recoverability was doubtful out of the 2,929 remaining loans as of the end of March 1999.
The operation of a revolving fund began in 1997 with the establishment of a management information system (MIS). The repeat loan rate on a loan approval basis compared to the cumulative sub-loan repayment total (amount approved for repeat loan) was 39.3% as of December 1998.
(ii) Procurement of Vehicles and Implementation of Consulting Service
The project implementation schedule was extended due to the extension of the loan disbursement period, and therefore additional vehicles were procured as required.
In addition to the initially planned sub-project support consulting and lending training, the establishment of the Management Information System (MIS) was implemented using part of the loan funds regarding consulting services. This made it possible to collect the information necessary to raise RDB's lending efficiency and improve its management capabilities. Consultants were hired in order to enable the smooth implementation of this project and support adequate management of obligations.These actions contributed to the rationalization of RDB's operations and its management improvement, and also the efficient implementation of this project.

(2) Project Effects and Impacts

(i) Rural and Agriculture Promotion
Ultimately, 2,213 million yen in project funds were lent through this project, and various cases of expanded production activities, productivity increases, and raised income have been reported. While this financing assistance is not the sole reason involved, for businesspersons for whom investment expenditures for seeds, fertilizer, tools, and machinery come first, the introduction of easy-to-use institutional banking can be said to play an important role in raising interest in business. Furthermore, this project has also created employment opportunities, as shown by an interview survey of 299 persons out of the 20,000 covered by this project, or 1.8% of all PNG job seekers.
Other results include (1) many cases of the automation or streamlining of agricultural work and the release of workers from heavy or dangerous labor through the introduction of new agricultural machinery and the use of fertilizers by end-users through this project and (2) the appearance of a wide variety of agricultural produce on markets, in greater quantities as well as higher quality. Moreover, the food situation has improved along with higher incomes, in the form of greater food purchases by individuals and the consumption of excess agricultural produce. However, another impact of this project is that some traditional produce such as taro, bananas, beans, and potatoes cultivated as commercial crops, which fetch low prices but have high nutritional value, has been somewhat neglected.
(ii) Improvement in Capability of Financial Institutions
The organizational capabilities of RDB have been strengthened thanks to management improvements implemented with the help of consultants hired using loan funds along with the introduction of MIS and vehicle procurement. As a result, the functions of RDB have been improved and the institutional banking system in rural areas has been enhanced.
(iii) Environmental Impact
The majority of sub-projects in this project consist of small-scale projects by small-scale farmers distributed over various regions. In the case of sub-projects involving individual farmers, the scale is 2 to 3 ha, while in the case of sub-projects involving groups, the scale is on the order of 10 ha. Furthermore, in the case of coffee and cocoa, which account for the majority of sub-projects, projects consist of replanting of existing agricultural land. Thus, no adverse environmental impact has been observed in particular for this project.

3 Lessons Learned

(1) It is important to increase the implementation capabilities of the executing agency through the strengthening of human resources to enable the rapid and smooth implementation of financial intermediary loans.
As part of this project, consultants were hired using loan funds in order to improve lending operations, management operations, and make project progress reports. As a result, the implementation capability of the executing agency was raised, and it became possible to implement sub-loans in a smooth manner. On the other hand, reports on the project's progress

were systematically made to the JBIC, and efficient monitoring of ODA lending operations was made possible. It is important to seek to raise implementation capabilities and reporting capabilities by strengthening human resources, including hiring outside specialists when the executing agency does not have suitable personnel for specific tasks.

(2) Since the implementation and monitoring of financial intermediary loans depend heavily on the information system capabilities of the executing agency, aid for strengthening the executing agency's information system is important.
Since this project involved a large number of small sub-loans, the provision of information system to manage lending operations was indispensable. Through the introduction of an information system, it became possible to collect sub-loans management information and management information, enabling accurate sub-loans management and management analysis by the executing agency. This information system of the executing agency for implementation and monitoring of this project can be said to be indispensable, and pressing ahead to establish it within the shortest delay possible was a sensible decision.

Head Office of Rural Development Bank

Coffee Bean Processing Machine, purchased through the Loan from RDB

End-user's Coffee Farm, Manager and RDB Staff in Foreground

Dairy Facilities Improvement Project (2)

Report Date: March 1999
Field Survey: December 1998

1 Project Summary and Japan's ODA Loan

This project aimed to meet growing demand for milk and dairy products in South Korea and to protect and nurture small dairy farmers. Specifically, the project is designed to expand the Seoul Milk No.3 Factory(*), which is located in the Pan Wol Industrial Complex in Gyeonggi Do Ansan city, around 35km southwest of Seoul, in order to increase the factory's raw milk treatment and processing capacity.
The ODA loan covers the entire foreign currency portion of the project cost, and part of the local currency portion.

Borrower	Government of Korea
Executing Agency	Seoul Dairy Cooperative
Loan Amount	¥2,448 million
Loan Disbursed Amount	¥1,507 million
Date of Exchange of Notes	September 11, 1990
Date of Loan Agreement	October 31, 1990
Final Disbursement Date	January 9, 1996

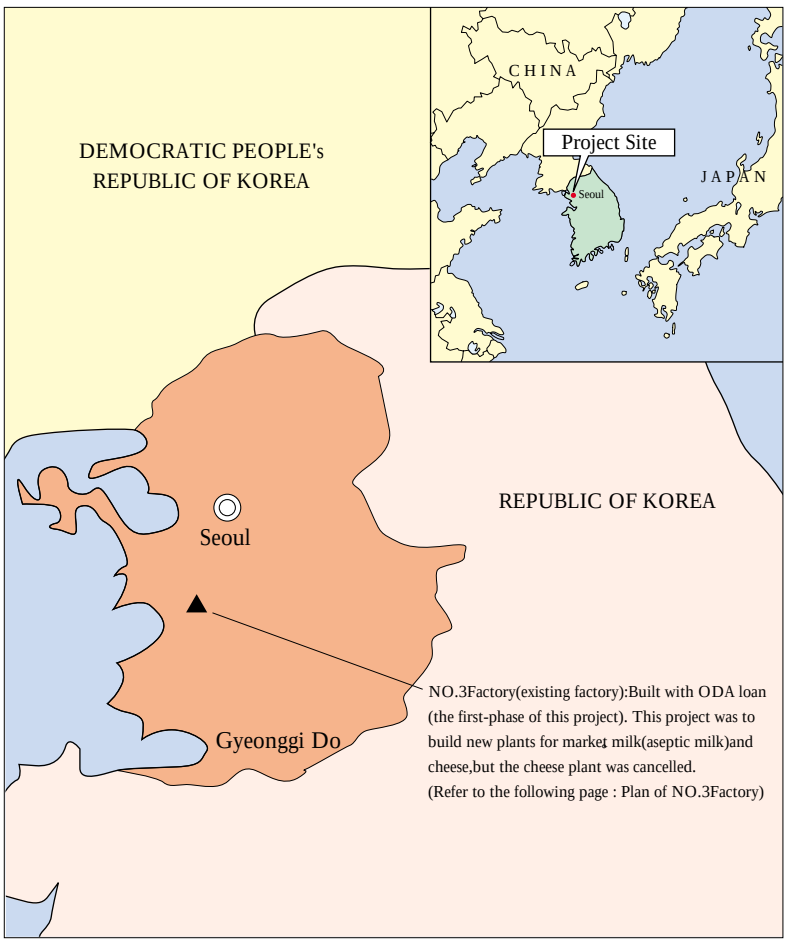
2 Analysis and Evaluation

(1) Project Scope

The initial plan was for expansion of facilities with the capacity to treat and process 570 tons per day of raw milk, but the scale was reduced to expand only market milk plant with a capacity of 200 tons per day. This change was a response to the slackening off of the milk consumption in South Korea after 1988 and was judged to be appropriate.

(2) Implementation Schedule

The reappraisal of the scope of the project delayed the start of the civil works (the tender procedures) by seven months, but the facilities were completed six months ahead of schedule. Completion was early because the time required for tender was reduced and the construction work continued even in winter, when conditions are generally disadvantageous for such work. This acceleration depends much on efforts by the executing agency (SDC) to bring the project into commercial production in time for the next demand growth season (March ~ September in South Korea).



(*)The factory was built in FY 1985 under the Dairy Facilities Improvement Project with an ODA loan to South Korea.

(3) Project Cost

The foreign currency portion of the project cost underran by around ¥900 million. The underrun was mainly due to the above-mentioned reduction in the scope of the project which brought the equipment purchasing cost below the plan. The size of the factory (floor space) was increased from the plan, which increased the local currency portion of the cost.

Comparison of Original Plan and Actual

Item	Plan in 1990	Actual
1.Project Scope	(Raw milk treatment/processing capacity)	(Raw milk treatment/processing capacity)
Market milk plant	360 tons/day	200 tons/day
Powdered milk plant	180 tons/day	0 tons/day (cancel)
Cheese plant	30 tons/day	0 tons/day (cancel)
2.Implementation Schedule		
Project commencement (start of civil works) ~	October 1991 ~ May 1993	May 1992 ~ June 1993
Project completion (end of test run)	(20 months)	(14 months)
3. Project Cost		
Foreign currency	¥1,885 million	¥945 million
Local currency	5,860 million won	6,507 million won
Total	¥3,139 million	¥1,943 million
Exchange Rate	1 won=¥0.214	1 won=¥0.153

(4) Project Implementation Scheme

The executing agency was Seoul Dairy Cooperative (SDC), which worked together with its supervisory agency, National Livestock Cooperatives Federation (NLCF) to carry out the project. Procurement of the facilities (plant) was executed by international competitive tender, which was awarded to companies from Denmark and Singapore. The performance of these companies was good, including deliveries made ahead of the schedule.

No consultants were employed for this project.

(5) Operations and Maintenance

Operations and maintenance for this project is handled by the SDC No.3 Factory. The number of workers at the No.3 Factory has increased since the appraisal was conducted. The facilities are automated and is operated efficiently.

(6) Project Effects and Impacts

(i) Quantitative Effects:

(a) Increased Receiving Capacity for Raw Milk : The implementation of this project increased the raw milk receiving capacity of the SDC Seoul No.3 Factory from 181,000 tons/year in 1990 to 221,000 tons/year in 1997.

(b) Financial Internal Rate of Return : FIRR = 24.2%. (13.7% at the time of appraisal in 1990).

(c) Job Creation: The implementation of this project created 20 new jobs in the milk plant of the SDC Seoul No.3 Factory (between June and September the factory works at full capacity with three shifts, creating another ten seasonal jobs).

(ii) Qualitative Effects

(a) A Strengthened Base for the SDC Cooperative Members : The implementation of this project secured a reliable recipient for the raw milk produced by the SDC cooperative members, contributing to the protection and improvement of their livelihoods.

(b) Increased income for dairy farmers: The annual household income for the SDC cooperative members rose from 16.8 million Won in 1990 to 49.3 million Won in 1997, thanks to this project and other factors.

Seoul No.3 Factory (from Main Gate)

The Market Milk Processing Plant extended under this project.

A Milk Processing Plant purchased and set up under this loan.

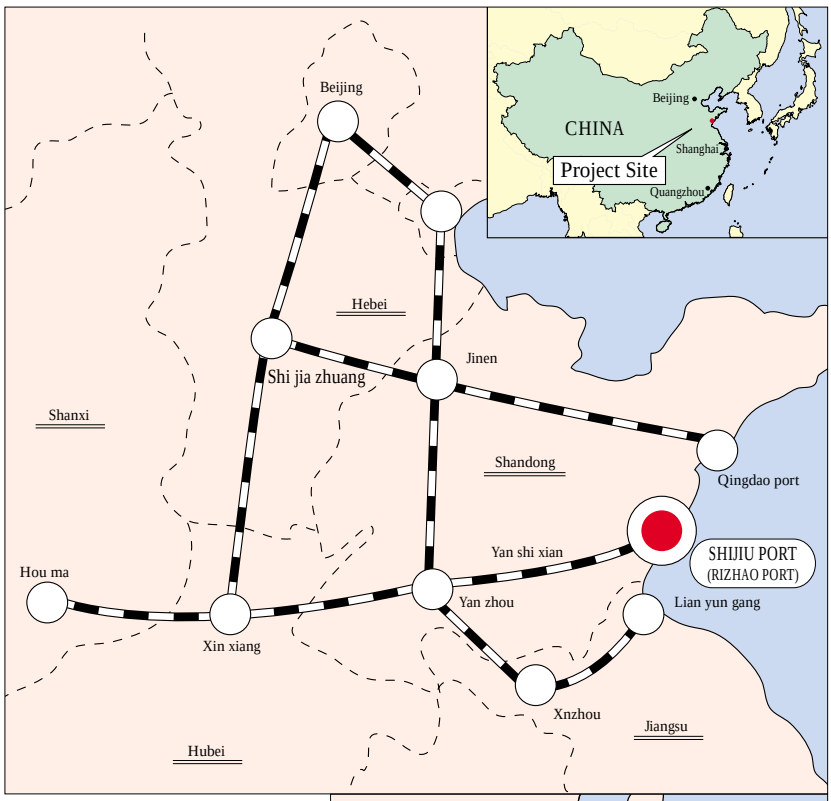
Shijiu Port Second Phase Construction Project (1) (2)

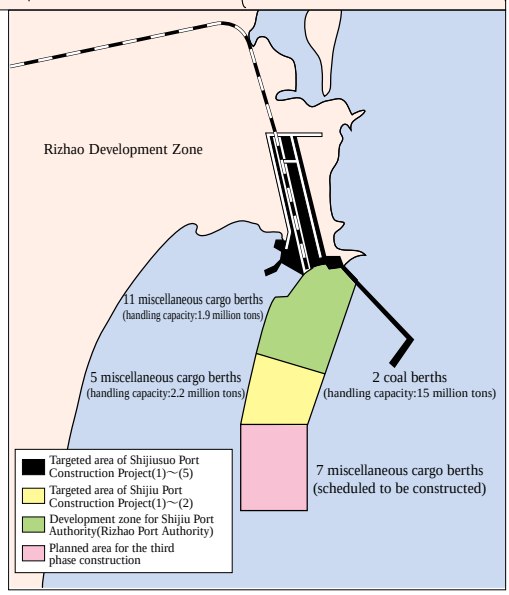
Report Date: March 2000
Field Survey: January 2000

1 Project Summary and Japan's ODA Loan

(1) Background

The rapid economic growth of the project's hinterlands (Shandong, Henan and Shanxi provinces) has produced booming demand for miscellaneous cargo handling at Shijiu Port, which mainly handles steel materials, iron ore and cement. The volume handled was projected to reach 2.45 million tons by 1995. This forecast was based on two considerations. One was the expected shift in the shipping of raw materials and manufactured goods from the steel works, fertilizer industry and mines in the hinterlands to Shijiu Port and away from neighboring Qingdao and Lianyungang ports. This shift was expected because of the construction of related transport facilities. The other was the planned construction of a number of large factories (cement, pulp, glass etc.). In 1991, when the appraisal was made, the annual miscellaneous cargo handling capacity of Shijiu Port was 0.2 million tons, necessitating the construction and improvement of miscellaneous cargo berths under this project to alleviate the shortage of miscellaneous cargo handling capacity.





(2) Objectives

This project aimed to meet the increasing demand for miscellaneous cargo handling from the hinterlands (Shandong, Henan and Shanxi provinces) of Shijiu Port in Rizhao municipal government, Shandong province, to promote effective use of the railway between Yanzhou and Shijiu Port (constructed with the ODA loan Project, "Yanzhou - Shijiusuo Railway Construction Project (1) ~ (5)") and to enable the smooth economic development of the port's hinterlands. To achieve those ends, five miscellaneous cargo berths with an annual miscellaneous cargo handling capacity of 2.2 million tons were constructed at Shijiu Port, which previously handled mainly coal (its annual handling capacities were 15 million tons of coal and 0.2 million tons of miscellaneous cargo).

(3) Project Scope

The ODA loan covered the entire foreign currency portion required for procurement of the equipment, materials and services required for the implementation of the project. The loan agreement was concluded in two parts in FY 1991 and FY 1992.

(4) Borrower/Executing Agency

Ministry of Foreign Trade and Economic Cooperation, People's Republic of China/Ministry of Communications, People's Republic of China

(5) Outline of Loan Agreement

	FY1991	FY1992
Loan Amount	¥2,506 million	¥3,583 million
Loan Disbursed Amount	¥2,063 million	¥3,068 million
Date of Exchange of Notes	September 1991	October 1992
Date of Loan Agreement	October 1991	October 1992
Loan Conditions		
Interest Rate	2.6%	2.6%
Repayment Period (Grace Period)	30 years (10 years)	30 years (10 years)
Final Disbursement Date	November 1996	November 1997

2 Analysis and Evaluation

(1) Project Scope

The scope of the work included the harbor civil works required for the construction of the five miscellaneous cargo berths and the preparation of the facilities for cargo handling etc. These works were completed largely as planned, but the study group and the training group were not dispatched as planned under the technical cooperation portion of the project. According to the Shijiu Port Authority (now the Rizhao Port Authority), which is the organization in charge of O&M of the facilities, the relevant training was conducted smoothly through contractor training, leaving little need for technical cooperation according to the terms of the contract, which was therefore abandoned. As the skills required for operation of the project have been transferred as planned, we do not regard the fact that the study and training groups were not dispatched under the ODA loan as a problem.

(2) Implementation Schedule

With the exception of the completion of the cargo handling facilities (one multi-purpose crane), which was delayed by six months by prolonged contract negotiations, the project was completed as planned. Most of the berths went into operation as planned from January 1996, so the project can be deemed to have been implemented on schedule.

(3) Project Cost

The final project cost was a cost underrun on the foreign-currency portion and a slight cost overrun on the local currency portion. There was no significant problem with the cost of the project.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
Harbor civil works	• Miscellaneous cargo berth×5	As planned
Cargo handling facilities	• Multi-purpose crane×1	
Railway	• Port railway signal facility×1	
Buildings	• Lounge, dining hall, control room etc.	As planned
Utilities	• Water supply and drainage facilities, thermal supply facilities etc.	
Procurement of operation boat and vehicles	• Tugboat×2, Middle-sized bus×5 etc.	
Environmental conservation facilities	• Environmental measuring equipment×1	
Product inspection facilities	• Product inspection equipment×1	
Technical cooperation	• Dispatch of study and training groups	Not implemented
Others	• Navigation auxiliary facility etc.	As planned
2.Implementation Schedule		
(commencement to completion)	July 1991 to December 1995 (54 months)	July 1991 to June 1996 (60 months)

2.Implementation Schedule		
(commencement to completion)	July 1991 to December 1995 (54 months)	July 1991 to June 1996 (60 months)
3.Project Cost		
Foreign currency	¥6,089 million	¥5,131 million
Local currency	241 million yuan	259 million yuan
Total	¥11,718 million	¥9,850 million
Exchange Rate	1 yuan = ¥23.4 (1992)	1 yuan = ¥18.2 (weighted average between 1992 and 1996)

(4) Project Implementation Scheme

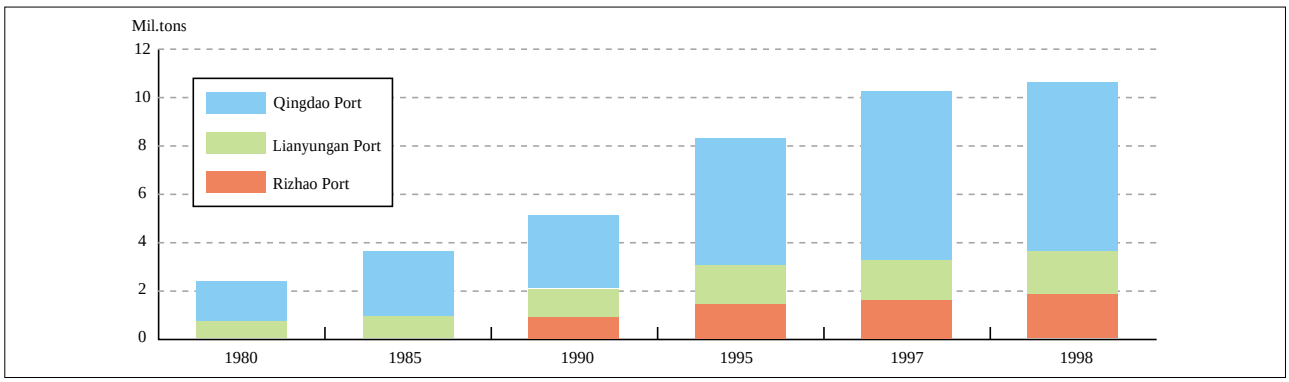
As for implementation scheme, the Ministry of Communications entrusted the monitoring and execution of the project to the Shijiu Port Authority, which employed contractors to carry out the construction works. The procurement of equipment and materials was handled by the China National Technology Import and Export Corporation. This method of subcontracting the supply of equipment and materials is standard practice in ODA loan projects to China, and it functioned effectively to achieve its objectives.

(5) Operations and Maintenance

The operations and maintenance (O&M) after the completion of the project has been carried out as planned by the No.2 Cargo Handling Corporation of the Shijiu Port Authority (now the Rizhao Port Authority). The Corporation obtains an adequate budget for the O&M of this project, and it carries out its work smoothly. It uses a manual to improve the quality of its work, and it replenishes its operation and maintenance materials in response to demand in order to cut costs. These efforts indicate an extraordinarily good O&M scheme. Workers are trained regularly to raise the level of expertise in cargo handling.

The annual volume of cargo handled by Shijiu Port (which will be referred to below as Rizhao Port due to a name change) is growing steadily (the combined total for coal and miscellaneous cargo in 1999 was 20.033 million tons). The increase was due to the growth of shipping demand from the hinterlands and the greater convenience of shipping it via Rizhao Port, given the construction of related transport facilities. At present the miscellaneous cargo berths mainly handle cement, iron ore and chemical fertilizers. In particular, the iron ores and steel materials passing through the port are carried to the hinterlands along the Yanzhou - Shijiu Railways (the Yanzhou-Shijiu Line) which was built with the ODA loan. This is an effective arrangement that makes use of the empty freight cars returning after delivering coal to Rizhao Port.

Movements in Volumes Handled at Nearby Ports



Source: China Statistical Yearbook 1999

(6) Project Effects and Impacts

(i) Quantitative Effects

When EIRR (economic internal rate of return) and FIRR (financial internal rate of return) for the project were recalculated using the same items of benefit [1] and cost [2] used at the time of the appraisal, the results were as shown in the table below. The economic effects of this project have been fully realized.

	EIRR	FIRR
Calculated at the time of appraisal (FY1992)	10.1%	3.9%
Recalculated	9.9%	8.1%

1 EIRR took into account the saving in vessel waiting time when using a berth, and the savings in time and financial costs for overland freight transport. FIRR took into account the income from cargo handling, income from warehousing, income from port management and other income.

2 Both EIRR and FIRR include construction costs, personnel costs, maintenance costs and repair costs.

(ii) Qualitative Effects

The positive impacts of this project include economic development of Rizhao municipal government (the Rizhao development zone) and improved transport convenience for the hinterlands (Shandong, Henan and Shanxi provinces). The following developments can be observed in Rizhao municipal government:

- Expanded production (GDP per-capita in Rizhao municipal government increased approximately threefold between 1993 and 1998).
- Changes in industrial structures (since this project was completed in 1996, the proportion of secondary and tertiary industry has been increasing considerably).
- Creation of employment opportunities (the workforce of the Rizhao Port Authority more than doubled from 2,845 in 1991 to 5,820 in 1998).

With regard to the development of hinterlands the transport facilities which ship goods through Rizhao port have been made more convenient, and the volume they handled in 1998 reached 17.24 million tons (the volumes handled by neighboring ports in the same year were 70.18 million tons through Qingdao Port and 17.76 million tons through Lianyungang Port).

The Chinese side erected a monument within the port to mark the fact that Rizhao Port was built with Japanese assistance, and the project appears to have been effective in improving Sino-Japanese relations.

A Miscellaneous Cargo Berth

A Portable Crane financed by the ODA loan

A Multi-purpose Crane financed by the ODA loan

Beijing-Shenyang-Harbin Telecom Systems Project (1) (2)

Report Date: September 1999
Field Survey: May 1999

1 Project Summary and Japan's ODA Loan

In the early 1990s rapid economic growth in northeastern China, the target area for this project, brought a sharp rise in demand for communications. Between 1989 and 1991 the rate of increase in long-distance telephone usage was 30% per year in Beijing and Tianjin and 20% per year in Shenyang, Changchun and Harbin. This rate of growth raised fears of capacity shortages in long-distance switching systems and transmission facilities. This project is designed to increase long-distance switching systems and improve the long-distance transmission network with an aim of dealing with the increasing demand of long-distance communications.

The ODA loan covered the entire foreign currency portion of optical fiber transmission facilities, long-distance switching systems and technical training.

Borrower	Foreign Trade and Economic Cooperation Department, People's Republic of China	
Executing Agency	Posts and Telecommunications Department, People's Republic of China (currently Ministry of Information Technology and Telecom Industries)	
Loan Amount	(I) ¥3,145 million	(II) ¥4,055 million
Loan Disbursed Amount	(I) ¥2,778 million	(II) ¥3,258 million
Date of Exchange of Notes	(I) October 1992	(II) August 1993
Date of Loan Agreement	(I) October 1992	(II) August 1993
Final Disbursement Date	(I) November 1997	(II) September 1998

2 Analysis and Evaluation

(1) Project Scope

(i) Optical Fiber Transmission Facilities

Both main lines and feeder lines were built as planned.

Transmission equipment was increased to meet demand that was rising faster than anticipated. The additional equipment comprised 16 systems (140Mb/s PDH), 19 systems (2.5Gb/s SDH), and eight sets of metering equipment for 2.5Gb/s systems. These additions brought a remarkable improvement in the communications situation in the Northeast, reducing the overflow rate from 60% in 1993 to 10% in 1994.

(ii) Long-distance Switching Systems

The project was implemented as planned in Dalian, Siping, Baichang and Tongliao. The Tangshan and Qiqihar portions of the project were carried out by the Chinese side using its own funds due to the extreme urgency of the situation, but the overall scope of the project was still as planned.

(iii) Technical Training

The first round of training was carried out, but the second and third rounds were not. This change was made because the engineering staff on the Chinese side had built up their experience on other projects, and because when the communications equipment is installed, the manufacturers always provide technical instruction and training. As a result, the training was not required.

(2) Implementation Schedule

As noted above, the project was completed within the planned implementation schedule despite the additions to project scope.

(3) Project Cost

The actual project cost was ¥12,404 million, a cost underrun of approximately 22% relative to the initially planned ¥15,952 million (excluding contingency). This occurred because technological advances sharply reduced the cost of equipment and materials in the communications field, which meant that the optical fiber transmission facilities could be bought much more cheaply (in the JBIC portion), and that the cost of the works to install long-distance switching system was considerably lower (in the Chinese portion).

Comparison of Original Plan and Actual

Item		Plan	Actual
1.Project Scope			
i) Construction of optical fiber transmission facilities			
Facilities	Section		
Main lines	Beijing ~ Tianjin ~ Qinhuang Dao ~ Shenyang ~ Changchun ~ Harbin	1,654km	As planned
	Beijing ~ Chengde~Fuxin ~ Baichang ~ Qiqihar	1,622km	
	Shenyang ~ Dalian	479km	
Feeder lines	Shenyang ~ Fuxin	212km	
	Harbin ~ Qiqihar	362km	
	Changchun ~ Baichang	380km	
Optical fiber Transmission Equipment(Note)	Beijing ~ Tianjin	(7+1) x 140Mb/s	(9+1) x 140Mb/s, 4 x 2.5Gb/s
	Tianjin ~ Shenyang	(5+1) x 140Mb/s	7 x 140Mb/s, 3 x 2.5Gb/s
	Shenyang ~ Changchun	(4+1) x 140Mb/s	(6+1) x 140Mb/s, 2 x 2.5Gb/s
	Changchun ~ Harbin	(3+1) x 140Mb/s	(4+1) x 140Mb/s, 2 x 2.5Gb/s
	Beijing ~ Chengde	(3+1) x 140Mb/s	(5+1) x 140Mb/s, 1 x 2.5Gb/s
	Chengde ~ Fuxin	(3+1) x 140Mb/s	5 x 140Mb/s, 1 x 2.5Gb/s
	Fuxin ~ Qiqihar	(2+0) x 140Mb/s	(2+1) x 140Mb/s, 1 x 2.5Gb/s
	Shenyang ~ Dalian	(2+1) x 140Mb/s	(3+1) x 140Mb/s, 2 x 2.5Gb/s
	Yinkou ~ Dashiqiao	(2+0) x 140Mb/s	(2+1) x 140Mb/s
	Shenyang ~ Fuxin	(3+1) x 140Mb/s	(5+1) x 140Mb/s, 1 x 2.5Gb/s
	Changchun ~ Baichang	(2+0) x 140Mb/s	(2+1) x 140Mb/s, 1 x 2.5Gb/s
	Harbin ~ Qiqihar	(2+0) x 140Mb/s	(2+1) x 140Mb/s, 1 x 2.5Gb/s
ii) Installation of long - distance switching systems			

Tangshan	1,500 lines	As planned
Dalian	2,900 lines	
Siping, Qiqihar	500 lines for each	
Baichang, Tongliao	300 lines for each	
iii) Technical training	Canada・Japan・USA	Canada
2.Implementation Schedule		
Civil works	Jul. 1992 to Dec. 1992	Jun. 1992 to Aug. 1992
Optical fiber transmission equipment	Jul. 1993 to Dec. 1995	Nov. 1993 to Dec. 1995
Installation of switching system	Jul 1994 to Mar. 1995	Apr. 1995 to Dec. 1995
3.Project Cost (excluding contingency)		
Foreign currency (=ODA loan portion)	¥6,853 million	¥6,032 million
Local currency (=Chinese portion)	435 million Yuan	395 million Yuan
Total	¥15,952 million	¥12,404 million
Exchange Rate	1 Yuan = ¥20.9 (at the time of appraisal)	1Yuan = ¥16.13 (average for 1992~1995)

Note: The figures in the parentheses show ''Current system number'' + ''Reserved system number''.

(4) Project Implementation Scheme

The executing agency for this project was Posts and Telecommunications Department (it has since merged with another ministry to form the Ministry of Information Technology and Telecom Industries). The execution of this project was managed by Basic Construction Section and constructed by the basic construction office of each regional authority.

The optical fiber transmission facilities were selected by international competitive bidding. The order for the 140Mbit/s equipment was won by a Japanese company, while that for the additional 2.5Gbit/s equipment was won by a German company.

The manufacture and delivery of the equipment went according to schedule and the technical guidance and training etc. were carried out thoroughly on delivery. Therefore the performance of the contractors was good.

(5) Operations and Maintenance

The operations and maintenance after the completion of the project is conducted by Telecommunications Regulatory Bureau, under the umbrella of Ministry of Information Technology and Telecom Industries. As noted above, the contractors (equipment manufacturers) provided thorough technical guidance and training when they installed the equipment, and there have not been any significant problems since the system began operation in 1996.

Call charge collection is handled by the billing section within Telecommunications Regulatory Bureau. Charges are recorded by automatic charge recording devices and bills are mailed to users every month. Normally, large users pay by bank transfer and small (individual) users pay by cash. The overall collection rate for both fixed and cellular phones together is around 90%. The collection rate is lower for cellular telephones than for fixed lines.

The equipment installed under this project achieves extraordinarily high levels of reliability.

The proportion of breakdowns repaired within the next business day was 100% in Beijing, Shenyang, Harbin and overall northeast region and 98% in China overall.

Preparations for the Y2K problem are proceeding under the direction of a working group established by State Council. By now, 90% of systems are Y2K compliant and the remaining systems are scheduled to be compliant before the arrival of 2000.

(6) Project Effects and Impacts

(i) Improvement in the Overflow Rate

The overflow rate, which indicates how difficult it is to place a telephone call, improved dramatically in 1994, when part of this project went into operation, and improved further in 1996, when the 2.5Gbit/s SDH system was added. Further improvements in 1997 and 1998 were due to the beginning of operation of a 10Gbit/s system which was installed after this project.

Table 1 Transition in Overflow Rates

Year	1991	1992	1993	1994	1995	1996	1997	1998
All China	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	8.32	1.16
Northeast region	75	77	60	10	5	3	6	0.3
Beijing	40	40	35	30	25	10	2	1
Shenyang	70	83	60	5	13	4	*10	0.3
Harbin	79	65	65	10	5	2	5	0.2

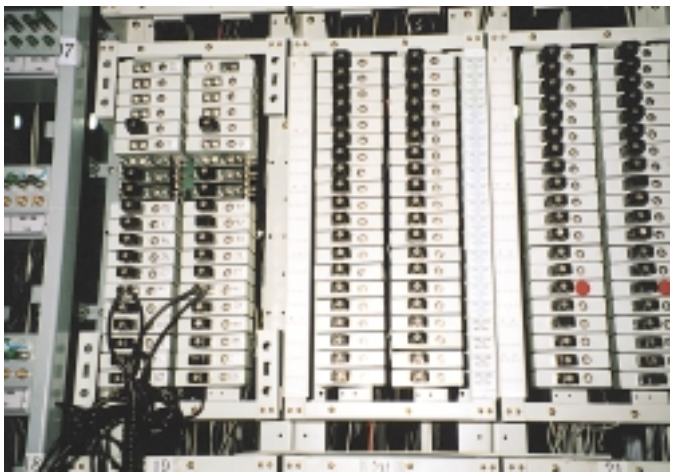
*The increased overflow rate in 1997 was due to flooding.

(ii) Financial Internal Rate of Return (FIRR)

FIRR of 12.11% was anticipated before this project was implemented. Actually, the cost underrun and the substantial increase in call capacity yielded by the introduction of SDH increased profitability, raising the FIRR to 52.14%.

Shenyang Telegraph Office

Shenyang Telegraph Office



Long distance Swiching Board of Shenyang Telegraph Office

Balikpapan Airport Construction Project (1) (2)

Report Date: March 2000
Field Survey: February 1999

1 Project Summary and Japan's ODA Loan

(1) Background

Balikpapan Airport was struggling with two major problems when this project was planned in 1985; (i) the runway was not long enough to handle large aircraft and had become overcrowded with many smaller planes, and (ii) much of the equipment and facilities had become outdated. It was decided that the existing airport would need to be redeveloped by expanding the runways and modernizing equipment and facilities in order to solve these problems.

(2) Objectives

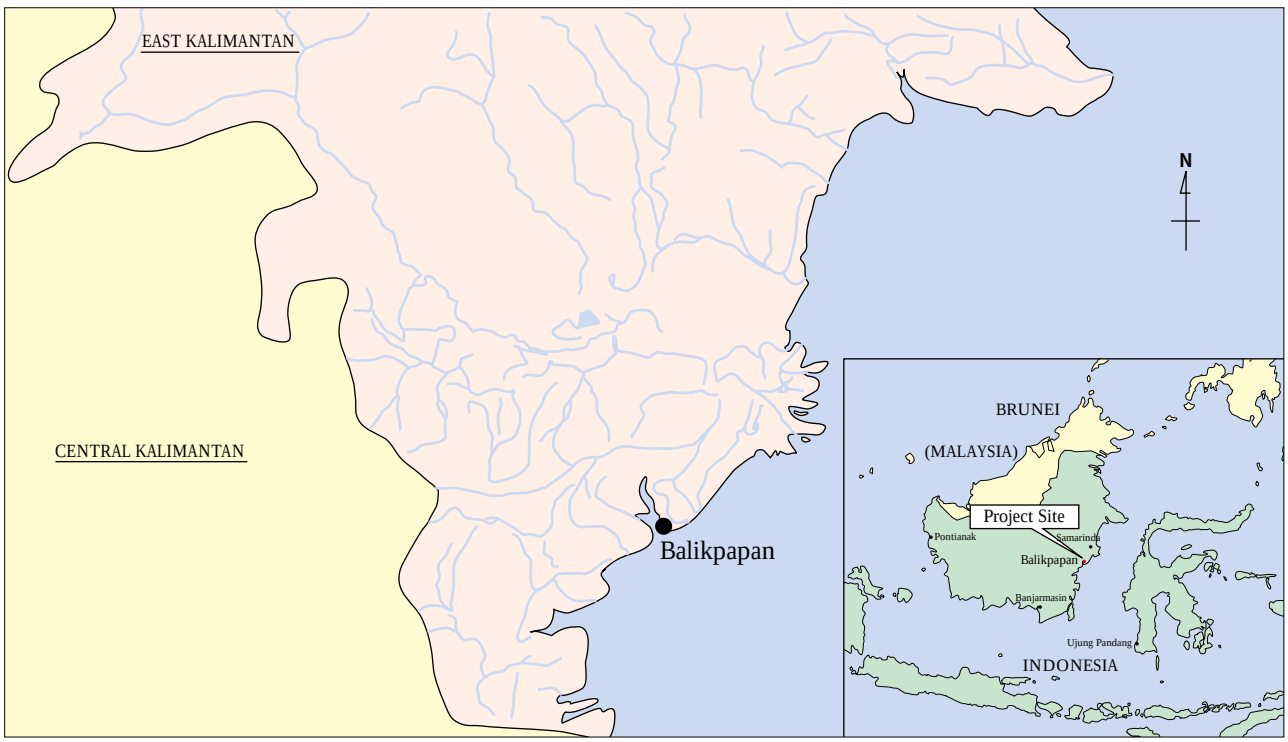
Phase I of this project aimed to expand facilities at Balikpapan Airport to handle A-300 aircraft (capable of 280 passengers) and to meet the anticipated demand for 1995 (2.1 million passengers per year). Phase II of this project focused on improving facilities such as fuel supply facilities, hangars and others that had not been covered by Phase I so that the airport could be operated in a more complete state.

(3) Project Scope

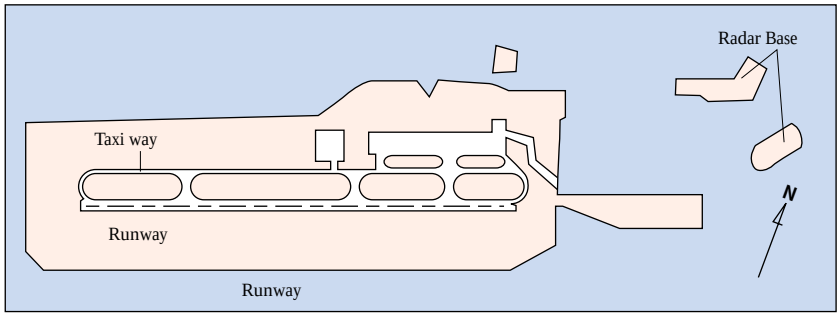
This project covered the extension of the runway from 1,800m to 2,500m and the modernization of the terminal building and other facilities. The ODA loan covered the entire foreign currency portion and local currency portion.

(4) Borrower/Executing Agency

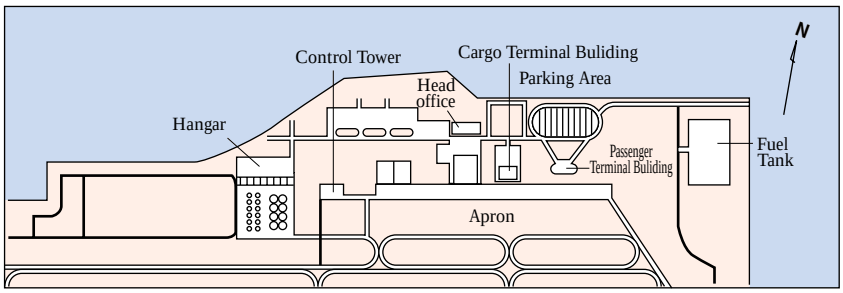
Republic of Indonesia / Directorate General of Air Communications (DGAC)



1. Facilities of the Aiport



2. Main Facilities except Runways



(5) Outline of Loan Agreement

	Phase1	Phase2
Loan Amount	¥17,255 million	¥4,354 million
Loan Disbursed Amount	¥13,737 million	¥4,279 million
Date of Exchange of Notes	June 1985	June 1991
Date of Loan Agreement	December 1985	September 1991
Loan Conditions		
Interest Rate	3.5%	2.6%
Repayment Period (Grace Period)	30 years (10 years)	30 years (10 years)
Procurement	Partial Untied	General Untied (Partial Untied for consulting portion)
Final Disbursement Date	December 1994	August 1998

2 Analysis and Evaluation

(1) Project Scope

The project was carried out basically in line with the scope of the original plans, with only minor changes and fund transfers.

(2) Implementation Schedule

There were major delays for both Phase I and Phase II of the project. Delays in Phase I were due to a review of the project scope that became necessary following a revision of demand forecast. However, in the end, the changes made to the project scope. Scope were limited to minor ones. Execution of Phase II of the project was pushed back due to delays in evaluating bids and negotiation of contracts.

(3) Project Cost

The total project cost for Phase I was under the planned budget by ¥6,303 million,or roughly 20%. The total cost of Phase II construction was basically in line with the planned budget.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
・Phase 1		
Expansion of runway	From 1,800m×30m to 2,500m×45m	Same as left
Passenger terminal building	7,100m²	8,786m²
Cargo terminal building	5,600m²	4,697m²

Renovation of air traffic services system etc.	ILS-CAT1 etc.	As planned
Consulting Services	357M/M	325M/M
・Phase 2		
Fuel supply facilities building	Storage facilities×3 etc.	As planned
Expansion of hangar	Aircraft hangar×2 etc.	As planned
Consulting Services	43M/M	95M/M
2.Implementation Schedule		
(Start of constructing service to completion of consulting service)		
・Phase 1	October 1986 to July 1990	November 1987 to February 1995
・Phase 2	September 1991 to February 1995	August 1992 to March 1998
3.Project Cost		
・Phase 1		
ODA loan portion	¥17,255 million	¥13,737 million
Total	¥31,028 million	¥24,725 million
Exchange Rate	¥1 = Rp4.32	¥1 = Rp14.15
・Phase 2		
ODA loan portion	¥4,354 million	¥4,279 million
Total	¥5,123 million	¥4,788 million
Exchange Rate	¥1 = Rp14.67	¥1 = Rp24.61

(4) Project Implementation Scheme

The executing agency for this project was the Directorate General of Air Communications (DGAC). DGAC has total control over aeronautics administration in Indonesia and is in charge of planning and constructing facilities at all airports in the country. Except for the delays with the bidding, it can be said that DGAC successfully served its role as the main executor of this project without any major problems. For Phase I DGAC used a short-list method to hire Japanese and local consultant J/Vs. The same J/Vs were also hired for Phase II. No particular problems were reported with the performance of these consultants. In terms of the contractors, international bidding with P/Q was conducted and orders were placed with Japanese and local J/Vs (not the same J/Vs). This was a difficult construction project due to the fragile construction foundation and the fact that the airport remained in use during the construction. Still, the performance of the contractors was reported to be very satisfactory for both Phase I and II.

(5) Operational Scheme

DGAC directly operated and managed airports in Indonesia up until 1964. However, the Airport Public Corporation was established in 1962 to improve the efficiency of airport operations, and the operations of the more profitable airports were gradually transferred to this public corporation. From 1992 this corporation became a publicly listed company, and was responsible for operating and managing 21 of Indonesia's largest airports as the First Airport Company (PTAP I) and the Second Airport Company (PTAP II). PTAP I was placed in charge of operating Balikpapan Airport.

(6) Operations and Maintenance Scheme

There were no problem involving the maintenance and management of the modernized facilities provided by this project as maintenance was carried out in accordance with the maintenance manual. An adequate budget was allocated for operations and maintenance and therefore no particular problems were reported in these areas.

(7) Effects on the Environment

As this project was an expansion of the existing airport, there are no particular negative impacts on the environment except for noise problems. The results of a hearing showed that the current noise level is with a range that is acceptable by the local residents (with the exception of a local technical high school). There is a possibility that noise countermeasures may be needed in the future if increased use of the Balikpapan Airport results in a noise level beyond the range tolerable by the local community. It is therefore expected that DGAC, the executing agency, and PTAP I, the operator of the airport, will conduct regular monitoring including the noise level, to duly confirm that there are no significant noise-related impacts on the environment.

(8) Project Effects and Impacts

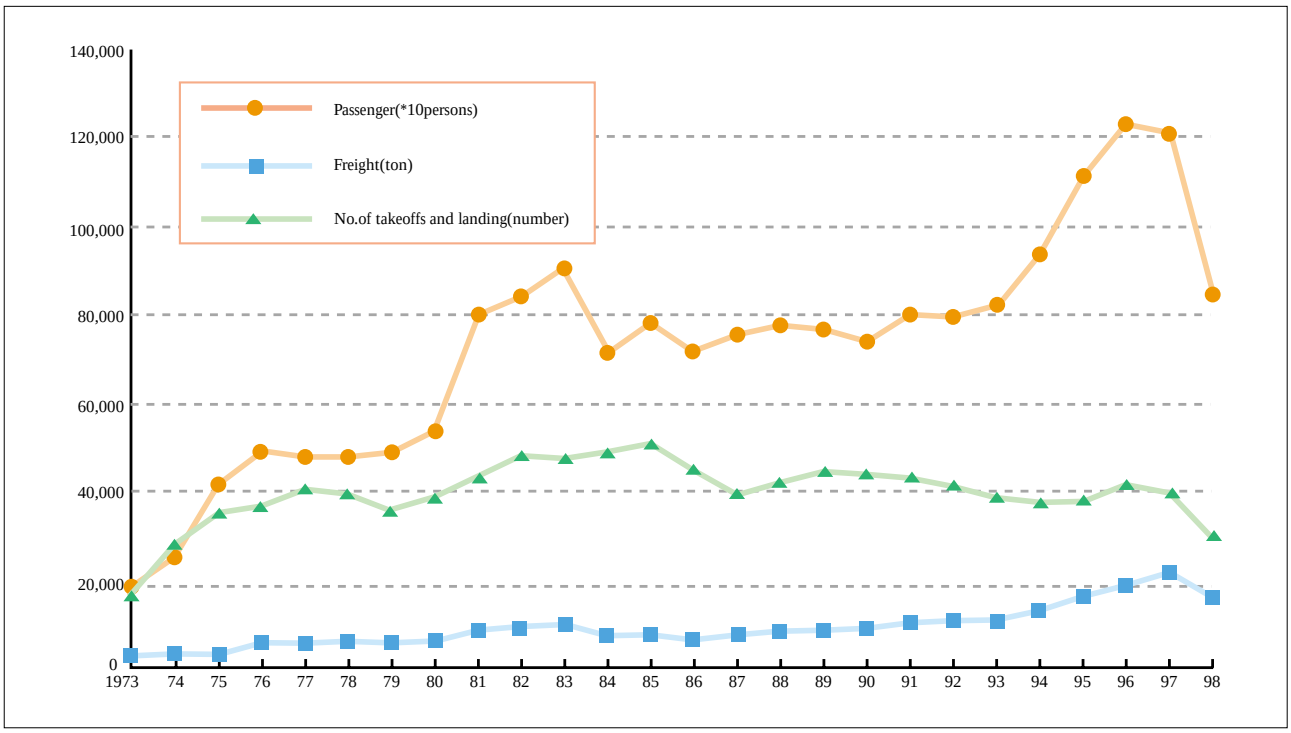
(i) Quantitative Effects

(a) Increase in Number of Passengers / Amount of Freight, and No Marked Fluctuations in Takeoffs and Landing

As shown in Figure 1, the number of passengers and the amount of freight increased vastly after the completion of Phase I except the consulting service in 1994 (there was a reduction in 1998 due to the economic crisis). However, the number of

takeoffs and landing during this time remained roughly the same, a clear result of the airport's improved capabilities for handling larger aircraft. This increase in passengers and freight while the number of takeoffs and landing remained unchanged is considered as a direct result of this project.

Figure I Changes of Number of Passengers etc. at Balikpapan Airport



Source: Prepared from executing agency materials

(b) Economic Internal Rate of Return (EIRR)

EIRR was 12.6% at the time of appraisal for Phase II, but an EIRR of 20.1% was obtained at a later recalculation. The two main reasons for the higher EIRR are (a) a reduction in total project costs and (b) the demand exceeding the forecast at the time of the appraisal for Phase II.

(ii) Qualitative Effects

(a) Improved Safety

Airport safety was improved through the addition of aeronautical safety equipment.

(b) Transfer of Technology

By participating in the designing and construction of this project, technicians with DGAC were able to expose themselves to many advanced technologies.

(c) Noise Reduction

Since the extension of runway enabled the Balikpapan Airport to accommodate larger aircrafts such as A300s with a lower level of noise than the previous ones, it is considered that the project has contributed to noise-reduction in the surrounding areas to a certain extent.

(d) Employment Creation

This project created new jobs, with as many as 1,300 people being hired during the busy periods.

Inside of the New Control Tower

New Passenger Terminal Building

Hearing from the Local Residents

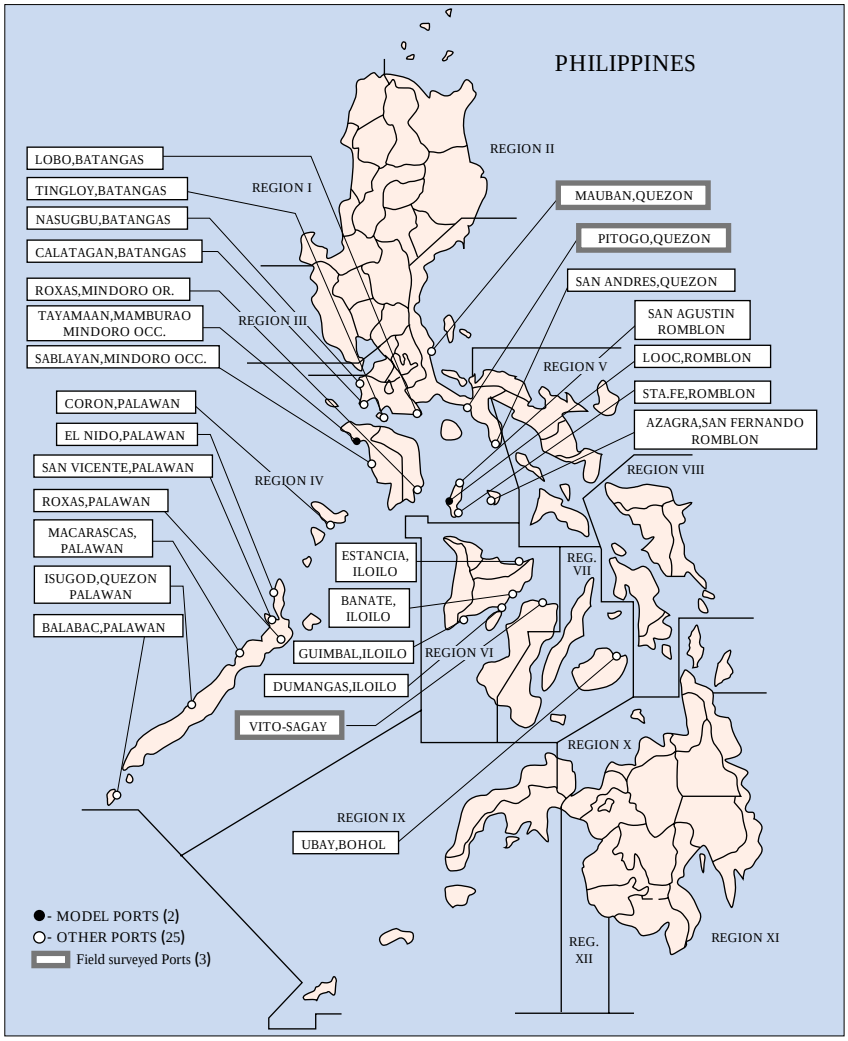
Feeder Ports Program

Report Date: March 2000
Field Survey: August 1998

1 Project Summary and Japan's ODA Loan

By systematically enhancing the infrastructure of existing feeder ports in Regions IV, VI, and VII (Bohol Island only) of Republic of the Philippines, this project aims to improve access to central provincial cities from remote areas that largely depend on water transport for daily transportation, and thereby to raise the living standards and the industrial foundation of these regions. The project scope as of appraisal consists of (1) the construction of 25 ports, (2) the procurement of construction equipment, surveying and monitoring equipment, etc., and (3) consulting services (Construction supervision of 25 ports of (1) above, detailed design of 50 ports including the ports of (1), and procurement of equipment related to (1) and (2)).

The ODA Loan covered the entire foreign currency and part of the local currency of the project costs.



Borrower	Republic of the Philippines
Executing Agency	Department of Transportation and Communications (DOTC) [Jurisdiction department was changed from Department of Public Works and Highways (DPWH) to DOTC]
Loan Amount	¥2,090 million
Loan Disbursed Amount	¥2,046 million
Date of Exchange of Notes	December 1987
Date of Loan Agreement	January 1988
Final Disbursement Date	October 1997

2 Analysis and Evaluation

(1) Project Scope

During the appraisal stage of this project, twenty-five ports were selected as the ports for construction, but as the result of surveys by consultants and local government , as well as the existence of a margin in the funding amount, it was deemed that the actual ports for construction could be changed. Due to the improvements in the method of selection, the total number of ports was raised from 25 to 27 ports (including 11 ports that were

originally selected in the project planning stage).

(2) Implementation Schedule

Completion of this project was delayed 5 years and 2 months, and the loan disbursement period was extended once by 2 years and 6 months. The main reasons the implementation schedule was extended were (i) the documents for the selection of the consultants had to be resubmitted, (ii) there were two bid tenders resubmitted for the model port, (iii) it took a long time to obtain construction permits from the Department of Environment and Natural Resources, (iv) repair work has to be performed due to typhoon damages, and (v) it was difficult to make smooth construction preparations for the construction of multiple ports geographically dispersed in remote areas under a single contract.

(3) Project Cost

This project exceeded its total funding by 69 million yen, including a reduction of 44 million yen in ODA loan amount, and a 113 million yen increase in the portion borne by the Philippine government. The main reasons for this increase in the project cost was an increase in civil works (approx. 27%), a price escalation due to extension of the implementation schedule, and the necessity of performing repair work following the completion of construction in order to repair damages caused by typhoons.

Comparison of Original Plan and Actual

Item	Plan		Actual
1.Project Scope			
(1)Feeder ports construction	Total 25 ports Model port 2 ports Other port 23 ports		Total 27 ports Model port 2 ports Other port 25 ports
(2)Procurement of construction equipment and materials	i) Construction barge	3	As planned
	ii) Tugboat	1	As planned
	iii) Surveying instrument	13	As planned
	iv) Echo sounder	4	As planned
	v) Rubber fender	204	As planned
	vi) Under water camera	2	As planned
(3)Consulting Services	Preparation of detailed design 50 ports		61 ports
	Supervision assistance of procurement and construction 25 ports		27 ports
2.Implementation Schedule			
(loan agreement signing to project completion)	January 1988 to December 1992		January 1988 to February 1998 (Delay of 5 years and 2 months)
3.Project Cost			
Total project cost	¥2,338 million		¥2,407 million
(ODA loan portion)	(¥2,090 million)		(¥2,046 million)
Exchange Rate	1 peso = ¥7		1 peso = ¥4 (Average rate at the time of loan disbursement)

(4) Project Implementation Scheme

The project headquarters established for this project implemented port construction on a service contract basis. During the implementation of the project, project headquarters authority was transferred from Department of Public Works and Highways (DPWH) to Department of Transport and Communications (DOTC). Loan agreement change formalities were promptly completed and there were no problems in particular regarding implementation.

(5) Operations and Maintenance

The 27 ports covered by this project are well used on the whole. A comparison of the data obtained by consultants regarding the amount of cargo and the number of passengers at the 27 ports during the detailed design stage (1990) and upon completion of the project (1997) shows that the average cargo volume rose by 47%, and the average number of passengers rose by 324%.

Operations and maintenance scheme is still not sufficiently established. Following the construction of the ports, ownership of

the 27 ports was transferred to PPA, which became in charge of operations and maintenance, and operations and maintenance functions can further be transferred to local governments if they request. However, due to various reasons foremost amongst which local governments do not have large-scale repair budgets, at present, operations and maintenance functions have not been transferred to local governments for any of the 27 ports (but transfer procedures are in progress for 3 of these ports). Except for 5 ports, PPA's role does not extend to substantial management, due to the fact that feeder ports are located in remote areas and the inability of PPA to allocate sufficient personnel and funds for port operation. However, while they do not have formal maintenance responsibilities, local governments in some cases actively perform small-scale repairs and improvements as a way of asserting ownership through port maintenance to the greatest extent possible.

Currently, there is no need for new facilities repair work at any of the ports, but considering long-term maintenance in the future, it is necessary to clarify the actual operations and management system, and for this purpose, it is desirable for DOTC and PPA to rapidly address this issue, including performing a review of the system currently in place. A concrete proposal would be for PPA, which has ownership of the ports, to perform large-scale work such as the rehabilitation of facilities in case of damage and the expansion of port facilities, and for the local governments to perform small-scale maintenance and repair work, thus dividing responsibilities between these two parties. It is hoped that such a system dividing responsibilities will be clearly defined taking into consideration the financial status of each party.

(6) Impact on the Environment

No particular negative impact on the environment has been detected for this project.

(7) Project Effects and Impacts

(i) Direct Effects

The raised efficiency of cargo and passenger transport at the ports can be mentioned as an improvement result regarding port use. A conspicuous efficiency improvement is the fact that, prior to this project, insufficient port facilities allowed only banca boats (small boats) from coming alongside piers, so that cargo was handled by mooring larger cargo ships off the coast and transferring cargo to banca boats (offshore stevedoring), and passengers were handled by transferring them to smaller boats. Thanks to this project, such inefficient handling is not longer necessary. This project has also considerably improved access from remote areas to central provincial cities. The average financial internal rate of return for the 27 ports as calculated by consultants was 22.4% upon completion of the project, higher than the 21.7% rate calculated during the detailed design stage.

(ii) Indirect Effects

By providing better transportation and shipping means to small-scale businesses such as fishermen, farmers, and tradesmen, this project is contributing to expand the range of their economic activities. Moreover, these improvements stimulate local industry and increase employment opportunities and income for local residents.

A Small Wharf for Commercial Fishing Boats at Pitogo Port

A Pier with Light installed by the City at Mauban Port

Vito Sagay Port , capable of servicing Small Ferries with this Loan

ASEAN-Japan Development Fund for Republic of the Philippines Category B (Land Bank of the Philippines)

Report Date: March 2000
Field Survey: December 1998

1 Project Summary and Japan's ODA Loan

(1) Background

In 1980, approximately half of the workers in the Philippines were farmers (including fishermen) and they accounted for approximately one quarter of the country's GDP and export value at that time. However, a majority of farms were very small in scale, and around eight out of ten fishing operations were very small. These small farmers and fishermen were poor, and it was very important to improve their productivity and income.

"Private finance" from moneylenders and rice polishers was still used as finance to small farmers and fishermen, and the rates of interest on such loans were still extremely high. Modernization and improvement of the agricultural finance system was an urgent task. The Philippine government had been already providing loans through the Rural Bank, but it began to concentrate its efforts on improving agricultural finance by lending through agricultural cooperatives with LBP (Land Bank of the Philippines) as the wholesale bank.

(2) Objectives

This project was a financial intermediary loan (popularly known as two-step loan) channeled through LBP to provide agricultural cooperatives with low-interest funds for improving agricultural productivity. The aim was to help to strengthen the organization and activities of the agricultural cooperatives and, by lending funds to the members of the cooperatives, to raise the productivity and standard of living of small farmers and fishermen.

(3) Project Scope

This project was requested by LBP as a new source of funds for the Countryside Credit Delivery Program (CCDP) [1]. The loaned funds served as the funding source for the ASEAN-Japan Development Fund (AJDF), which was used by LBP to provide loans for agricultural cooperatives or, through them, to their members. Repayments from cooperative members were held in a revolving fund and used for re-lending by LBP for the same objectives.

(4) Borrower/Executing Agency

Land Bank of the Philippines / Land Bank of the Philippines

1 The CCDP is a program run by the LBP from 1987 that provided 20 billion Pesos in new loans every year to 1995, reaching 1.5 million borrowers. These borrowers constitute approximately one quarter of all the small farmers and fisherman in the country, estimated at approximately 5.8 million (5.2 million small farmers and 600,000 small fisherman).

(5) Outline of Loan Agreement

Loan Amount	¥6,686 million
Loan Disbursed Amount	¥6,686 million
Date of Exchange of Notes	May 1991
Date of Loan Agreement	March 1992
Loan Conditions	
Interest Rate	2.5%
Repayment Period (Grace Period)	30 years (10 years)
Final Disbursement Date	January 1996

2 Analysis and Evaluation

(1) Evaluation on Project Content

The ODA loan was supplied by LBP to the agricultural cooperatives as fixed asset loans and operating fund loans. It was then applied to improving the facilities of the agricultural cooperatives, paying the running costs of those facilities and other applications, helping to strengthen those cooperatives. Cooperative provided their members with production loans for the purchase of fertilizer, animal feed, seeds and other supplies, and loans for operating funds. These sub-loans were appropriate and in accordance with the objectives of the project. All loans made to small farmers and fishermen under this project were channeled through agricultural cooperatives. This use of a single, consistent lending method was appropriate from the point of view of fund management, and did not pose a problem.

(2) Evaluation on Project Implementation

The sub-loans from LBP to the agricultural cooperatives totaled 1.642 billion Pesos to 620 cooperatives. Within this total, 1.311 billion Pesos (80% of total loan amount) took the form of production loans from agricultural cooperatives to their members. The repaid funds from sub-loans were placed in a revolving fund and reloaned (861 million Pesos were reloaned between 1996 and June 1997). The sub-loans and re-loans for this project were proceeding smoothly, and by June 1997 a total of 2.504 billion Pesos had been loaned to agricultural and fishing cooperatives and their small-scale members. The overall operation for lending to small farmers and fishermen made loans to over 8.7 million such borrowers, and the project has clearly been implemented effectively.

(3) Evaluation on Project Continuity

There is still room for improvement in strengthening the systems of the agricultural cooperatives themselves, but the system of supporting small farmers and fishermen through such cooperatives is a necessary and effective system for providing finance to such borrowers in the Philippines. As such, its implementation should continue. The present system appears adequate for the continued implementation of the program.

In order to secure the sustainability of the program, the organization of the cooperatives, besides LBP itself, should be strengthened. In particular the financial aspects of the cooperatives need to be reinforced. To that end, the Philippine government should help the agricultural cooperatives to own their own warehouses and post-harvest processing facilities, which would increase their incomes. This and similar policies to strengthen various aspects of the cooperatives should be put into action in order to support LBP's continuation of this project.

(4) Project Effects and Impacts

This project supplied sub-loans to 620 agricultural cooperatives, which were in turn loaned to small 133,000 farmers, fishermen and stock raisers. One of the objectives of this project was to raise the incomes and living standards of farmers. On that point, the average income of farmers in 1991, before the project, was 20,026 Pesos/ha, and a survey in 1995 found that the figure had risen to 33,656 Pesos/ha, an increase of 13,630 Pesos/ha (68%). The increase in income was not solely due to improvements in the finance system, but for farmers, who must spend on seeds, fertilizers and other materials before they recoup from the harvest, the introduction of an easily accessible finance system is a strong factor in motivating them to increase their production and income.

Another objective of this project was to strengthen the organization of the agricultural cooperatives. A majority of the 620 agricultural cooperatives covered by the project were set up between 1986 and 1992 to strengthen the country's agricultural finance system. Over the four year period in which loans were made under this project (1992~1995) these cooperatives increased their assets, profits and member numbers. Of the 515 cooperatives which have published their financial reports, 360 (76%) had increased their assets and 259 (approximately half) reported increased earnings. Furthermore, 66% reported growth in their membership. This strengthening of agricultural cooperatives has not been achieved by this project alone, but this project appears to have played a large part in that process.

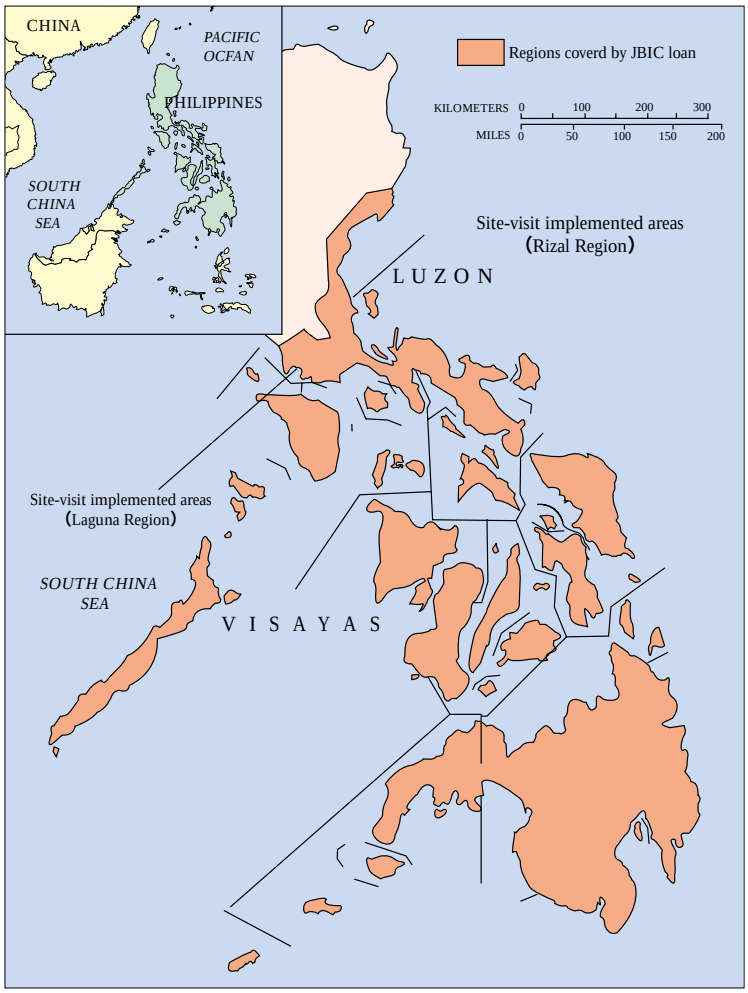
Elementary Education Project

Report Date: March 2000
Field Survey: October 1998

1 Project Summary and Japan's ODA Loan

This project aimed to provide a basic infrastructure for elementary education and raise the efficiency of education-related persons and administration as the development of human resources through elementary education has been raised as a priority in the Medium-Term Development Plan (1987-1992) of the Republic of the Philippines drafted in 1986. Concretely, this project aimed to (1) increase the supply of classroom facilities and educational equipment and materials, (2) raise the quality of teachers and education managers (through training), (3) expand basic education (raise the school enrollment ratio and the literacy rate), and (4) strengthen the planning and maintenance scheme. This project was co-financed with World Bank.

The ODA Loan covered the entire foreign currency portion and a part of the local currency portion for the construction of classrooms in 9 regions in the central and southern parts (Regions IV to XII)[1] out of 14 regions in the Philippines.



Borrower	Republic of the Philippines
Executing Agency	Department of Education, Culture and Sports (DECS)
Loan Amount	¥20,020 million
Loan Disbursed Amount	¥20,020 million
Date of Exchange of Notes	March 1991
Date of Loan Agreement	July 1991
Loan Conditions	
Interest Rate	2.7 %
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	June 1996

2 Analysis and Evaluation

(1) Project Scope

There were changes in quantities for each category with regard to the construction of classrooms and the provision of educational equipment and materials (hardware). This was mainly due to the fact that the project flexibly responded to changes in the policies of the Philippine government (the expansion of classrooms, including the establishment of new schools, was prioritized), and can be considered to have been appropriate. On the other hand, with regard to enhancement of the training of

1 Currently, the Philippines are divided into 15 regions (12 regions, 2 autonomous regions, and 1 metropolitan area). However, at the time of appraisal of this project, the Philippines had only 14 regions (11 regions, 2 autonomous regions, and 1 metropolitan area.)

education-related persons and the planning and maintenance scheme (software strengthening), some categories saw sharp reductions and some items were discontinued by the budgetary reasons due to an increase in actual project costs. In a similar sort of project in the future, it will be necessary, first of all, for the governments of recipient countries to be aware of the importance of enhancing "soft" aspects in addition to the "hard" aspects. Besides, the donors should fully consider the budget limitations of the government of recipient country and provide balanced aid that includes also "soft" aspects.

(2) Implementation Schedule

Although completion of the project was planned for October 1994, actual completion was in June 1996, with an 18-month delay. The main reason for this delay was that the Philippine government budget allocations did not go smoothly because of the considerable increase in the portion of costs borne by the Philippine government as the result of the increase in total project cost.

(3) Project Cost

The total project cost was approximately double the initially expected amount on a peso base. This cost overrun was mainly due to external causes, including (1) the fact that the expansion of classrooms, which is more costly than the renovation of existing ones, was increased 1.9 times compared to the initially planned number and (2) the rising price of construction materials due to the construction boom in the Philippines at the time.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
i) Construction of classrooms, provision of educational equipment and materials		
a) Expansion, reconstruction and renovation of classrooms (rooms)	72,842	82,100 (64,290)
b) Expansion, reconstruction and renovation of multi-purpose workrooms (rooms)	12,363	5,462 (4,615)
c) Construction of toilets (toilet stools)	2,856	4,288 (3,958)
d) Production and supply of desks (1,000 desks)	1,500	2,520
e) Printing and distribution of textbooks and guidebooks for teachers (1,000 copies)	44,146	84,000
ii) Training of teachers and education managers (persons)	474,000	104,888
iii) Expansion of basic education		
a) Implementation of pilot projects (schools)	24	95
b) Literacy training (persons)	No detailed program	294,971
iv) Strengthening of planning and maintenance scheme	Structuring of elementary education assessment and integrated data system etc.	Partly implemented
2.Implementation Schedule		
(Start of bidding preparation to Completion of loan)	April 1989 to October 1994 (66 months)	April 1989 to June 1996 (86 months)
3.Project Cost		
Total project cost	9,368 million peso	19,079 million peso
ODA loan portion	2,964 million peso	4,044 million peso
Exchange rate	1 peso = ¥6.7548 (Rate at the time of appraisal)	1 peso =¥4.5455 (Weighted average of IFS annual average rate between 1989 and 1996)

(4) Project Implementation Scheme

The executing agency for this project is the Department of Education, Culture, and Sports (DECS). Part of the project (classroom construction plan) was outsourced to the Department of Public Works and Highways (DPWH). Because other budget categories were considerably exceeded, the Project Implementing Coordination Unit (PICU) to be attached to this project within the DECS was not formed, which led to a shortage of manpower for coordination with the DPWH and other related organizations and for administrative and accounting work, which was one of the factors that caused delays in the

implementation schedule. In the future, for projects of this nature that comprise a large number of small-scale components spanning a large area, it will be necessary to consider including consultant support for implementation supervision, taking into consideration the manpower status of the executing agency, based on the fact that overall implementation supervision is complex and not easy.

(5) Operations and Maintenance

The maintenance responsibility for facilities and equipment has been transferred to each school following construction, and the budget for such maintenance is mainly provided by each local administration. Based on the results of selected site inspections as evaluation samples this time as well as a report from the executing agency, the current maintenance status can be said to be largely satisfactory.

(6) Project Effects and Impacts

The following effects have been created as the result of implementation of this project.

(i) Improvement of the Status of Insufficient Number of Classrooms

38,940 new classrooms have been provided through this project (only part covered by JBIC loan). On the other hand, the shortage of classrooms has not been resolved completely, due to the rising number of pupils. If this project had not been implemented, however, there would have been a shortage of 46,160 classrooms, compared to a shortage of 7,220 classrooms at the end of this project, showing that this project importantly contributed to reducing the gap between demand and supply of classrooms.

(ii) Remediation of Difference in Number of Classrooms among Regions

In Region XII (southern part of Mindanao Island), where the shortage of classrooms is particularly pronounced, this project provided 9,950 classrooms, thereby eliminating the shortage. The project also provided 1,388 new schools in areas with a low population density that heretofore did not have schools.

(Refer to following table.)

Table 1 Status of Number of Classrooms in the Philippines ~ Comparison Before and After Project Implementation

Region	Number of Pupils			Sufficient Number of Classrooms		
	Before project implementation	After project implementation	Increase	If project had not been implemented	After project implementation	Number of expanded classrooms through this project
NCR[Note2]	1,078,184	1,336,231	+258,047	-9,626	-5,825	3,801
CAR	190,171	238,273	+48,102	126	2,086	1,960
Region I	571,492	630,349	+58,857	-5,065	-4,473	592
II	385,029	455,346	+70,317	-1,210	-163	1,047
III	997,255	1,163,204	+165,949	-7,303	-4,043	3,260
IV	1,366,575	1,703,670	+337,095	-15,167	-7,379	7,788
V	737,325	836,973	+99,648	-1,679	-142	1,537
VI	927,836	1,030,264	+102,428	160	955	795
VII	717,350	882,642	+165,292	-5,011	-129	4,882
VIII	536,403	593,534	+57,131	2,023	2,901	878
IX	555,042	608,237	+53,195	-4,776	-806	3,970
X (includingXIII)	601,564	838,326	+236,762	-5,978	-1,957	4,021
XI	752,053	841,472	+89,419	-5,839	-720	5,119
XII (includingARMM)	556,292	808,951	+252,659	-9,893	57	9,950
Total	9,972,571	11,967,472	+1,994,901	-69,238	-19,638	49,600
ODA loan portion	6,750,440	8,144,069	+1,393,629	-46,160	-7,220	38,940

Source:World Bank Report and DECS

Note:1 Sufficient number of classrooms consists of the difference between the actual number of classrooms and the required number of classrooms (existing number of classrooms - required number of classrooms),and a negative number signifies a shortage. The reqired number of classrooms is obtained from the number of pupils, dividing this number by 36 (36 pupils per classroom). The figure of 36 pupils per classroom is obtained by multiplying the limit of 40 pupils per classroom by 0.9. This calculation method conforms with the calculation method described in a World Bank report.

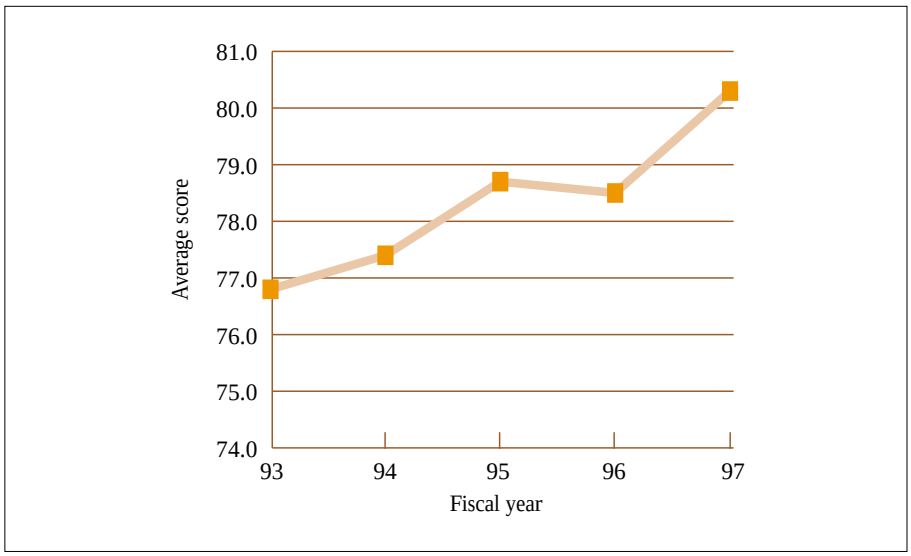
2 In the NCR area, most schools use a two - shift system, so a limit of pupils per classroom of 80 pupils (40 pupils x 2) was used in caluculations.

(iii) Improvement of Quality of Education

The trend in average score for the nationwide standard scholastic aptitude test for pupils in the Philippines rose from approximately 77 points in 1993 to 80 or more points. (See following figure.) Although there are various causes for this rise in average score, one that can be readily mentioned is the implementation of training for teachers and education managers through this project. Moreover, almost at the same time as this project, the salaries of teachers were raised, which certainly contributed to raising the attractiveness of the teaching profession. (In 1989, the average teacher's salary was 3,102 peso, but

this increased to 8,605 peso in 1997. Even factoring in inflation, this represents an increase in real terms of approximately 30%.)

Figure 1 Average Scores in Nationwide Standard Scholastic Aptitude Test



(iv) Decline in Dropout Rate

A considerable decline in the dropout rate has been observed in pilot project implementation schools through this project. (See table below.)

Table 2 Change in Dropout Rate at Pilot Project Implementation Schools

Pilot Project Contents	Dropout Rate (%)	
	Before Implementation	After Implementation
Implementation of school lunches (elementary school children only)	5.1	0.7
Implementation of education of school lunches and nutrition (elementary school children and parents)	5.8	1.0
Use of various educational materials matching scholastic aptitude level	7.7	4.2
Participation of parents in wokshops using above materials	5.6	1.9

On the other hand, the DECS has reported that the dropout rate is rising for the Philippines overall. According to the DECS, a large percentage of dropouts is caused by economic reasons in the family of the pupils, and measures such as the implementation of school lunches that take into consideration low-income families implemented in the pilot project are considered to importantly contribute to reducing the dropout rate.

3 Lessons Learned

(1) Regarding the development of the education sector, it is important, first of all, for the governments of recipient countries to realize the importance of improving and strengthening "soft" aspects, and to improve and strengthen both "soft" and "hard" aspects in a balanced manner. The ODA loans for the education sector requires that JBIC fully takes into consideration the budget limitations of the governments of the target recipient countries, and that they include "soft" aspects within the scope of their loans as needed, or that it cooperates with the Japan International Cooperation Agency (JICA) or other donors so that "soft" aspects get implemented alongside the "hard" aspects without delays.

(2) For projects of this nature that comprise a large number of small-scale components spanning a large area, it will be necessary to consider including consultant support for implementation supervision, taking into consideration the capacity of human resources in the executing agency, based on the fact that overall implementation supervision is complex and not easy.

In the Third Elementary Education Project which is the subsequent project following this project, improvement based on the above two points are being suitably implemented.

Laguna District
Santa Rosa II Elementary School

Laguna District
Classroom of Santa Rosa II Elementary School
(The number of school children per one class is over 80)

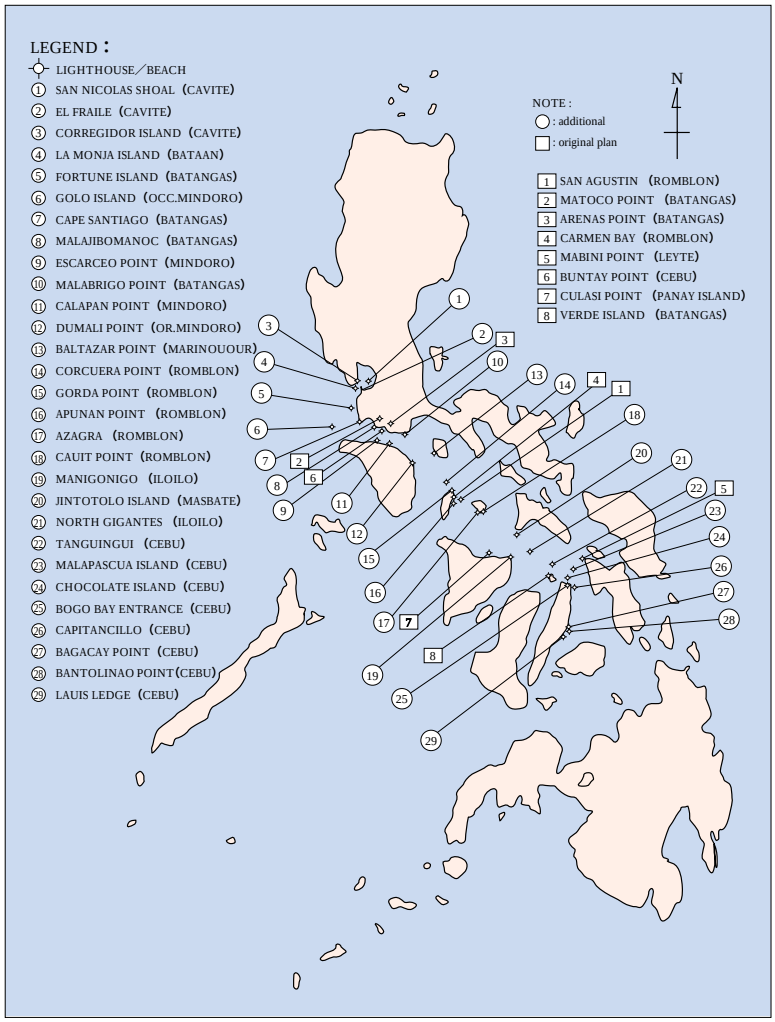
Rizal District
Classroom of Angono Elementary School

Maritime Safety Improvement Project

Report Date: March 2000
Field Survey: July 1999

1 Project Summary and Japan's ODA Loan

This project aimed to perform training required for the emergency rehabilitation and the operation and maintenance of navigational aid facilities (37 lighthouses and light beacons) between Manila and Cebu Island, which is a major sea road, in order to strengthen maritime safety in Republic of the Philippines, which suffers major damages from maritime accidents. This project also includes the drafting of surveys and implementation programs related to a future maritime safety improvement plan as an engineering study.
The ODA Loan covered the entire foreign currency portion of the project costs.



2 Analysis and Evaluation

(1) Project Scope

Thirty-nine lighthouses and light beacons have been constructed between Manila and Cebu Island. Out of these facilities, the emergency rehabilitation (strengthening of quantity of light, renovation of power supply facilities, rebuilding of navigational lights, etc.) of 28 lighthouses and light beacons judged to be of high importance at the time of appraisal formed the contents of the initial plan. An international competitive tender was performed for the emergency rehabilitation of a total of 29 lighthouses and light beacons, including one such facility added during the detailed design stage. Furthermore, the rehabilitation of 8 additional lighthouses and light beacons in high need of rehabilitation was also performed using part of the provided contingency, and thus, at last count, a total of 37 lighthouses and light beacons were rehabilitated. The changes in the project scope are judged to be adequate from the aspect of the efficient implementation of this project.

Borrower	Republic of the Philippines
Executing Agency	Maritime Industry Authority (MIA)
Loan Amount	¥3,516 million
Loan Disbursed Amount	¥3,487 million
Date of Exchange of Notes	March 1991
Date of Loan Agreement	July 1991
Loan Conditions	
Interest Rate	2.7 %
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	October 1996

(2) Implementation Schedule

As 9 lighthouses and light beacons were added as targets for emergency rehabilitation, completion of the project was delayed by approximately 1 year compared to the initial expected completion date. It is judged that the project would have been completed within the initially planned time had these additions not be made, and this extension of the implementation schedule is considered to have been unavoidable.

(3) Project Cost

Both local currency and foreign currency costs were kept within the amounts estimated at the appraisal stage. One part of the contingency was used for the rehabilitation of 8 additional lighthouses, but this is considered to have contributed to the fuller creation of navigational aid facilities and is believed to have expanded the effect of this project, and thus this partial use of the contingency is judged to have been appropriate.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
i) No. of rehabilitated lighthouses	28	37
ii) Consulting services		
・Bidding assistance / Construction supervision	96M/M	158M/M
・Preparation of future plan	278M/M	162M/M
2.Implementation Schedule		
i) Selection of consultant	Jul. 1991 to May 1992	Nov. 1991 to Apr. 1992
ii) Consulting services	May 1992 to Nov. 1994	May 1992 to Jan. 1996
iii) Bidding of construction / Contract	May 1992 to Oct. 1993	May 1992 to Sep. 1993
iv) Rehabilitation works	Oct. 1993 to Nov. 1994	Sep. 1993 to Nov. 1995
3.Project Cost		
Foreign currency	3,516 million yen	3,483 million yen
Local currency	140,826 thousand peso	6,453 thousand peso
Total	4,474 million yen	3,507 million yen
Exchange Rate	1 peso = 6.8 yen (July 1990)	1 peso = 3.7 yen (average in 1996)

(4) Project Implementation Scheme

The executing agency of this project was Maritime Industry Authority (MARINA). The Steering Committee consisting of the Department of Transportation and Communications and the Philippine Coast Guard (PCG) in addition to MARINA was established, and coordination related to project implementation was performed by this committee. The maritime administration duties were divided among these 3 organizations at the time, so that the establishment of the Steering Committee consisting of representatives of these 3 organizations is considered to be a measure contributing to effective project implementation.

(5) Operations and Maintenance

The operation of lighthouses and light beacons was performed by PCG under the supervision of DOTC Transportation Center Division. On the other hand, the Headquarters on Aids to Navigation Control (HANC), which is located in PCG, controls maintenance. Currently, HANC has only one dedicated maintenance ship, so that it is unable to satisfactorily implement periodic inspections that have been planned. However, the 37 lighthouses and light beacons that have been rehabilitated by this project are operating without problem except for one. The problematic facility is not operating at the rated capacity because of insufficient power distribution capacity from the power company it gets its power from, but it has been decided to shift to solar cells, and this transition is now being concretely studied.

The number of dedicated maintenance ships is planned to increase to 3 ships (one of which has already been supplied) in the near future through an ODA loan, and a periodic maintenance system will be set up. Further consideration in the future of increasing the maintenance budget and strengthening the maintenance system to enable the satisfactory implementation of periodic maintenance is desired. Furthermore, it is also judged necessary to implement measures for the lighthouse that is not currently being operated at the rated capacity.

(6) Project Effects and Impacts

After 1995, when the project was completed, the number of maritime accidents in the Philippines has continuously declined for 2 years, as shown in the following table. Although this decline in the number of maritime accidents does not only depend

on the rehabilitation status of navigational aid facilities, interviews of the major sea transport associations in the Philippines and sailors actually navigating the Manila-Cebu Island route have shown that sea road safety has remarkably improved.

Year	1993	1994	1995	1996	1997
Number of maritime (number of stranding accidents)	173 (26)	163 (23)	181 (58)	119 (21)	59 (5)

As a result of the engineering study performed as part of this project, plans for strengthening maritime safety, such as linking with Domestic Shipping Modernization Program and Maritime Safety Improvement Project (II) have been drafted in a short period of time and gone into implementation. While this is an indirect effect, this project can be said to have contributed to improving the safety of the maritime sector.

CORREGIDOR Light House

BAGACAY Light House

Light Beacon between Manila and Ceb Island

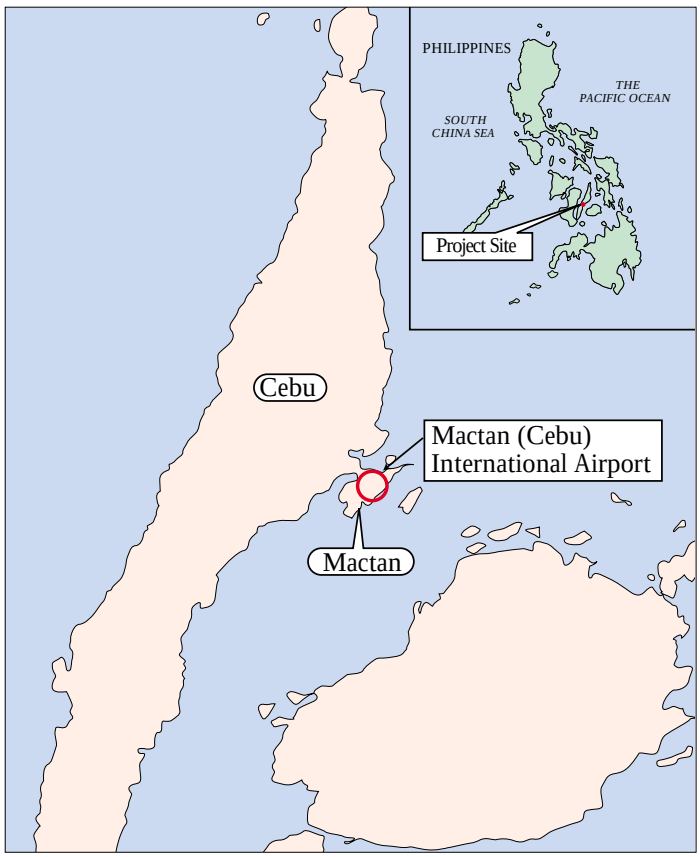
Mactan (Cebu) International Airport Development Project

Report Date: March 2000
Field Survey: April 1999

1 Project Summary and Japan's ODA Loan

This project aims to expand and improve facilities at Mactan (Cebu) International Airport (opened in the mid-1960s), which holds an important position as the second largest airport in the Philippines after the Manila International Airport. This project also aims to enable the airport to accommodate the predicted rise in passenger and cargo transport, as well as to improve the airport's safety.

The ODA loan covers the entire foreign currency and a part of local currency (75% of the total project cost) of the project cost.



Borrower	Republic of the Philippines
Executing Agency	Department of Transportation and Communications(DOTC)
Loan Amount	¥10,790 million
Loan Disbursed Amount	¥10,578 million
Date of Exchange of Notes	March 1991
Date of Loan Agreement	July 1991
Loan Conditions	
Interest Rate	2.7 %
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	October 1998

2 Analysis and Evaluation

(1) Project Scope

There were no changes regarding the major airport facilities (construction of runways and Domestic Passenger Terminal Building).

Additional construction arose for the improvement of the existing International Passenger Terminal Building (constructed by Philippine Tourism Authority (PTA) prior to this project), but this construction was aimed at fully enabling the original functions of the airport and it represented an appropriate measure. Moreover, the M/M for consulting services did increase as a result, but this increase was required in order to fully implement construction management.

Moreover, degradation of the equipment at the existing terminal was progressing, and the renovation of this equipment being judged to be essential for the safe operation of the airport, the required procurement and renovation were performed as part of the scope of this project.

(2) Implementation Schedule

The construction work (of runways and a terminal), which represents the main part of this project, was completed 22 months behind schedule. This delay consisted of a delay (of 8 months) in the tender procedure by the Department of Transportation and Communications (DOTC), the executing agency for this project, and the effects (14-month delay) of the delay in construction of the

International Passenger Building separately implemented by PTA. The construction of this international passenger terminal prior to this project was agreed to within the Philippine government due to the requirement to open the international passenger terminal as soon as possible, but the delay incurred in its construction resulted in the delayed start of construction of a building connecting the domestic and international flight terminals, which was covered by ODA loan. Furthermore, due to the low quality level of the construction, the amount of repairs performed for improvements covered by this project increased, which also contributed to the extension of the implementation schedule.

(3) Project Cost

Except for additional procurements, there were no major changes in the project cost. However, the value of the yen rose compared to its level at the time of appraisal, and there was a slight underrun in project cost on a yen base. The increase in consulting services was covered by using the contingency.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
i) Runway	Extension 200m×45m (total length after extension is 3,300m), Overlay 3,100m×45m	As planned
ii) Construction and renovation of passenger terminal buildings	Total: 33,300m²	Total: 34,000m²
iii)Parking zone	Construction: 22,400m²	18,600m²
iv) Additional procurement	-	Boarding bridge ×1, X-ray inspection equipment ×7, Metal detector ×3
v) Consulting Services		
Foreign	172M/M	301M/M
Local	204M/M	468M/M
Total	376M/M	769M/M
2.Implementation Schedule		
i) Selection of consultant	July 1991 to October 1991	July 1991 to October 1991
ii) Bidding	November 1991 to July1992	November 1991 to March 1993
iii) Construction and renovation of passenger terminal buildings and equipment procurement	July 1992 to May 1995	April 1993 to March 1997
iv) Additional procurement	-	January 1998 to December 1998
v) Consulting services	November 1991 to May 1995	November 1991 to December 1999
3.Project Cost		
Foreign currency	¥6,098 million	¥6,528 million
(ODA Loan portion)	(¥6,098 million)	(¥6,528 million)
Local currency	1,219 million peso	1,558 million peso
(ODA Loan portion)	(690 million peso)	(998 million peso)
Total	¥14,387.2 million	¥12,835 million
(ODA Loan portion)	(¥10,790 million)	(¥10,568 million)
Exchange Rate	1 peso = ¥6.8 (in 1990)	1peso = ¥4.048 (weighted average at the time of loan disbursement)

(4) Project Implementation Scheme

Department of Transportation and Communications (DOTC) served as the executing agency for this project. A project coordination committee including representatives of the Cebu Province was also established locally. This committee performed coordination with DOTC and local parties as well as progress management for the project.

No problems regarding land appropriations and relocation of residents occurred during the implementation of the project.

(5) Operations and Maintenance

Mactan-Cebu International Airport Authority (MCIAA), which has 622 employees as of April 1999, is responsible for the operation and management of the airport. Operation of the airport is performed by the Operation Department (29 employees), and maintenance is performed by the Engineering Department (126 employees). The current operation and maintenance scheme at MCIAA is satisfactory.

(6) Operations and Maintenance Scheme

Regarding the operation of the airport, the number of passengers, cargo volume, and number of takeoffs and landings all have

increased following completion of the project, but the Asian economic crisis and the suspension of business at Philippine Airlines caused a decline in airport utilization statistics during 1998. Regarding the maintenance of the airport, no particular problems have been identified. Moreover, drainage from the airport is being processed within the standard values used in the Philippines.

(7) Financial Status

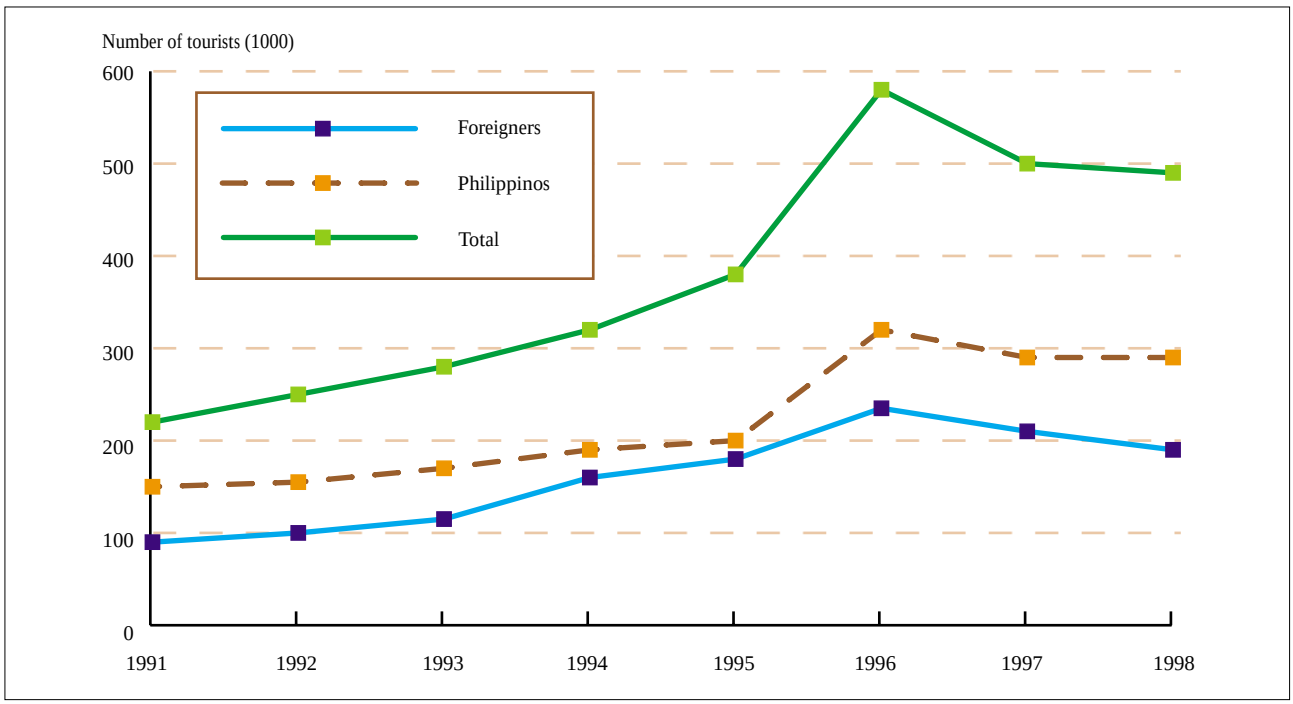
MCIAA enjoys a positive operating income from the airport and its management of the airport is free of problems.

(8) Project Effects and Impacts

(i) The economic internal rate of return (EIRR) calculated at the time of appraisal was 22.2%, but it was 29.3% when recalculated at the time of evaluation.

(ii) The implementation of this project has enabled takeoffs and landings by super carriers, and the role of the airport as a hub airport for the Philippines has been strengthened. Moreover, the number of tourists visiting Cebu Island, after greatly increasing in 1996, the year when the new terminal building was opened, has remained at a high level, and the effects of this project, while indirect, have been recognized. (See Table 1.)

Table 1 Trend in Number of Cebu Tourists



Source: Philippine Tourism Authority

(iii) The value of exports in the Mactan Export Processing Zone adjacent to the airport has been steadily increasing in recent years. Moreover, following the opening of the new airport, the number of companies that have established operations in the Mactan Export Processing Zone has greatly increased, and the airport is considered to be one of the factors in the decision of these companies to set up operations in the zone. (See Table 2.)

Table 2 Mactan Export Processing Zone

Fiscal year	1995	1996 (Jan-Mar)	1997	1998	1999 (Jan-Mar)
No. of companies (operating base)	84	89	102	103	103
Export amount (US$ million)	880	240	1,133	1,307	318
No. of employees (as of end of December)	28,259	29,304	35,932	35,920	37,118
Total personnel costs (million peso)	1,647	453	2,541	2,931	724
Average monthly income per employee (peso)	4,857	5,148	5,892	6,801	6,499

Source: Mactan Economic Zone, Administration Office

Mactan Internatonal Airport

Apron

The Departure Lobby for Domestic Passengers

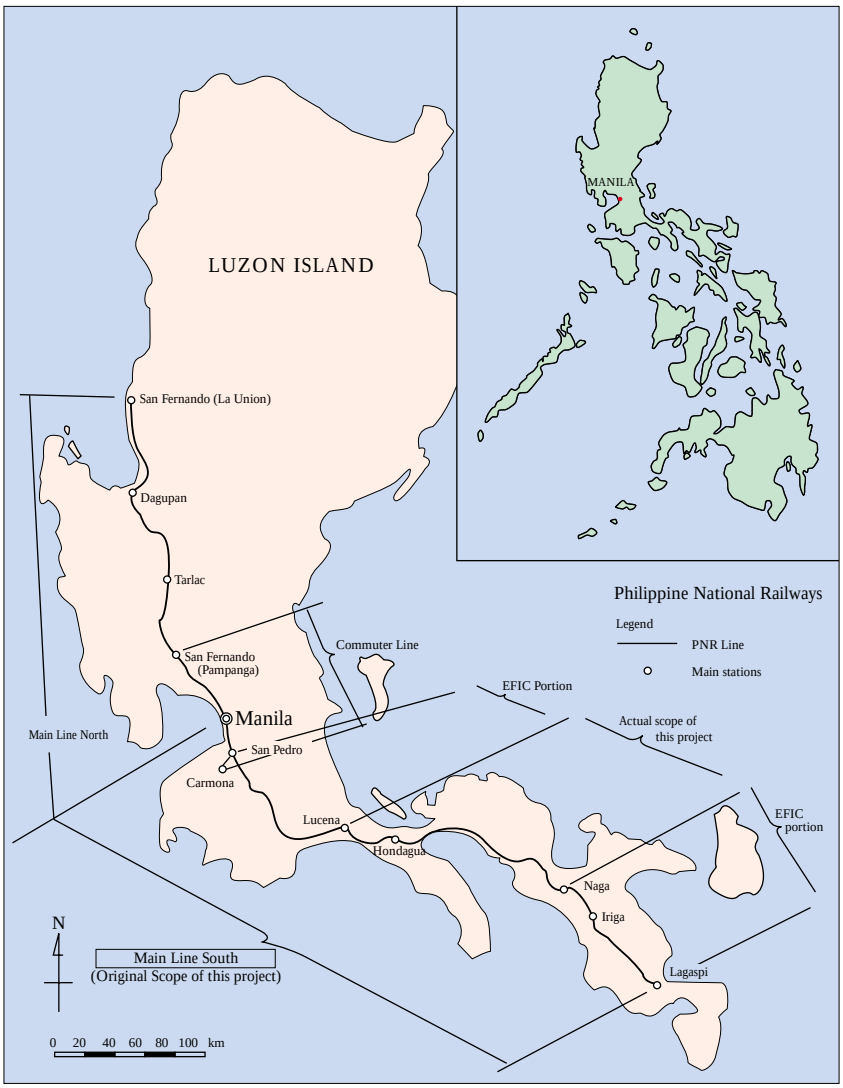
Revitalization of Main Line South Project

Report Date: March 2000
Field Survey: February 2000

1 Project Summary and Japan's ODA Loan

This project aims to improve the safety, speed and punctuality of operations on the Philippine National Railways Main Line South (443km between San Pedro and Lagaspi) which has many deteriorating facilities. These improvements are to be made by rehabilitating tracks and bridges, procuring rolling stocks and taking other measures.

The ODA loan covers the entire foreign currency portion and a part of the local currency portion.



Borrower	Republic of the Philippines
Executing Agency	Philippine National Railways (PNR)
Loan Amount	¥5,054 million
Loan Disbursed Amount	¥5,037 million
Date of Exchange of Notes	November 1988
Date of Loan Agreement	May 1989
Final Disbursement Date	September 1996

2 Analysis and Evaluation

(1) Project Scope

The bidding amounts for this project far exceeded the estimates at the time of the appraisal, and consequently the project scope had to be altered (scaled back). The target track section from San Pedro to Legaspi (443km) was reduced to the section between Lucena and Naga (245km). Plans for signal devices, station repairs, and fences to prevent trespassers along the tracks had to be eliminated. New diesel-electric locomotives were procured as planned, but plans to rehabilitate rolling stocks had to be scaled back. In order to scale back the plan, target tracks, facilities and coaches were reexamined and priority was given to those with the greatest urgency. The scaling back of the project had to be undertaken as the bidding amounts exceeded earlier estimates.

The section of the track eliminated from this project (between San Pedro and Lucena and between Naga and Legaspi) was completed separately in July of 1998 with financing provided by EFIC

(Australia's Export Finance and Insurance Corporation).

(2) Implementation Schedule

This project (after reducing the scope) was completed in March of 1996, roughly one year later than the originally planned completion date of March 1995. This extension was needed to repair damage caused by a typhoon that struck soon after the project was completed.

(3) Project Cost

As mentioned above, the bidding price for this project far exceeded the estimates at the time of the appraisal. This was derived from several unforeseen circumstances such as a sudden sharp increase in the cost of construction materials derived from inflation and the outbreak of the Gulf War. The bid price included many additional expenses that reflected the political instability at the time. Such expenses included those to cover security measures and the risks of a sudden devaluation of the peso.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
i) Rehabilitation of tracks		
Extension of tracks	San Pedro ~ Legaspi (443km)	Lucena ~ Naga (245km)
Installation of ties	250,000 ties	157,000 ties
ii) Rehabilitation of bridges	10 bridges	7 bridges
iii) Procurement of diesel-electric locomotives	6 locomotives	Same as left
iv) Rehabilitation of passenger coaches	67 coaches	16 coaches (additional 20 coaches through self financing)
v) Rehabilitation of diesel-electric locomotives	5 locomotives	(Not implemented)
vi) Improvement of signal facilities	14 sets of tokenless system etc.	(Not implemented)
vii) Improvement of communication facilities	7 sets of VHF system etc. Cable circuit 378km	15 sets of VHF system 4 sets of SSB transceivers (Not implemented)
viii) Workover of station buildings	28 stations	(Not implemented)
ix) Installation of fences to prevent trespassing on the tracks	San Lazaro ~ Mesa (3.5km)	(Not implemented)
x) Consulting Services	338 M/M	313 M/M
2.Implementation Schedule		
Start of project to completion of project (Civil works)	February 1992 to March 1995	February 1992 to March 1996 (12-month delay including disaster relief construction)
3.Project Cost		
Total project cost	¥6,317 million	¥6,150 million
ODA loan portion	¥5,054 million	¥5,037 million
Exchange Rate	1 peso = ¥6.3 (October 1998)	1 peso = ¥4.9 (average rate at the time of loan disbursement)

(4) Project Implementation Scheme

The Philippine National Railway (PNR) was the executing agency for this project. The implementation method was on a contract basis by contractors and external consultants carried out detailed designing, bidding support, construction supervision and maintenance guidance. The executing agency can be praised for taking appropriate steps to deal with the fact that the bid price exceeded the earlier estimates. Furthermore, during the implementation stage there were no reports of problems with the performance of the contractors and consultants.

(5) Operations and Maintenance

After the completion of the project, operations and maintenance were conducted by PNR's Train Operations Department, Rolling Stock Maintenance Department, and Engineering Department. PNR has not been able to secure an adequate budget for maintaining and repairing their trains. Therefore, there has been a low rate of operation for the rolling stocks in their possession, and even though this project helped to improve the conditions of the tracks, there was no increase in the number of trains operated.

(6) Project Effects and Impacts

(i) Quantitative Effects

(a) Shorter Travelling Times

The travelling time between Manila and Naga was 15 hours before the project, but only 11 hours after completion of the project. This is seen as an effect of the track improvements made by this project.

(b) Increased Number of Trains and Passengers

The original plans called for increasing the number of roundtrip trains each day from two to five, and increasing the annual number of passengers from 1 million to 2.5 million. However, the number of roundtrip trains remained unchanged, and the number of annual passengers reached only 540,000.

(c) Reduction in Derailments

There was a decrease in the number of derailments after track restoration was completed. There were 44 derailments between Lucena and Naga in 1990, but only six in 1997 after restoration was completed.

(d) Financial Internal Rate of Return (FIRR)

At the time of appraisal it was estimated that this project would produce FIRR of 7.9% due to better passenger earnings. However, the South Line has been recording losses each year up until now, and therefore calculation of FIRR has been postponed at the present time.

(ii) Qualitative Effects

Safety has been improved due to the reduction in derailments as mentioned above. In terms of improvements to service, the trains now operate with greater regularity, and vibrations on the trains have been reduced to provide more pleasant rides.

Railway Track(1993) before the Project : Implementation with Superannuated Ties and Bent Rails

The Rehabilited Track after this Project

Rehabilition Works on a Passenger Coach

Nationwide Air Navigation Facilities Modernization Project (II)

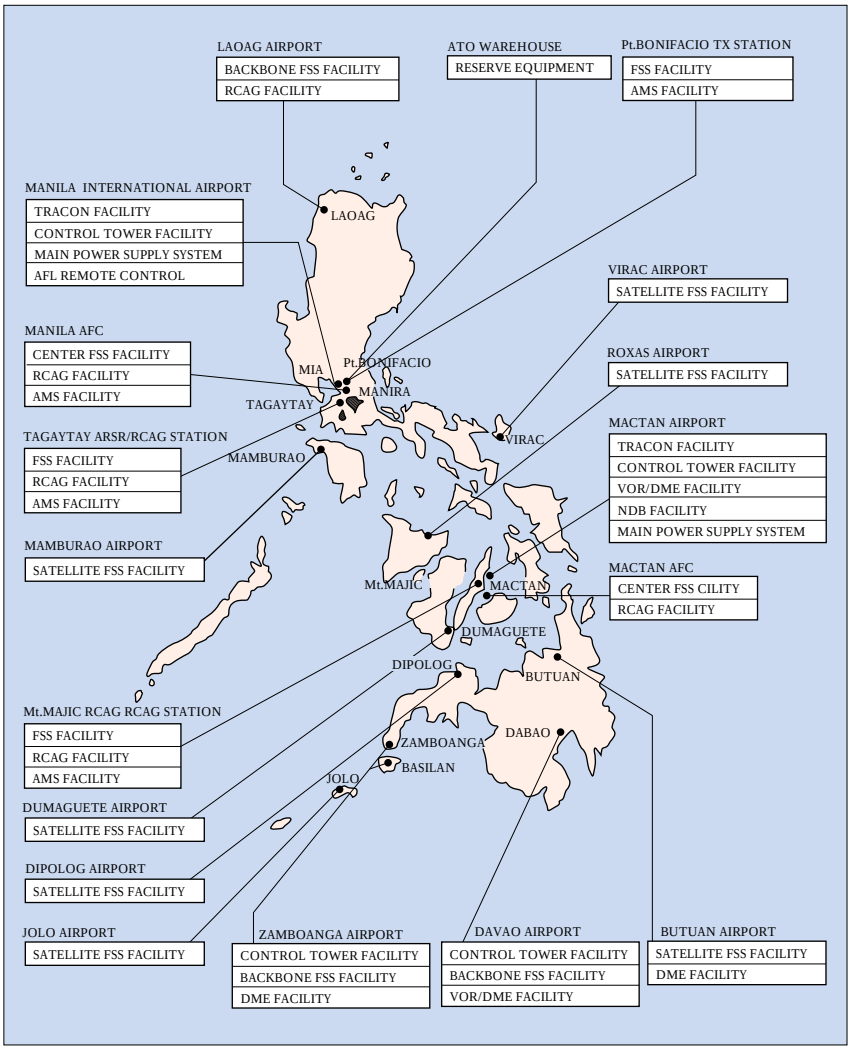
Report Date: March 2000
Field Survey: November 1998

1 Project Summary and Japan's ODA Loan

(1) Background

The Philippines is one of the world's foremost island nations, with approximately 70 million citizens living on more than 7,000 islands. Thus, as economy grows and incomes rise,development of the transportation sector has always been given a high priority among national development plans. Within the sector, the aviation sector is recognized as one of requirements for economic development for its speed, regularity and amenity. It is expected to play an increasingly important role for passenger and cargo transport, thus rapid enhancement of this sector was in need.

This project was designed to newly provide or renovate the air navigation equipment at airports and air navigation facilities that were not covered by the Phase 1 project. It had an extremely high urgency for the Philippines, which still has a low coverage for air navigation facilities.



(2) Objectives

This project aims to assure safe and smooth navigation of airplanes in the Philippines by newly providing or renovating air navigation equipment.

(3) Project Scope

Scope of this project is to newly provide or renovate air navigation equipment, mainly at the 13 airports (Manila International Airport, Mactan (Cebu) International Airport, for example) and air navigation facilities within the Manila flight information region. The ODA loan covered the entire foreign currency cost of this project.

(4) Borrower/Executing Agency

Republic of the Philippines/Department of Transportation and Communications

(5) Outline of Loan Agreement

Loan Amount	¥7,595 million
Loan Disbursed Amount	¥7,297 million

Date of Exchange of Notes	December 1985
Date of Loan Agreement	May 1986
Loan Conditions	
Interest Rate	3.5%
Repayment period (Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	December 1995

2 Analysis and Evaluation

(1) Project Scope

The list of equipment covered by this ODA loan was revised in part compared to the plan at the appraisal stage. First, the most urgent tasks in particular were removed from the scope and covered by other funds when delays in bidding and other procedures occurred due to lawsuits from disqualified contractor. Moreover, due to changes in the project locations, overage of existing equipment, and changes of environment at project locations, Air Transportation Office (ATO) requested and implemented their changes accordingly. These changes were done in response to changes in circumstances, they were seen appropriate in order to achieve the aims of the project.

(2) Implementation Schedule

The implementation schedule ran 5 additional years, compared to the initial plan. The reasons for this extension were that the selection of consultants was delayed due to a change in administration that brought with it political and administrative confusion, interruptions caused by lawsuits filed by a disqualified bidder, and the extension of construction due to site changes.

(3) Project Cost

While the foreign currency portion was almost the same with the planned amount, the local currency portion increased by 300% due to inflation during the extended implementation schedule and increases in consulting service costs (on a yen-denominated basis, this was a slight decrease). The increase portion was provided by the executing agency in a timely manner, thus no problems in particular occurred.

Comparison of Original Plan and Actual

Item	Plan	Actual	Difference
1.Project Scope			
Equipment	DME : 2 airports 2 sets	Same as left	-
	TRACON : 3 airports 3 sets	2 airports 2 sets	△1 airport 1 set
	Control Tower : 4 airports 4 sets	Same as left	-
	FSS : 7 airports 7 sets	12 airports 12 sets	5 airports 5 sets
	VOR/DME : 2 airports 2 sets	Same as left	-
	RCAG : 5 airports 5 sets	6 airports 6 sets	1 airport 1 sets
	ILS : 1 airport 1 set	Same as left	-
	ALF : 2 airports 2 sets	Cancelled	△2 airports 2 sets
	AMS : 3 airports 3 sets	4 airports 4 sets	1 airport 1 set
	AFTN : 1 airport 1 set	Cancelled	△1 airport 1 set
	ATMS : None	1 airport 1 set (addition)	1 airport 1 set
	FDPS : 1 airport 1 set	Cancelled	△1 airport 1 set
	NDB : None	2 airports 2 sets (addition)	2 airports 2 sets
Consulting Services	Detailed design, bidding assistance, construction supervision, special study	Same as left	-
2.Implementation Schedule			
Start of construction	April 1986	March 1987	11 months delay
Completion of construction	September 1989	September 1994	60 months delay
3.Project Cost			
Foreign currency	¥7,595 million	¥7,297 million	△¥298 million
(ODA loan portion)	(¥7,595 million)	(¥7,297 million)	△¥298 million
Local currency	37.903 million pesos	128.458 million pesos	90.555 million pesos
(ODA loan portion)	(¥530 million)	(¥501 million)	(△¥29 million)
Total	¥8,125 million	¥7,798 million	△¥327 million

(4) Project Implementation Scheme

The executing agency for this project was Air Transportation Office (ATO) within Department of Transport and Communications (DOTC). For the implementation of this project, Project Management Office (PMO) was established within ATO, and PMO performed procurement and implementation management duties. The manufacturing, shipping, and installation of equipment were implemented on a turnkey basis[1] by a private supplier following a detailed design by the consultant. PMO performed its evaluation, inspection, and supervisory functions with advice from the consultant at each implementation stage. The ATO engineers and local consultants formed technical working groups at each project site and performed project management under the supervision of PMO.

Although the project was delayed long at its implementation preparation stage, the reasons were mostly beyond ATO's control. ATO's performance can be said not to have been inferior to that of other organizations.

(5) Operations and Maintenance

The equipment and facilities introduced through this project were installed at major airports throughout the Philippines as well as air route monitoring radar and communications stations. They are all operating satisfactorily in general, being used on a daily basis for air navigation safety operations. In particular, all the major equipment installed at the Manila International Airport and the Mactan International Airport, which were visited on this ex-post evaluation site survey, were operating satisfactorily. According to ATO, the equipment introduced are being suitably operated and maintained based on the manufacturer's manual and ICAO standard. The efforts are being made to ensure a satisfactory operating state at all times.

However, difficulties regarding the procurement of spare parts for maintenance were observed. Although the procurement of parts is highly needed, procurement is being performed on an extremely limited scale. The reasons for this is that air navigation related equipment is fabricated after it is ordered, therefore many manufacturers do not keep parts in stock, and that parts must be procured through bidding per Philippine government rules, which results in complicated procedures. As a countermeasure, the establishment of a maintenance center was included in the scope of the following Phase 3 project.

(6) Project Effects and Impacts

All the air navigation facilities provided through this project are designed to improve air navigation safety and enable an increase in air navigation traffic by assuring safety.

Particularly in the Philippines, where typhoons frequently occur, flights by pilots' vision are considerably restricted, and thus the role played by these facilities is extremely important. The facilities provided through this project contribute to raising the overall level of air navigation systems throughout the Philippines. Additional effects of this project were improved service for passengers, increased revenue from the usage of air navigation facilities (foreign currency acquisition), higher profitability of airlines, and transfer of technology to the ATO staff.

1 The contractor was responsible for all the work, from the fabrication, shipping of equipment and the construction of the buildings housing it to the equipment's installation.

Control Tower : The Console in Sub-ACC

Control Tower at Mactan Airport

Radar Building (ARSRISSR)

Small Scale Irrigation Programme (IV) ~ (VI)

Report Date: March 2000
Field Survey: December 1998

1 Project Summary and Japan's ODA Loan

(1) Background

While the agriculture, forestry and fishing industries at the beginning of 1980 were positioned as the principal industries of Thailand, these industries faced many problems, among which the following stand out as being particularly severe. (1) Stagnating agricultural income and regional income disparity, (2) high unemployment rate of agricultural laborers (during the dry season), (3) limit to expansion of arable land, (4) lower productivity and slow diffusion of agricultural techniques, and (5) low enthusiasm among farmers about learning about agricultural technology. The Thai government has been working to increase and stabilize agricultural productivity through the diffusion of irrigation projects, and in the Fifth Five-Year Plan from 1982 to 1986, it has allocated 34.950 billion Baht (349.5 billion yen) for irrigation-related projects, of which 35.8% or 12.5 billion Baht (125 billion yen) are earmarked for small-scale irrigation development projects.

(2) Objectives

The project aimed to build a number of small-scale water supply facilities in agricultural areas that do not have the benefit of large-scale water-supply facilities in order to stimulate irrigation, stockbreeding, and fish farming, increase and stabilize agricultural production, promote agricultural development, and secure daily life water, so as to reduce income disparity with cities.

(3) Project Scope

Succeeding Small Scale Irrigation Programme (I) to (III) conducted from 1977 to 1981, this project was designed to build a total of 1,500 small-scale irrigation facilities (reservoirs, levees, water volume adjustment facilities, etc.) mainly in the northern and northeastern part of Thailand at the rate of 500 a year over 3 years, (2,094 such small-scale irrigation facilities were actually built), as well as to procure construction and repair equipment and spare parts, and to provide consulting

services. The portion funded by the ODA loan was the entire foreign currency portion.

(4) Borrower/Executing Agency

Kingdom of Thailand/Ministry of Agriculture and Cooperative, Royal Irrigation Department (RID)

(5) Outline of Loan Agreement

	Phase (IV)	Phase (V)	Phase (VI)
Loan Amount	¥7,310 million	¥6,900 million	¥5,293 million
Loan Disbursed Amount	¥6,707 million	¥5,782 million	¥4,443 million
Date of Exchange of Notes	June 1983	July 1984	September 1985
Date of Loan Agreement	September 1983	September 1984	October 1985
Loan Conditions			
Interest Rate	3.00%	3.50%	3.50%
Repayment Period	30 years	30 years	30 years
(Grade Period)	(10 years)	(10 years)	(10 years)
Final Disbursement Date	September 1988	September 1989	October 1990

2 Analysis and Evaluation

(1) Project Scope

Since small-scale irrigation projects are selected using bottom-up selection method whereby requests are made by the beneficiary groups and projects are then approved or rejected. Therefore, the number of projects actually implemented differs from the initially planned number. However, the number of irrigation facilities constructed every year exceeds the planned number, and it is judged that the project's contents, while exceeding the project objectives, were appropriate.

(2) Implementation Schedule

Since, under Small Scale Irrigation Project (SSIP), projects are divided by fiscal year and are implemented on a one-year basis, there were projects whose construction work was carried over to the following year. However, this being a project extending over a number of years, project delays are not considered to have been a problem. The construction start for Small Scale Irrigation Project (6) was delayed by about 3 years, but this was caused by the fact that the project was frozen due to a review of the foreign currency loan by the Thai government.

(3) Project Cost

The foreign currency portion for each project period was lower than planned, while the local currency portion was greater than planned. However, no problems were found in the use of both the local and foreign currency portions.

Comparison of Original Plan and Actual

Item	Plan			Actual		
	Phase(IV)	Phase(V)	Phase(VI)	Phase(IV)	Phase(V)	Phase(VI)
1.Project Scope						
i) Civil works by facility						
Reservoir (numbers)	245	250	249	-	348	412
Levee (numbers)	190	185	195	-	233	221
Water volume adjustment facility etc. (numbers)	65	55	56	-	141	79
Total (numbers)	500	500	500	660	722	712
ii) Consulting services Total (M/M)	203	90	74	62 (foreign consultant only)	54	61
2.Implementation Schedule						
i) Consulting services	Oct. 84 to Sep. 85	Jan. 86 to Dec. 86	-	Feb. 85 to Jun. 86	Jul 86 to Oct. 87	-
ii) Civil works	Oct. 83 to Sep. 84	Oct. 84 to Sep. 85	Oct. 86 to Sep. 87	Oct. 83 to Sep. 84	Oct. 84 to Sep. 86	Oct. 87 to Feb. 90
iii) Procurement	Aug. 83 to Apr. 84	Oct. 84 to Sep. 86	-	Feb. 85 to Jun. 86	Jul. 86 to Sep. 88	-

3.Project Cost						
Foreign currency (¥ million)	7,310	6,900	5,293	6,707	5,782	4,443
Local currency (million Baht)	1,100	1,068	1,067	1,168	1,151	1,086
Total (¥ million)	18,306	17,686	15,001	16,339	15,336	10,208
(Exchange Rate: 1 Baht = ¥)	(¥10.0)	(¥10.1)	(¥9.1)	(¥8.3)	(¥8.3)	(¥5.3)

(4) Project Implementation Scheme

The executing agency for this project was the Ministry of Agriculture and Cooperative, Royal Irrigation Department (RID). RID was in charge of design and construction for each irrigation project. The hired consultants, in addition to construction supervision, performed maintenance and operation planning, monitoring, creation of future plans, etc., and their performance was satisfactory. No particular problems were found to exist in the implementation scheme.

(5) Operations and Maintenance

The operations and maintenance of irrigation facilities following the completion of the project is the responsibility of the beneficiaries, but the implementation status differs depending on the area. The selection of a maintenance system for areas with insufficient autonomous management is considered to be an issue that will require addressing.

(6) Project Effects and Impacts

(i) Quantitative Effects

Increased production of agricultural products, livestock, and fish were aimed for through this project. The economic internal rate of return (EIRR) of the project rose as the result of the implementation of this project, as shown in the following table.

Table 1 Changes of Economic Internal Rate of Return in each Project

	Phase(IV)	Phase(V)	Phase(VI)
At the time of appraisal	13.2%	13.9%	13.4%
At the time of evaluation	14.9%	17.4%	17.1%

Note: The EIRR for Phase(IV) and (V) was calculated using project costs and maintenance expenses as the costs, and the increase in revenues from agricultural products, livestock, and fish as the benefits. For (VI), the EIRR was calculated during both appraisal and evaluation by adding labor reductions to the benefits.

(ii) Qualitative Effects

With regard to the objectives of this project, namely 1) raising people's livelihood by securing daily life water during the dry season, 2) reducing drought damage through rainy season refill irrigation, 3) increased livestock, fish farming, and crop production, 4) creation of employment opportunities through construction of irrigation facilities, and 5) farmer organization through the construction, maintenance, and operation of tertiary canals, which represent income and living level improvements for small farmers, a survey done through questionnaires found that the project resulted in incomes and level of living improvements. Therefore, this project is considered to have been effective for a large number of farmers.

Reservoir and Waterway

Irrigated Farms

Supplying Water through a Pipeline from the Reservoir

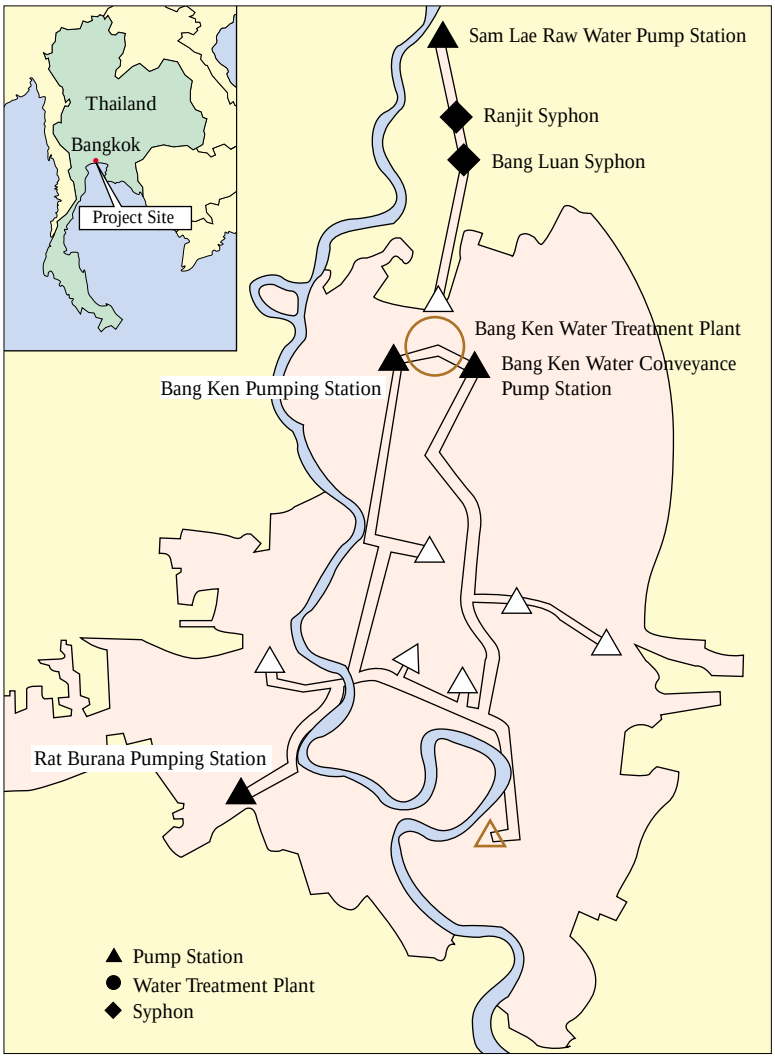
The Fourth Bangkok Water Supply Improvement Project (Phase 1)

Report Date: May 1999
Field Survey: March 1999

1 Project Summary and Japan's ODA Loan

This project aims to raise the water treatment capacity of the Bang Ken Water Treatment Plant, which draws water from the Chao Phraya River (from 2.8 million m³/day to 3.2 million m³/day) and expand the distributing pipe network in order to keep pace with increasing demand for water supply as the city grows, and to help limit ground subsidence in the Bangkok metropolitan area.

The ODA loan covers the entire foreign currency portion for this project.



2 Analysis and Evaluation

(1) Project Scope

There were no major changes in project scope. The laying of distributing sub pipes was reduced slightly, but they were laid by MWA with its own funds. As a result, the project scope envisaged in the initial plan has been completed.

(2) Implementation Schedule

The improvement of the water distribution network was delayed by approximately 31 months. The delay was due to the time taken for acquisition of a permit for water distribution pipes laying from the Bangkok Metropolitan Authority, and the need to reroute some of the water distribution pipes laying when the permit was refused for some areas. In other implementation works, they were completed almost as scheduled and there were no major problems.

(3) Project Cost

The project cost was smaller than the initial plan in both the local and foreign currency portions. The main cause for the cost underrun was the appreciation of the Yen during 1992 and 1993, which coincided with the construction period. In addition, the

Borrower	Metropolitan Waterworks Authority (MWA) (Guarantor: Thai Government)
Executing Agency	Metropolitan Waterworks Authority (MWA)
Loan Amount	¥8,638 million
Loan Disbursed Amount	¥5,849 million (including charges)
Date of Exchange of Notes	September 1991
Date of Loan Agreement	September 1991
Final Disbursement Date	January 1998

MWA carried out some parts of the project using its own funds, as described above, which further reduced the project cost.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
i) Expansion of syphon	2.5m x 3.0m: 5 units	As planned
ii) Expansion of Bang Ken Water Treatment Plant	400,000 m3/day	As planned
iii) Strengthening of pumping station	4 pumps, reservoir	As planned
iv) Improvement of water distribution network		
Distributing main pipe	42.7km	44.0km
Distributing sub pipe	400km	323.8km
Distributing sub pipe (rehabilitation)	107km	109.2km
v) Consulting services	239M/M	313M/M
		(In addition, 329M/M as assistant staff except engineers)
2.Implementation Schedule		
i) Civil works (commencement to completion)		
Except water distribution network	February 1993 to August 1995	March 1993 to January 1996
Water distribution network	February 1993 to August 1995	September 1992 to October 1997
ii) Consulting Services	April 1992 to August 1995	May 1992 to June 1996
(commencement to completion)		
3.Project Cost		
Foreign currency	¥8,638 million	¥5,843 million
Local currency	¥8,505 million	¥5,517 million
Total	¥17,143 million	¥11,360 million
Exchange Rate	1 Baht = ¥5.3	1 Baht = ¥4.2
	(in 1991)	(average at the time of loan disbursement)

(4) Project Implementation Scheme

As noted above, the implementation period was prolonged slightly, but the delay was largely due to an external factor, namely lengthy procedures to acquire approval from another agency. There was no major problem with the project implementation capability of MWA, the contractors or the consultants.

(5) Operations and Maintenance

In March 1999, MWA was an organization of 6,441 employees, of whom approximately 400 were working on the operation and maintenance of the Bang Ken Water Treatment Plant and its water distribution network. MWA is working to raise the quality of its staff by making the use of Water Supply Technical Training Center, which was set up with technical cooperation with Japan.

(6) Operational Performance

The facilities built under this project are operated steadily with no major problems. However, the non-charged ratio is an extremely high as about 40% in the Bangkok capital area. Of the non-charged ratio, around 80% is due to water loss, and the most pressing task now is to improve the non-charged ratio by stepping up investment for rehabilitation to the water distribution network.

(7) Management Performance of MWA

Changes in the Thai currency system have caused cumulative exchange losses on the MWA long-term foreign currency-based borrowing which have a serious impact on the MWA's ordinary profits.

(8) Project Effects and Impacts

The volume of water supplied from the expanded Bang Ken Water Treatment Plant has been growing steadily since October 1995, and the aim of this project to meet demand in 1996 was achieved. (Table 1).

Table 1 Monthly Results of Water Supply for Bang Ken Water Treatment Plant (Unit: 1,000 m^3/day)

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.
1994	79.7	81.7	86.4	81.3	78.5	88.7	90.1	92.2	92.2	94.4	94.6	90.9
1995	91.2	88.5	93.3	93.5	87.6	94.7	95.3	97.6	95.8	98.3	99.3	95.6
1996	98.9	95.5	95.9	95	87.6	96.7	92.9	97.3	92.4	96.3	95.9	94.3
1997	98.2	94.5	94.4	91.2	82.1	94.9	93.4	98.4	95.6	98.2	98.4	94.8

Source: MWA

The amount of groundwater pumped up has been declining since 1997. Thus another aim of this project to reduce ground subsidence have been achieved. (Table 2).

Table 2 Movements in Groundwater Pumping in Bangkok Metropolitan Area (Unit: 1,000 m³/day)

FY	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Central System	170.4	127.7	40.8	46.3	61.4	86	146.3	187.4	196.4	165.8	74.8
Separate Sysutem	25.8	30.4	32.6	41.9	44.7	34.2	45.5	51	55.3	48.5	34.5
Total	196.2	158.1	73.4	88.2	106	120.3	191.8	238.4	251.8	214.3	109.3

Note: Central system: Supplying a majority of the Bangkok metropolitan area.
Separate system: Supplying towns[1] on the periphery of Bangkok.

1 Refers to seven towns: Minburi, Bang Yai, Sai Noi, Bang Phlee, Bang Bo, Nong Chok, Bang Bua Thong
Work is now proceeding on pipelines to link the central and separate systems which are expected to be completed by FY 2001.

Bang Ken Water Treatment Plant expanded by this Project

Chemical Injectors

Large-sized Pump installed by this Project

Bhumibol Hydro Power Plant Rehabilitation Project

Report Date: March 2000
Field Survey: November 1998

1 Project Summary and Japan's ODA Loan

(1) Background

In the late 1980's, when this project was first planned, Thailand was entering a period of rapid economic growth that produced a sharp increase in the demand for electrical power. Peak demand grew at an annual rate of 13% in 1987, 15% in 1988, and 15% in 1989. Increasing electrical output to meet this rising demand had become an urgent issue for the country. With this background, the Electricity Generating Authority of Thailand (EGAT) drafted its Power Resources Development Plan (1988~2001) calling for 14,790MW of electrical output by 2001 with annual output capacity expanded to 76,172GWh.

At the time of planning this project, Bhumibol Hydro Power Plant had equipment output of 535MW, second to Srinagarind Power Plant, which had its output 540MW. Two of the seven generators at Bhumibol Hydro Power Plant, generating units 1 and 2, began their operations in 1964 and had become fatigued. Many of the equipment and facilities were out-dated. Efficiency had fallen and maintenance costs had risen due to deterioration over time. Therefore, prompt renovation had been in need.

(2) Objectives

This project aims to improve the reliability of power facilities, improve power output and efficiency, and extend the operating life of facilities by renovating some of the deteriorating equipment (generating units 1 and 2) at the Bhumibol Hydro Power Plant.

(3) Project Scope

The project scope covered renovation of generating units 1 and 2, as well as consulting services. The ODA loan covered the entire foreign currency portion.

(4) Borrower/ Executing Agency

Electricity Generating Authority of Thailand / Electricity Generating Authority of Thailand (EGAT)

(5) Outline of Loan Agreement

Loan Amount	¥2,425 million yen
Loan Disbursed Amount	¥2,324 million yen
Date of Exchange of Notes	September 1988
Date of Loan Agreement	September 1989
Loan Conditions	
Interest Rate	2.9%
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	January 1995

2 Analysis and Evaluation

(1) Project Scope

This project consisted of rehabilitation of generating units 1 and 2 and the provision of consulting services. Specifically, this included water turbines (adopting a new runner and electronic governor, replacing bearings), power generators (replacing stator coils and field coils, adopting static excitation equipment), control equipment (adopting automatic control equipment and gas breakers), as well as detailed design and other consulting services. The project was basically carried out according to plans without any major changes to its scope.

(2) Implementation Schedule

The project implementation was initially planned to run for a period of three years and nine months from March 1989 to January 1993. However, the project was actually executed from May 1989 to November 1993 for a delay of 10 months. Delays were mainly due to some equipment faulty in part that needed to be returned and replaced.

(3) Project Cost

Initial costs estimates for the project called for ¥2,425 million for the foreign currency portion and ¥624 million (125 million bahts) for the local currency portion. However, the actual cost of the project was ¥2,324 million for the foreign currency portion, 4.2% less than forecasted, and ¥790 million (200 million bahts) for the local currency portion, 27% more than forecasted. Overall, there was 2.1% cost overrun mainly due to an extension in the period for providing consulting services.

Comparison of Original Plan and Actual

Item	Plan(1)	Actual (2)	Difference (2-1)
1.Project Scope			
i) Renovation of Units 1 &2			
・Hydro turbine	New runner, adoption of electric governor, replacement of bearing etc.	As planned	None
・Power generator	Replacement of stator coils and field coils, adoption of static excitation equipment	As planned	None
・Control system etc.	Adoption of automatic control equipment and gas breakers	As planned	None
ii)Consulting Services	Detailed design,bidding preparation assistance, bidding evaluation assistance, construction supervision	As planned	None

(4) Project Implementation Scheme

Electricity Generating Authority of Thailand (EGAT) was executing agency for this project. This project marked the first time that EGAT attempted a major renovation of hydro power equipment, but this did not prove to be a hindrance to the project. EGAT may be credited for its solid performance in executing the project.

Due to the urgency of this project, Japanese consultants involved with F/S were directly employed. No particular problems were reported in terms of the performance of the consultants. Regarding the performance of the contractors, faults with some of the equipment resulted in implementation schedule delays. In the final analysis, however, a maximum output greater than that of the planned was achieved with the project only being delayed by 10 months.

(5) Operations and Maintenance

Good operating conditions were maintained after the renovation of generating units 1 and 2. Good maintenance was also provided and no problems are seen in supplying the needed spare parts. Following the renovation, operations of generating unit 1 started in November 1992, with operation for unit 2 starting in November 1993. A maximum output of 76.3MW was achieved, exceeding the expected 75.4MW. Results after operations resumed are as shown in Table below. The results

obtained as of fiscal year 1996 were basically in line with the expected level of output. Power output for fiscal 1998 was lower due to a drought that would not occur during an average year.

Table.1 Power Generating Results of Units 1 and 2 after Rehabilitation

FY [1]	Plan [2]	Power Generating Results				
		Total	Unit 1		Unit 2	
	Power generating volume (GWh)	Power generating volume (GWh)	Power generating volume (GWh)	Power generating time (hr)	Power generating volume (GWh)	Power generating time (hr)
FY1994	378.0	46.7	46.7	830.2	—	—
FY1995	377.2	313.9	149.6	2,489.8	164.3	2,540.3
FY1996	376.4	368.5	185.5	3,005.8	183.0	2,862.9
FY1997	375.6	364.2	182.0	2,972.8	182.2	2,961.4
FY1998	374.8	225.3	111.0	1,895,5	114.3	2,061.4

Note : 1) The fiscal accounting period is from October to September of the following year.
2) Assumed output level based on economic analysis at the time of appraisal.

(6) Project Effects and Impacts

FIRR was calculated as 14.4% at the time of appraisal.

(Premise) (i) Benefit: Increased revenue through improved productivity and higher output.
(ii) Expense: Investment in rehabilitation and additional expense associated with increased power output.
(iii) Project life: 15 years

The output of the rehabilitaton was higher than expected, however project completion was delayed by almost one year. Therefore, the actual FIRR of 14.0% was roughly even with the projected figure.

The Hybraulic Pressure Pipes, units1and 2

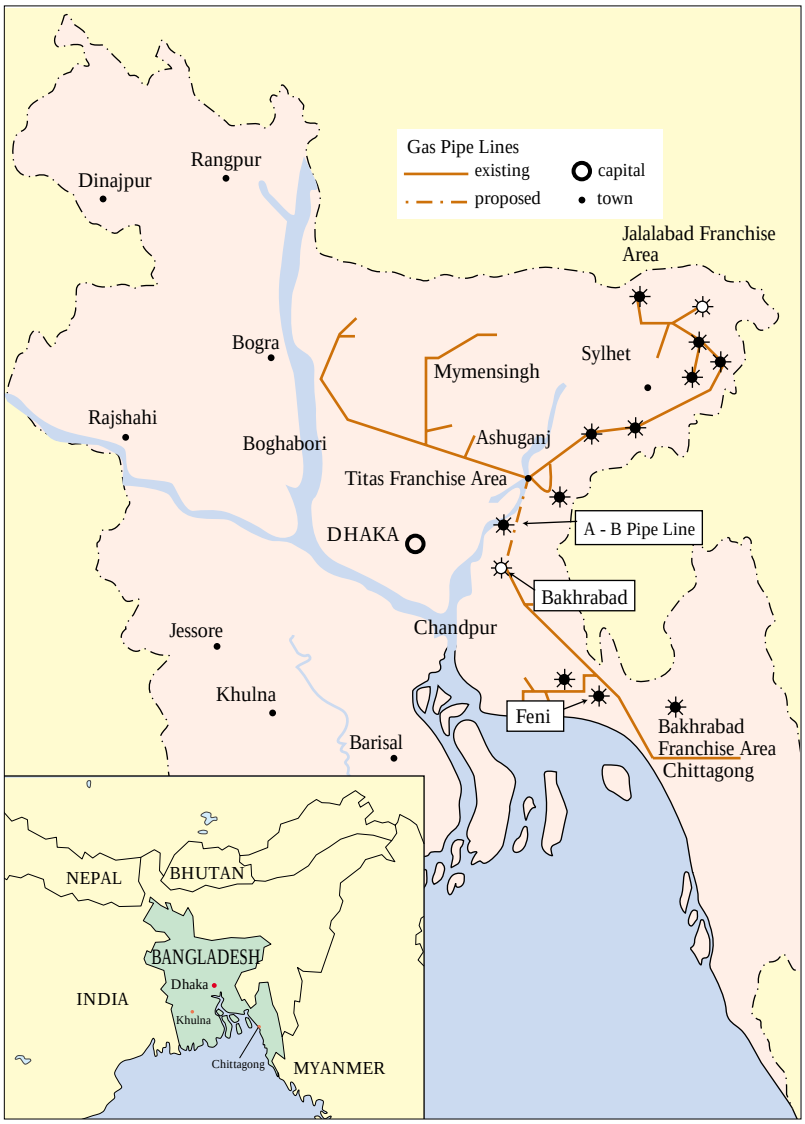
Bakhrabad Natural Gas Development Project (II)

Report Date: December 1999
Field Survey: July 1999

1 Project Summary and Japan's ODA Loan

(1) Background

Natural gas is the only plentiful energy source in Bangladesh and the government has been promoting the development of this resource since the launch of its 1st Five-Year Plan (1973-1980). When plans for this project were first created in 1994, 17 gas fields were already being developed in Bangladesh (21,354BCF from estimated in-place reserves and 10,428BCF from remaining recoverable reserves). Use of natural gas has also been increasing rapidly, with an average annual increase of 14% since the early 1980's. At the time of planning this project, there was a particularly strong demand for natural gas from the Chittagong area where fertilizer factories, electric power plants and other new plants are being operated. Improving the ability to provide natural gas to the Chittagong area had become a very important policy issue.



(2) Objectives

This project aimed to improve capabilities for providing natural gas from the Bakhrabad Franchise Area to the Chittagong economic zone, where supply shortages were predicted to occur between December 1994 and June 1996.

(3) Project Scope

The project scope was to increase natural gas production by performing a workover of two wells in the Bakhrabad Gas Field and drilling and completing a new well in the Feni Gas Field.

The ODA loan covered the total foreign currency portion and the local currency portion excluding administrative expenses, taxes, and expenses for preparing the land.

(4) Borrower/Executing Agency

People's Republic of Bangladesh / Bangladesh Gas Fields Company Ltd.(BGFCL)

(5) Outline of Loan Agreement

Loan Amount	¥1,405 million
Loan Disbursement Amount	¥1,270 million
Date of Exchange of Notes	March 1994
Date of Loan Agreement	June 1994
Loan Conditions	
Interest Rate	1%
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	September 1998

2 Analysis and Evaluation

(1) Project Scope

One of the two existing Bakhrabad Gas Field wells to be improved was changed. However, this was deemed to be an appropriate course of action, as the change helped to achieve the stated goal of bolstering production for the overall Bakhrabad Franchise Area. Furthermore, some of the contingency was used to expand the scope of the project, but this expansion contributed to better production from the Bakhrabad Franchise Area.

(2) Implementation Schedule

The original plan called for the project to be completed in December 1994. However, the original scope of the project was completed in June 1996 and the additional scope of the project was finished in September 1998. This was due to delays in procuring ground equipment and faults with some of the drilling equipment that needed to be repaired.

(3) Project Cost

There was 12% cost underrun for the operating expenses covered by the ODA loan. This is because lower prices were obtained through international competitive bidding on contracts for funding/equipment procurement and installation.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
i) Bakhrabad Gas Field		
- Workover of well BK-2	Workover to upper D level for well BK-2	Recompletion to lower D level for well BK-5
- Workover of well BK-4	Workover to G level for well BK-4	As planned
ii) Feni Gas Field (FN-2)		
- Drilling and well completion	Drilling of new well FN-2 and well completion to lower level	Drilling of new well FN-2 and well completion to upper level
- Procurement and installation of ground equipment	Construction of plant with treatment capacity of 60MMCFD	As planned
iii) Engineering service	Dip digging, cement work etc.	As planned
iv) Consulting service	Construction supervision, procurement monitoring etc	As planned
<Additional scope>		
v) Investigation on production status of existing wells and their repairs	No plan	Investigation on production status of BK-1, 2, 3, 7, 8 and their repairs
vi) Pipeline laying	No plan	Laying of gas pipeline (28km)
2.Implementation Schedule		
	Jan. 1994 to Dec. 1994	Jan. 1994 to Sep. 1998
3.Project Cost		
Foreign currency	¥1,163 million	¥1,179 million
(ODA loan portion)	(¥1,163 million)	(¥1,179 million)
Local currency	¥639 million	¥753 million
(ODA loan portion)	(¥242 million)	(¥92 million)
Total	¥1,802 million	¥1,932 million
(ODA loan portion)	(¥1,405 million)	(¥1,270 million)
Exchange Rate	1 Taka=¥2.7	1 Taka =¥2.99

(4) Project Implementation Scheme

Bangladesh Gas Fields Company Ltd. (BGFCL) was the executing agency in this project. The performance of both the consultants and contractors was good, and there were no particular problems with the implementation scheme.

(5) Operations and Maintenance

There was a decrease in production output upon completion of this project. However, this was due to water and sand that was brought forth at the production level, and is not a reflection on the operations of the project. Furthermore, there were no problems with the maintenance scheme.

(6) Project Effects and Impacts

(i) Gas Provision Results

Gas was provided as shown in the table below following completion of this project. Capabilities to provide gas from the Bakhrabad Franchise Area were enhanced, thus helping to alleviate the supply-demand gap. It has been said that this improved supply and demand situation helped users avoid having to shut down operations, thus reducing a hindrance to industrial activities in the Chittagong area. This project resulted in stable gas field production and made possible improved monitoring capabilities by the executing agency.

Table 1 Average Daily Gas Production (unit: MMSCFD)

	FY1994/1995	FY1995/1996	FY1996/1997
Total for Bakhrabad Franchise Area	150	152	108
Total from wells covered by this project (BK4,5,FN-2)	35	32	13

Source:BGFCL

Equipment of the Bakhrabad Gas Fields

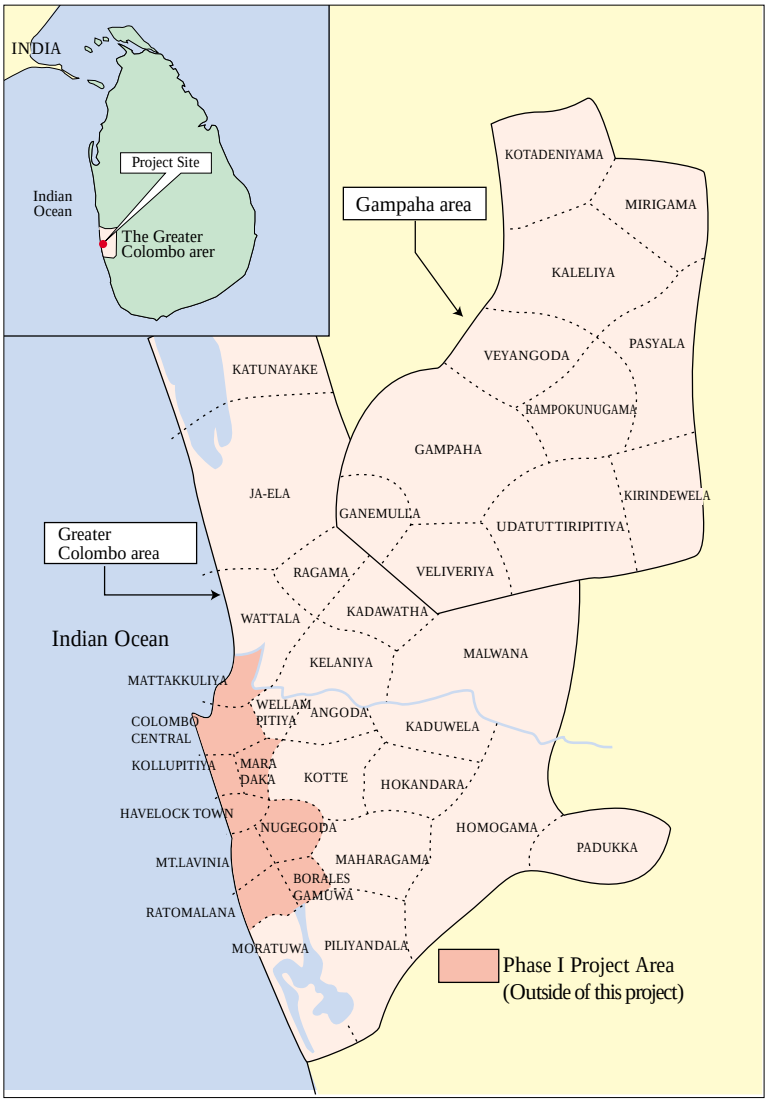
The Greater Colombo Telecommunications Network Improvement Project

Report Date: March 2000
Field Survey: July 1999

1 Project Summary and Japan's ODA Loan

This project aims to expand the telecommunication facilities in the Greater Colombo area and the nearby Gampaha area, for the purpose of responding to the increasing demands for telephone communication and improving the quality of the telephone calls. It includes building up a network of transmission lines, radio transmission system, telephone switchboards, and primary cables for subscribers.

The ODA loan covers the entire foreign currency portion and a part of local currency portion of project costs.



2 Analysis and Evaluation

(1) Project Scope

The main reasons for the alteration of project scope were that a substantial increase in the demand compared to what was predicted at the detailed design stage (1992) was revealed at the construction execution stage (1995), and that the technological innovation enabled the system more advanced. This alteration was the result of a flexible response to the realities of the increased demands accompanying the rapid development of the relevant areas. Since the objective of the project is to decrease the number of waiting applicants, the alteration is judged to be reasonable.

(2) Implementation Schedule

There is a total of 14 months of delay compared to the implementation schedule at the time of appraisal. The disbursement was completed within the loan disbursement period specified in the loan agreement, however. The main reasons for the delay include the fact that the coordination (obtaining permission for road excavation etc.) with the Road Development Agency took long.

Borrower	Government of Democratic Socialist Republic of Sri Lanka
Executing Agency	Sri Lanka Telecom, Limited (Sri Lanka Telecommunications Department at the time of L/A signing)
Loan Amount	¥10,968 million
Loan Disbursement Amount	¥10,175 million
Date of Exchange of Notes	January 1991
Date of Loan Agreement	March 1991
Final Disbursement Date	April 1997

(3) Project Cost

The total project costs were increased as a result of the alteration of the project description to putting higher priority on building cables for new subscribers. This caused mainly the civil work necessary for laying down the cables for new subscribers to increase. However, the cost for the ODA loan was made up for by contingency etc. and the costs borne by the executing agency were also paid without any delay.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
i) The Greater Colombo Area Improvement		
Relay transmission line :	8 sections, copper wire PCM*	Optical fiber 15 sections
	(PCM-30) 50.60km	(140Mb/s)90.10km
	7 sections, optical fiber (140Mb/s) 62.60km	
Subscriber cable :	23 switching equipment regions	18 switching equipment regions
	77,000 pairs of primary cables	88,000 pairs of primary cables
ii) Gampaha Area Improvement		
Tall relay radio trunsmission system :	1 section, digital radio system	1 section, digital radio system
	(2GHz 34Mb/s)	(6GHz 140Mb/s)
Local relay radio transmission system :	6 sections, digital radio system	5 sections, digital radio system
	(2GHz 17Mb/s)	(2GHz 34Mb/s)
Relay transmission line :	4 sections, copper wire	5 sections, optical fiber
	PCM(PCM-30)33.10km	(34Mb/s)31.90km
Subscriber cable :	12 switching equipment regions	12 switching equipment regions
	11,150 pairs of primary cables	26,300 pairs of primary cables
Switching equipment	11 stations, 6,984 cables	11 stations, 7,232 cables
iii) Consulting Services	230M/M	338.5 M/M
2.Implementation Schedule		
(commencement to project completion)	January 1991 to June 1995	December 1991 to August. 1996
		(14 months delay)
3.Project Cost		
Total project cost	¥12,903 million	¥14,215 million
Foreign currency	¥10,968 million	¥10,175 million
Exchange rate	1 Rs =¥3.73	1 Rs = ¥1.96
	(August 1990)	(average rate at the time of disbursement)

* PCM: Pulse Code Modulation (the most basic conversion system for transforming analogue signals to digital signals. It is widely used in the telecommunication system.)

(4) Project Implementation Scheme

At the time of appraisal of this project, the executing agency was the Sri Lanka Telecommunications Department. After the loan agreement, however, the executing agency was reorganized as Sri Lanka Telecom in September 1991 and became a public corporation with a self-supporting accounting system. Moreover, in September 1996, after the completion of this project work, it became a stock company, the Sri Lanka Telecom Limited (SLTL). During this period, there was no prominent reformation in the department in charge of ODA loan project and there were no special problems in the project implementation. In addition, a timely report was made to JBIC on the reorganization of the executing agency.

(5) Operations and Maintenance

In August 1997, 35% of the issued SLTL stocks, which were at the time owned 100% by the government, were sold out to NTT. At that time, a management contract valid for 5 years was concluded between SLTL and NTT. It prescribes that SLTL must accept four directors including the CEO (Chief Executive Officer) from NTT (there are 10 directors in total) in order to improve the management efficiency, and specifies the business goals to fulfill tasks based on government policy such as correcting regional differences. It specifies that NTT will gain parts of SLTL's earnings as a management fee, but if the above-mentioned business goals are not achieved, a fixed amount will be deducted from the incentive fee. In order to achieve these business goals, SLTL is actively building up a telecommunication network in the rural areas as well.

Even though it has been only two years since the sales of the stocks, the effect of the partial privatization can already be seen. Significant improvements of the management efficiencies can be seen, especially in the improvement of the customer service, shorter receivables turnover period, and an increase in the number of cables per employee. It would be too early to attempt to

measure the effect of the privatization in terms of fulfillment of the tasks specified by the policy at this point. Nonetheless, in the last two years the track record for the number of cables for new subscribers per year has been far outpacing the figure set in the business goals both in the city and rural areas, and the ratio of subscriber cables in rural areas in the entire Sri Lanka is increasing.

The management of SLTL strongly recognizes the importance of reinforcing maintenance activities. It has deployed additional maintenance equipment and materials, among other things increasing the number of maintenance vehicles, and is taking actions to formulate maintenance guidelines to reform awareness of the site workers and to strengthen the field supervision etc. Together with the increase of the maintenance budget, the organizational structure is also being reviewed in order to improve the efficiency of the maintenance further.

(6) Project Effects and Impacts

(i) Effects of the Telecommunication Service Expansion

As a result of this project, primary cables supporting 88,000 subscriber cables were laid out in the Greater Colombo area and currently about 20,000 lines are connected to new telephone subscribers. The number of subscriber lines has increased by about 100,000 lines in the Greater Colombo area after the completion of this project (1996). This indicates that this project has contributed with approximately 20% of this increase. Furthermore, in the Gampaha area, the number of subscriber lines used to be only 6,713 in 1996, but this figure had increased to 16,611 in 1998 and the number of waiting applicants had also increased. Primary cables supporting 26,300 incoming lines were laid out in the Gampaha area in this project, which is expected to contribute greatly to the increase of the number of telephone subscribers in the future.

Changes of Numbers of Subscriber lines / Waiting Applicants the Greater Colombo Area and Gampaha Area

		1995	1996	1997	1998	1999 (Note)
The Greater Colombo Area	No. of subscriber lines	138,538	167,836	191,847	252,579	264,423
	No. of waiting applicants	109,857	118,291	110,716	108,649	52,741
Gampaha Area	No. of subscriber lines	n.a.	6,713	10,761	16,611	n.a.
	No. of waiting applicants	16,392	15,331	15,341	18,606	n.a.

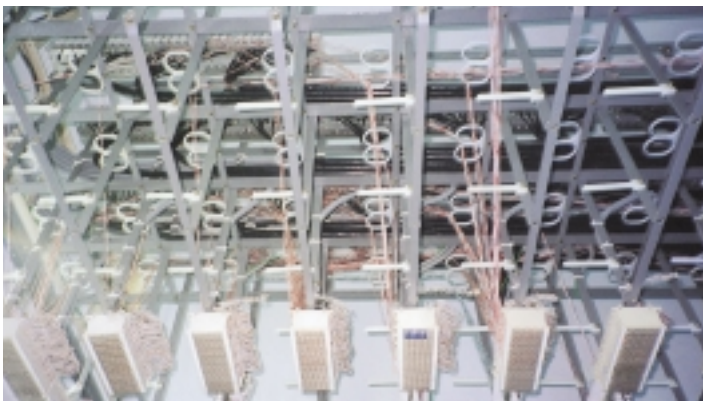
Source: SLTL materials
Note: The data for 1999 is as of May.

(ii) Financial Internal Rate of Return(FIRR)

The result of a recalculation assuming a 20 year project life period, based on the most recent actual results available, shows that the financial internal rate of return of the project is actually 25.8%

3 Lessons Learned

In the public service in which a certain profitability can be expected, a private enterprise's participation in the management may prove effective in order to promote efficient management of the executing agency. Methods such as management contracts can be employed to achieve a better coordination between pursuing profit on one hand and fulfillment of tasks given by the development policy on the other.



Improved Switching Board in the Great Colombo area

Human Settlements Improvement Project (2)

Report Date: March 2000

1 Project Summary and Japan's ODA Loan

This project aimed to provide water supply systems, environmental sanitation facilities, housing and other social service infrastructure for the purpose of improving living environments and public sanitation in both rural and urban areas throughout the Republic of Indonesia. Continuing the Phase 1 project between 1994 and 1996, this project was carried out to provide the materials and equipment needed for executing programs aimed at improving the living environments in Indonesia.

The ODA loan covered the entire foreign currency portion and a part of the local currency portion.

Borrower	Republic of Indonesia
Executing Agency	Directorate General of Human Settlements, Ministry of Public Works
Loan Amount	¥13,069 million
Loan Disbursed Amount	¥10,012 million
Date of Exchange of Notes	December 1995
Date of Loan Agreement	December 1995
Loan Conditions	
Interest Rate	2.3% (2.1% for consultant)
Repayment Period (Grace Period)	30 years (10 years)
Final Disbursement Date	December 1998

2 Analysis and Evaluation

(1) Project Scope

This project determined the criteria for selecting individual projects from among those put forth by the various target sectors. Specifically speaking, the individual projects were selected from among those requested by local governments based on these criteria. During this selection process, revisions and modifications to the original plan may be seen for many of the individual projects when it is deemed that preparations by the local governments have been insufficient, when the proposed project is already being implemented by a different budget, or other such cases.

It can be said that the original purpose of this project was fully achieved, especially when considering the large amount of individual projects, the size of the target area, and the project effects expected to be seen in the future. However, there were some individual projects that did not fully meet their targets. In some cases this was due to the fact that the project was applied only to a section of a large facility and therefore the contents of the project became fragmented. There were also problems of poor compatibility among related facilities and services, and there was poor execution in other cases. Weaknesses at the local level in terms of planning, designing and implementation monitoring were also causes for failing to meet project targets.

Plans were to have one contract covering all consulting services such as project management and detailed design. However, there were actually some 174 contracts signed for the provision of consulting services with international bids accepted for just project management and domestic bids accepted for the detailed designs. The original package was based on the wishes of the Indonesian side, but much time was needed for procurement and thus a change was made to a package that would allow for easier procurement. This change was judged to be a proper and rational decision as it helped to move the project forward.

(2) Implementation Schedule

This project was started roughly one year later than it was originally planned at the time of appraisal as a considerable amount of time was needed on the Indonesian side to coordinate with local governments, select and prepare individual projects, change and modify plans, and allocate budgets. As a result, the overall project was completed in September of 1998, some 16 months behind schedule. The main reasons for this delay were the large number of contracts (1,450 contracts), the slow decision-making system used by the executing agency, and the lengthy administrative procedures. Even though a considerable amount of time was needed to get the project started, execution proceeded smoothly for the most part once the project was underway.

(3) Project Cost

There were no major changes to the scope of the project, but still the yen-denominated project expenses (infrastructure section) shrank by 10% due to the sharp depreciation of rupiah that started in the summer of 1997. It can be said that project costs were appropriately planned and implemented.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
Water supply sector		
a) Water loss reduction and rehabilitation	30 cities	a)~d) Provided water supply systems to a total of 627 locations. Improved water supply capacity to a total of 5,250 l/s.
b) Utilization of idle capacity	27 regions	
c) Supporting strategic areas	121 regions	
d) Acceleration of ongoing projects	94 regions	
e) Institutional and human resources development (HRD)	27 provinces	e) Carried out training and educational seminars at 67 locations.
Environmental sanitation sector		
a) Solid waste	47 cities	a) Provided waste collection and processing facilities to 43 cities.
b) Drainage	70 cities	b) Improved 172,163m of disposal drains for 186 cities.
c) Human waste	52 cities	c) Provided sewage processing facilities to 17 locations and human waste processing facilities to 170 locations.
d) Institutional and HRD/Public housing sector	44 locations	d) Carried out training and educational seminars at 43 locations.
a) Kampong improvement program	159locations	a) Provided streets, drains, water supply/ living environmental sanitation facilities and social facilities to 213 locations.
b) Urban fishermen's housing improvement	7 locations	b) c) Provided the same facilities as in a) to 62 locations. Improved 590 public housing units.
c) Rural fishermen's housing improvement	41 locations	

d) Supporting strategic areas	183locations	d) Provided the same living environment facilities as in a) to 177 villages, as well as production and distribution facilities.
e) Supporting low cost housing	50 regions	e) Provided access roads and drainage ditches for 25,066 low-cost housing units.
f) Institutional and HRD	27 provinces	f) Carried out training and educational seminars in 27 provinces.
2.Implementation Schedule		
Bidding	September 1995 to August 1996	June 1996 to Feb. 1997
Procurement	March 1996 to August 1996	November 1996 to June 1997
Construction	March 1996 to May 1997	November 1996 to September 1998
Consulting Services	April 1996 to December 1998	June 1997 to November 1998
3.Project Cost		
Water supply sector	¥4,575 million	¥4,249 million
Environmental sanitation section	¥3,271 million	¥2,765 million
Public housing sector	¥3,810 million	¥2,956 million
Contingency	¥1,166 million	
Consulting Services	¥247 million	¥42 million
Tax	¥1,307 million	¥1,001 million
Total	¥14,376 million	¥11,013 million
ODA loan portion (the entire local currency portion was covered except consultant portion)	¥13,069 million	¥10,012 million
Exchange Rate	Rp. 1 = ¥0.045	Rp. 1 = ¥0.040

(4) Project Implementation Scheme

There were no major changes to the implementation scheme, but in some cases the planned loan provision to a local government was not carried out. In accordance with the original plan, projects were implemented as central government projects, and then facilities were transferred to the local governments upon completion of the project.

A considerable amount of time was needed for the decision-making and administrative procedures of Directorate General of Human Settlements, the executing agency for this project. It can be pointed out that before the start of the project, there was a major reorganization that distributed power and responsibility to numerous departments and bureaus.

The planning and monitoring of individual projects was performed by project managers designated by each province, or the staff of these managers. However, the quality of the projects varied depending on the limits to the skills and resources in each region. The executing agency routinely provided the local governments with technical assistance and this project provided training to staff members of both the central and local governments. These efforts helped to improve the capabilities of the local governments in executing the projects, but still some of the local governments did not make sufficient plans and preparations. Other problems that stood in the way of project implementation included insufficient budgets for general administration and management, confusion over procedures and difficult social preparations within the communities. The performance of the contractors that made detailed designs and executed the projects were for the most part very satisfactory.

Consultants in charge of providing project management support were only able to provide technical support for the second half of the project due to the large procurement delays and due to the fact that only consultants in Jakarta were hired as was stipulated in the original plan.

(5) Operations and Maintenance

All of the facilities provided by this project were eventually transferred to the local governments (level 2 autonomous bodies, communities). The division of responsibility differed depending on the type and scope of the facilities, but the ultimate responsibility for operating and maintaining the facilities rested with the local government or recipient community.

According to reports from the executing agency and the results of the sample study, there were relatively few problems in transferring facilities to communities and having these communities operate and maintain the facilities when the facilities were small and simple, such as in the housing and other sectors. However, there were some reports in each sector of technical and financial problems related to operating and maintaining the facilities in cases in which comparatively large facilities were transferred to the communities or when the facilities were of a new type that was unfamiliar to the community. For example, even when such problems were not completely solved, the facilities still had to be transferred upon completion of the project. The financial affairs for most of Indonesia's local regions fell into very difficult situations following the economic crisis. This is why it is especially important to ensure that an adequate budget will be ready for the proper maintenance and operation of the transferred facilities.

(6) Environmental and Social Impacts

The individual projects were comparatively small and there were no reports of burdens being placed on the society or environment.

(7) Project Effects and Impacts

(i) Quantitative Effects

According to reports from the executing agency, the quantitative results listed below were obtained when operating the facilities prepared by this project. This project was considered to be a supporting element to Indonesia's 6th 5-Year Plan (1994/95~1998/99) and made a specific contribution to some of the national targets set for this period.

- Water provision capabilities increased by a total 5,250l/s (17.5% of national target of 30,000l/s)
- City waste processing capabilities improved by a total of 500t/day
- Prepared 172,163m of city drainage and improved approximately 860ha of drainage
- Provided sewage processing facilities at 17 locations and human waste collection and processing facilities at 170 locations
- Provided 3,119ha of city streets, drainage ditches, water provision, environmental sanitation and other facilities (14.2% of national target of 22,000ha)
- Provided access roads and drainage ditches for some 25,066 households in a low-cost housing area
- Provided living environment facilities, production and distribution facilities for 177 important regions such as farming villages (8.9% of national target of 22,000ha)

The planned service population is as follows: 1.54 million for city water provision, 600,000 for rural water provision, 760,000 for waste collection and processing, and 1.53 million for sewage and human waste processing. However, sample surveys taken six months to one year after the completion of individual projects showed some cases in which the planned performance and target number of beneficiaries were not achieved. This was mainly due to mistakes in forecasting demand, poor integration with other facilities and government services, the inability of some sections of the project to function fully, and other planning problems.

(ii) Qualitative Effects

Individual projects are expected to provide the following benefits to local residents when properly planned and executed.

- Increase in the number of residents able to use clean drinking water. Reduction in work needed to draw well water.
- Reduction in floods and damage caused by floods.
- Improved environmental sanitation conditions.
- Improved accessibility to residential areas (access throughout the year, access by car), reduced commuting and transportation costs.
- (Indirect effects) Improved health of the residents and lower medical expenses. Expanded social and economic activities in the communities. Sample surveys have shown that to a certain degree such impacts are already being seen when the facilities function as planned. In particular, impacts from city street and drainage ditch projects were seen right away. Improved living environments and increased economic activities through self-help efforts on the part of the residents were confirmed.

3 Lessons Learned

When individual projects are planned by a local government, it is very important to have the central government help bolster the plans put forth by the local government by clearly determining technical and project monitoring policies, accurately conveying these policies to the local government, providing technical training and hiring consultants.

Sample surveys showed that there were some cases in which the full potential of individual projects could not be achieved due to problems in planning.

The overall effectiveness of a project such as this, which is made up of many small projects, depends very much on how appropriately the individual projects are selected and planned, or in other words, how advanced are the project planning capabilities. Furthermore, with a project such as this that is fragmented into many different parts, efforts must be made to avoid a drop in the balance of costs to benefits due to delays in realizing project benefits. It is hoped that the project would be made up of a package of products based on a long-term and comprehensive plan with consideration giving to sufficient integration with other related projects. In projects such as this in which the smaller projects are planned mainly by the local governments, it is very important for the central government to provide technical assistants to the plans created by the local governments, while at the same time carefully confirming the contents of these plans. For this reason, it is very important to have the central government help bolster the plans put forth by the local governments by clearly determining technical and

project monitoring policies, accurately conveying these policies to the local governments, providing technical training and hiring consultants.

A Public Water System with a well, Toilets, a Bath and a Washhouse in a Remote Rural Village, Sumatera Utara

Provided City Street in Sumatera Utara

Provided Access Roads in Kalimantan Timur

Bohol Irrigation Project (Stage 1)

Report Date: March 2000

1 Project Summary and Japan's ODA Loan

This project aims develop an irrigated area on the island of Bohol in the Philippines to promote agricultural development, consisting of building a dam, irrigation waterways (irrigation canals and drainage canals) and access road, and on-farm development.

The ODA loan covered the entire foreign currency portion of the project cost.

Borrower	Republic of the Philippines
Executing Agency	National Irrigation Administration (NIA)
Loan Amount	¥4,600 million
Loan Disbursed Amount	¥4,526 million
Date of Exchange of Notes	July 1983
Date of Loan Agreement	September 1983
Final Disbursement Date	March 1998

2 Analysis and Evaluation

(1) Project Scope

The dam spillway was changed from the side-channel type to the bath-tub type for hydraulic reasons. The total length of irrigation canals was reduced for reasons of alignment, and the drainage canals were lengthened for the same reasons, but the area irrigated was largely unchanged. Some of the service access roads were built by the local government, which reduced the portion covered by the ODA loan.

(2) Implementation Schedule

The completion of this project, including the preparation of farms, was delayed for eight years and seven months by irregular weather, shortage of local funding, technical problems (measures to cope with weak soil structures), and poor performance by contractors. For the construction of the dam, the irrigation channels and the drainage channels, the executing agency took measures including changing contractors, to promote implementation, but delayed. The civil engineering works for the irrigation facilities were completed in December 1996, but the farms were still not completed until a year later, in December 1997, because the farmers, seeing the severe delays in the construction of the irrigation facilities, did not begin preparing the farms before the facilities were ready. The measures described in (4). below

meant that the farms were completed in one year, minimizing the delay to the start of the irrigation facilities' operation.

(3) Project Cost

The delays in implementation schedule and the measures taken to solve technical problems (see above) necessitated additional expenditure. In the local currency portion of the project cost was increased by inflation, producing a fourfold increase in project cost. The foreign currency portion of the project cost was increased by additional expenses. Due to the appreciation of the Yen, the Yen-based project cost was largely as planned.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
・Civil works, development of farm		
Dam		
Type	Earth-fill dam	Earth-fill dam
Crest length	835m	846m
Storage	5,990,000m^3	5,990,000m^3
Spillway	Side-channel type	Bath-tub type
Intake	7.07m^3/sec.	11.8m^3 / sec.
Irrigated area	4,960ha	4,973ha
Irrigation canal (Main /Lateral)	28,290m / 40,030m	26,880m / 35,990m
Drainage canal (Main /Lateral)	34,100m / 88,010m	34,206m / 93,270m
Service access roads	101,200m	78,600m
On-farm development	14,560m / 2,975ha	129,870m / 2,645ha
(farm ditches / land leveling)	(Implemented by beneficiary farmers)	(Implemented by initiative of NIA)
・Consulting Services		
Bidding assistance / Construction	165M/M	207M/M (original TOR portion)
management etc.		19M/M (additional TOR (land leveling) portion)
2.Implementation Schedule		
Civil works (dam, main canal)	March 1985 to November 1988	January 1988 to December 1996
Civil works (lateral drainage canal, road)	March 1985 to December 1988	January 1988 to December 1996
On-Farm development (farm ditches / land leveling)	(Implemented by beneficiary farmers)	to December 1997
Consulting Services	March 1984 to July 1988	August 1986 to December 1997
3.Project Cost		
Foreign currency	¥4,600 million	¥4,526 million
Local currency	163.5 million peso	669.4 million peso
Total	¥9,504 million (317 million peso)	¥7,855 million (1,579 million peso)
Exchange Rate	1 peso = ¥30	1 peso = ¥4.973

(4) Project Implementation Scheme

The executing agency was National Irrigation Agency (NIA), with Japanese consultants employed to support NIA in technical matters. The poor performance of the local contractor caused prolonged delays, leading NIA to terminate their contract and hire another contractor (a South Korean company) under a new contract.

The farm preparation (terminal canals and land leveling) was carried out as planned by the beneficiary farmers. However, under the initial plan NIA was not supposed to participate in the farm preparation stage, but NIA rented * its own construction machinery to the farmers. The change was based on the JBIC's advice and guidance to NIA. Making the farmers bear the cost of preparing the farms made them more cost conscious and made the process more efficient. The fact that the fields were prepared in only one year suggests that the JBIC's advice and guidance was appropriate and timely.

* The farmers pay rental charges for the equipment (including costs of operators) to NIA by deferred payment.

(5) Operations and Maintenance

The operations and maintenance of the dam, the irrigation canals, the drainage canals and other facilities is good. However, due to the lie of the land, some of the lateral canals exceed 1km. Therefore, when the volume of irrigation water is being adjusted, the volume at the downstream ends of the canals can be inadequate if the permeability of the canals is not considered. If the lateral canals were lined it would prevent water losses, make it possible to guarantee the amount of water supplied downstream and make maintenance easier.

In the irrigated area the maintenance of the irrigation facilities is handled by 13 water cooperatives with a combined

membership of 2,673 farmers. Under the current contracts between the NIA and the water cooperatives, the cooperatives are responsible for the maintenance of the main water canals, but in future the form of the contracts should be revised so that the water cooperatives own all irrigation facilities and bear all maintenance obligations. That change would encourage farmers to participate in water management and reduce the burden on NIA.

(6) Project Effects and Impacts

The irrigated area was increased from 1,802ha to 4,973ha and the rice harvest increased from 1.7t/ha to 4.5t/ha in the rainy season and from 1.6t/ha to 5.0t/ha in the dry season. This improvement in productivity contributed to improvements in the standard of living in the area.

The EIRR was put at 14.6% in the original plan, but the actual figure was 6.7%. The reduction was apparently due to the nearly fivefold increase in the Peso-based project cost.

3 Lessons Learned

(1) In order to secure the services of high-quality contractors, it is important to improve preliminary appraisal at the procurement stage and performance monitoring at the implementation stage.

The performance of the contractors used in this project for dam construction was inadequate, necessitating a change of contractor and considerably delaying the completion of the project.

In order to avoid such situations, contractors of high quality must be employed. Better prequalification appraisal at the procurement stage is an important first step towards that end. In addition, the performance of contractors must be closely and continuously monitored.

(2) Even in cases where a portion of the project is implemented by the beneficiaries, the executing agency (and JBIC) should include those parts of the project in its monitoring of implementation and provide assistance facilities where necessary.

In this project, a further year was required after the completion of the watercourses and other irrigation facilities before those facilities started working. This delay occurred because, despite the plan for the farms to be prepared by the beneficiaries (the farmers), they made no progress on the preparation work and the farms were not ready before the irrigation facilities were completed. The advice and guidance provided by JBIC, and the help provided by the executing agency succeeded in minimizing the delay, but if the farmers and the executing agency had met at an earlier stage to discuss the farmers' participation and the mobilization of construction machinery and to prepare the farms in a planned manner, the delay could have been avoided. In short, it was necessary to organize the farmers and mobilize the construction machinery in a planned manner.

Thus even if a portion of the project is implemented by the beneficiaries, the executing agency (and JBIC) should include those parts of the project in its monitoring of implementation and monitor the progress made. Under such a system, if a delay was noticed, the implementation method for the part concerned could be changed if necessary, enabling the early completion of the project as a whole and the early realization of its benefits.

Malinao Dam Spillway

Tailend of Lateral Canal

Sluice Gate in Main Canal

Agricultural Credit for Rural Development Project (II)~(V)

Report Date: February 2000

1 Project Summary and Japan's ODA Loan

(1) Background

This project was Two-Step-Loan which aimed to increase the production and income of small-scale farmers in rural poverty areas in Thailand by providing the farmers with investment finance through Bank for Agriculture and Agricultural Cooperatives (BAAC). In addition to financing for increasing the farmers' crop production, individual projects included the following measures within their scope:

-Phase (II) provided consulting services and sub-loans to agricultural cooperatives to stimulate their activities.

-Phase (III) provided farmers with sub-loans to stimulate agriculture-related activities (funding for the purchase of equipment for the processing and transportation of agricultural products).

- Phase (IV) and Phase (V) provided farmers with sub-loans to invest for afforestation projects and environmental conservation facilities (the latter was only under Phase (V)).

This project covered crop production in 46 provinces mainly in the north and northeast of Thailand, which are areas of rural poverty, and afforestation and environmental conservation nationwide.

(2) Project Scope

This project was Two-Step Loan which made sub-loans under the following conditions.

	Phase(II)	Phase (III)	Phase (IV)	Phase (V)
Purpose of Loan	- Project investments to crop production by individual farmers - Activities of agricultural cooperatives	- Project investments to crop production by individual farmers - Investment to agriculture-related activities by individual farmers	Project investments by the individual farmers to: - Afforestation project - Crop production	Project investments by the individual farmers to: - Afforestation project - Environmental conservation-related facilities (Biogas plant) - Crop production
Eligible Borrowers	- Individual farmers with income not exceeding Baht 40,000/annual per household - Agricultural cooperatives	The following individual farmers: - Crop production: Annual income not exceeding Baht 40,000 - Agriculture-related activities: Annual income not exceeding Baht 200,000	The following individual farmers: - Afforestation: No annual income conditions - Crop production: Annual income not exceeding Baht 50,000	The following individual farmers: - Afforestation, environmental conservation: No annual income conditions - Crop production: Annual income not exceeding Baht 60,000
Repayment Period	- Individual farmers: Within 20 years (grace period not exceeding 8 years of interest and 12 years of principal respectively) - Agricultural cooperatives: Within 15 to 20 years (not exceeding 5 years of grace)	- Crop production: Within 20 years (grace period not exceeding 8 years of interest and 12 years of principal respectively) - Agriculture-related activities: Within 20 years (not exceeding 5 years of grace)	- Afforestation: Within 15 years (not exceeding 15 years of grace) - Crop production: Within 20 years (grace period not exceeding 8 years of interest and 12 years of principal respectively)	- Afforestation: Within 15 years (not exceeding 15 years of grace) - Environmental conservation and crop production: Within 20 years (grace period not exceeding 8 years of interest and 12 years of principal respectively)
Interest Rate per year	- Individual farmers: 9% - Agricultural cooperatives: Loan conditions are the same with standard No.26 of BAAC. 10~13.5%.	- Same with standard interest rate of BAAC. - Crop production: Not exceeding Baht 60,000 =10%, Baht 60,001~not exceeding Baht 1,000,000=11.25%, more than Baht 1,000,000=12.5% - Agriculture-related activities: Not exceeding Baht 60,000=10.5%, Baht 60,001 ~ not exceeding Baht 1,000,000=11.5%, more than Baht 1,000,000=12.5%	- Same with standard interest rate of BAAC: Not exceeding Baht 60,000 =9%, Baht 60,001~not exceeding Baht 1,000,000=11.25%, more than Baht 1,000,000=13.5%	- Afforestation, environmental conservation: The interest rate is 1.75% lower than that of standard interest rate of BAAC (see Phase IV). - Crop production: Standard interest rate of BAAC.
Loan Amount	- Individual farmers: Baht 10,000~Baht 5,000,000 - Agricultural cooperatives: Not exceeding Baht 5,000,000	- Crop production: Baht 10,000~Baht 5,000,000 - Agriculture-related activities: Less than Baht 5,000,000	- Baht 10,000~Baht 5,000,000	- Baht 10,000~Baht 15,000,000

(3) Borrower/Executing Agency

Government of Kingdom of Thailand / Bank for Agriculture and Agricultural Cooperatives (BAAC)

(4) Outline of Loan Agreement

	Phase(II)	Phase(III)	Phase(IV)	Phase(V)
Loan Amount (Loan Disbursed Amount)	¥3,532 million (same as above)	¥8,350 million (same as above)	¥4,228 million (same as above)	¥12,300 million (84.1% as of March 1999)
Date of Loan Agreement	September 1993	September 1995	September 1996	September 1997
Final Disbursement Date	December 1997	September 1997	May 1998	On-going (January 2003)
Interest Rate	3%	2.7%	2.5% or 2.7%*1	0.75% or 2.7%*2
Repayment Period (Grace Period)	25 years (7 years)	25 years (7 years)	25 years (7 years)	40 or 25 years*3 (10 or 7 years)

Note:*1) Afforestation: 2.5%, crop production: 2.7%
*2) Environment-related: 0.75%, Others: 2.7%
*3) Environment-related: 40 years (Grace Period: 10 years), other 25 years (Grace Period :7 years)

2 Analysis and Evaluation

(1)Results of sub-loan disbursement (loans from executing agency to end-user) (see Table 1 and 2)

(i) Phase II

There were no changes in the basic project scope for the purpose of loans. No consulting services (advice on sub-loan implementation and on production and marketing etc.) were used in connection with the implementation of the project, but such services were approved by JBIC for the following reasons:

(a)BAAC had employed consultants in the past and built up its own experience.

(b)When necessary, local consultants could be employed with the executing agency's own funds.

This appears to have been an appropriate choice, considering the BAAC's past record of sub-loan implementation. The amount of the loan allocated for consulting services was channeled to sub-loan borrowing instead.

Sub-loans totaling ¥3,532 million, or 100% of the approved amount, were extended to 10,564 individual farmers and 26 agricultural cooperatives (ACs) and Agricultural Marketing Cooperatives (AMCs). Disbursement to individual farmers has made steady progress, but this has not been the case with ACs and AMCs.

(ii) Phase III

There were no changes in the basic project scope for the purpose of loans. Sub-loans totaling ¥8,350 million, or 100% of the approved amount, were extended to 8,605 individual farmers. Disbursement for crop production and agriculture-related activities made steady progress. The actual disbursed sub-loan amount for livestock and fruit/ orchards (including afforestation) exceeded the planned amount of sub-loans, reaching 119% and 116% of their allocations, respectively. However, demand for sericulture was low, and the disbursed amount was only 1.1% of the planned amount.

(iii) Phase IV

There were no changes in the basic project scope for the purpose of loans. Sub-loans totaling ¥4,228 million, or 100% of the approved amount, were extended to 5,897 individual farmers. Disbursement for afforestation came to ¥2,166 million, close to the anticipated amount of ¥2,114 million. For crop production, the largest amount of lending was ¥1,138 million for livestock, 224% of the anticipated amount. The disbursed amount for fishing and sericulture was small, with fishing receiving 9.5% of the anticipated amount and sericulture receiving no loans at all.

(iv) Phase V

This project is still in progress, with completion scheduled for January 2003. By March 1999 the amount disbursed under the project as a whole had reached 84.1% of the ¥12.3 billion approved as the total loan amount, providing loans as planned to 33,754 individual farmers. However, progress has been slow in providing sub-loans for afforestation projects and biogas plants. There is latent demand for both these project types, but considering the current financial and economic climate in Thailand, individual farmers are not keen to invest in projects that do not offer immediate returns. Given the progress being made in disbursing sub-loans for these project types, the allocations of funds between eligible loan purposes will probably have to be revised if disbursement is to be completed within the disbursement period. For future loans it may be necessary for the agencies concerned to review the loan conditions and consider the appropriateness of the sub-loan purposes and amount.

(2) Implementation Scheme and Credit Management Scheme

(i) Organization

BAAC was formed in 1966 when its predecessor Bank of Agricultural Cooperatives (BAC, founded in 1943) was reorganized into a state-owned corporation under the BAAC Law. It serves as a bank for farmers and agriculture-related agencies in order to promote agriculture. Its policies are set so that they support the government's policies for agriculture, and one of its main policy objectives is to target loan conditions for low-income farmers as a means of correcting income disparities. Between its head office and branches it has 13,382 workers in 76 provinces nationwide.

(ii) Appraisal System

As of September 1999, the head office was organized into eight groups (departments), of which the loan group approves loans of one million Baht or more. The managers of branches, which are under the authority of the branch management group, approve loans below one million Baht. There are also 667 local branches and mini branches nationwide, and below those there are 884 local offices, where loan officers keep in direct contact with farmers to offer and promote loans.

(iii) Appraisal System Used for this Project

Based on the above framework, most loan appraisal decisions on sub-loans given under this project were made by branches. In practice, most of the decisions are actually made by loan officers. The loan officers solicit borrowing, in line with the policies of their branch. However, as mentioned above (see "(1). Results of sub-loan disbursement"), there is a problem with some categories for which the allocated amount has not been disbursed (particularly afforestation and biogas plant). The following measures should be devised to ensure the planned disbursement:

(a) Adoption of detailed funding plans for sub-loans and allocation of funds to branches on the basis of those plans.
(b) Establishment of special teams to promote lending for specific loan purposes.
(c) Building of a computerized monitoring system to track the progress made in sub-loan disbursement.
(d) Collation of customer information in a database, information gathering to promote additional lending for environmental conservation projects, and promotion of farmers' investment through the provision of information and technical support on agricultural policy, subsidies, market trends and related matters.
(e) Service improvements through staff training and reviews of interest rates on long-term loans to individuals.

(iv) Business Operation and Credit Management

The total disbursed loan amount of BAAC in FY 1997 (end of March 1998) was 125.255 billion Baht. Of that, 107.126 billion Baht (85.5%) was in loans to individual farmers, who are the target borrowers for this project. The BAAC's total assets have been growing at an average annual rate of more than 20% over the last five years, reaching 228.720 billion Baht by the end of March 1998. The net profit on its assets also grew, by an annual average of over 10%, to 1,377 million Baht at the end of March 1998. However, since July 1997 the impact of the economic crisis reduced equity from 12.167 billion Baht in the preceding financial year to 6,691 million Baht, and reduced net profit by approximately 5%. The proportion of loans in arrears was 20.8% in March 1999 but decreased 17% in June. While that is not a high level when compared to other government-affiliated financial institutions, the bank's business operation requires caution in future. Among the concerned projects, those funded by Phase IV were reported by PCR to have a total of 51 million Baht in arrears (1,801 loans), with an arrears rate of 4.9%. The other loans are likely to require post-monitoring.

(v) Revolving Fund

BAAC has established a special account for secondary disbursement. A secondary disbursement rate of 34.65% was reported for Phase II, but to date no secondary disbursements have been made to other loan-funded projects.

(vi) Environmental Considerations

At the appraisal stage, BAAC checks whether a project meets various standards. The bank's policy is not to extend loans to projects where environmental damage through problems such as water contamination or deforestation are anticipated.

3 Project Effects and Impacts

The beneficiaries of this project's sub-loans are 58,820 individual farmers.

This project appears to have yielded a wide range of effects, such as increased agricultural productivity, stimulation of agriculture-related activities and environmental protection. As an example of project effects, a questionnaire survey was conducted on the impact on farmers' activities and income, which yielded 240 valid responses. The survey found that, comparing situations before and after agricultural investment, the annual income per farming household rose from 171,000 Baht to 259,000, including agriculture-related and non-agricultural activities, and the farm surplus rose from 62,000 Baht to

Table 1 Planned and Actual Sub-loan Amounts

Phase (II)						
	Plan			Actual		
Sub-loan planned item	ODA loan portion (million Yen)	BAAC (million Baht)	Total (million Yen)	Sub-loan amount (million Baht)	Sub-loan amount (million Yen)	Percentage (%) in the ODA loan portion of actual amount
A. Individual Farmer (Crop Production)						
Fruit / Tree crops	1,163	65	1,450	79	317	27.2
Fisheries	483	28	607	84	336	69.7
Livestock / Dairy / Poultry	677	39	849	257	1,030	152.1
Edible Crops / Vegetables	775	44	969	391	1,566	202.0
Sericulture	63	3	76	3	11	17.1
Flowers / Ornamental Plant	67	4	85	28	110	164.4
Sub-total	3,228	183	4,037	842	3,370	104.4
B. Agricultural Cooperatives						
(1) BAAC/ANC	176	10	220	6	22	12.7
(2) AC	88	5	110	35	140	159.2
Sub-total	264	15	330	41	163	51.5
C. Consultant						
Consulting Services	40	1	44	0	0	0.0
Total	3,532	199	4,411	883	3,532	100.0
Exchange Rate	4.4			4.0		

Phase (III)						
	Plan			Actual		
Sub-loan planned item	ODA loan portion (million Yen)	BAAC (million Baht)	Total (million Yen)	Sub-loan amount (million Baht)	Sub-loan amount (million Yen)	Percentage (%) in the ODA loan portion of actual amount
A. Individual Farmer (Crop Production)						
Fruit / Tree crops, including afforestation	1,810	125	2,263	477	2,094	115.7
Fisheries	362	25	453	53	232	64.1
Livestock / Dairy / Poultry	2,895	200	3,619	785	3,442	118.9
Edible Crops / Vegetables	1,448	100	1,810	213	933	64.5
Sericulture	217	15	271	1	2	1.1
Orchid / Other cut flowers	148	11	188	19	82	55.5
Sub-total	6,880	476	8,603	1,547	6,786	96.6
B. Individual Farmer (Agricultural-related Activities)						
Sub-total	1,470	102	1,839	356	1,564	106.4
Total	8,350	578	10,442	1,903	8,350	100.0
Exchange Rate	3.62			4.39		

Table 2 Planned and Actual Sub-loan Amounts (including unfinished Phase (V))

Phase (IV)						
	Plan			Actual		
Sub-loan planned item	TheODA Loan portion (million Yen)	BAAC (million Baht)	Total (million Yen)	Sub-loan amount (million Baht)	Sub-loan amount (million Yen)	Percentage (%) in the ODA Loan portion of actual amount
A. Individual Farmer (Afforestation)						
Sub-total	2,114	125	2,639	651	2,165	102.4
B. Individual Farmer (Crop Production)						
Fruit / Tree crops	423	25	528	153	525	124.0
Fisheries	423	25	528	12	40	9.5
Livestock / Dairy / Poultry	507	30	633	332	1,138	224.4
Edible Crops / Vegetables	338	20	422	44	151	44.5
Sericulture	169	10	211	-	0	0.0
Orchid / Other cut flowers and compound agriculture	254	15	317	61	210	82.5
Sub-total	2,114	125	2,639	601	2,062	97.6
Total	4,228	250	5,278	1,253	4,228	101.6
Exchange Rate	4.2			3.43		

Phase (V)						
	Plan			Actual		
Sub-loan planned item	The ODA loan portion (million Yen)	BAAC (million Baht)	Total (million Yen)	Sub-loan amount (million Baht)	Sub-loan amount (million Yen)	Percentage (%) in the ODA loan portion of actual amount
A. Individual Farmer (Afforestation)						
Land preparation				15	65	
Seedlings				14	61	
Seedling supporting materials				0	0	
Other costs				55	233	
Sub-total	3,075	162	3,845	85	359	11.7
B. Individual Farmer (Environmental Protection/Conservation)						
Sub-total of construction of biogas plant and related-facilities	1,230	67	1,547	8	32	2.6
C. Individual Farmer (Crop Production)						
Fruit / Tree crops	2,460	129	3,073	693	2,924	118.9
Fisheries	815	31	963	42	176	28.7
Livestock / Dairy / Poultry	1,230	65	1,539	1,170	4,933	401.1
Edible Crops / Vegetables	1,599	84	1,998	350	1,474	92.2
Sericulture	815	31	964	0	1	0.2
Orchid / Other cut flowers and compound agriculture	1,476	78	1,847 9,983	106	447	30.3
Sub-total	7,995	419	15,375	2,361	9,956	124.5
Total	12,300	648		2,453	10,347	84.1
Exchange Rate	4.75			4.22		

Investment for Crop Production, a Corn Farm

Afforestation Project

Chittagong Caustic Soda Plant Rehabilitation Project

Report Date: March 2000
Field Survey: February 2000

1 Project Summary and Japan's ODA Loan

This project aimed to replace facilities at the Chittagong Caustic Soda Plant[1] to remedy the dilapidation of the existing equipment and to cope with growing demand for caustic soda. It also aimed to solve various environmental problems by preventing the generation of mercury and the leakage of chlorine gas.

The ODA loan covered the entire foreign currency portion of raw salt & brine purification equipment, new gas-turbine generator, the conversion of electrolysis equipment and other equipment for the plant, and of consulting services.

Borrower	Government of People's Republic of Bangladesh
Executing Agency	Bangladesh Chemical Industry Corporation (BCIC)
Loan Amount	¥2,076 million
Loan Disbursed Amount	¥2,071 million
Date of Exchange of Notes	December 1988
Date of Loan Agreement	December 1988
Loan Conditions	
Interest Rate	1.0%
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied
Final Disbursement Date	December 1997

1 The old plant, which used the mercury electrolysis method, was built with ODA loan in 1966. In 1973 the Japanese government required a change in the manufacturing method used in caustic soda plants (the mercury electrolysis method had to be stopped). The work of changing manufacturing methods was completed by 1987 in Japan. These moves in Japan were behind the JBIC assistance provided for this project, which converted the plant from the mercury electrolysis method to the ion-exchange membrane cell method.

2 Analysis and Evaluation

(1) Project Scope

The prices tendered for this project were far above the anticipated project cost, leading to a review of the project implementation method (contract content etc.) and project scope. As a result, some of the works were implemented under the direct management of the executing agency. Also the purchase of generators (approximately ¥500 million) for independent generation was abandoned in favor of buying electricity from Bangladesh Power Development Bureau (BPDB), with the construction of a 33kV/11kV transformer substation and 33kV transmission lines (approximately ¥9 million).

The cancellation of the purchase of the plant's own generators was a measure intended to minimize the reduction in project scope necessitated by the cost overrun. JBIC concurred on the decision based on an explanation by the Bangladeshi side that if electricity was bought through a high-voltage line (33kV transmission line), there would be very little trouble with power outages (in 1984, the year before the implementation of the project, there were an average of 16 power outages per month (192 in the year) and the average monthly duration of operation stoppages was 10 hours and 54 minutes).

At present the average number of stoppages using the bought electricity is three per month, with stoppage time averaging two hours and 42 minutes per month (recorded figures for 1999, see Figure 1), and compared to the previous arrangement, in which electricity was supplied through low-voltage transmission lines (11kV) from a 33kV/11kV transformer outside the plant, the transformer inside the plant and the new transmission lines have produced an improvement in the power outage problem. However, the reliability of electricity supply from BPDB remains unsatisfactory and further measures should be taken to enhance the stability of purchased electricity supply.

Power Outages in 1999

Month	1999						2000	Average
	July	August	September	October	November	December	January	
No. of outages	2	3	4	0	5	6	4	3.4
Duration (min.)	79	169	220	0	44	460	N.A.	162

Source: CCC materials
Note: The average outage duration does not include that of January 2000.

(2) Implementation Schedule

Implementation schedule was delayed by five years, relative to the plan. The cause of the delay was that the project cost yielded by tendering was far in excess of the anticipated project cost, leading to a review of the project implementation method (contract content etc.) and project scope. The review took time, and the executing agency had to engage in longer negotiations to reach a contract with the awarded tenderer. As a result, approval procedures in Bangladesh had to be repeated concerning some of the contract contents and changes in project cost. These factors caused a delay of five years before the construction works could begin.

(3) Project Cost

As the project implementation method and scope had been altered, the foreign currency portion of the project cost remained within the planned value, but the local currency portion suffered a cost overrun of approximately ¥400 million. This arose because the tendered prices by both tenderers were far beyond the plan. Therefore some of the works which were initially counted within the foreign currency portion (the portion covered by ODA loan), were changed to implementation by local contractors at the Bangladesh government's expense, in local currency. As a result, the total project cost, in Yen terms, ended as 16% cost overrun.

This cost overrun was reached through competitive tendering and is therefore unavoidable, but it certainly posed a major obstacle to the implementation of the project. Through the commendable efforts of the executing agency and other related agencies it was possible to realize the project without major cuts in its scope, although the process led to major delays.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
Raw salt & brine purification facilities	New construction of secondary raw salt & brine purification facilities	As planned
Gas turbine generator	1 set of 4MW	33KV transmission lines (15km) Establishment of 33KV/11KV substation
Electrolytic facilities	Conversion from mercury electrolysis method to ion-exchange membrane cell method (20t/day)	As Planned

Electrolytic facilities	Conversion from mercury electrolysis method to ion-exchange membrane cell method (20t/day)	As Planned
Expansion of liquid chlorine facilities	13.5t/day	As planned
Renovation of other existing facilities	Expansion of pure water facilities	As planned
Consulting Services	18.0M/M	As planned
2.Implementation Schedule		
(commencement to completion)	October 1989 to September 1991	August 1994 to April 1997
3.Project Cost		
Foreign currency	¥2,076 million	¥2,071 million
Local currency	78 million Taka.	292 million Taka.
Total	¥2,419 million	¥2,813 million
Exchange Rate	1Taka = ¥4.40	1Taka= ¥2.54 (Annual average exchange rate at the time of conclusion of renovation work contract in 1994)

(4) Project Implementation Scheme

The executing agency was Bangladesh Chemical Industry Corporation (BCIC) under the supervision of Ministry of Industry. In addition to this project, BCIC was involved in a number of other ODA loan projects, including several fertilizer plants. It was able to respond flexibly to the expansion of project cost described above, although the process took time. Consultants contributed to the project from the F/S stage, and the contractors had all the skills required for a project of this type. Their performance was satisfactory. The delay was unavoidable because the project implementation method and scope had to be reviewed following cost overrun.

(5) Operations and Maintenance Scheme

This project is operated by Chittagong Chemical Complex (CCC) under the supervision of the executing agency, BCIC. CCC has a workforce of 636, of whom 241 work in the manufacturing division and 203 work in the maintenance division. Operation and maintenance follows the manual produced by the contractor mentioned above. In addition to regular daily maintenance, the equipment is comprehensively inspected and overhauled for about ten days per year.

(6) Operations and Maintenance

The plant's operation rate since the project was completed has not risen above 60% due to stagnating demand for its products. The drop in sales was caused by the closure of production at the paper pulp plant which was the CCC's major customer. The pulp plant was under the management of the executing agency, and it bought from CCC preferentially at fixed prices set by the executing agency. Domestic demand for caustic soda in Bangladesh today is at a relatively high level of 25,000 tons per year, but the average unit price of CCC's caustic soda is 28,981 Taka/ton. In the general market, price competition from cheap imports (21,000 Taka/ton) is intense and CCC is unable to capture a large sales volume. The executing agency and CCC should make efforts to improve their business position, including cutting their costs in order to lower their sale prices.

Despite their new transformer and transmission lines, the reliability of the electrical supply from BPDB remains unsatisfactory and impedes the smooth operation of the plant. Specifically, there are an average of 3 stoppages per month due to power outages, and severe voltage surges cause transformer breakdowns and damage the ion transfer membranes. Therefore BPDB, the executing agency, CCC and other related agencies should confer and devise measures which can be taken to deliver the necessary improvement in the stability and reliability of electrical supply.

The maintenance of the equipment includes regular inspections according to the manual prepared by the contractors, and there are no significant problems.

(7) Environmental Considerations

The rehabilitation of plant equipment has eliminated the leakage of chlorine gas and air pollution in and around the plant site, which is a major environmental improvement. Chlorine gas is constantly monitored by chlorine gas sensors, which were installed as part of this project at five locations in the plant in order to prevent a recurrence of environmental pollution. The conversion from the mercury electrolysis method to the ion-exchange membrane cell method has removed the need for mercury in the process, yielding another major environmental improvement. The old plant, where the mercury electrolysis method was used, has already been demolished and the processing and recovery (decontamination) of residual mercury has been completed. JICA expert is still being dispatched to the site on a short-term basis under ODA loan activation scheme for the monitoring of mercury residues in the soil and water. The executing agency and CCC, with the guidance of JICA expert, should establish a scheme for continued monitoring of residual mercury.

(8) Project Effects and Impacts

(i) Production Capacity Improvement and Movements in Production Volume

As Table 1 and 2 below show, the implementation of this project greatly increased the production capacity of CCC plant, but sales volume is still stagnating for the reasons described in "(6) Operations and Maintenance ". Production of caustic soda and liquefied chlorine have not reached the planned levels. Demand for hydrochloric acid is rising and production has exceeded the planned volume.

The stagnation in production volumes of caustic soda and liquefied chlorine is largely due to external factors, such as the production stoppage at the paper pulp plant under the management of the executing agency, which was large customers before. In future the executing agency and CCC will have to make themselves competitive in the open market in order to expand their sales volume.

Table 1: Increase of Production Capacity

	Production capacity	
	Before the project	After the project
Caustic soda	4,500 t/year	7,000 t/year
Liquefied chlorine	3,600 t/year	4,600 t/year
Hydrochloric acid	1,800 t/year	3,000 t/year
Bleaching powder	1,200 t/year	600 t/year

Source: JBIC materials and CCC materials

Table 2 : Movements in the Production Volume

	Production volume		
	Plan	Actual	
FY / Item		97-98	98-99
Caustic soda	6,600 t/tear	3,908 t/tear	4,119 t/tear
Liquefied chlorine	4,455 t/tear	2,057 t/tear	1,733 t/tear
Hydrochloric acid	1,749 t/tear	3,948 t/tear	5,909 t/tear
Bleaching powder	550 t/tear	354 t/tear	315 t/tear

Source: JBIC materials and CCC materials

Note: 1) Fiscal year by Bangladesh in July - June.

2) Project completion was April 1997 (FY1996).

(ii) Environmental Improvement

(a) Elimination of Gas Leakage

The rehabilitation of equipment has eliminated chlorine gas leakage, ending atmospheric pollution in and around the factory site, which is a major environmental improvement.

(b) Cessation of Mercury Generation

The conversion from the mercury electrolysis method to the ion-exchange membrane cell method has removed the need for mercury in the process, yielding a substantial environmental improvement.

The old plant, which used mercury, was carefully dismantled, and the lower foundations were covered over with concrete to prevent the dispersal of mercury. Approximately seven tons of mercury was recovered from the old electrolysis tanks. Nine tube-wells were drilled to monitor mercury seepage into the soil, and JICA expert has been dispatched to the site since November 1998 on a short-term basis under ODA Loan activation scheme for the monitoring of mercury residues. This is an example of effective cooperation between JBIC and JICA.

Recent findings from CCC surveys of residual mercury concentrations around the plant are as shown in the table below. Although all recoverable mercury has been recovered, the mercury problem has still not been solved, and the executing agency and CCC, with the guidance of JICA expert, should establish a scheme for continued monitoring of residual mercury.

(Unit: PPM)

Measurement Point	Quantity of mercury detected
Waterway by the rail bridge at the southeast of the plant	1.274000
Main drainage channel	0.268800
Upstream of waterway	0.000089
Mosque inside the factory	0.000920
DDT plant inside the factory	0

Source: CCC materials

Note: Bangladesh's environmental standard for mercury is 0.01PPM maximum.

(9) Improvement in Productivity

The implementation of this project yielded the following productivity improvements:

(i) Consumption of Electricity Per Unit Production

After this project the electricity consumption per ton of caustic soda produced fell from 4,195kWh (before the project) to 3,155kWh, a reduction of 1,040kWh.

(ii) Consumption of Raw Materials Per Unit Production

The consumption of halite, which is the raw material, per ton of caustic soda produced has fallen from 2.00 tons (before the project) to 1.66 tons.

(iii) Extension of the Service Life of Plant Facilities etc.

Before the project, leakage of chlorine gas led to rapid and severe corrosion of plant facilities, but the replacement of factory facilities ended the leakage of chlorine. It is expected that the change will lead to longer service life for plant facilities and reduce repair costs.

(10) Financial Internal Rate of Return (FIRR)

When the Financial Internal Rate of Return (FIRR) for this project was recalculated after the project, the result was 4.5%, compared to 8.8% at the time of the appraisal. The FIRR was reduced because of the project cost overrun, and increased opportunity costs caused by the prolonged production stoppage due to the lengthened implementation schedule.

(11) Other Points

The contractor provided the factory workers with technical guidance, and the project succeeded in transferring new technology (the ion-exchange membrane cell method) to Bangladesh. Furthermore, based on the experience gained in this project, BCIC is planning to switch to the ion-exchange membrane cell method at the Karnafuri Plant, which still uses the mercury electrolysis method. This demonstrates that BCIC acquired skills and experience in a new technology through the implementation of this project.

Plant Facilities after Renovation

The Site of the Former Plant.
Tube Well in the Picture is serving for Mercury Monitor
The Processing and Recovery (decontamination) of Residual Mercury has been completed.

Telecommunication Network Expansion Project

Report Date: September 1999

1 Project Summary and Japan's ODA Loan

This project consists of the implementation of the following two sub-projects:

(1) Expansion of the Dhaka - Khulna Microwave System

In order to accommodate growing demand for telecommunications between Dhaka, the capital of Bangladesh, and Khulna, a major city in the west of the country, this project replaces the existing analog microwave system between the two cities (265km) with new technology digital system to expand telecommunication capacity. The new system also improves TV transmission.

(2) Expansion of the Telex System

A telex exchange with 1,360 lines is installed in eight Bangladeshi cities to meet increasing demand for telex communications in Bangladesh.

The ODA loan covered the entire foreign currency portion of the project cost.

Borrower	Government of Bangladesh
Executing Agency	Bangladesh Telegraph & Telephone Board (BTTB)
Loan Amount	¥3,420 million
Loan Disbursed Amount	¥3,214 million (including charge)
Date of Exchange of Notes	June 1985
Date of Loan Agreement	October 1985
Loan Conditions	
Interest Rate	1.25%
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied (Partial Untied for consulting portion)
Final Disbursement Date	December 1992

2 Analysis and Evaluation

(1) Project Scope

Regarding the microwave system expansion project, one relay station was added following the consultant review of the relay route, and the heights of the microwave towers at the Dhaka and Manikganj stations were increased to 7.6m and 10.1m respectively. Furthermore, the digital electronic exchange (TAX: Trunk Automatic Exchange) was expanded in comparison with the initial plan, to handle an increased number of circuits. These changes were made to ensure reliable microwave transmission and make effective use of telephone circuits. As such, they were appropriate modifications in line with the objectives of the project. With respect to the telex system expansion project, the number of connected cities was increased from eight to 14. Even though the demand for telex within Bangladesh is declining, there is fixed demand for telex services from banks and other institutions. Therefore the scope was flexibly modified to suit changing environment by reducing the number of lines to each city while increasing the number of cities served.

(2) Implementation Schedule

The expansion of the microwave system was delayed for 28 months beyond the initial completion schedule of March 1989, mainly due to the delay in commencement of the project. In particular, it took 27 months to reach the stage of selecting a consultant due to the re-examination of the technology to be introduced and delays in the executing agency's internal procedures. Once selected, the consultant reviewed the route and system, bringing the delay in the start of construction to 29 months. Therefore the loan disbursement period in the loan agreement was extended by 26 months. The start of procurement for the telex system expansion project was delayed by three months, but the implementation schedule went as planned, limiting the delay in completion to three months behind the initial plan.

(3) Project Cost

The cost of the foreign currency portion underran by ¥206 million, because bidding resulted in lower than anticipated procurement prices for the telecommunication equipment. The local currency portion overran by 88 million Taka, mainly due to increased customs duties. Although the rate of customs duty was reduced compared to the time the initial plan was formulated, the appreciation of Yen against Taka raised the appraised customs values, which increased the amount of Taka-based customs duties to be paid. As a result, the Taka-based payment exceeded the anticipated amount [1].

Comparison of Original Plan and Actual

Item		Plan	Actual
1.Project Scope			
i) Dhaka ~ Khulna			
Expansion of microwave system		Total length 265km	As planned
System	Telephone circuits	1 system (140MB 1,920 lines)	
	TV	1 system (140MB 32MB Codec)	
	Stand-by lines	1 system (140MB)	
	Microwave stations	7 stations	8 stations
		-	Expansion of TAX (Trunk Automatic Exchange)
		-	(Dhaka)
		-	Addition of microprocessor
ii) Expansion of telex system			
Installation of a telex exchange		of 1,360 lines (Dhaka)	As planned
Total telex line capacity		Total: 1,360 lines	
Dhaka / Chittagong		865 lines / 225 lines	870 lines / 125 lines
Khulna / Sylhet		45 lines / 45 lines	25 lines / 25 lines
Bogra / Comilla		45 lines / 45 lines	50 lines / 35 lines
Jessore / Narainganj		45 lines / 45 lines	35 lines / 45 lines
			Other 14 cities: 150 lines
2.Implementation Schedule			
i) Expansion of microwave system			
Selection of consultant		October 1985 to January 1986	October 1985 to January 1988
Procurement and installation of equipment and materials		July 1986 to March 1989	December 1988 to July 1991
Consulting services		January 1986 to March 1989	January 1990 to July 1991
ii) Expansion of telex system			

1 The appreciation of Yen against Taka produced a cost underrun of ¥1.108 billion in the total Yen-based project cost.

Procurement and installation of equipment and materials	October 1985 to March 1988	January 1986 to June 1988
3.Project Cost		
Foreign currency	¥3,420 million	¥3,214 million
Local currency	Tk.298 million	Tk.386 million
Total	¥6,252 million	¥5,144 million
Exchange Rate	1Taka = ¥9.5 (September 1985)	1Taka = ¥5.0 (1988)

(4) Project Implementation Scheme

The executing agency was Bangladesh Telegraph and Telephone Board (BTTB), under the jurisdiction of the Bangladeshi Ministry of Post and Telecommunications. A consultant was selected using a shortlist method for bidding assistance and implementation supervision. The equipment and materials were supplied by contractors selected through international competitive bidding. The start of implementation was delayed due to BTTB's internal procedures, but the contractors and consultant did not cause any delays, and there were no significant problems with their performance.

(5) Operations and Maintenance

BTTB continues to manage the facilities after the completion of the project. The operations and maintenance of the microwave facilities are handled by Microwave Maintenance Division-1 with 18 engineers working in the microwave stations. Ten engineers were trained in maintenance skills in the course of project implementation, and the system reliability is maintained at 99.99%. Thus there are no apparent problems in the maintenance situation. However, the budget allocated for maintenance expenses is less than the required amount, leading to difficulties in buying spare parts. In addition, a manufacturer of the equipment changed the model so that it could get difficult to keep a supply of spare parts in future. As a result, BTTB plans to change the systems. Telex Division of Overseas Transmission Region is responsible for operation and maintenance of the telex system. During the implementation of the project, three engineers were trained in Japan and 20 in Dhaka. Now 11 engineers are working for operations and maintenance of the system. Due to the high cost of the spare parts for the telex system, the cost of maintenance has risen 37.74% above the planned level, but appropriate budget measures have been taken and there do not appear to be any problems.

(6) Economic Evaluation

Implementation of the project to expand the microwave system increased the use of long-distance and international calls in Bangladesh, yielding revenue 32.8% higher than expected. As a result BTTB was able to raise its telephone charges by smaller margins than other public utility charges. For the telex system, the fall in revenue due to declining number of users and the rise in maintenance costs reduced revenue by 52% compared with the initial forecast.

(7) Project Effects and Impacts

(i) Utilization

The completion of the project to expand the microwave system improved the telephone circuit system and increased the use of long-distance domestic and international calls. The quality of television signals was also improved, enabling people in the rural areas to enjoy high quality picture of television. The project to expand the telex system enhanced national and international business communication. However, banks and other institutions were largely benefited by telex communications. However, in recent years due to the popularization of value-added telecommunication services such as fax and E-mail over telephone lines, the number of telex users is decreasing. BTTB plans to reduce the number of telex connections gradually and phase them out in 2005.

(ii) Financial Internal Rate of Return (FIRR)

The anticipated FIRR for this project was 15.0%, but the recalculated FIRR using actual costs and current profits is 43.5% overall, including the microwave system expansion project and the telex system expansion project. (The calculation was based on the assumption that the facilities from the telex system expansion project will be scrapped in 2005).

(iii) Other Impacts

The telephone density index (the number of telephones per 100 people) in Bangladesh has risen from 0.18 telephones in 1985 to 0.26 in 1996, and it can be inferred that this project contributed to that improvement in the telephone density. (The average density index for Asia/ Oceania is 6.59 telephones per 100 people).

3 Lessons Learned

In the light of the pace of technical innovation in the telecommunications field, the executing agency for a telecommunication project is expected to make prompt decisions on project preparation and implementation.

Introducing the latest technology (such as digitalization of telephone lines implemented in this project) should be carried out regardless of the level of development of the country concerned, but the cycle time for the latest technology in the telecommunications field is extremely short (the pace of innovation is rapid). For projects in such fields there is the risk that the technology might have to be updated in the course of the project's implementation. Therefore in the light of the pace of technical innovation in the telecommunications field, the executing agency for a telecommunications project is expected to make prompt decisions on project preparation and implementation.

Basin Bridge Gas Turbine Project

Report Date: March 2000
Field Survey: November 1999

1 Project Summary and Japan's ODA Loan

(1) Background

Basin Bridge Power Station is located in Tamil Nadu State (capital: Chennai, formerly Madras). In fiscal 1987/88 the power plants in this state had a total capacity of 4,984MW (2,503MW during peak periods) and were providing 15,600GWh of electrical power each year. However, the actual amount of power output had fallen below this capacity due to aging facilities and a drop in hydropower production during the dry season. In fact, this state had been forced to purchase power from other states (712GWh were purchased in fiscal 1987/88). Power during peak periods was insufficient and so demand restrictions had to be put in place.

The demand for power in the Tamil Nadu State was 20,414GWh in fiscal 1989/90 and was projected to increase to 30,614G in fiscal 1994/95. Therefore, requests were made for the construction of a new power station to handle this base load. Plans for a thermal power plant (630MW) in northern Chennai was promoted with ADB financing as a precondition. A unique characteristic of power consumption in this region is that peak demand is in the morning and evening when all of the some 1.2 million irrigation pumps (used for raising well water for agricultural and daily use) are operating at the same time. With supply unable to keep pace with demand during these peak periods, power was frequently cut off to main industrial sectors for several hours at a time. These interruptions had a serious negative impact on the economy and society.

The power shortage during these peak times was projected to be 931MW in fiscal 1989/90 and 1,772MW in fiscal 1994/95. Therefore, there was a clear need for the construction of power facilities to increase the supply of power and meet the demand at these peak periods.

(2) Objectives

The goal of this project was to build a gas turbine plant using HSD (High Speed Diesel)/LDO (Light Diesel Oil) as fuel in order to generate power to meet the peak morning and evening periods, while at the same time improving livelihoods and stimulating the economy through the provision of a stable power supply. Plans called for building this plant next to Basin Bridge Thermal Power Plant (coal thermal plant: currently being dismantled due to deteriorating facilities and to prevent pollution) in central Chennai City.

(3) Project Scope

Scope of this project includes the installations of four new gas turbine power generators (30MW × 4) in Basin Bridge Thermal Power Plant, the construction of incidental facilities such as fuel transport equipment and voltage transformers, and the provision of consulting services.

The ODA loan covered the foreign and local currency portion excluding tax and consulting service expenses.

(4) Borrower/Executing Agency

President of India / Tamil Nadu State Electricity Bureau (TNEB)

(5) Outline of Loan Agreemen

Loan Amount	11,450 million yen
Loan Disbursed Amount	10,779 million yen
Date of Exchange of Notes	November 1989
Date of Loan Agreement	March 1990
Loan Conditions	
Interest rate	2.5%
Repayment period (Grace Period)	30 years (10 years)
Procurement	Partial Untied
Final Disbursement Date	March 1998

2 Analysis and Evaluation

(1) Project Scope

The scope of this project was largely unchanged and the project was implemented mostly as planned except for switching the method for transferring the naphtha fuel from a trolley car system to an underground pipeline (4.5km) for the sake of improving safety. The specifications of the power generators were also changed to handle HSD/naphtha as there have been problems in procuring LDO fuel.

(2) Implementation Schedule

The project was scheduled to be completed by December 1992, but was delayed five years and two months to February 1998 (power generator was completed in March 1996 and operations using HSD were started). There were three main reasons for the delay: procurement procedures used by the executing agency, civil works delays, and delays in the drafting of designs by the consultants. In terms of procurement by the executing agency, a considerable amount of time was needed to make decisions due to poor coordination between the relevant departments. For example, the selection of consultants took seven months longer than originally planned. Furthermore, the period from the closing of bids for the gas turbine power generators to the signing of agreement was planned to be only four months, but actually took a year and three months. As a result, the actual signing of agreement took place two years and five months later than originally planned. Civil work projects were not started until January 1994, three years and eight months behind schedule. Even after the project was started a great deal of time was required for underground water measures and to remove the unexpectedly large amount of pipe and cable buried under the idle land of the previous power station. Construction, which was expected to take only a year and a half, actually took four years and two months to complete. Designs for fuel equipment, the switching yard and other facilities to be produced by the consultants were delayed mainly due to the time it took to coordinate with the contractors. These delays pushed back the start of construction of the incidental facilities and produced delays in the overall project. Operations using HSD were started in 1996, and operations using naphtha were started in the second half of 1998 following the completion of the naphtha transport facilities.

(3) Project Cost

The project cost was planned as ¥13,641 million including local and foreign currency portion. The actual cost came to

¥12,970 million, roughly in line with the planned amount.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
Installation of gas turbine		
a)power generator	Gas turbine power generator: 4	As planned
	Type: Heavy duty type single-shaft gas turbine	As planned
	Output: 37MW(ISO) 31MW(SITE)	As planned
	Fuel: HSD/naphtha/LDO	HSD/naphtha
b) Procurement of incidental facilities	Voltage transformer, switch gear etc.	As planned
c) Civil works	Piling, construction, water supply and drainage construction etc.	As planned
d) Fuel transport system	Transport by trolley and trucks	Transport (naphtha) by pipeline (4.5km)
e) Consultant	Bidding assistance, detailed design etc.	As planned
2.Implementation Schedule		
(Employment of consultant to completion of construction)	September 1989 to December 1992 (40 months)	April 1990 to February 1998 (95 months)
3.Project Cost		
Foreign currency	¥9,258 million	¥6,611 million
Local currency	¥4,383 million	¥6,359 million
Total	¥13,641 million	¥12,970 million
ODA Loan portion	¥11,450 million	¥10,779 million
Exchange Rate	Rp. 1 =¥8.5	Rp. 1 = ¥3.3

(4) Project Implementation Scheme

The executing agency for this project was Tamil Nadu State Electricity Bureau (TNEB). Bidding was conducted for the following project sections: gas turbine power generators, fuel facilities, civil works and incidental facilities. International bids were accepted for the gas turbine power generators, but only domestic bids were accepted for the other aspects of the project. For the incidental facilities, bids were accepted for small lots covering each type of equipment. Designs and inspections were provided by Central Electricity Authority (CEA), which served as a consultant. There were no problems in terms of the quality of the construction work, but the implementation schedule was greatly delayed as mentioned earlier. Construction supervision that would normally be provided by consultants was carried out by TNEB, which did not have experience in constructing gas turbine power generators, and CEA was responsible for visiting the construction sites to check that construction was performed in accordance with the plans. As a result, TNEB was not able to sufficiently deal with the various problems that arose while supervising project execution. When it was learned in 1994 that the project was behind schedule, JBIC conducted SAPI (Special Assistance for Project Implementation) study to uncover the causes for the delay and make recommendations to TNEB. It was thought that delays to the project could be reduced to a minimum if TNEB had adequate project supervision capabilities, or if construction supervision was entrusted to experienced consultants.

(5) Operations and Maintenance

There were no problems with the operation and maintenance scheme put in place after completion of the project. Skilled technicians were in place and a five-year supply of spare parts was always on hand.

(6) Operational Status

Operation of the project was very satisfactory. In accordance with the plans, this power facility was only operated during the peak periods and use of the four power generators was arranged to correspond to the level of demand. The target is for the facilities to be operated 1,440 hours per year, or roughly six hours per day for 240 days (planned annual power generation: 172.8GWh). Output has gradually increased since the start of operations in 1996 with the annual power generation for 1999 coming to 155.1GWH, roughly in line with the operation plans.

(7) Effects on the Environment

This power station is located in the center of Chennai City and therefore special considerations for air pollution were needed. This is why gas turbine power generators using naphtha for fuel were selected. Looking at the content of sulfur in the

naphtha and other such considerations, special attention was given to NOx which is seen as a harmful substance in the gas discharged by this project, and plans were for NOx in the discharged gas to be less than 70ppm. For this reason HSD/naphtha was used as a clean fuel and a water vaporizer method[1] was used to reduce the amount of NOx.

The height of the gas turbine chimney was originally planned to be 75m, but was changed to 30m when it was learned that the height would only have to be 30m or higher to gain project approval from the Indian Environmental Agency and the Tamil Nadu State Pollution Control Bureau[2].

In September of 1999 a test conducted by Tamil Nadu State Pollution Inspection Bureau showed the level of nitrogen oxide within the gas output by this project to be 64ppm, well within the planned value of less than 70ppm. Silencers have also been used to prevent noise pollution, and no noise-related problems were reported at the time of the inspection.

(8) Project Effects and Impacts

(i) Results

The table below shows how capabilities for handling the peak demand periods were improved following the start of this project.

	1996	1997	1998	1999	2000~2013 Planned
Power Generation (GWh)	19.1	47.9	77.2	155.1	172.8
% of Planned Annual Amount	-[2)]	-[2)]	45% [3)]	90%	100%

Note:1) Planned annual amount: 120MW × 1,440 hours = 172.8GWh
2) In 1996 and 1997 HSD was used before the completion of the naphtha fuel transport equipment and consequently comparisons can not be made.
3) The start of actual operations using naphtha was from May 1998.

Currently the power facilities in Chennai City are capable of producing 7,120MW of power, compared to the peak morning (8:00) demand of 4,775MW and the peak evening (19:00) demand of 5,014MW. TNEB has calculated that power produced by this power station to meet the peak demand is 120MW in the summer season when the hydro power amount decreases, and 60~100MW in the winter season when the hydro power increases. As the capabilities of this power station are able to cover the demand from these peak periods, it can be said that this project achieved its goal of meeting the needs of these peak periods.

(ii) Economic Effects

This power station complements the thermal power station constructed in North Chennai at the same time, and contributes to improving both base and peak power supply. With the construction of this power station, a stable power supply can be provided even during the peak periods. As there are no longer power interruptions during the peak morning and evening periods, it can be said that the power situation in this state has been greatly improved.

General View of Basin Bridge Power Station

Gas Turbine Generator

1 The amount of nitrogen oxide generated by burning increases as the temperature become hotter. Therefore, this method is used to shoot water into the burning flames to lower the temperature of the flames and thus produce less nitrogen oxide.

2 In 1994 JBIC sent a study team to determine if a chimney height of 30m satisfied environmental standards (density of SO_2 and NO_2 landing on the ground is 80 μg/m³). The results showed that for specifications in which naphtha is the main fuel, the concentrations for SO_2 and NO_2 when using a 30m chimney were only 11μg/m³ and 20μg/m³ respectively. Therefore, consent was given to the 30m chimney design presented by the executing agency.

Jamshoro Thermal Power Station Project

Report Date: March 1999

1 Project Summary and Japan's ODA Loan

This project aimed to build one heavy oil-burning thermal generator with a capacity of 250MW on the outskirts of Jamshoro, which is located on the west bank of the Indus, 160km northeast of Karachi. The generator was built to meet rapidly growing electricity demand, mainly around Hyderabad.
The ODA loan covered the entire foreign currency portion of the project cost.

Borrower	President of Islamic Republic of Pakistan
Executing Agency	Pakistan Water and Power Development Agency (WAPDA)
Loan Amount	¥21,736 million
Loan Disbursed Amount	¥20,987 million
Date of Exchange of Notes	November 1983
Date of Loan Agreement	February 1984
Final Disbursement Date	December 1993

2 Analysis and Evaluation

(1) Project Scope

Minor alterations were made to suit conditions in the field, but the major facilities were installed as planned. The increased use of consulting services was due to the prolonged implemetation schedule.

(2) Implementation Schedule

The transfer of the plant took place in April 1990, approximately 27 months later than planned at the time of the appraisal. Furthermore, the construction of appurtenant works (warehouses, heavy oil tanks, maintenance wing) and the procurement of equipment and materials for maintenance were not completed in time for the transfer of the plant. The project was not totally completed until January 1994, six years later than planned.

The breakdown of the delay in the plant construction is 22 months before the start of construction and five months during construction. The pre-construction delay consisted of 15 months for bidding preparation and 19 months for bidding evaluation and contract procedures, both of which were unusually time-consuming. Furthermore, the latter delay stage was due to alterations in working procedures caused by the inexperience of local civil works contractors, flooding of the River Indus,

damage to delivered equipment in transit within the country, labor shortage due to nocturnal curfew orders and other difficulties. The delay in the start of construction of the appurtenant facilities was largely due to delays in making contracts with local contractors.

(3) Project Cost

It was agreed that ODA loan should cover approximately 70% of the foreign currency portion of the project cost as Phase I. As a result of the tenders offered, the contracted cost for the entire project was within the ODA loan for Phase 1. Therefore the planned Phase 2 loan was not carried out. Due to the implementation schedule delays, inflation and increased unit costs for civil works, the local currency portion of the project cost increased in the areas of taxation, interest during construction, consulting services and other aspects. Due to the reduced foreign currency portion of the project cost and the steep fall in the value of the Rupee against the Yen, the total Yen-based project cost was lower than planned.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
i) Construction of the main work of the Project		
・Boiler	Steam pressure : 171.4 / 134kg / cm^2 ×1	As planned
・Turbine	Capacity : 250 MW ×1	
・Generator	Capacity : 294 KVA ×1	
・Transformer	Capacity : 300 MVA ×1	
・Control system	1 unit	
・Heavy oil tank	Storage capacity 600 kl ×3	
・Other related equipment	Switchgear, cooling device, water treatment equipment, communications, fire fighting facilities, flue gas chimney etc.	
ii) Civil works	Fundamental/main buildings, service wire, housing area etc.	
iii) Consulting services	148.5 M/M	211.4 M/M
2.Implementation Schedule		
(Start of construction to Completion of construction)	March 1985 to January 1988 (34 months)	January 1987 to January 1994 (84 months)
3.Project Cost		
Foreign currency	¥30,713 million	¥20,987 million
(ODA loan portion)	(¥21,736 million)	(¥20,987 million)
Local currency	Rp. 1,931 million	Rp. 3,363 million
Total	¥66,444 million	¥41,871 million
Exchange Rate	Rp.1 = ¥18.5, 1983	Rp.1 = ¥6.21 (average between 1987 and 1993)

(4) Project Implementation Scheme

Executing agency was Pakistan Water and Power Development Agency (WAPDA). For this project, WAPDA divided the power station construction into six contract packages, which were ordered separately. WAPDA was unable to run the tendering process and the implementation management in parallel, and the implementation schedule (particularly the construction of appurtenant facilities) was severely delayed as a result. The reasons for the delay include some acts of god, but considering the level of its own management ability, WAPDA needed to look for ways of making the management work simpler and faster, by opting for a full turnkey solution for the construction, or at least by cutting down the number of contracts.

(5) Operations and Maintenance

Jamshoro Thermal Power Station includes the No.1 generator built under this project, and three others (each 210MW × 3 = 630MW). It operates as a power station with a total capacity of 880MW. In March 1999, 1,472 people worked at the power station, of whom 368 worked at the No.1 generator built under this project. No.1 generator began operation in April 1990, and by June 1998 it had generated 9,649GWh in over 57,000 hours of operation.

Fiscal Year	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98
Operation Hours	3,407	6,949	8,071	7,889	6,929	7,669	7,400	4,073	3,742
Generating Volume (GWh)	597	1,035	1,394	1,535	1,249	1,351	1,244	620	624

The generator should be overhauled (stripped down, inspected and repaired) after five years or 35,000 hours in operation (reached in 1994/95), but it has not been overhauled, due to shortages of spare parts and funding, moves towards privatization and other factors. Therefore, as the table above clearly shows, the generator's working status has been deteriorating since 1996/97. Its working hours peaked at 8,071 hours in 1991/92, but declined to 4,073 in 1996/97 and 3,742 in 1997/98. The pattern for generating volume has been similar, peaking in 1992/93 at 1,535GWh and declining to 620GWh in 1996/97 and 624GWh in 1997/98.

The worsening operational performance of the generator can apparently be attributed to the following causes:

-Impurities in the heavy oil fuel clog the air afterheater, disabling heat recovery from the boiler flue gas and reducing combustion efficiency.

-Steam leaks from the boiler tubes when it works at high output, and therefore the generator is unable to run at maximum output.

Since 1996/97, operation of the generator has been suspended in summer, except for emergency times, because the volume of hydroelectric power generation is greater. Winter, when the amount of hydroelectric generation declines, is the only time the generator is in continuous operation. The equipment to monitor the operation of the generator, which was installed as part of this project, has been out of order since 1996. Therefore it is impossible to read operational status from the displays or calculate operation records on line. The monitoring equipment should be repaired and improved before any serious analytical study or repair is made.

(6) Environmental Considerations

At the time of appraisal for this project, there were no emission standards in Pakistan, but the emission values measured from smoke discharge in 1995 recorded 3,143mg/m^3 of SO2, which exceeds the national emission standard of 400mg/m^3. The standard was introduced in 1993 and toughened in 1996. For NOx, the 1995 value was 1,000mg/m^3 (as NO^2), which was also above the standard of 400mg/m^3. However, SO2 and NOx in the atmosphere, when calculated according to the US EPA Screen Model (which assumes that the surface concentrations will be most increased within 1km of the emission source) come to maxima, averaged over the year, of 68 µg/m3 for SO2 and 16.06 µg/m^3 of NOx. According to those results, SO2 is somewhat over the environmental standard of 50µg/m^3 and NOx is well under the standard of 100µg/m^3. Furthermore, as there are no residential areas or equivalent facilities within 1km of the source, there appears to be little risk of environmental problems caused by smoke emissions from this project.

The portable analyzers introduced under this project became unusable in 1996 due to lack of spare parts, and consequently monitoring of SOx, NOx and suspended particulate matters is not continuous. A suitable environmental monitoring system must be set up, including resumed measurement. At present no environmental pollution countermeasures are compulsorily enforced at Jamshoro Thermal Power Station, but anti-pollution measures should be strengthened considerably in readiness for future restrictions. These measures should include switching to higher-quality fuel and better combustion management (enhanced thermal efficiency).

Water from the power station is discharged directly to the river without treatment, but the results of the water quality analysis carried out every month pass national environmental standards. On the other hand, greywater from the workers' housing is reused for irrigation without treatment or analysis. No problem has been indicated under current environmental standards, but swift action should be taken in the event that standards are revised in future and necessitate countermeasures.

The processing of residual oil does not pose any imminent danger of soil contamination, but it should be made clear whether the method used now has any impact on the soil, and countermeasures should be considered if necessary.

[Reference]

Privatization plans for the Jamshoro Thermal Power Station

In 1992 the Pakistani government petitioned the Japanese government for the addition of a 350MW heavy oil and gas generator to the Jamshoro Thermal Power Station. At the time, the Pakistani government promised that the power station would not be privatized, and JBIC conducted a Special Assistance for Project Formation. However, in 1994 the participation of private companies in electrical power projects was permitted and the Pakistani government changed its policy, deciding not to make any further expansions to state-owned power stations. The petition for an additional generator was formally withdrawn.

The Pakistani government has organized all the power stations under WAPDA management into three state-owned enterprises, Genco 1, 2 and 3 and it has announced its plan to privatize those enterprises. Jamshoro Thermal Power Station was reorganized into Genco 2 in September 1997. However, at present there are no firm schedules for privatization.

(7) Project Effects and Impacts

(i)This project generated 9,649GWh between FY 1989/90 and FY 1997/98. This was equivalent to approximately 4% of the

total amount of power generated in Pakistan over that period.
(ii)This project created approximately 400 jobs, with a further 175,000 people employed during the construction period. It has also provided opportunities for personnel training for WAPDA workers.

3 Lessons Learned

For large and complex projects such as the construction of a large power station, the executing agency should make an overall evaluation of its own management ability and implement the project with a number of contracts it can realistically manage. It is very important that the JBIC should consider the scale of the project and the ability of the executing agency and give it advice as to the right number of contracts.
The procurement and construction for this project were divided into six lots (contracts), but the executing agency found it difficult to manage all the lots (contracts) simultaneously, risking implementation schedule delays. If the project was carried out with fewer contracts, or as a full turnkey solution, the coordination and management of construction and procurement operations would have been more efficient and most of the delays would have been avoided.

Main Entrance of the Jamshoro Thermal Power Station

A View of the Jamshoro Thermal Power Station showing Boiler and Turbine Building in the Background

A View of the Jamshoro Thermal Power Station ,Cooling Tower on the Left.

Abou-Zaabal Substation Project

Report Date: March 2000
Field Survey: August 1999

1 Project Summary and Japan's ODA Loan

(1) Background

When this project was planned in 1984, the Cairo Zone had a 220kV electricity transmission network with 220/66kV substations. However, with the addition of new power plants the generation capacity exceeded the capacity of the existing transmission and transformer equipment. Therefore it was decided that 500kV transmission lines, which enable high capacity and low losses, should be built for the Cairo Zone. This Abou-Zaabal Substation is the one that forms the center of the 500kV transmission network.

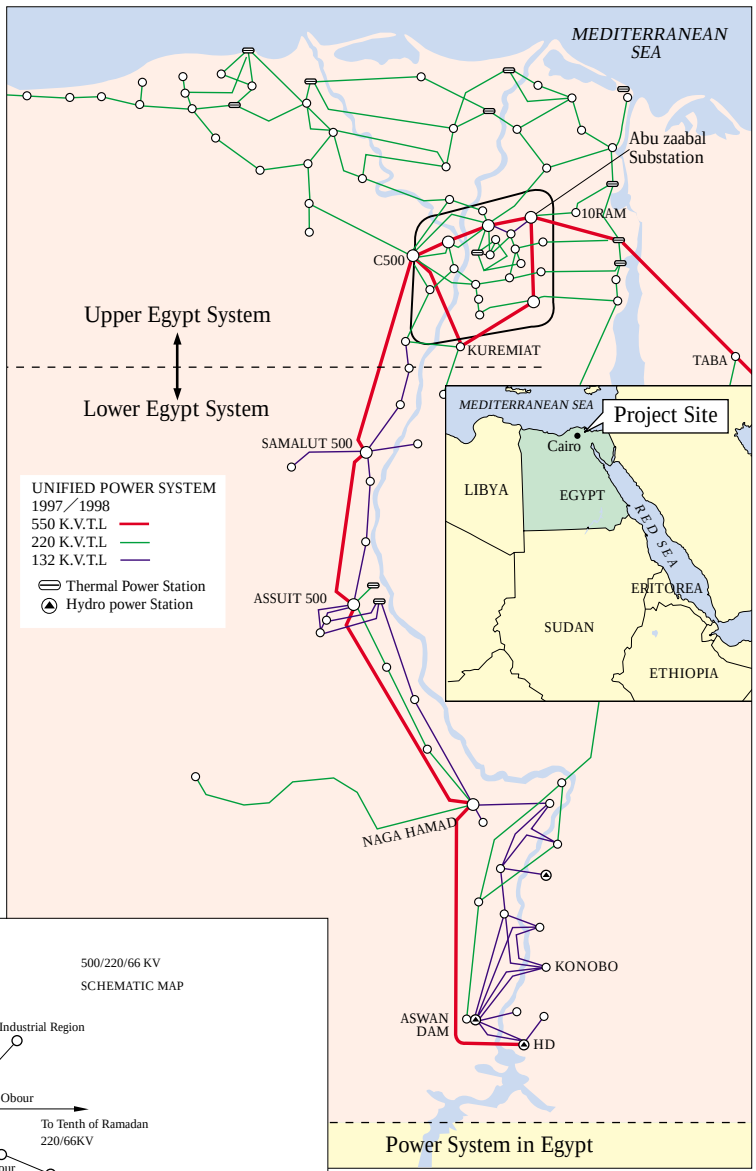
(2) Objectives

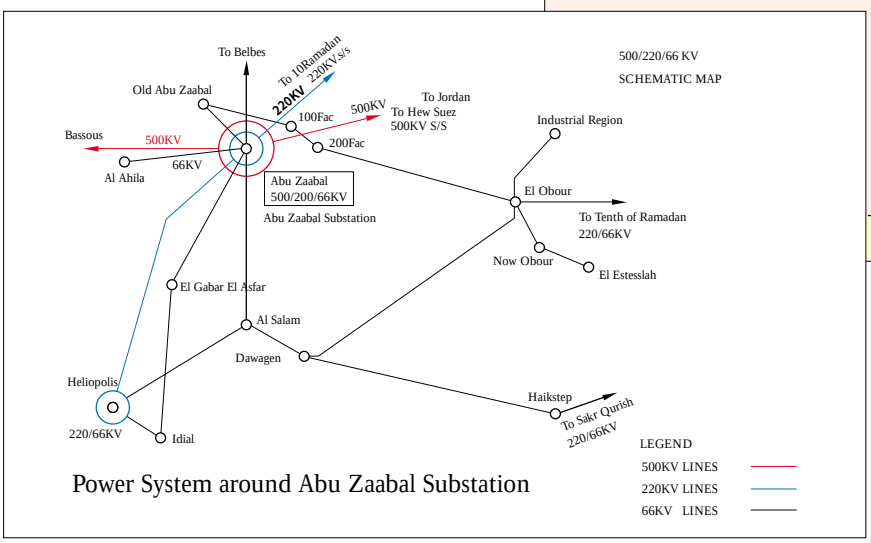
This project aimed to build the substation in Abou-Zaabal in the northeast of Cairo to meet demand for electricity in the Abou-Zaabal Region and to stabilize electricity supply in the greater Cairo Zone.

(3) Project Scope

Project scope consists of the new Abou-Zaabal substation (civil works and installation of the transformer and switchgear).

The ODA loan covered the entire foreign currency portion of the project.





Power System around Abu Zaabal Substation

(4) Borrower/Executing Agency

Egyptian Electricity Authority (Guarantor: Government of Arab Republic of Egypt)

(5) Outline of Loan Agreement

Loan Amount	¥8,200 million
Loan Disbursed Amount	¥8,199 million
Date of Exchange of Notes	April 1985
Date of Loan agreement	October 1988
Loan Conditions	
Interest Rate	4%
Repayment Period (Grace Period)	30 years (10 years)
Procurement	General Untied (Partial Untied for consulting portion)
Final Disbursement Date	October 1993

2 Analysis and Evaluation

(1) Project Scope

The project was completed largely as planned, the only change in project scope being the number of switchgear units.

(2) Implementation Schedule

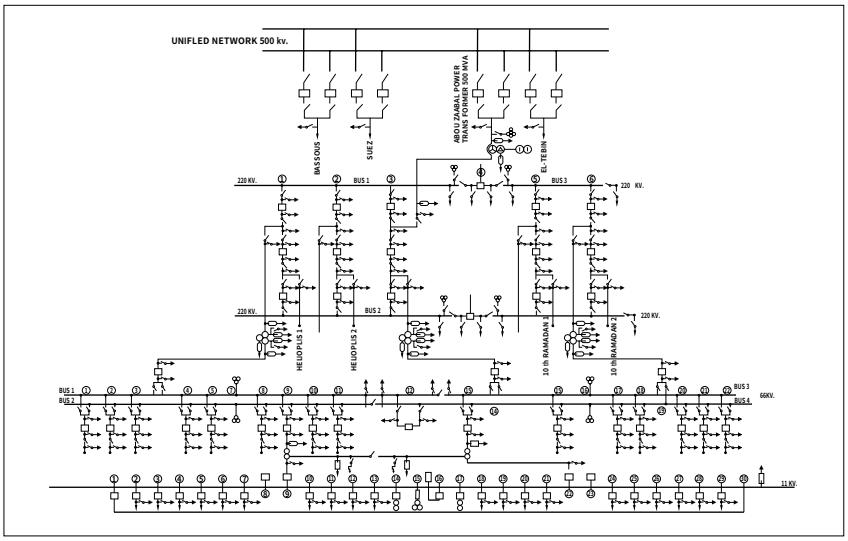
This project took over four years between the exchange of notes and the signing of the loan agreement. The reasons were as follows:

i)Major delays in domestic procedures in Egypt (ratification of the exchange of notes by the Egyptian parliament).

ii)Prolonged negotiations over the loan conditions contained in the loan agreement (interest on arrears and fees).

Once the contracts were signed with the contractors, the project proceeded as planned.

Abu-Zaabal Substation Single Line (500/220/66/11kv)



(3) Project Cost

The local currency of the project cost, which was borne by the Egyptian side, increased, leading to a slight increase in overall cost. The foreign currency cost, which was covered by the loan, was as planned.

Comparison of Original Plan and Actual

Item	Plan	Actual
1.Project Scope		
Transformer		
	・500/220kV transformer (Single-phase*167MVA ×3) + (1 spare)	As planned
	・220/66/11kV transformer Three-phase*125/125/45 MV ×3	As planned
	・66/11kV transformer Three-phase* 25 MVA ×2	As planned
500 kV equipment	・Gas insulation switchgear	
	2 units for transformer	1 unit
	5 units for transmission lines	3 units
220 kV equipment	・Gas insulation switchgear	
	5 units for transformer	4 units
	6 units for transmission lines	As planned
66 kV equipment	・Gas insulation switchgear	
	5 units for transformer	As planned
	12 units for transmission lines	14 units

11 kV equipment	・Solid insulation switchgear 18 units of distribution lines	20 units
2.Implementation Schedule		
(Contract of the main Project to Completion of construction test)	July 1985 to November 1987	March 1990 to September 1992
3.Project Costs		
Foreign currency	¥8,200 million	¥8,199 million
(ODA loan portion)	(¥8,200 million)	(¥8,199 million)
Local currency	3 million Egyptian Pound	24.585 million Egyptian Pound
Total	¥9,040 million	¥9,354 million
Exchange Rate	1 Egyptian Pound = ¥280 (at the time of appraisal)	1 Egyptian Pound = ¥47 (Average rate at the time of loan disbursement)

* Transformer types come in single-phase and three-phase type. Three single-phase units can be combined to produce the capacity and functions of one three-phase unit. Single-phase transformers are often used because of the shipping problems posed by the size and weight of high-voltage, large-capacity transformers.

(4) Project Implementation Scheme

The executing agency and borrower for this project was the Egyptian Electricity Authority (EEA), a corporation under the Ministry of Electricity and Energy which has a long record as the single supplier of electricity to Egypt. There were no significant problems with the EEA's executive ability, and the project made smooth progress after the loan agreement was signed. Contractors made bids for a comprehensive contract, including procurement and installation of all equipment and materials. A Japanese contractor made the winning bid. Project monitoring was originally planned to be carried out by direct management, but eventually Energy Power System, an electricity consulting corporation under the Ministry of Electricity and Energy, was employed. The consultancy fees were paid by the Egyptian side from its own funds. The change was made because the number of projects under the authority of the EEA grew rapidly in the second half of the 1980s and it did not have the capacity to monitor all of them. Therefore the Ministry of Electricity and Energy adopted the policy of entrusting the monitoring of all electricity distribution projects to Energy Power System. There were no significant problems with the performance of the contractor and consultant.

(5) Operations and Maintenance

The operations and maintenance of the substation built under this project is handled by a staff of 26, including 5 engineers and 15 technicians. The substation has suffered no problems since it went into operation. Maintenance is carried out regularly, according to a manual. The major inspection scheduled for the sixth year of operation was carried out in 1998 and found no significant problems.

(6) Project Effects and Impacts

At the time of appraisal, the Abou-Zaabal Region received its electricity supply from adjacent Heliopolis Substation. The Heliopolis Substation was already overloaded, and the electricity demand from the Abou-Zaabal Region was predicted to rise rapidly from 70MW in 1983 to 219MW in 1990 and 264MW in 1992. This substation was intended to meet electrical demand in Abou Zaabal Region, and connect to the 500kV electrical ring main network, which was being built in the greater Cairo Zone at the same time. The connection would enable it to supply electricity to Heliopolis, Tenth of Ramadan, El Gabar El Asfar, El Obour and Idial in the Greater Cairo Zone. Most of these were areas developing in line with the development of the Greater Cairo Zone. Construction of housing and industrial facilities has been increasing rapidly of late. With the progress of this development, the availability factor of Abou Zaabal Substation rose rapidly to 88.5% by the start of 1998, after remaining at 40~50% for around five years after completion. The change was due to two factors : (i)Rising availability factor at the 66/11kV substations which receive electricity from the Abou Zaabal Substation. (ii)New supply areas were added by circuit switching.

Compared to the plan, there was a delay of approximately five years before completion of the project, but the overload in Heliopolis Substation was alleviated by temporary circuit switching to other neighboring substations.

Transit in the Work Rate of 220/66/11kV Transformer at Abou-Zaabal Substation

	Year	1992	1993	1994	1995	1996	1997	1998
Availability Factor*	(%)	40.0	36.3	38.0	46.0	42.0	50.8	88.5
Peak Load	(MW)	120	109	118	139	145	158	287

Source: Calculated on the basis of EEA materials

Note: * Availability Factor = Peak Load/ (transformer capacity × power factor). The equipment capacity as seen from the 220kV side of a 220/66/11kV totals 375MVA, and the power factor is the annual average value (0.865 in 1998).(Power factor compares the apparent power (VA) with the active power (W). This is a characteristic of AC electricity. Not all of the value indicated by multiplying voltage by current is available as effective electrical energy, so the value is called "apparent power". The portion of the apparent power which is effective energy is referred to as "active power".)

The completion of the Lower Egypt System(Note1) Super Grid Plan(Note2) meant that the role of the substation went beyond supplying power from thermal power stations in Upper Egypt and the outskirts of Cairo to the region. It now functions as an element in a 500kV transmission network which runs from Libya through Egypt to Jordan. Further thermal power stations are now being built at three locations in Lower Egypt on a BOT basis, and as the supply of electricity to Libya and Jordan increases, this substation's importance as part of an internationally connected power system will continue to increase.

(7) Environmental Impact

This substation is equipped with appropriate insulation devices to prevent electric shock, and its construction did not have any negative environmental impact. No notable environmental impacts were indicated at the time of the appraisal.

Transformer

Gas Insulation Swichgear

Transmission Line

Note:1) Egypt's electricity supply grids are broadly divided between upper and lower Egypt. The Upper Egypt system consists of 500kV and 132kV circuits reaching Cairo which are powered by the Aswan High Dam. The Lower Egypt system is a 220kV circuit powered by thermal power stations in the north of Egypt.

2) The plan is to link Libya, Egypt and Jordan with 500kV/ 400kV transmission lines, so that Egypt and Jordan will be able to trade surplus electrical power to meet each other's demand. The arrangement would run electrical power equipment more efficiently and reduce investment in equipment.

Northeast Irrigation Project

Report Date: March 2000
Field Survey: February 2000

1 Project Summary and Japan's ODA Loan

This project aimed to expand the area of irrigated land in the Northeastern Brazil, a semi-arid region, and improve agricultural productivity and production volume in the region as a means of improving its social and economic position. As an element of the "Five-Year Plan for Irrigation in the Northeastern Brazil" (PROINE), the project built irrigation facilities and related infrastructure (roads, etc.) in three districts in the region (Maria Tereza, Estreit IV and Miroros) with the aim of expanding the irrigation area. Increased irrigation was intended to improve agricultural productivity and production volume, and consequently to improve the social and economic conditions in the region.

The ODA loan covered a portion of the cost of irrigation facilities (excluding dams) and other related infrastructure, such as roads, and the entire cost of a comprehensive consulting service for the project. Other costs were funded by the Brazilian government from its own source and financed by the Inter-American Development Bank (IDB).

Borrower	Federative Republic of Brazil
Executing Agency	Compendia de Desenvolvimento do Vale do San Francisco (CODEVASF)
Loan Amount	¥7,596 million
Loan Disbursed Amount	¥7,316 million
Date of Exchange of Notes	November 1989
Date of Loan agreement	September 1991
Loan Conditions	
Interest Rate	4.0% (3.25% for consultant)
Repayment Period (Grace Period)	25 years (7 years)
Procurement	General Untied
Final Disbursement Date	December 1998

2 Analysis and Evaluation

(1) Project Cost

The project scope in the Maria Tereza district was largely as planned. In the Estreit IV and Miroros districts, the projects exceeded their budgets and were scaled back (with reductions of 15% and 30% respectively from the planned irrigated area). At the detailed design stage after the start of the project it was judged that the geological condition of the project areas was worse than anticipated, and it became clear that project costs would have to exceed the planned amounts. Therefore reductions in project scope were unavoidable.

(2) Implementation Schedule

The irrigation project for the Maria Tereza district was completed on schedule without any significant

troubles. For the other two districts, the increases in project costs led to deferrals in government budget allocations (see (3) below) which delayed the implementation schedule by over one year. After that, the project execution proceeded without problems.

(3) Project Cost

Because the scope of the project was reduced to compensate for increased costs caused by adverse geology, the cost in Dollar terms overran by approximately 35% while the cost in Yen terms was largely as expected. The portion of the Dollar-based cost in excess of the planned amount was covered by the Brazilian government and JBIC (the approved amount of disbursement by JBIC was fixed at a Yen-based sum, so the rise of the Yen and the fall of the Dollar at the time inflated the amount when converted to Dollars).

Comparison of Original Plan and Actual

Item	Plan			Actual		
1.Project Scope						
	Maria Tereza	Estreit IV	Miroros	Maria Tereza	Estreit IV	Miroros
i) Civil works						
(1) Irrigation area	4,938 ha	6,821 ha	3,376 ha	4,724 ha	5,844 ha	2,332 ha
(2) Main canal	27 km	63 km	31 km	28 km	46 km	17 km
(3) Drainage canal	260 km	191 km	36 km	261 km	105 km	15 km
(4) Transmission network improvement	49 km	150 km	100 km	49 km	210 km	50 km
ii) Consulting Services	Total : 76M/M			Total : 93M/M		
2.Implementation Schedule						
(Start of construction to	July 1992 to	July 1992 to	July 1992 to	July 1992 to	December 1992 to	December 1992
Completion of consulting services)	March 1997	March 1997	March 1997	March 1997	November 1998	to July 1998
3.Project Cost						
ODA Loan portion	¥7,596 million			¥7,316 million		
IDB portion	$55.6million			$55.6 million		
Brazilian government	$37.3million			$74.9 million		
Total	¥20,046million			¥20,564 million		
(Equipment to $)	($149.6million)			($202.6 million)		
Exchange Rate	US$1= ¥134.0			US$1= ¥101.5		
	(Rate at the time of appraisal)			(Weighted average rate during loan disbursement period)		

(4) Project Implementation Scheme

The executing agency was Compendia de Desenvolvimento do Vale do San Francisco (CODEVASF), which had experience of projects using finance from IDB. This experience contributed to the smooth running of the project. The consultants and contractors are reported to have performed well in the content of their services and the quality of the construction.

(5) Operations and Maintenance

The irrigation facilities in the Maria Tereza and Miroros districts have been working steadily since its completion. In the Estreit IV district the irrigation facilities were not provided with enough water for irrigation because the new irrigation dam (covered by IDB loan) did not contain enough water, so it has yet to begin operation. The main reason why the volume of water in the dam does not increase is due to an abnormal drought for the last three years. Rainfall totals for 1998 and 1999 were 487mm and 571mm respectively, far below the average of 640mm for the region between 1963 and 1983. Settlement was scheduled to begin in December 1998, immediately after the completion of construction, but the volume held in the dam was only 25% of capacity, so settlement was postponed. By March 2000 the water storage rate had risen to 50% and is increasing, albeit gradually. Therefore 116 households are scheduled to begin settlement in the first half of 2000. The executing agency, CODEVASF, is considering measures to make water usage more efficient in Estreit districts I~III to bring the water in the dam to an adequate level, and it is now conducting a detailed survey.

After construction the responsibility for maintenance of the irrigation facilities was transferred from CODEVASF to the farmers using it. In the approximately 120,000ha of irrigated land in the San Francisco River basin, around 24 irrigation management cooperatives (irrigation districts) have been set up under CODEVASF direction. The irrigation districts carry out group management of the irrigation facilities and provide technical support to small farmers. In the Maria Tereza and Estreit IV districts, the facilities are managed by the existing irrigation districts. In the Miroros district, new irrigation district was set up after the completion of the project. Taking the Nilo Coelho irrigation district which manages the Maria Tereza

district, as an example, 295 directors chosen from the membership manage the district, of which 100 work on maintaining the irrigation equipment.

All the irrigation districts collect water usage charges easily from the farmers and use it for pump electricity charges, improvements to irrigation equipment and other applications. All new settlers will receive technical support on farm management from CODEVASF at the time of settlement, with continuing support after that from their irrigation district. Thus the irrigation districts are performing well as an autonomous operation and maintenance system for irrigation equipment.

(6) Environmental Impact

No adverse environmental impact due to this project has been reported.

As a preventive measure to guard against environmental degradation, water quality, plants and animals are monitored, and in areas where construction caused problems such as soil erosion, the affected areas have been designated as conservation areas to enable their ecological recovery. Thus, appropriate environmental measures are being taken.

(7) Project Effects and Impacts

The current impact of this project is described below in Tables 1 and 2. At present the planned crop yields and numbers of settlers have not reached the planned levels. The irrigation facilities have only just been completed and settlement is still under way, which makes it impossible to evaluate recorded results at this stage. However, if settlement continues and farming activity makes steady progress, the project can be expected to yield the planned results.

Much greater progress in settlement is anticipated as a means of encouraging the realization of project effects, and the executing agency and other related government agencies should provide indirect support (organizational assistance and farming guidance to irrigation districts, financial assistance through farming finance etc.) to make sure the existing settlers stay on the land. Furthermore, urgent steps should be taken to obtain irrigation water for the Estreit IV district.

Table 1 Crop Yields and Areas Under Each Crop(note)

	Maria Teresa						Miroros					
	1998			1999			1998			1999		
	Planting acreage (ha)	Crop (t)	Yield (t/ha)	Planting acreage (ha)	Crop (t)	Yield (t/ha)	Planting acreage (ha)	Crop (t)	Yield (t/ha)	Planting acreage (ha)	Crop (t)	Yield (t/ha)
Banana	89	N.A.	N.A.	991	404	0	43	413	10	340	2,138	6
Coconut	55	N.A.	N.A.	550	N.A.	N.A.	75	N.A.	N.A.	45	N.A.	N.A.
Beans	231	26	9	494	532	1	1,421	2,046	1	945	559	1
Guava	41	N.A.	N.A.	469	N.A.	N.A.	-	-	-	9	N.A.	N.A.
Water Melon	110	1,936	18	237	3,795	16	43	298	7	39	244	6
Tomato	4	144	36	209	3,011	14	2	13	7	4	N.A.	N.A.
Pumpkin	30	N.A.	N.A.	191	2,273	12	13	11	1	10	132	13
Mango	19	N.A.	N.A.	189	N.A.	N.A.	3	N.A.	N.A.	20	N.A.	N.A.
Grape	-	-	-	56	N.A.	N.A.	-	-	-	-	-	-
Passion fruit	-	-	-	53	N.A.	N.A.	-	-	-	-	-	-
Corn	7	26	4	46	81	2	9	23	3	24	48	2
Onion	20	N.A.	N.A.	27	189	7	70	318	5	2	23	12
Acerola	10	N.A.	N.A.	18	N.A.	N.A.	-	-	-	-	-	-
Custard apple	-	-	-	8	N.A.	N.A.	74	N.A.	N.A.	57	N.A.	N.A.
Melon		-	-	8	38	5	-	-	-	2	20	10
Carrot	8	16	2	3	45	15	8	49	6	1	20	20
Chili	-	-	-	3	17	6	0	3	10	-	-	-
Beet	-	-	-	-	-	-	15	185	12	-	-	-
Sugarcane	-	-	-	-	-	-	6	N.A.	N.A.	3	210	70
Coffee	-	-	-	-	-	-	-	-	-	1	N.A.	N.A.
Total	579	-	-	3,549	-	-	1,600	-	-	1,498	-	-

Source: Executing agency materials.

Note :1) There are no recorded values for the Estreit IV district.

2) 1998 was the first year after completion of the project for which yield figures were recorded. N.A. refers to crops that were not harvested.

Table 2 Progress in Settlement

The state of settlement (as of December 1999) is as shown below.

	Plan (*1)			Actual (as of December 1999)		
	Maria Teresa	Estrait IV	Miroros	Maria Teresa	Estrait IV(*2)	Miroros
Settled farmers (No. of households)	395	370	150	417	(116)	150
Settled agricultural companies	46	226	86	35	-	7
Total number of settlers	2,437	4,110	1,610	N.A	-	N.A

Source : JBIC materials for both plan and actual.
Note : 1) From the plan after the 1998 revision.
2) As mentioned above, the settlers who are to move into the Estreit IV district have been determined, but they have not started to move in for permanent settlement. Therefore the number is not still realized.

(8) Internal rates of return (IRR)

As mentioned above, construction of the project has only just finished, and the available records on crop yields and other indicators are extremely limited. Therefore we have not recalculated internal rates of return for this evaluation.

Pumping Station in Maria Tereza

Channel seen from the newly constructed Dam in Estreit IV

The Main Channel in Miroros

EX-POST EVALUATION REPORT FOR ODA LOAN PROJECTS 2000 (SUMMARY)

PUBLISHED IN MARCH 2001

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