4-4 Improvement Project for the Operation & Maintenance of National Irrigation Systems (UPRIIS) (F/S)

4-4-1 An overview and background of the study project

(1) An overview of the development study

This feasibility study covers the UPRIIS irrigation district (112,000ha), and is intended to improve existing irrigation facilities and formulate project plans to enhance facilities' maintenance and management.

1. Study implementation period: September 1982 – February 1984
2. Compilation of the final report: February 1984
3. Counterparts: National Irrigation Administration (NIA)
4. Consultant for the development study: Nippon Koei Co., Ltd.;
   Nippon Giken Co., Ltd.

(2) Background of development study implementation

The UPRIIS irrigation district (112,000ha), the target area of this feasibility study, covers the three provinces of Nueva Ecija, Bulacan, and Pampanga. Eighty percent of the district is in the Nueva Ecija Province, located in an upstream area of the Pampanga River (which flows from north to south) in a grain-growing district of the Central Luzon Plain. It constitutes the largest irrigation system in the Philippines.

As in the target area introduced in the previous section, irrigation projects in the Central Luzon Plain have long been conducted by NIA. In the UPRIIS irrigation district, as in the AMRIS irrigation district, projects were actively promoted in the 1970s to improve large-scale reservoirs and irrigation facilities. In the upper reaches of the Pampanga River, the Pantabacan Reservoir was completed in 1974, which brought the irrigation ratio for paddy fields in the region to 74.5%, a relatively high figure compared to other irrigated areas.

As the broadest area of all national irrigation systems[6], the UPRIIS district has a long history of irrigation facilities' improvements. This feasibility study is aimed at improving existing irrigation facilities and formulating project plans to enhance the maintenance and management of such facilities.

1) National Development Plan

This feasibility study was implemented at the same time as the "Improvement Project for the Operation & Maintenance of National Irrigation Systems (AMRIS)" introduced in the previous section. An explanation of the Mid-Term Development Plan (1983-1987) is thus omitted here.

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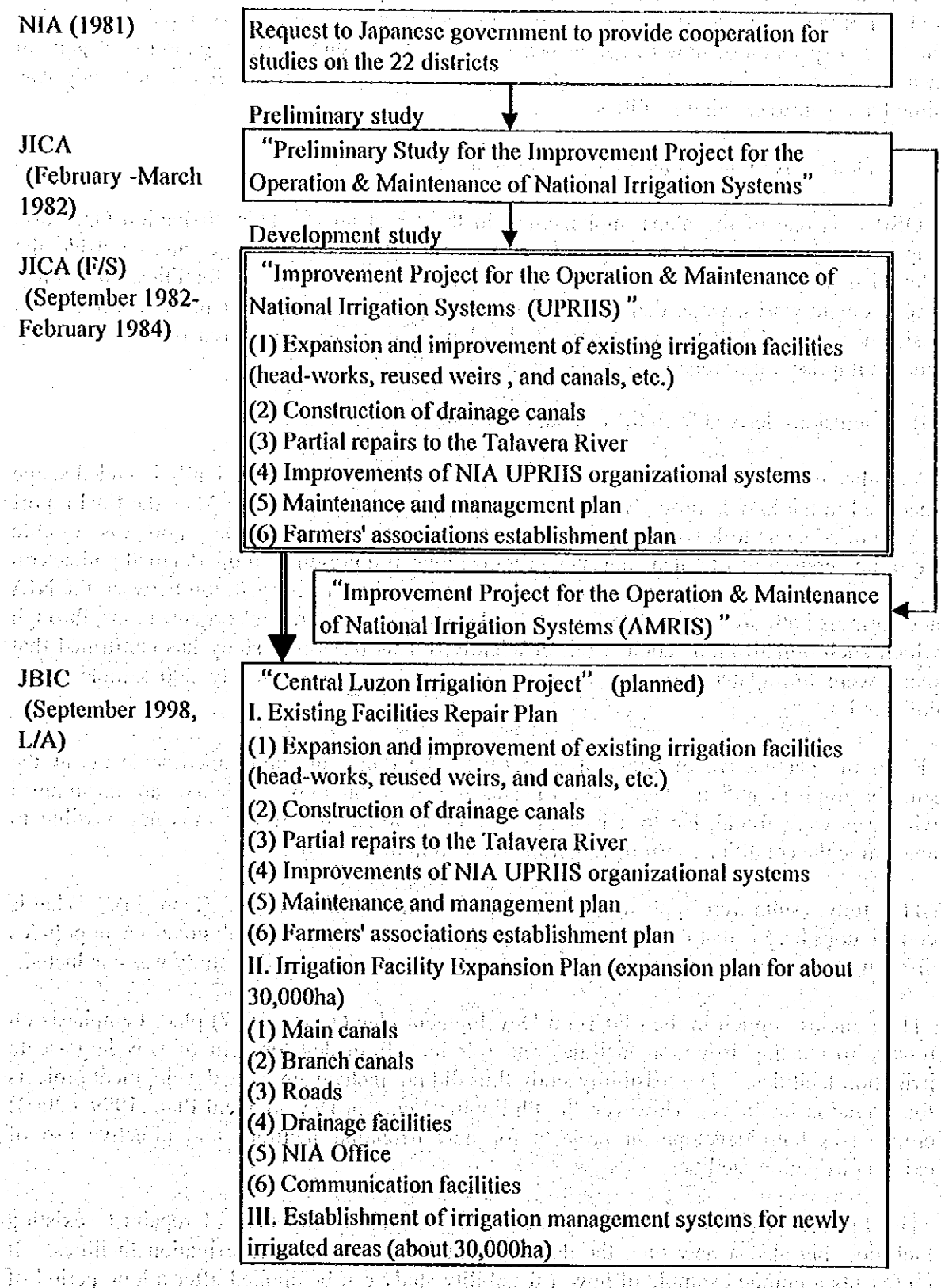
[6] The largest national irrigation system in terms of area is the UPRIIS irrigation district, followed by the Magat and AMRIS irrigation districts.

2) Historical background to implementation of the development study

As stated earlier, this feasibility study started with the "Preliminary Study for the Improvement Project for the Operation & Maintenance of National Irrigation Systems," and was implemented accordingly. The historical background to implementation of this feasibility study is the same as that of the "Improvement Project for the Operation & Maintenance of National Irrigation Systems (AMRIS)."

The study was performed following the implementation of the "Preliminary Study for the Improvement Project for the Operation & Maintenance of National Irrigation Systems" by the preliminary study team in February 1982, in response to a June 1981 request from the Philippine government.

Fig. 4-4: Historical development of the Improvement Project for the Operation & Maintenance of National Irrigation Systems (UPRIIS)



3) Project operation

The L/A for the "Central Luzon Irrigation Project" (loan aid) was concluded in September 1998, thirteen years after the feasibility study was completed. The project has just started and is not yet complete. It is a major operation comprised of three parts: repairs to existing facilities, expansion of new irrigation facilities, and establishment of irrigation management systems for newly irrigated areas. The project plan proposed in this feasibility study was aimed at repair to existing facilities.

4) Related plans implemented in the target area

IOSP II is one of the plans implemented in the target area. This "Irrigation Operation Support Project II (IOSP II)" (World Bank) (1993-1997) covers target areas outside the Manila metropolitan area. It provides for improvement of irrigation facilities, emergency improvement works, water damage prevention, silt prevention, supplementary O&M, and IA assistance, etc. IOSP II-related projects implemented in the target area of this feasibility study comprise minor repairs to irrigation facilities.

(3) Conclusions derived from the evaluation results

As indicated by a review of the report of this feasibility study, the originally intended scope specified in the S/W is properly covered at the implementation stage. Also, the final report is structured so as to leave no ambiguity. However, broader use of the report was possible from the perspective of enhancing such organizations, if it presented more detailed policies on how to establish farmers' organizations. Participation by and cooperation between the NIA and farmers both are essential to formulate plans to enhance farmers' organizations, through which such organizations could work efficiently. This feasibility study has confirmed that plans were formulated based on field surveys in which approximately 200 samples were collected.

From the perspective of cooperation between the Philippine and Japanese teams at the study's implementation stage, and of success in technology transfers, no meaningful witnesses were found due to a lack of relevant information. It was thus not possible to determine the conditions surrounding implementation of the study.

The study results were applied to the "Central Luzon Irrigation Project" (loan aid). What is conspicuous here is that the Project was implemented in accordance with government policies differing from those in effect thirteen years before, when this feasibility study was conducted.

The policies implicit in the Mid-Term Development Plan (1983 - 1987) placed emphasis on repairs to existing irrigation facilities and refrained from development of new large-scale irrigation facilities. The feasibility study thus did not include any new development projects for irrigation facilities. However, the Philippines' current Development Plan (1999 - 2004) emphasizes both development projects for new irrigation facilities and effective use of existing irrigation facilities.

The Project thus includes not only the study's original component of repairs to existing facilities, but also a new one: the development of new large-scale irrigation facilities. It represents a unique example of how a feasibility study can be applied after a long period of time.

4-4-2 Evaluation results by the five evaluation criteria

(1) Efficiency

1) As far as a review of the final report indicates, the scope specified in the S/W seems to be properly covered.

2) In terms of the context surrounding communications and technology transfers at the study's implementation stage, no interviews were conducted or questionnaire answer sheets collected during this evaluation study, as most of the former C/P members have retired or been transferred to other organizations. Therefore, this evaluation does not reflect the opinions of any former C/P members.

3) As for data collection, reviews of the final report and other reports indicate that analyses were conducted using sufficient data; in general, adequate data were collected.

(2) Effectiveness

1) The primary objectives of this feasibility study are i) repairs and modifications of existing irrigation facilities, ii) introduction of a central monitoring system for water management, and iii) establishment of farmers' organizations.

This plan does not include any new expansion. Improvements in irrigation facilities are limited to repairs of existing facilities. This project which covers an area about four times as large as the AMRIS irrigation district which was covered in the previous section. Operating costs are truly substantial, at around three times those of the AMRIS effort.

Implementation of this plan presupposes that the necessary project expenses can be met by self-financing and loans from overseas financial institutions. It thus depends on whether this project continues to receive national priority, as during the implementation of this feasibility study, and whether overseas financial institutions become properly interested. If the plan had been originally implemented with these conditions unchanged, it would have been quite feasible.

In terms of the part of the study dealing with enhancement of maintenance and management systems, as long as proposals are clearly based on the needs of farmers in the target area, they are more likely to be realized, as was the case with the AMRIS effort. From this perspective, it is clear that field surveys were conducted inasmuch as questionnaire responses were obtained from about 200 farmers. Based on these inputs, proposals for the establishment of farmers' organizations were prepared. This logical sequence should be highly evaluated.

2) The report has the most lucid and efficient structure and contents among the five cases under evaluation, and is easy to understand. It effectively assists readers to clearly acquire the necessary information through use of proper expression.

(3) Impact

1) A project implemented from the proposals of this feasibility study is the "Central Luzon Irrigation Project" (loan aid, 1998, L/A).

According to its documented plan, this Project comprises three components: repair of

existing facilities, expansion of new irrigation facilities, and the establishment of farmers' organizations for newly irrigated areas. The proposal derived from this feasibility study corresponds to the first component, repair of existing facilities. Indeed, the repaired areas described in the documented plan are almost the same as those in this feasibility study. The study makes no mention of the establishment of a central monitoring system and calls for fewer farmers' irrigation organizations to be established; otherwise, it can be regarded as almost the same as the Project's plan.

The Project presupposes an additional water source: the Casecnan Reservoir (the water source for the UPRIIS irrigation district), located at the upper reaches of the Cagayan River to the north of the Pantabacan Reservoir. The Casecnan Reservoir is an in-progress project, construction of which was initiated in 1996 using BOT. A connection with the Pantabacan Reservoir through a canal ensures the water supply.

2) The "Central Luzon Irrigation Project" is now at the development stage and has not yet been completed. Thus, no effects from the project have yet been realized.

(4) Relevance

1) The implementation periods for this feasibility study and the preliminary study are identical to those for the "Improvement Project for the Operation & Maintenance of National Irrigation Systems (AMRIS)"; the studies were thus conducted using the same S/W. Therefore, consistency between this feasibility study (at the implementation stage) and the National Development Plan can be evaluated using the explanation given in the "Improvement Project for the Operation & Maintenance of National Irrigation Systems (AMRIS)."

Because this feasibility study formulates plans for improving agricultural productivity through repairs to existing facilities and enhanced irrigation-facility management, as indicated in the Mid-Term Development Plan, consistency can be regarded as sufficient.

2) In addition, considering that the NIA received a recommendation by the World Bank to reduce the scale of new irrigation facility developments, and that this feasibility study is designed to improve existing irrigation facilities and contains no newly developed components, it is consistent with World Bank policies, as suggested in the recommendation.

3) As for the needs of beneficiaries, it can be confirmed from the final report that the needs of farmers have been understood.

4) The Mid-Term Development Plan in effect at the time of evaluation runs from 1999 to 2004. The Plan's goals for irrigation facility development suggest that the "Central Luzon Irrigation Project" is consistent with the Plan. The Project provides both for development of new irrigation facilities and for repairs to existing irrigation facilities, and is designed to organize or reactivate irrigation associations and to establish maintenance and management systems. In this sense, it can be regarded as consistent with the focal points of the Mid-Term Development Plan [7].

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[7] Focal points of the Mid-Term Development Plan (1999 - 2004):
(For improved agricultural productivity)
i) Expansion of national irrigation systems through development of new irrigation facilities and repairs to existing irrigation facilities
ii) Promotion of new irrigation systems that are small in scale, manageable by farmers, and cost-effective.

(5) Sustainability

The proposals derived from this feasibility study are applied in the "Central Luzon Irrigation Project." Since the project has just been started, no verification of sustainability through implementation is yet possible at this stage.

iii) Improved collection of irrigation service fees (ISFs) and establishment of irrigation service fees sufficient to cover irrigation management costs (From the perspective of infrastructure improvement)

i) Repair or improvement of existing irrigation systems

ii) Promotion of R&D for cost-effective and efficient irrigation and water-management technologies

iii) Promotion of participation of irrigation organizations from the planning stage through the maintenance and management stages

iv) Review of irrigation-cost principles for irrigation systems (specifically concerning ISF collection)

v) Promotion of participation and capability development by local governments and women in planning and implementation of irrigation projects

vi) Promotion of improvement of small-scale irrigation systems with development efforts led by the private sector

vii) Promotion of construction of irrigation facilities with development methods different from conventional approaches, using BOT or BT

viii) Collaboration with Department of Environment and Natural Resources (DENR) for preservation and improvement of riverhead areas supporting irrigation systems

ix) Promotion of female participation in local committees, provision of technical training, and support for capability development to realize meaningful participation by women.

4-5 Improvement Project for the Operation & Maintenance of Magat River Integrated Irrigation (M/P)

4-5-1 An overview and background of the study case

(1) An overview of the development study

This master plan (M/P) study covers the Magat irrigation district (MARIIS) (102,000ha), and is intended to formulate an overall plan for enhanced maintenance and management in the district.

1. Study implementation period: February 1986 – March 1987
2. Compilation of the final report: March 1987
3. Counterparts: National Irrigation Administration (NIA)
4. Consultant for the development study: Sanyu Consultants Inc.;
   Naigai Engineering Co., Ltd.;
   Nippon Suiko Consultants Co., Ltd.

(2) Background of development study implementation

The Magat irrigation district (MARIIS) (102,000ha), the target area of this master-plan study, encompasses the Isabela (largest), Ifugao, and Quirino Provinces. Those working in agriculture account for 68% of the population; agriculture is the primary industry in all the three provinces. In the MARIIS district, water-resource and irrigation development started in the 1970s with ADB and World Bank efforts. The district's irrigation ratio reached 73% as of 1986 [8].

The Magat irrigation district is one of the three major national irrigation systems in the Philippines (the others are UPRIIS and AMRIS, introduced earlier). A feasibility study had already completed prior to implementation of this study. The Philippine government requested Japan to provide study cooperation as no maintenance and management plan for MARIIS had yet been established, despite the district's overall plan being the last implemented of the three. Subsequently, this master-plan study was implemented.

1) National Development Plan

In November 1985, when the preliminary study for this master-plan study was implemented, the "Revised Mid-Term Development Plan (1983-1987)" was being formulated. In accordance with the scope of the preliminary study, this master plan was implemented from February 1986 to March 1987. Plans for the agricultural sector and irrigation in the Mid-Term Development Plan have already been described, and are omitted here.

This master-plan study was implemented to formulate local agricultural development plans based on the Mid-Term Development Plan, to develop irrigation facility maintenance/management and water management plans, to create irrigation facility improvement plans, and to determine high-priority projects, among other objectives.

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[8] The ratio of irrigated area to planned irrigation area (97,400ha), as scrutinized by the MARIIS irrigation management office.

2) Historical background to implementation of the development study

The development of the Magat irrigation district started with the construction of head-works and canals in the late 1950s and early 1960s by the Ministry of Public Highways. Subsequently, in 1968, an irrigation expansion project was initiated by NIA that was established in 1964.

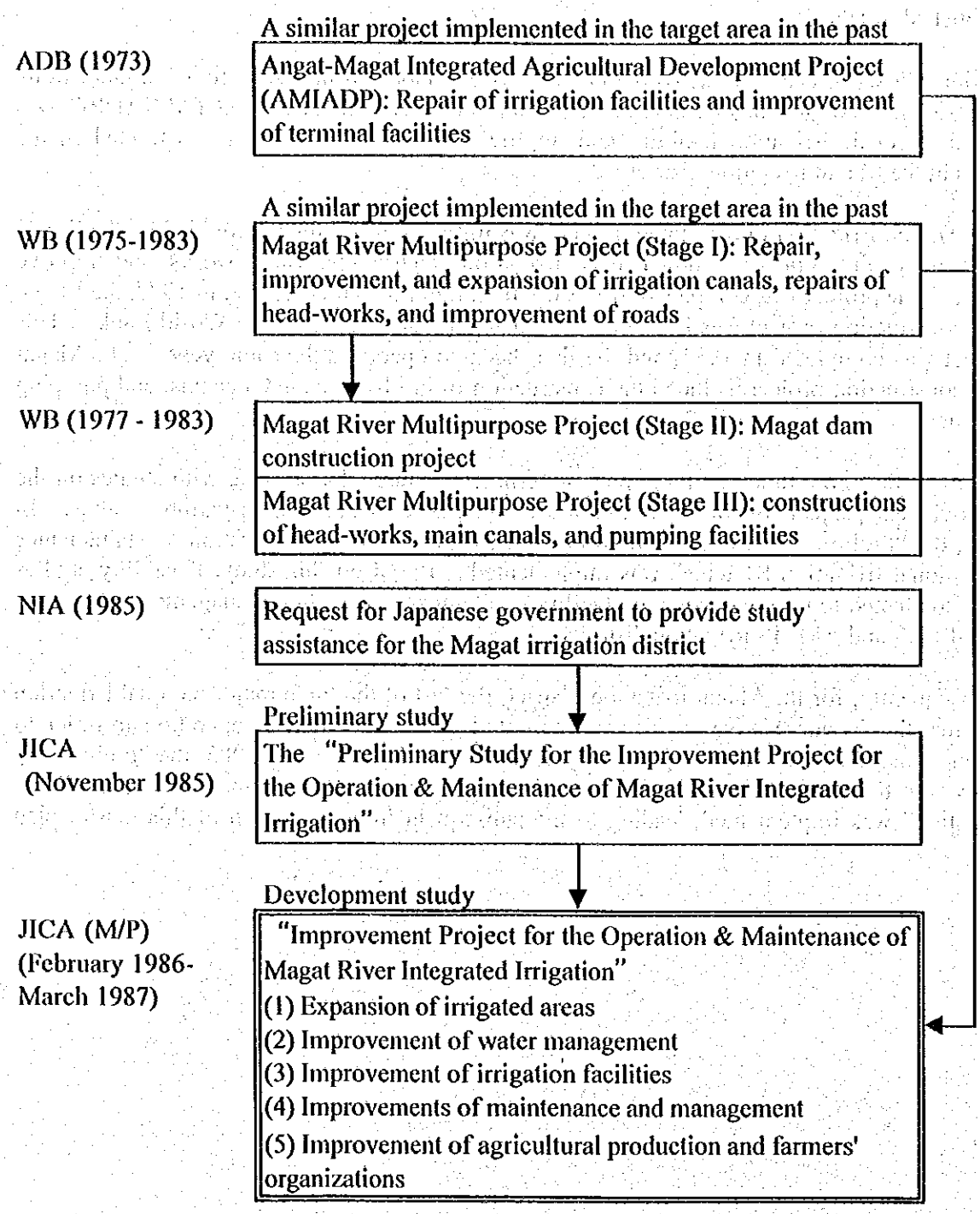
In the 1970s, projects were actively implemented with loans from international organizations. In 1973, the "Angat-Magat Integrated Agricultural Development Project (AMIADP)" was started to repair irrigation facilities and improve the terminal facilities constructed in the 1950s in the Magat irrigation district.

In 1975, an irrigation improvement project was initiated, using funds provided by the World Bank, to repair, improve, and/or expand irrigation canals, repair head-works, and improve roads. The project was completed in 1983. In parallel with this project, in 1977, the Magat dam construction project was initiated with financial assistance from the World Bank. This project was completed in 1983, and the dam became operative the same year. The Magat dam construction project included the construction of head-works, main canals, and pumping facilities.

At about the same time, the Philippine government requested assistance with studies on the improvement project for the operation and maintenance of national irrigation systems. In 1982, the "Preliminary Study for the Improvement Project for the Operation & Maintenance of National Irrigation Systems" was implemented. Based on this study, feasibility studies were conducted to improve irrigation facilities and enhance irrigation management systems in the UPRIIS and AMRIS irrigation districts.

Subsequently, for the Magat irrigation district, the last of the three major national irrigation systems, the Japanese government was requested to provide study cooperation in order to enhance maintenance and management systems there. In November 1985, the "Preliminary Study for the Improvement Project for the Operation & Maintenance of Magat River Irrigation" was implemented, leading to the subsequent implementation of this master-plan study.

Fig. 4-5: Historical development of the Improvement Project for the Operation & Maintenance of Magat River Integrated Irrigation



3) Related plans implemented in the target area

Although this evaluation study failed to confirm whether proposals in this master-plan study were directly put into operation, projects implemented in the area that the M/P study covered were as follows:

i) Part of Irrigation Operation Support Project I (IOSP I) (World Bank loan, 88-92)
ii) Part of Irrigation Operation Support Project II (IOSP II) (World Bank loan, 93-00)
iii) Part of Water Resource Development Program (WRDP) (World Bank loan, 97-02)

The "Irrigation Operation Support Project I (IOSP I)" (World Bank) (1988-1992) was a project implemented by NIA with loans from the World Bank to cover the entire country. The project aimed at i) enhancing the organizational and technical capabilities of the NIA and irrigation associations (IA) to achieve more effective irrigation facility management, and ii) improving the project performance of the NIA through repairs to irrigation facilities, etc. IOSP I and this master-plan study are related in that the project prompted minor repairs to irrigation facilities in the target area.

The "Irrigation Operation Support Project II (IOSP II)" (World Bank) (1993-2000) covers target areas outside the Manila metropolitan area. It is aimed at improvement of irrigation facilities, emergency improvement works, water damage prevention, silt prevention, supplementary O&M, and IA assistance, etc. IOSP II is linked to this master-plan study through improvement and repairs to irrigation systems at the first, third, and fourth districts under study. In addition, IOSP II included pilot projects for enhanced irrigation maintenance and management, and actively supported the concept that facilities management for national irrigation systems should be turned over to the irrigation associations (IAs).

The "Water Resource Development Program (WRDP)" (World Bank) (1997-2002) covers the entire country and is aimed at assisting the Philippine government in the following areas.

i) Establishment of frameworks to improve water resource plans, developments, and management
ii) Management of riverhead areas
iii) Efficient utilization of irrigation water and improvement of agricultural production, specifically rice
iv) Alleviation of poverty
v) Promotion of the transfer of management of irrigation systems to farmers
vi) Improvement of the environment in irrigated areas

A relationship with this master-plan study exists in the fact that irrigation system improvements in the third district were introduced.

(3) Conclusions derived from the evaluation results

A master-plan study presents a somewhat different stance from the feasibility studies seen in the previous four cases. In this study, unlike other feasibility studies reviewing the feasibility of practical applications and enhancement measures for maintenance and management systems, the emphasis is placed on formulating frameworks to enhance the maintenance and management of irrigation systems over the entire target area.

A review of the report for this master-plan study indicates that the originally intended scope

specified in the S/W is properly covered. Also, the structure and contents of the final report leave no ambiguity. The frameworks indicated in the proposals are quite feasible on the Philippine side, although the items and the methods specified in the proposals have yet to be reviewed.

4-5-2 Evaluation results by the five evaluation criteria

Evaluation by five criteria cannot be discussed at this stage since no project directly related has been implemented after the development study.

Chapter 5: Proposals on evaluation methods for development studies

Chapter 5: Proposals on evaluation methods for development studies

5-1 Making a clear distinction between evaluations of past studies and newly formulated ones

To review evaluation methods for development studies, a clear distinction must first be made between the evaluation designs used for studies already implemented and those for new studies. The most conspicuous difference is likely that evaluation plans were not prepared at the preliminary stage for older studies, but can be prepared in advance for newer studies.

5-1-1 Evaluations of studies already implemented

Since the studies under evaluation are relatively old, no ex-post evaluation plans or monitoring plans are typically available prior to full-scale studies. Therefore, no consistent evaluation criteria for preliminary through ex-post evaluations exist. This situation applies to almost all the development studies already implemented. Even if preliminary evaluation plans are developed now, ex-post evaluations would be conducted no sooner than, say, ten years after study completion.

Under these circumstances, for the time being, ex-post evaluations are to be conducted on the development studies that had no preliminary evaluation plans. It is thus necessary, at the time of evaluation, to collect sufficient past information to understand the original plans as accurately as possible. Specifically, when evaluations are conducted in accordance with a logical PDM structure, as in this evaluation study, the evaluation PDM should be compiled based on the relevant past materials. It thus requires that information retained in documents be reflected in the PDM as much as possible. Important information sources include not only documented reports of full-scale studies, but also preliminary study reports compiled before the full-scale studies.

In particular, it is important to distinguish which factors were internalized in studies and which were not, by confirming what was included in the original scope of the preliminary study report.

By so doing, it is possible to locate problems, if any.

Suppose a project plan formulated during a development study is cancelled due to environmental problems at the implementation stage. If the scope of the study includes (i.e., internalizes) the implementation of an environmental assessment, the full-scale study should most probably be regarded insufficient. However, for a study implemented over 20 years ago when environmental concerns were not regarded as important as today, and in which the study's scope did not include an environmental assessment, the full-scale study should be regarded as having no problem.

5-1-2 Evaluation of newly formulated studies

For studies scheduled to be implemented in the future, evaluation plans can be reviewed at the study's preparatory stage. As in this evaluation study in which a PDM is formulated for

evaluation purposes, a PDM must be prepared as a baseline after implementation of the preliminary study and before the full-scale study. By doing so, a foundation is created for preparing the PDM before implementation of both the final and ex-post evaluations, thus clarifying the originally expected outcome and project objectives of the full-scale study.

In addition to positioning the PDM properly, it is desirable to clarify (study-results) utilization targets from the very beginning, in order to specify how the development study should be utilized after implementation. This will clarify the directions the target study was intended to follow after implementation of the ex-post evaluation, as in this evaluation study.

5-2 Review of evaluation methods for newly formulated studies

5-2-1 Reviewing consistent evaluation methods from the preliminary to the ex-post-facto stages

As stated earlier, for evaluation of newly formulated studies, consistent evaluation methods from the study's preliminary to ex-post stages are indispensable. Evaluations using PDM prepared at the preliminary stage, as in this case, are an option to ensure a consistent evaluation covering both preliminary to ex-post stages. Another option is the establishment of utilization targets in the preliminary evaluation sheets[1]. In any event, it is essential to specify carefully how to formulate and position (who, when, how, etc.) both the PDM and the preliminary evaluation sheets at each stage of the development study (preliminary stage, full-scale study stage, final stage, and utilization stage after completion, etc.).

5-2-2 Necessity of reviewing evaluation approaches depending on cooperation formats

In parallel with the establishment of these consistent evaluation methods for the preliminary to the ex-post-fact stages, more flexible approaches will be required to meet the growing diversification in cooperation formats used for development studies. To classify these formats, two approaches can be used: formats(e.g., M/P, F/S D/D, including pilot studies) and areas (e.g., agriculture, forestry, and fishery) In addition, it is recommended that these categories be further subdivided into groups and evaluation approaches on each reviewed. In terms of formats, for example, master plans will be categorized into two types: policy-supporting types, for formulating development strategies in specific areas; and plan-formulation types for long- and short-term plans designed to implement projects. As for area categories, in the case of agriculture for example, supplies can be classified into irrigation type or farming-village-development type, etc.

[1] The "preliminary evaluation sheet" is a table compiled on the preliminary stage (prior to implementation of the full-scale study in the case of a development study) and designed to indicate achievement targets to be realized by the case. Regarded as a baseline, this sheet presupposes subsequent verification of the achievements.

5-3 Establishment of evaluation implementation system

To establish evaluation methods for future development studies, it will be necessary not only to review methods but also to consider how to establish a system for conducting these evaluations.

As this evaluation study covers development studies implemented in the 1980s, and for which evaluation plans had not been established in advance, background information (such as the reasons for the development studies) had to be collected in an ex-post manner from limited information sources. Tremendous amounts of work were required to collect reliable data. To rectify these situations and improve the feasibility and quality of evaluations, several points must be noted:

First, to ensure highly-reliable evaluations based on unbiased information, not only must preliminary evaluation plans be prepared, but systems must be put into place to obtain information required for evaluations over the entire study process, from the initial request for a development study to completion of the full-scale study.

"For example, for any development study, the period from acceptance of the initial request to implementation of the preliminary study involve documents[2] containing historical background and arrangements relating to any full-scale study, including the background to the request for the development study and the study's scope, etc. By ensuring that the necessary information can be easily accessible during the evaluation period, it becomes possible to define why the study was originally requested, and what was included in the full-scale study after official arrangements were completed between governments.

Second, even if a system enabling easy access of information is established, it will be useless without necessary information. There fore relevant documents should include as much necessary information for evaluation as possible from the very beginning.

Among the information regarded as necessary for evaluation, the most useful one is what was originally expected from the full-scale study, that is the study objectives. Such information can provide a perspective enabling subsequent evaluation of the study's utilization levels.

Utilization objectives provide important information not only for conducting evaluations but also for implementing development studies. Clarifying utilization objectives in advance makes it possible to derive more feasible proposals from full-scale studies, and to improve utilization levels of study results. As a result, such efforts can be expected to improve effectiveness for development studies overall.

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[2] TOR attached to a request form, documents used for evaluation of the project plan, and documents arranged before the dispatch of the preliminary-study team, etc.

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