

Chapter 4 Evaluation Results
(Philippines)

Chapter 4: Study Results (Philippines)

4-1 Ilocos Norte Irrigation Project (F/S)

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

(1) An overview of the development study

This feasibility study covers the irrigation area of Ilocos Norte (22,600ha), and is intended to formulate irrigation facility and riverhead development projects. The following is an overview of the development study.

1. Study implementation period: August 1978 – December 1980
(Field study)
First stage (August – November 1978)
Second stage (January – March 1980)
2. Compilation of the final report: December 1980
3. Counterparts: National Irrigation Administration (NIA)
4. Consultant for the development study: Sanyu Consultants Inc.

(2) Background of development study implementation

Subsequent to the “green revolution,” the Philippines attained self-sufficiency in rice by 1977 with the introduction of a high-yielding strain of rice and the promotion of irrigation cultivation, both of which improved financial conditions in farming villages. During the 1970s, however, the challenge the country had to tackle was to improve agricultural productivity and rectify regional income differentials. Steps for meeting the challenge included efforts to improve and diffuse agricultural technologies and to enhance agricultural infrastructure.

Under these circumstances, this feasibility study was conducted in an area of 22,600ha in Ilocos Norte Province (administrative region #1), which was regarded as lagging behind in development work. The study’s primary objective was to develop irrigation facilities and water sources.

1) National Development Plan

This case overlaps with the Long-term Development Plan (1978 - 2000) and the Mid-term Development Plan (1978 - 1982) formulated by the Philippine government. For the agricultural sector, the Long-term Development Plan emphasizes improving productivity and income, while the Mid-term Development Plan gives priority to enhancing employment and

income in farming villages in the long run and to improving domestic productivity in cereals and stable food supplies in the short run.

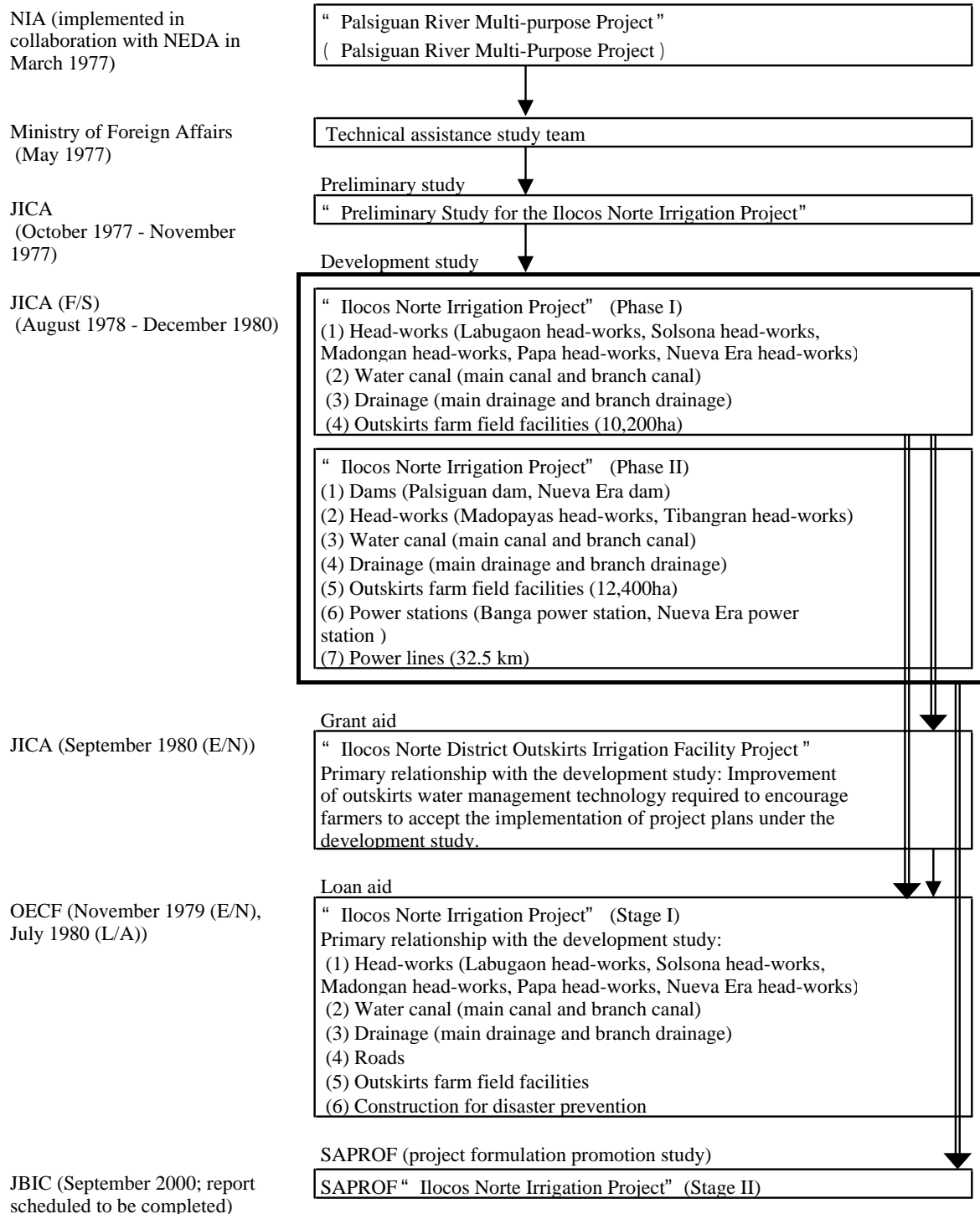
As for irrigation, these plans emphasize the expansion of irrigation facilities to increase rice production to respond to increasing demand for rice, and a strategy of implementing land allotments in line with crop qualities. In addition to the expansion of irrigation facilities, repairs to existing facilities and improved irrigation management were also regarded as important.

2) Historical background to implementation of the development study

Against this backdrop of efforts to formulate development plans by the Philippine government, in 1975, the National Irrigation Administration (NIA) embarked on a complete irrigation plan for Ilocos Norte Province. The plan grew to be a comprehensive regional development endeavor, and proceeded under direct supervision by the national government starting in 1976. In 1977, NIA formulated the “Palsiguan River Multi-purpose Project” in collaboration with NEDA.

In response to this move, in May 1977, a technical assistance study team was dispatched by the Ministry of Foreign Affairs of Japan. The Philippine government requested the Japanese government to conduct studies for the plan. Subsequently, following an official request from the Philippine government received through the embassy, JICA dispatched the “Preliminary Study Team for the Ilocos Norte Irrigation Project” in November 1977. The team conducted studies in two separate stages: a first stage involving formulation of a general plan and implementation of feasibility studies for regions in which data could be collected as well as favorable results were expected; and a second stage involving plans in areas such as dams and power generation.

Fig. 4-1: Historical development of Ilocos Norte Irrigation Project



3) Project implementation

This study was implemented in two separate stages. In the first stage, project plans were proposed for constructing head-works, irrigation drainage, and outskirts farm field facilities; in the second stage, project plans were proposed for constructing dams, head-works, irrigation drainage, outskirts farm field facilities, power stations, and power lines. Actual projects implemented based on these proposals were partially financed through Japanese grant aid and loan aid.

For the “Ilocos Norte District Outskirts Irrigation Facility Project” (grant aid), B/D was implemented (February through March 1980) and E/N (September 1980) was concluded while Phase II of the “Ilocos Norte Irrigation Project” was underway. The Project was a pilot project requested by the Philippine government to improve outskirts water management technologies, so that the irrigation improvement projects proposed through the development study could be accepted by farmers and implemented smoothly. In these projects, outskirts irrigation facilities were constructed and agricultural equipment was provided to target farm fields identified by the development study.

The “Ilocos Norte Irrigation Project (Stage I)” (loan aid) was implemented following proposal of the “Ilocos Norte Irrigation Project” (Phase I). The project called for the construction of five head-works; irrigation drainage, roads, and farm field facilities; and emergency disaster- prevention facilities.

This project took more than 10 years from original inception (1983) until completion (1995). The delay was partly because the target area was hit directly by five typhoons in three years, necessitating additional emergency disaster-prevention work. Another reason was a basic change in the project planning, from a top-down to bottom-up approach, to reflect the needs of Zanjera in the canal designs, so that existing facilities could be utilized to the maximum extent.

SAPROF (supporting study for project formulation) for the “Ilocos Norte Irrigation Project (Stage II)” with loan cooperation was implemented in the same area as in Phase II of the “Ilocos Norte Irrigation Project,” covered by this study. Study results are currently being compiled for evaluation purposes, and a report is scheduled to be issued by September 2000.

(3) Conclusions derived from the evaluation results

The study was implemented relatively efficiently, although some comments suggested that certain communication gaps were present between the Japanese and the Philippine teams during the study’s implementation. The formulated project plan clearly indicates why the project is necessary. The final report also clarifies the project’s details.

At the same time, this study could be regarded as the one (of the five studied for the Philippines) in which the study proposals were most clearly implemented. The project plans proposed by this feasibility study (Phase I) proceeded almost exactly as planned in the study,

except for certain modifications introduced as part of the shift toward an approach encouraging farmers' participation. It usually takes quite a while between the formulation of project plans (i.e., after the completion of feasibility studies) and project implementation due to administrative procedures in the host country. In the meanwhile, needs identified in the original studies may sometimes have changed, resulting in the need to review the contents of OECF (present JBIC) projects prior to implementation.

One factor contributing to the near-complete implementation of the F/S was the prompt pace of project implementation, with all study schedules from Phase I to Phase II completed by December 1980, and the L/A signed by July 1980. According to the parties concerned, the study received national-level priority, which ensured optimal conditions for project implementation.

4-1-2 Evaluation results using the five evaluation criteria

(1) Efficiency

1) We received opinions from former counterparts about the context in which the development study was implemented. They state that the Philippine side actively participated in the study in collaboration with the Japanese team. Informal meetings were held almost every day to confirm achievements thus far. One negative aspect might have been communication, which was somewhat hampered by insufficient linguistic capabilities on the Japanese side during the study's implementation phase.

2) As for technology transfer, the Philippine side states that they have obtained additional knowledge, besides what was already known to participants in their respective specialized fields, through implementation of the feasibility study and the irrigation projects.

3) As for the adequacy of the data required for implementation of the study, the final report indicates that sufficient qualitative and quantitative data were obtained. However, the section about farmers' organizations in the final report does not mention "Zanjera¹," a traditional irrigation organization that has existed in the region for over 350 years. This organization should have been studied. This omission may have been due to the fact that the study team had no specialist in farmers' organizations or their maintenance or management.

4) As for the consistency between this feasibility study and other projects, no information has been obtained that can lead to confirmation of the statements made in the study. However, the following findings concerning areas covered by the feasibility study and surrounding areas have been obtained:

- i) Repairing irrigation facilities in the area under study and the surrounding areas under NISIP (National Irrigation System Improvement Plan) I of the World Bank (7,242ha)
- ii) Improvement and planning for irrigation facilities in the area under study and the

¹ A "zanjera" is a traditional irrigation organization dating back to the 1630s. These organizations are still in operation in the Ilocos region and the Cagayan Valley. Community members can raise funds for irrigation facilities construction, as well as procure materials and labor, allocate water, and manage irrigation facilities in a democratic manner.

- surrounding areas by FSDC (Farm System Development Corporation) (690ha).
- iii) Repairs and constructions of roads by the Ministry of Public Highway (MPH) (135.2 km within the area under study)
 - iv) Implementation of feasibility study for flood prevention projects for the Labugaon River and the Solsona River by the Ministry of Public Wealth (MPW)
 - v) Tree-planting plan by the Forest Management Bureau (the “Marcos Tree-planting Plan” in the Nueva Era District, in the area under study, covers 11,000ha)

(2) Effectiveness

1) The final report is basically structured around several key themes: economic background at the national and provincial levels; current conditions in the planned areas; project plans, implementation, maintenance, and management; and project evaluation. The descriptions are clear and easy to understand. As for content, although it seemed to be difficult to collect information due to lack of essential data, the report provides sufficient information on the latest conditions in the areas under study. Furthermore, the project plans clearly indicate why the implementation is necessary, which gives enough details. The attached materials also provide economic comparisons for alternative plans, suggesting that the project plans have been thoroughly reviewed. However, the descriptions about farmers’ organizations involved in maintenance and management of projects are not sufficient. This may be due to lack of study that covers these farmers’ organizations.

2) After Phase I of this feasibility study was completed in November 1978 and before Phase II started in January 1980, the E/N for the “Ilocos Norte Irrigation Project (Stage I)” that reflects Phase I was concluded (November 1979); the L/S was concluded in July 1980. Judging from this sequence, the Philippine government seems to have expected that the proposals linked to implementation of the F/S would be implemented in the form of projects through yen loans. In this sense, the Philippine side was sufficiently capable of implementing the project, despite its large scale (encompassing an area of 10,200ha).

However, hearing findings from NIA suggest that, although the project plans indicated in the report of the feasibility study have been actually implemented, this plan (including Phase II) may be too large in scale for a new irrigation project (about 21,400ha, including Phase II), in terms of the general fund-raising capabilities of the Philippines.

(3) Impact

1) As stated earlier, based on this feasibility study, the “Ilocos Norte District Outskirts Irrigation Facility Project” (grant aid) and the “Ilocos Norte Irrigation Project (Stage I)” (loan aid) were implemented as projects. Both projects primarily derived from proposals in Phase I of this feasibility study, and had already been suggested as possible even while the study was underway. The “Ilocos Norte District Outskirts Irrigation Facility Project” (grant aid, 1980 (E/N)) was implemented as a pilot project intended to aid the smooth implementation of this feasibility study, and the “Ilocos Norte Irrigation Project (Stage I)” (loan aid, 1980 (L/A)) was implemented to help realize project plans through Phase I of this feasibility study.

2) Implementation of the “Ilocos Norte Irrigation Project (Stage I)” produced several key results, including productivity improvements, income increases, satisfactory production for demands (self-sufficiency in rice), and more systematic operations of the water management organizations in the area under study.

For example, productivity (as indicated by rice yield per hectare) in the area under study increased from 2.51 tons/ha/year (average from 1983 to 1986) to 4.42 tons/ha/year (average from 1997 to 1999) in dry seasons; and from 2.22 tons/ha/year (average from 1983 to 1986) to 4.06 tons/ha/year (average from 1997 to 1999) in wet seasons. The average annual income of a farming household increased from 8,075 pesos before project completion (1982) to 66,381 pesos (1996). Production of rice relative to demand in project areas also increased from four times demand to six times (with demand calculated at 184kg/person/year).

In addition, projects were designed to satisfy the needs of the Zanjera, the traditional farmers’ organizations, thus contributing to active participation of farmers in project maintenance and management. The number of farmers’ organizations registered with NIA has also increased from four as of 1980 to 28 in 1999. At present, the irrigation facilities are managed under more systematized Zanjera organizations with the assistance of NIA. In general, local maintenance and management for the entire region is now more systematic and efficient than before. Irrigation plans are successful, and are based on participation from farmers, thus attracting the attention of both domestic and overseas experts in the field.

3) At present, SAPROF is being implemented for the “Ilocos Norte Irrigation Project (Stage II)” (loan aid) corresponding to this feasibility study (Phase II). Once these projects are implemented, almost all of the proposals of this F/S will have been applied.

(4) Relevance

1) This feasibility study (on the implementation stage of the development study) seemed to be consistent with the “Mid-term Development Plan (1978 - 1982)” in effect at that time, which aimed primarily at improving employment opportunities in farming villages and incomes in farming households, and at enhancing domestic productivity of cereals. The study identifies the following objectives:

- i) Increasing agricultural production
- ii) Creating employment opportunities for residents of local communities
- iii) Improving livelihoods in farming villages by modernizing canal/drainage

facilities and roads, disseminating and systematizing agricultural techniques, and providing comprehensive electrification.

Furthermore, for irrigation, priority was given to expanding irrigation facilities so as to increase production in response to growing demand for rice. Another goal was to further expand irrigation facilities for the Ilocos district (the first administrative district).

Although the final report of this feasibility study does not give any account of its relationship with the “Mid-term Development Plan (1978 - 1982),” study-plan coordination seems to have been maintained during the implementation stage in line with project objectives.

2) This feasibility study did not take into account irrigation facilities management utilizing traditional farmers’ organizations. The project plans proposed by this feasibility study thus do not reflect farmers’ needs sufficiently; and in this sense, their relevance is a little low. However, at the project implementation stage, when loan aid was provided, Zanjera organizations became involved in the formulation of the designs, and thus farmers’ needs were reflected in the end.

3) The “Ilocos Norte Irrigation Project (Stage I)” (OECF), a project based on this feasibility study, is a large-scale irrigation project and inconsistent with the government policy for the first half of the 1980s, which gave priority to new medium-to-small scale irrigation projects.

However, the development plan of NIA for 1990-2000 (CORPLAN) states, “Priority should be given to small-to-medium scale irrigation projects from financial perspectives. It is also desirable to maintain a balance between large-scale and small-to-medium scale irrigation projects.”² Although government policies on irrigation projects changed after implementation of the development study, the implementation of those two projects was not necessarily inconsistent, considering the directions suggested by NIA.

In addition, the NIA regional office said that because the “Ilocos Norte Irrigation Project (Stage I)” turned out successful with farmers’ participation, at the time SAPROF was implemented for the “Ilocos Norte Irrigation Project (Stage II),” the project was highly evaluated by the local farmers, and their expectations were quite high. From the perspective of local needs which are considerable, the project plans derived from this F/S are relevant, even as of this evaluation.

² NIA, Corporate Plan: 1990-2000, May 1990, p35

(5) Sustainability

1) Two projects were implemented: the “Ilocos Norte District Outskirts Irrigation Facility Project” (grant aid) and the “Ilocos Norte Irrigation Project (Stage I)” (loan aid). As for sustainability, the latter should be discussed, as the former was a pilot project implemented in the early 1980s.

2) The entity managing the irrigation facilities constructed under the “Ilocos Norte Irrigation Project (Stage I)” was a Zanjera-based farmers’ organization. As stated earlier, the area under study had long had a Zanjera group [a firmly integrated unit promoting various activities led by an elected leader, in accordance with its own unique rules handling irrigation-related matters.

After the implementation of the “Ilocos Norte Irrigation Project (Stage I),” a national irrigation system was properly established in the target area, leading to more systematic management of irrigation based on Zanjera. In 1994, arrangements were made for the gate manager of NIA to manage the head-works, while the management of irrigation canals and all accompanying facilities was turned over to Zanjera. Furthermore, Zanjera reached an official agreement with NIA to pay an annual 1.5 Cavan³ per one hectare for 50 years as a contribution to development costs.

As a result, Zanjera has been reported to take a more active management role in irrigation facilities since project implementation. More regular meetings are held than before, with specific agenda. Decisions are also made in a more democratic manner, unlike the old way of simply following the leader’s decisions. In this respect, the study proves its sustainability.

³ One Cavan is about 50kg of Palay rice.

4-2 Mabini Agricultural Development Project (F/S)

4-2-1 An overview and background of the study project

(1) An overview of the development study

This feasibility study covers the Mabini irrigation district of 11,500ha, and is intended to formulate project plans for riverhead development and irrigation facility improvements, etc. The following is an overview of the development study.

1. Study implementation period: September 1981 – March 1982
2. Compilation of the final report: March 1982
3. Counterparts: National Irrigation Administration (NIA)
4. Consultant for the development study: Japan Engineering Consultants Co., Ltd.;
Nippon Suiko Consultants, Co., Ltd.

(2) Background of development study implementation

This feasibility study covers an area of 11,500ha in the Mabini irrigation area of the Pangasinan Province. Most of the beneficiary land comprises rain-fed paddy fields. The study is intended to formulate project plans for riverhead development and irrigation facility improvement to ensure increased agricultural production, stable expansion of rice (primary produce) cultivation, improved farmers' incomes, and further creation of employment opportunities, etc.

1) National and regional development plans

As with the "Ilocos Norte Irrigation Project" introduced in the previous section, this feasibility study was introduced while the Philippines' Mid-term Development Plan (1978 - 1982) was being formulated. The Development Plan sought to enhance employment and income in farming villages in the long run, and to improve domestic productivity in cereals and maintain stable food supplies in the short run. For irrigation, the Plan emphasized irrigation facilities expansion to increase rice production in response to increasing demand for rice. To this end, it employed two strategies: 1) implementing land allotments suited to crop qualities; and 2) expanding irrigation facilities, as well as repairing existing facilities and improving irrigation management.

Improving domestic productivity in cereals and ensuring food-supply stability, as stipulated in the Plan, requires enhanced agricultural productivity in the region, which in turn requires introduction of high-yielding crop strains. Thus, the improvement of irrigation facilities is indispensable. The Development Plan thus emphasizes the expansion of irrigation facilities to increase rice production in response to intensifying demand for rice. These circumstances contributed to the growing need for this feasibility study.

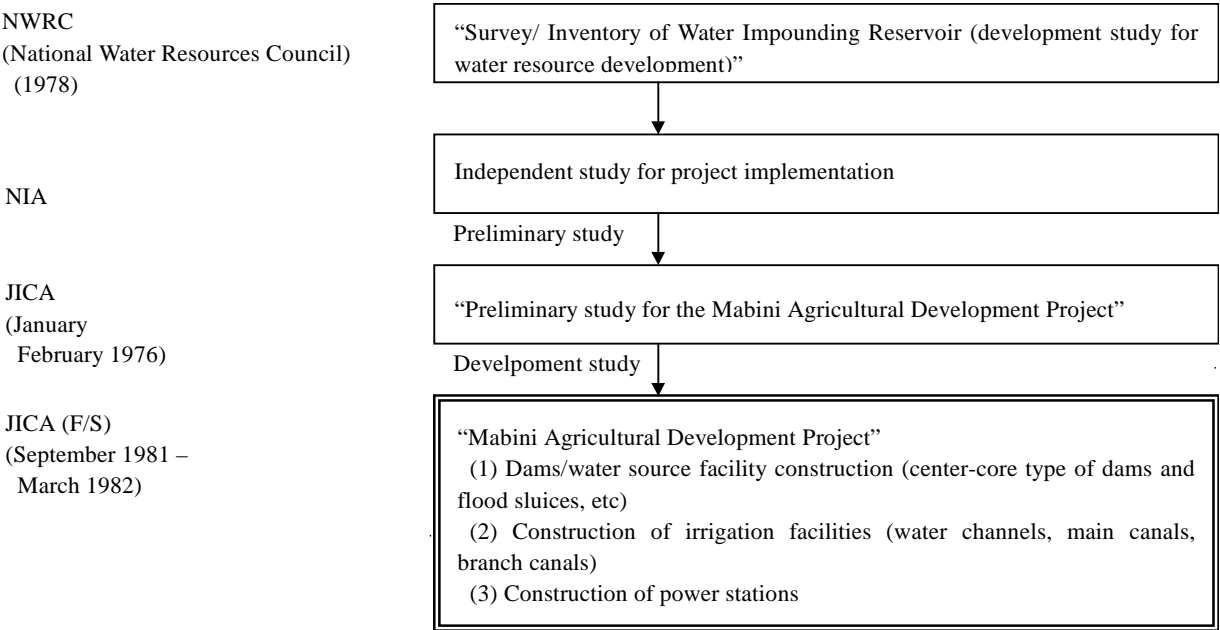
2) Historical background to implementation of the development study

This feasibility study has its origins in the “Survey/ Inventory of Water Impounding Reservoirs,” a development study on water resources conducted by the Ministry of Public Wealth and the Ministry of Transportation and Communication, following a Presidential Order in 1976. In 1979, the Small Water Impounding Management Committee was established to put the development study’s results to practical use in a well-coordinated manner.

The National Irrigation Administration (NIA) was one of the agencies available to chair this Committee. Subsequently, NIA became the implementation body for the five districts including Mabini, and secured the agreement of the Committee for project support.

In April 1980, the Philippine government made an official request. In January 1980, the preliminary study team was dispatched to implement this feasibility study.

Fig. 4-2: Historical development of the Mabini Agricultural Development Project



3) Project implementation

Although this feasibility study has not been implemented in a project form, it has attracted the attention of the China Chen South American Construction Contractor Co., Ltd. A next-stage study has just been implemented. According to NIA, when it receives the study report, checks the contents, and confirms that standards are met, the projects proposed through the report will receive priority status. And then, NIA will submit the report to the National Economic and Development Authority (NEDA). If it is approved by ICC (Investment Coordination Committee), the project will be started with loans from China.

(3) Conclusions derived from the evaluation results

In terms of the implementation stage of the study, conditions for the technology transfer were not adequate. Specifically, it has been pointed out that lack of communication due to insufficient linguistic capabilities on the Japanese side hampered the progress of technology transfer, and that both sides failed to implement studies for the purpose of technology transfers.

Even after implementation, proposals from this F/S were not put to practical use. This was primarily due to a policy change in irrigation development projects in the early 1980s, under which emphasis shifted from construction of new irrigation facilities to repair of existing facilities. Still, the possibility of new loans from China has emerged so that projects that have lost their relevance are likely to be implemented in the future.

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

(1) Efficiency

1) The review of the final report indicates that this feasibility study covers roughly the scope of study shown in the S/W.

2) According to a C/P who participated in the study, NIA participated in the required operations; however, its contributions seemed to be limited to data collection, drawings, and calculations, etc. As for the Japanese team members, it was reported that they did not have sufficient communication capabilities.

3) Technology transfer and communication are largely dependent on relationships between the Japanese and Philippine members. Some reported that the strong intention of the Japanese side to succeed in such technology transfers and the willingness of the Philippine side to accept them are essential to implement the study.

4) Based on an assessment of the final report, sufficient data were collected while the study was underway.

(2) Effectiveness

1) The report proposed a large-scale project (covering an area of 11,500ha) for improvement of irrigation facilities and construction of dams. Because priority as a national project was maintained, and because this feasibility study was implemented on the precondition that it would attract overseas donors, the Philippine side should have been sufficiently capable of handling the project in terms of both finance and scale if conditions had not been changed. However, in the early 1980s, policies for irrigation development projects were changed, giving priority to small-to-medium-sized projects rather than large-scale ones. Project implementation was thus suspended without any means of raising necessary funds.

2) The report is appropriately structured as a feasibility study report and is easy to understand. As for content, although descriptions of infrastructure improvements, including project site reviews, construction of dams and irrigation facilities, and technical feasibility, etc., all appear to be sufficient, while the descriptions of maintenance and management systems after implementation and of environmental effects are insufficient. This is partly because the

study's scope did not satisfy any need to formulate maintenance and management plans.

(3) Impact

1) NIA positioned proposals of this feasibility study as priority projects. The Corporate Plan (1983 - 1992) indicating the development policies of NIA includes them in a list of national projects. However, in the early 1980s, the Philippine government changed its policies in such a way that smaller projects could be prioritized rather than larger projects, which made it impossible to determine priorities. The proposals were thus shelved without appropriate fund-raising means.

2) At present, this feasibility study has attracted the attention of the China Chen South American Construction Contractor Co., Ltd. A next-stage study has just been implemented. The report will be submitted to NIA. If NIA finds it to satisfy requirements, it will be positioned as a priority project. The report will then be sent to NEDA, and it is expected that the proposed project will be implemented using loans from China.

(4) Relevance

1) The implementation period of this feasibility study overlapped with the "Mid-term Development Plan (1978 - 1982)," and the study's content was consistent with that of the Plan. This Mid-term Development Plan was primarily aimed at creating more employment opportunities in farming villages and increasing income levels in farming households in the long run; and at improving productivity in cereals and maintaining a stable food supply in the short run. Through implementation of irrigation facility/dam construction plans based on this feasibility study, the Plan expects "stable expansion of rice cultivation, increased income of farming households, and improved employment opportunities." ⁴ For the effects listed in the report as indirect benefits, provisional calculations for increased farming-household income and employment opportunities are provided.

Furthermore, for irrigation, the Mid-term Development Plan emphasizes the needs for the expansion of irrigation facilities in order to enhance rice production so as to counter growing demand for rice in the future. In this sense, the Plan is consistent with plans to secure irrigation water and expand irrigation facilities as proposed in this feasibility study.

2) Although hearings with farmers seem to have been conducted during the implementation process of this feasibility study, they failed to clarify the needs of the beneficiaries.

3) As the preliminary study report indicates that farmers and the Provincial authorities strongly expected triple-cropping ⁵, it is clear that the expectations of farmers and the Provincial authorities were understood at least at the preliminary stage. In this regard, the preliminary study report assesses the possibilities of project expansions to realize triple-cropping as well as accompanying financial concerns, and concludes that double-cropping will be appropriate for the first stage.

4) As stated earlier, after implementation of this feasibility study, priority shifted in the early

⁴ Preliminary study report on agricultural development plan in the Mabini district in the Philippines, p.5, Japan International Cooperation Agency, May 1981.

⁵ Ditto, p.31

1980s from large-scale irrigation projects to small-to-medium-sized irrigation plans. Once this occurred, the plan bore little relevance to the project implementation. However, there are possibilities for even large-scale projects to be implemented in the BOT format with the assistance of foreign capital or funds from the private sector. In fact, as introduced earlier, there is a possibility for project implementation with loans from China.

(5) Sustainability

Sustainability cannot be reviewed, as no projects have yet been implemented.

4-3 Improvement Project for the Operation & Maintenance of National Irrigation Systems (AMRIS, 18 Districts) (F/S)

4-3-1 An overview and background of the study project

(1) An overview of the development study

This feasibility study covers the AMRIS irrigation district (35,000ha), and is intended to improve existing irrigation facilities and formulate project plans for maintenance and management of irrigation systems. The following is an overview of the development study.

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: Sanyu Consultants Inc.;
Kyowa Engineering Consultants Co., Ltd.

(2) Background of development study implementation

The AMRIS irrigation district (35,000ha), the target area of this feasibility study, covers the Bulacan and Pampanga Provinces. About 80% of the district is in the Bulacan Province. In both provinces, agriculture is the primary industry, constituting part of the granary in the Middle Luzon Plain. Irrigation projects in the Middle Luzon Plain have long been introduced by NIA. In the 1960s and 1970s, active project efforts focused on large-scale reservoirs and irrigation facility improvements increased the irrigation ratio from 36% in the 1960s to about 50% in the 1980s. ⁶ As of 1980, the irrigation ratio in the paddy fields of the Bulacan Province, part of the target area of this feasibility study, stood at 70%; and that in Pampanga Province at 71%. Both figures are higher than those for other areas in the country.

This feasibility study was conducted to formulate project plans for improving existing irrigation facilities and enhancing maintenance and management systems for irrigation, rather than for constructing new irrigation facilities in the AMRIS irrigation district⁷. The district itself contains a relatively broad irrigation area with a long history of irrigation facility improvements.

⁶ The figure is for five provinces in the Middle Luzon Plain; Kenzo Horii, Takashi Shinoda, Hirokazu Tada, "Irrigation Systems in Asia," Shinhyoron 1996, p.85.

⁷ Irrigation areas equipped with large reservoirs are the Upper Pampanga Irrigation District (UPRIIS), the Angat-Masim Irrigation District (AMRIS), and the Magat Irrigation District (MARIS). This feasibility study covers the Angat-Masim Irrigation District.

1) National Development Plan

This feasibility study was conducted during the Mid-term Development Plan (1983 – 1987: established in May 1982). This Mid-term Development Plan established the following primary goals for the agricultural sector:

- i) Increasing food production to respond to the Philippines' increasing population and improving nutrition-intake levels.
- ii) Increasing incomes of farming households.
- iii) Increasing agricultural production to obtain more foreign currency.

However, due to the sluggish international price levels for agricultural produce and natural disasters such as typhoons and droughts, the Philippines, which depends on agricultural exports for much of its foreign currency, suffered an unfavorable balance of trade. In 1984, it even needed to import rice from abroad. Under these circumstances, a Revised Mid-term Development Plan (1984 - 1987) was issued. Goals in the agricultural sector remained largely unchanged, but the Revised Plan introduced a new emphasis: how improved productivity in the agricultural sector could contribute to overall economic recovery. In terms of irrigation infrastructure projects, the following points were emphasized:

- i) Repairing existing irrigation facilities (instead of new development projects) and improving water and irrigation facility management to reduce project costs, as a means of increasing rice production.
- ii) Promoting implementation of regional irrigation development plans, to rectify regional differences in supply and demand of rice.
- iii) Promoting production of agricultural produce other than rice.

2) Historical background to implementation of the development study

The irrigation systems in the Angat and Masim River basins covered by this feasibility study are among the oldest irrigation facilities in the Philippines. Prior to implementation of this feasibility study, irrigation facilities were already been in place, and projects to improve existing facilities and water management had been implemented using ADB loans.

The ADB project, “Angat-Magat Integrated Agricultural Development Project (AMIADP)” started in 1973, following a 1968 request for technical assistance by the Philippine government. ADB decided to provide loans for irrigation facilities in the Angat District (26,400ha) and the Magat District (34,185ha), which were the largest and most modern at the time. The objectives were to expand irrigated areas both for the wet and dry seasons, by improving the existing facilities and water management systems.

This initiative increased the total beneficiary area in the Angat District under this feasibility study from 26,400ha before the project to 35,000ha after its implementation.

3) From the request for this feasibility study by the Philippine government to its implementation

When the Philippine government requested that this feasibility study be implemented in June 1981, repair projects had already been conducted at 76 national irrigation systems out of 117

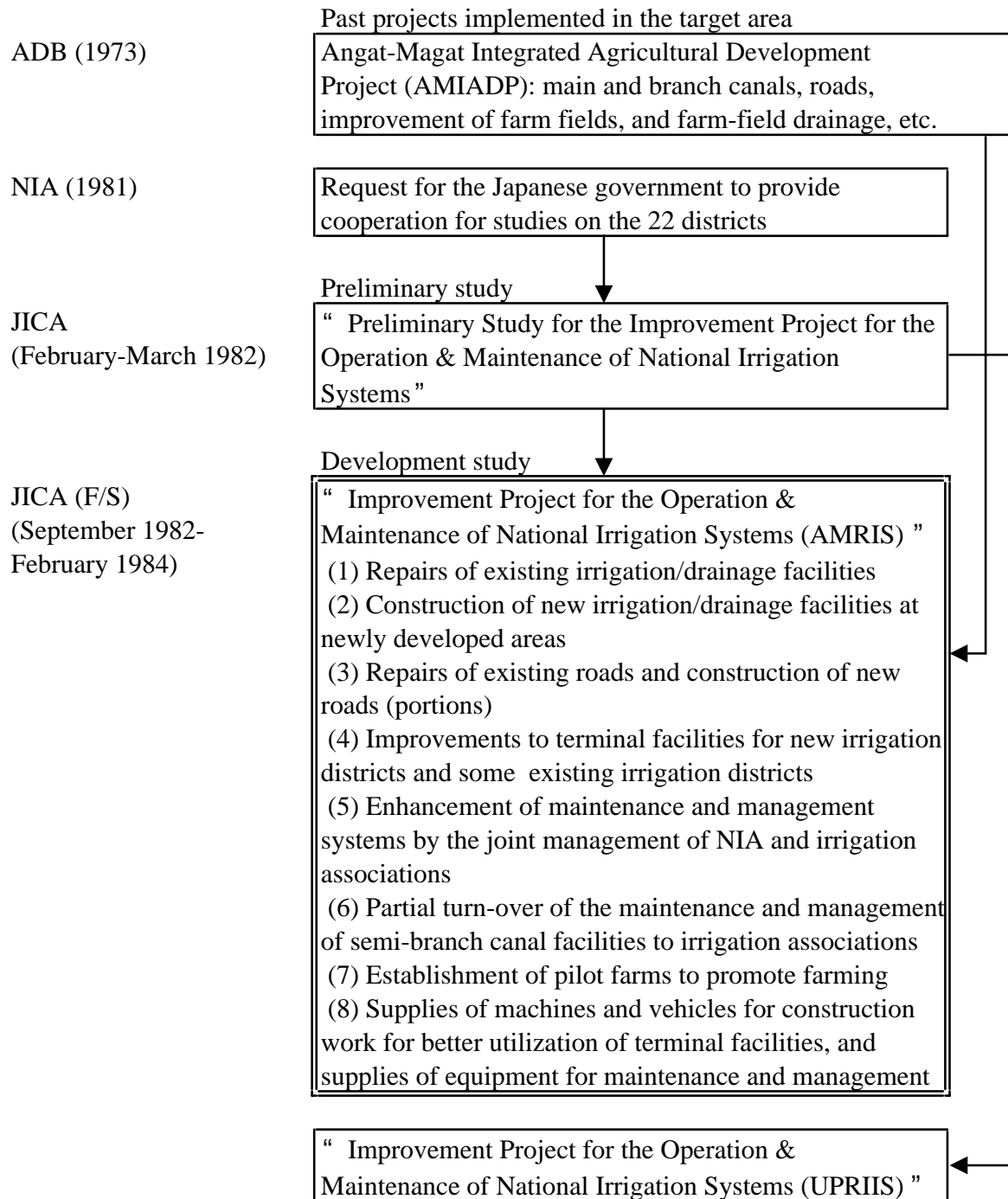
districts, using loans from IBRD, etc. The Philippine government requested the Japanese government to provide assistance for 22 of the 41 districts requiring repair work, and other assistance. To respond to this request, the preliminary study team was dispatched in February 1982 to implement the “Preliminary Study for the Improvement Project for the Operation & Maintenance of National Irrigation Systems.”

The Japanese team found it difficult to cover the 22 districts in the study. Accordingly, based on priorities outlined by the Philippine side, JICA study cooperation was focused on the Upper Pampanga Irrigation District (UPRIIS) and the Angat-Masim Irrigation District (AMRIS). For the remaining 20 districts, NIA was supposed to perform studies on 18 of them in collaboration with JICA.

This feasibility study was performed in accordance with the above preliminary study, primarily designed for AMRIS district. It was also intended to assist the Philippine side to implement studies on the 18 districts.

For reference, we note that the “Improvement Project for the Operation & Maintenance of National Irrigation Systems (UPRIIS)” was also implemented in accordance with the “Preliminary Study for the Improvement Project for the Operation & Maintenance of National Irrigation Systems,” as was the case for this feasibility study.

Fig. 4-3: Historical development of the Improvement Project for the Operation & Maintenance of National Irrigation Systems (AMRIS)



4) Related plans implemented in the target area

This evaluation study failed to confirm whether proposals made under this feasibility study went directly into operation. Projects implemented after the study in the area covered by this feasibility study are as follows:

- i) Upland-field Irrigation Technology Development (Phase I)
(project-type technical cooperation, 87-92)
- ii) Upland-field Irrigation Technology Development (Phase II)
(project-type technical cooperation, 93-98)
- iii) Repair Plan for Irrigation Regulating Reservoir in the Angat River
(grant aid, 96)
- iv) Part of Irrigation Operation Support Project I (IOSP I)
(World Bank loan, 88-92)
- v) Part of Irrigation Operation Support Project II (IOSP II)
(World Bank loan, 93-00)
- vi) Part of Water Resource Development Program (WRDP)
(World Bank loan, 97-02)

The “Upland-field Irrigation Technology Development” (project-type technical cooperation, Phase I (87-92); Phase II (93-98)) aimed to help improve irrigation project management by diversifying crops and enhancing utilization rates of irrigation facilities through technology transfers for upland-field irrigation. Project activities included the following:

- i) Collection and analyses of information and data concerning upland-field irrigation technologies
- ii) Implementation of tests concerning upland-field irrigation at testing farms
- iii) Compilation of documented technical standards concerning upland-field irrigation
- iv) Technical training for NIA staff members

The relevant development was the use of testing sites in San Rafael, within the study’s target area.

Since the water source for AMRIS irrigation districts also serves demands for tap water in Manila, priority is given to domestic uses in dry seasons, which naturally leads to water shortages for irrigation. Thus, this feasibility study proposes to implement farm-field tests by establishing ten demonstration farm fields (each with an area of one hectare) for the promotion of upland farming/secondary cropping.

The “Repair Plan for Irrigation Regulating Reservoir in the Angat River” (grant aid, 96) was designed for repair work on the Bustos dam (head-works), part of the irrigation regulating reservoir in the AMRIS irrigation district. Improvement work on the Bustos dam (head-works) is included in the proposals of this feasibility study. This plan was implemented as emergency work on the damaged iron sector gate, caused by typhoon-related flooding.

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 NIA and

irrigation associations (IA) for more effective irrigation facility management, and ii) improving NIA's project performance through repair of irrigation facilities, etc. This project and the feasibility study are related in that the former was responsible for part of the repairs on irrigation facilities in the target area.

The "Irrigation Operation Support Project II (IOSP II)" (World Bank) (1993-2000) covers the target areas outside of 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, among other items. The IOSP II-related project implemented in the target area of this feasibility study was the construction of an emergency weir to repair the damaged Bustos dam (head-works) in 1999.

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

These targets are linked to the feasibility study since the Program conducted studies on riverhead development in the target area. The study proposes to establish separate water sources for irrigation to secure water for the AMRIS irrigation area, since the reservoir water in the upper Angat River, which is the water source for the AMRIS irrigation area, is primarily applied for domestic use in the Manila metropolitan area.

(3) Conclusions derived from the evaluation results

Due to lack of available information, efficiency concerning the collaboration between the Philippine and Japanese teams and the technology transfers cannot be assessed. A review of the report for this feasibility study indicates that the originally intended scope specified in the S/W is properly covered. In addition, the study can be regarded as sufficient as it provides explanations about adequate data and required information.

In terms of the study's target areas, activity includes Japanese project-type technical cooperation, grant aids, and certain World Bank project efforts. Although this activity is not a direct result of the study's proposals, project sites and/or target areas do partially overlap with the study's target areas.

In addition, subsequent to the implementation of this feasibility study, the policy of the Philippine government changed from an emphasis on irrigation projects in new development areas to improvement projects for existing facilities. This feasibility study also includes a small-scale expansion plan for new irrigation facilities (3,500ha).

4-3-2 Evaluation results using the five evaluation criteria

(1) Efficiency

1) A review of the final report indicates that the originally intended scope, as specified in the S/W, is properly covered.

2) In terms of the context for technology transfers during the implementation stage of this feasibility study, no relevant information has been obtained from interviews or questionnaires, as no former C/P member was contacted. In this sense, our evaluation of the feasibility study does not reflect any C/P member's opinions.

3) No basis was available for determining whether sufficient basic data were available before implementation of the study; however, in the AMRIS irrigation district with its long history of irrigation development, the information already obtained seems to be more properly organized than that for other irrigation districts, where little data input concerning irrigation improvements has been provided. In this feasibility study, as far as reviews of the final report and other reports indicate, analyses are conducted with sufficient data, and adequate data have been collected.

4) The "Angat-Magat Integrated Agricultural Development Project (AMIADP)" started with ADB in 1973, or nine years prior to implementation of this feasibility study. The AMRIS irrigation area is within the AMIADP's target area. AMIADP primarily targeted intangible assistance, including improvement of existing facilities and water management, along with integrated agricultural technology and assistance in systemic aspects. Its relationship with this feasibility study emphasizing infrastructure improvement might seem rather limited. However, some of the projects implemented through AMIADP laid the foundation for the infrastructure and farmers' organizations in this feasibility study. The final report of this feasibility study thus provides explanations about AMIADP operations as necessary.

(2) Effectiveness

1) The proposals of this feasibility study come in two main areas: i) infrastructure improvement projects, such as repairs of existing irrigation facilities, construction of new irrigation facilities in newly developed areas, and improvement of new terminal facilities of roads; and ii) items dealing with maintenance and management systems, such as enhancement of maintenance and management through joint management by NIA and irrigation associations, establishment of irrigation associations, and partial transfer of maintenance and management operations from NIA to these associations, etc.

The infrastructure improvement included repairs of irrigation facilities (35,000ha) and establishment of new irrigation facilities (3,500ha), both of which are large-scale operations. In the Philippines, national projects involving large scale and significant expenditures are usually treated as special projects, which operate on loans from financial institutions and are self-financing. Feasibility studies for the AMRIS district (as in the other target projects covered by this study) are conducted on the condition that overseas funds will be available. In other words, this feasibility study presupposed that the projects' national priority was maintained and that overseas financial institutions would become willing to be involved.

On the other hand, as for the enhancement of maintenance and management systems, as long as proposals are clearly based on the needs of the farmers in the target area, the potential for achieving them will be improved. According to the interviews conducted at NIA regional offices during this feasibility study, local farmers were actually interviewed to obtain information about their needs and problems. In addition, in the AMRIS irrigation district, while AMIADP was conducted with ADB, efforts were made to enhance farmers' organizations. Considering this background, the proposals seemed to be feasible under the leadership of NIA.

2) The report is adequately structured as a feasibility study report and is easy to understand. As for its content, the current state of the planned area is presented in terms of conditions involving irrigation facilities, drainage, terminal facilities, maintenance and management systems, agricultural institutions, and other factors. The project plans were developed based on these data. Furthermore, not only the project plans but also the project implementation systems and their maintenance and management aspects are clearly presented.

(3) Impact

1) Project plans for infrastructure improvement, as derived from this feasibility study, have not gone into operation. With the independent budget of NIA, improvements to irrigation canals are conducted as necessary. Some improved portions are included in the areas covered by this feasibility study,

2) After implementation of this feasibility study, a Farmer's Irrigation Operation Program (FIOP) was introduced in the AMRIS irrigation areas to provide support for irrigation organizations. According to the NIA regional office, the program established a Farmer's Irrigation Organization for seven plots of land of 100ha each. This program was initiated at the request of the NIA regional office while this feasibility study was implemented, and was subsequently applied in other areas.

This feasibility study also includes similar proposals for organizational enhancement, such as "establish core terminal groups by carefully considering the beneficiaries' responses through appropriate campaigns," and "establish a terminal group for each plot of about 30ha (20-25 beneficiaries) by expanding core groups".⁸ These proposals may reflect trends favored at the time by the NIA regional office, as stated above.

3) In this evaluation, in terms of the technical cooperation needed for NIA to implement evaluations of the 18 districts for the national irrigation systems which were included in this feasibility study, sufficient information was not obtained. This was due to the fact that these 18 districts are scattered around the country and that few staff members remain in NIA. Under these circumstances, no verification of impact has been attempted.

(4) Relevance

1) While the Mid-term Development Plan (1983 - 1987)⁹ is primarily intended to increase

⁸ Chapter 4, p.27, the final report of this feasibility study.

⁹ This feasibility study was conducted during the same period as the Mid-term Development Plan (1983 - 1987), established in May 1982, was in effect. The study was requested by the Philippine government in 1981, and a preliminary study was

agricultural production, this feasibility study is aimed at improving agricultural productivity through improved irrigation facilities and enhancing irrigation management systems. In this sense, this feasibility study has relevance in terms of its goal of improving agricultural productivity.

In 1984, the Philippines' balance of trade deteriorated due to sluggish international prices for agricultural products and to natural disasters such as typhoons and drought. In a sense, the feasibility study is thus consistent with the agricultural irrigation policies indicated in the revised Mid-term Development Plan. Specifically, the study is consistent with the Plan in that it aims to improve agricultural productivity through enhanced irrigation management systems and promotion of upland farming, etc., with priority given to repairs of existing irrigation facilities.

2) The year after the Mid-term Development Plan was released, or in 1983, the World Bank recommended that the NIA reduce the scale of its irrigation projects. The recommendation pointed out that international prices of rice were declining due to expected surplus production, and particularly to the somewhat excessive production of rice worldwide. The Bank also suggested that development of new large-scale irrigation facilities would be unnecessary as the Philippines had already attained self-sufficiency in rice, and that production per unit should be increased by improving existing irrigation facilities. As this feasibility study is primarily designed to improve existing irrigation facilities, it is consistent with these policies.

Furthermore, as these World Bank recommendations were already reflected in the revised Mid-term Development Plan issued in 1984, consistency should be regarded as a matter of course.

3) As for the needs of the beneficiaries, interviews with the NIA regional office revealed that farmers were interviewed during the implementation stage of the study and their needs became clear.

(5) Sustainability

As no proposal in this feasibility study has been directly implemented as a project, the sustainability of project implementation cannot be discussed. However, in terms of the organizational management of the NIA regional office, as indicated in the above example on FIOP, the fact that the NIA regional office has promoted farmers' organizations on its own suggests the office has reasonable discretion.

conducted from February through March 1982. Thus, while the Philippine government was reviewing the Mid-term Plan, the possibility of starting this feasibility study was already being considered. Under these circumstances, consistency between the Mid-term Development Plan (1983 - 1987) and this feasibility study can be verified.

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 systems¹⁰, 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

¹⁰ The largest national irrigation system in terms of area is the UPRIIS irrigation district, followed by the Magat and AMRIS irrigation districts.

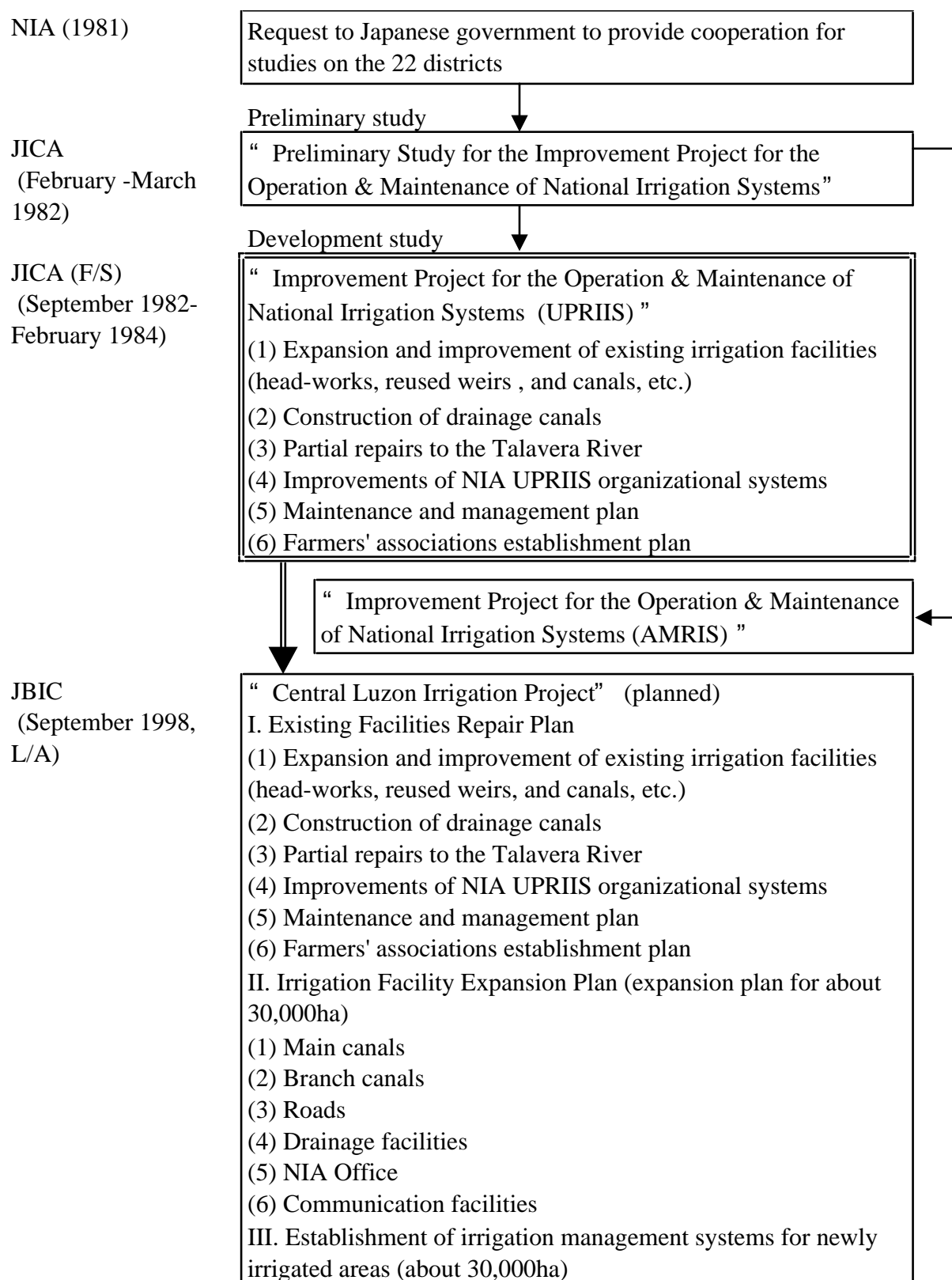
previous section. An explanation of the Mid-Term Development Plan (1983-1987) is thus omitted here.

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 using 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 Casecanan Reservoir (the water source for the UPRIS irrigation district), located at the upper reaches of the Cagayan River to the north of the Pantabacan Reservoir. The Casecanan 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 Plan¹¹.

(5) Sustainability

The proposals derived from this feasibility study are applied in the "Mid-Term Development Plan." Since the project has just been started, no verification of sustainability through implementation is yet possible.

¹¹ 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.
- 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 1986¹².

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.

¹² The ratio of irrigated area to planned irrigation area (97,400ha), as scrutinized by the MARIIS irrigation management office.

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.

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.

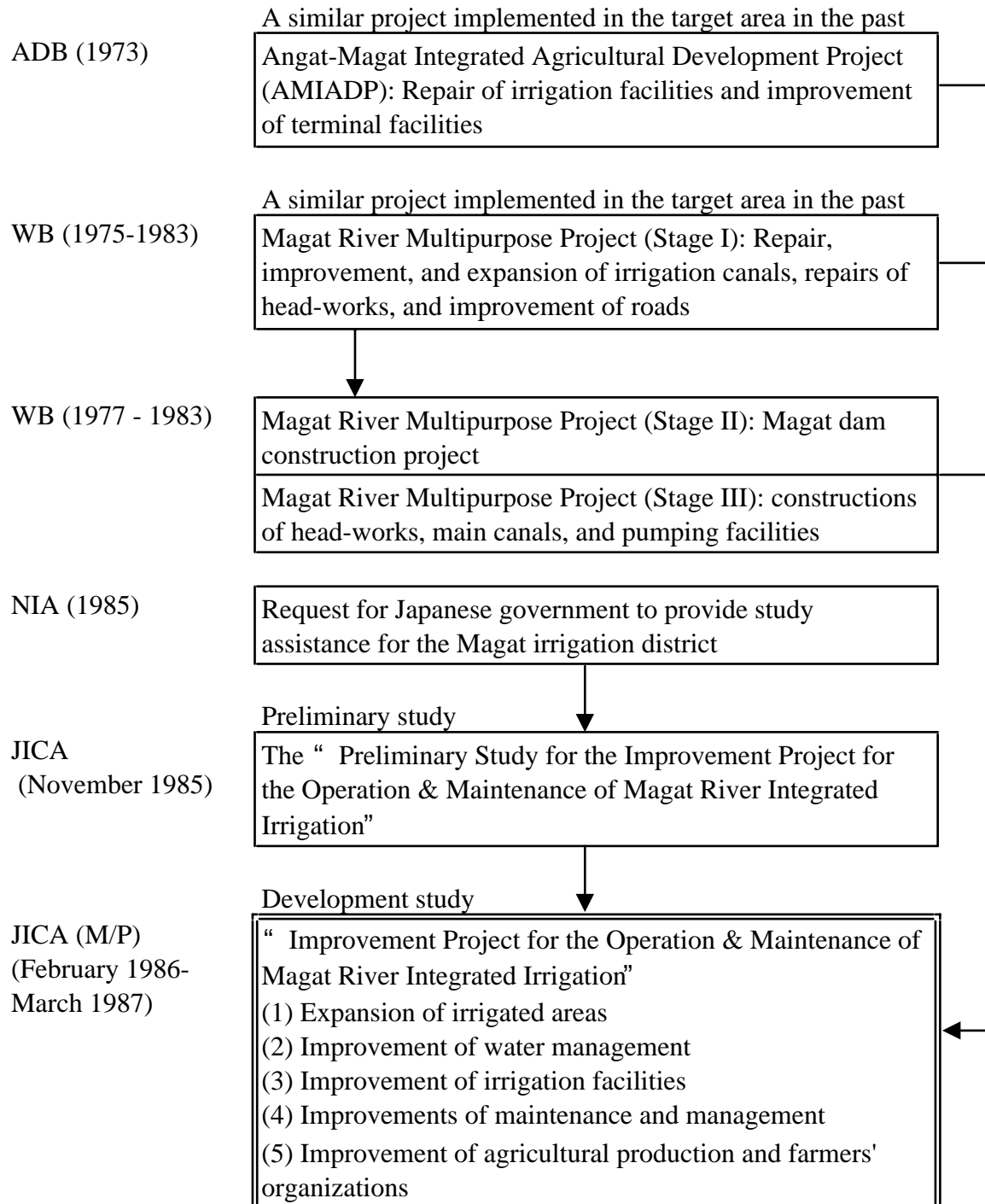
In the 1970s, projects were actively implemented with loans from international organizations. In 1973, the “Angat-Magat Integrated Agricultural Development Project (AMIADP)” was started to repair irrigation facilities and improve the terminal facilities constructed in the 1950s in the Magat irrigation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

From the perspective of cooperation between the Philippine and Japanese teams on the study implementation stage, and on technology transfers, no meaningful witnesses were available due to a lack of relevant information sources. It was thus not possible to determine the efficiency of the study.

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

(1) Efficiency

1) A review of the final report indicates that 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 implementation stage of this master-plan study, no interviews were conducted or questionnaire answer sheets collected during this evaluation study, as most of the former C/P members have already retired or transferred from NIA to other organizations. Therefore, the evaluation of this master-plan study 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 are conducted with sufficient data; in general, adequate data have been collected.

4) The target area of this master-plan study has been the scene of the “Angat-Magat Integrated Agricultural Development Plan (AMIADP),” which used ADB loans, and the “Magat River Multipurpose Project,” which used World Bank loans. Both are large-scale projects that include riverhead development and irrigation facility improvement operations, etc. The infrastructure improvements introduced by these projects laid the foundation for this master-plan study. The final report thus provides explanations about these projects’ operations, as necessary.

(2) Effectiveness

1) Proposals derived from this master-plan study can be broadly categorized into I) those for improvement plans and II) those for the agricultural sector.

Type I) proposals can be further subdivided into seven areas: i) attainment of planned irrigated area, ii) improvement of water management, iii) management of reservoir water discharge, iv) improvement of water management facilities, v) improvement of terminal facilities, vi) improvement of maintenance and management organizations and functions, and vii) securing financial sources for MARIIS maintenance and management expenses. Type II) proposals can be subdivided into four areas: i) understanding of planned irrigated area, ii) improvement of production at paddy fields, iii) enhancement of farmers’ organizations, and iv) improvement of farming fund loans.

Among these proposals, those involving so-called “hardware-related aspects” (i.e., proposals related to infrastructure improvement) take the form, for example, of item iv) “improvement of water management facilities”; software-related proposals (i.e., those related to enhancement of irrigation management systems or organizational aspects) are reflected by other items.

Unlike feasibility studies, master-plan studies usually provide overall frameworks. Accordingly, two questions arose as to whether the Philippine government can actually work

on these frameworks: i) whether the frameworks themselves are feasible; and ii) whether all items contained in a framework are feasible. From the perspective of i), the Philippine government can adequately respond to the frameworks, except for specified methods. From the perspective of ii), for the infrastructure improvement projects, for example, more detailed next-stage studies should be conducted to review project costs and feasibility to verify whether the Philippine government can really respond to them. Without these reviews, verification is impossible. Thus, evaluations of these items are not conducted here.

2) The report is adequately structured as a master-plan study and is easy to understand. The report analyzes the current status of maintenance and management in the Magat irrigation district and presents proposals in the areas of distribution of irrigation water, maintenance of irrigation facilities, maintenance/management of MIRIIS, and agriculture and agricultural promotion organizations. It also analyzes current irrigation management policies in the Magat irrigation district and presents proposals in the areas of improvement of water management, irrigation facility improvement projects, improvement of maintenance and management operations, improvement of agricultural production and farmers' organizations, and project costs and project implementation plans. The report concludes with project evaluations and recommendations.

(3) Impact

1) One example of actual activity based on this master-plan study was the implementation of the next-stage study. However, it was not confirmed whether any project was implemented in accordance with proposals this master-plan study made. As a result, there is no project directly derived from this master plan at present.

(4) Relevance

1) As stated earlier, it is necessary to confirm the contents of the revised Mid-Term Development Plan (1984 - 1987) in order to verify consistency at the implementation stage between this master-plan study and the Development Plan. The agricultural aspects of the Mid-Term Development Plan and overall plans on irrigation are as stated earlier. Priority is given to enhanced productivity of rice, enhanced collection of water utilization costs, transfer of management to irrigation organizations, and promotion of upland farming. From the perspective of irrigation infrastructure projects, the emphasis is on making repairs to existing irrigation facilities (instead of pursuing new development projects) and improving water management and irrigation facility management to increase rice production; on promoting community-based irrigation development plans, and on promoting the production of agricultural produce other than rice.

According to the documented deliberations of the preliminary study team for this master-plan study, the Philippine side did not prefer large-scale rehabilitation projects, which may incur increased expenses in the future; consequently, the team suggested an emphasis on so-called "software" (intangible) aspects such as irrigation management, etc. To reflect these intentions, the final report contains many proposals concerning intangible aspects. Consistency with the development plan can thus be seen because the proposals emphasize repairs to existing irrigation facilities (not to new development projects) and improved water management and irrigation facility management.

(5) Sustainability

Sustainability cannot be deliberated, as no projects directly driven from the F/S study were implemented.

4-6 Macroscopic evaluations of the five projects

4-6-1 Mid-Term Development Plan and agricultural irrigation policies in the Philippines

The traditional economic structure of the Philippines relied heavily on cash crops, such as coconuts and sugar cane with consequent delays in developing domestic self-sufficiency in food and supplies of food crops. However, after the “green revolution,” irrigation-based rice cultivation was initiated and production of high-yielding rice strains increased. In the 1960s and 1970s, large-scale investments were made by international organizations in improved agricultural irrigation and development of irrigation water sources, etc. As a result, irrigation coverage expanded and production of these high-yielding strains increased. By 1977, food self-sufficiency was finally attained in the Philippines.

This evaluation covers plans, such as the “Ilocos Norte Irrigation Project” (1978 - 1980) and the “Mabini Agricultural Development Project” (1981 - 1982), implemented after food self-sufficiency was attained. The then-current Mid-Term Development Plan (1981 - 1982) emphasized the need for more irrigation facilities to respond to projected rising demand for rice. To respond adequately to these circumstances, development studies formulated plans for expanding water sources and developing new irrigation facilities to increase irrigation coverage.

Subsequently, in the early 1980s, the Philippines suffered a deteriorating balance of trade brought on by sluggish market conditions for agricultural produce, a key source of foreign currency. In 1983, the World Bank thus recommended that the country reduce the scale of its irrigation developments, stating that it would be more appropriate to increase production per unit by improving existing irrigation facilities rather than by expanding irrigation coverage through large-scale irrigation development projects. The Bank felt that excess domestic production of rice could be expected in the future, as self-sufficiency in rice had already been attained.

Under these circumstances, three projects were implemented: the “Improvement Project for the Operation & Maintenance of National Irrigation Systems (AMRIS, 18 Districts),” the “Improvement Project for the Operation & Maintenance of National Irrigation Systems (UPRIIS),” and the “Improvement Project for the Operatin & Maintenance of Magat River Integrated Irrigation.” Over the same period, the Mid-Term Development Plan (1983 - 1987) was in effect. The year after the Mid-Term Development Plan was announced, however, the above-noted deterioration in economic conditions prompted the release of a Revised Mid-Term Development Plan (1984 - 1987). This latter plan introduced an irrigation policy emphasizing productivity improvement through repair of existing irrigation facilities and enhanced water management and irrigation facility management. The AMRIS, UPRIIS and Magat projects thus seek, in contrast to the previous two plans, productivity increases through planned projects to repair existing irrigation facilities and enhance maintenance and management systems, instead of through greater use of newly developed irrigation facilities.

In 1986, the EDSA Revolution led to the demise of the 20-year-old Marcos rule and the birth of the Aquino regime. In the next year, a new Mid-Term Development Plan (1987 - 1992) was announced. It stipulated that 60% of the budget should be allotted to repairs and

modifications of existing facilities, with the remaining 40% used for new irrigation facilities.

In 1993, when the Aquino administration's term ended, the Ramos regime took office. That same year, the next Mid-Term Development Plan (1993 - 1998) was announced.

In terms of policies on irrigation infrastructure, the Plan designates the development and expansion of new irrigation facilities as a priority item. Implementation of large-scale irrigation projects was somewhat suppressed in the early 1980s, but this latest Plan introduced a shift toward a more expansion-oriented stance. Against this backdrop, in 1996, construction of the Casecnan Reservoir using BOT began, and an L/A was signed for the "Central Luzon Irrigation Project" of JBIC, which partly uses this reservoir as a water source. Some components of the Central Luzon Project included projects proposed by the "Improvement Project for the Operation & Maintenance of National Irrigation Systems (UPRIIS)."

Table 4-1: Five Projects and the Mid-term Development Plan in the Philippines

1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	88	89	90	91	92	93	94	95	96	97	98	
Mid-term Development Plan (78-82) * Established in September 1977																					
					Mid-term Development Plan (83-87) * Established in May 1982																
					Revised Plan (84-87) * Revised in September 1984 due to a deteriorating balance of trade																
										Mid-term Development Plan (87-92) * Established in November 1986, subsequent to a change in national administration											
																		Mid-term Development Plan (93-98) * Established in December 1992			
Ilocos Norte Irrigation Project																					
(Study period)											(Project implementation)										
Mabini Agricultural Development Project (Study period)																					
Improvement Project for the Operation & National Irrigation Systems (AMRIS, 18 Districts) (Study period)																					
Improvement Project for the Operation & National Irrigation Systems (UPRIIS) (Study period)											(Project implementation)										
Improvement Project for the Operation & Maintenance of Magat River Integrated Irrigation (Study period)																					

Mid-term Development Plan (1978-1982)	Mid-term Development Plan (Revised) (1984-1987)	Mid-term Development Plan (New) (1987-1992)	Mid-term Development Plan (1993-1998)
Agriculture and irrigation	Agriculture and irrigation	Agriculture	Irrigation (water resources)
Expansion of irrigation facilities to increase rice production in response to increasing demand for rice: i) Land allotment suitable for crop characteristics ii) Repair of existing facilities and improvement of irrigation management while expanding irrigation facilities	i) Enhancement of rice production on a commercially feasible basis ii) Transfer of maintenance and management responsibilities (O&M) to agricultural associations (IA), to enhance collection of water utilization fees and make water utilization more efficient iii) Linkage with public-health promotion projects to reduce the incidence of water-caused illnesses likely to be generated in the irrigated areas iv) Promotion of upland farming to reduce demand for water	i) Increased income levels of small-scale farmers ii) Improved agricultural productivity iii) Equitable distribution of generated profits iv) Food self-sufficiency to improve nourishment levels v) Increased agricultural employment in farming villages vi) Facilitation of distribution of agricultural produce	i) Comprehensive development for irrigation, power generation, flood prevention, domestic and industrial uses of water ii) Improved collection methods for water utilization fees iii) Riverhead-area development and water
Irrigation infrastructure	Irrigation infrastructure	Irrigation infrastructure	Irrigation infrastructure
i) Expanded irrigated areas through irrigation development ii) Improved water and irrigation management systems	i) Priority to repairs of existing facilities, rather than to new facility development; and improvement of water management and irrigation facility management to reduce project costs, and ultimately to increase rice production. ii) Locally-based irrigation development plans to rectify regional differences in rice supply/ demand	i) Repair and improvement of existing facilities ii) About 60% of investment was allotted to repairs and improvements of existing facilities, while, the remaining allotted to development of new irrigation facilities.	i) Development and expansion of new irrigation facilities ii) Repairs of the existing irrigation facilities
Development study	Development study	Development study	Development study
Ilocos Norte Irrigation Project (1) Irrigation and drainage (construction of dams, head-works, and irrigation/drainage canals) (2) Improvement of farm fields (construction of small-scale drainage canals within farm fields) (3) Roads (servicing roads along main and branch canals, and those connecting villages) (4) Power generation (construction of power stations to promote electrification of the Ilocos district) (5) Agricultural development plans (irrigated agriculture with double cropping of high-yielding varieties of paddy rice, and cultivation of cash crops in dry seasons) (6) Farmers' organization plans (establishment of farmers' organizations, such as maintenance/management organizations and agricultural cooperatives, etc.) Mabini Agricultural Development Project (1) Construction of dams and riverhead facilities (center-core type of dams and flood sluices) (2) Construction of irrigation facilities (water channels, as well as primary and branch canals) (3) Construction of power stations	Improvement Project for the Operation & National Irrigation Systems (AMRIS, 18 Districts) (1) Repairs of existing irrigation/drainage facilities (2) Construction of new irrigation/drainage facilities in newly developed areas (3) Repairs of existing roads and partial construction of new roads (4) Improvement of terminal facilities at newly irrigated areas and parts of existing irrigated areas (5) Enhancement of maintenance and management systems through the joint management of NIA and water utilization associations (6) Partial transfer of maintenance and management responsibilities for semi-branch canal facilities to irrigation associations (7) Establishment of pilot farms to promote upland farming (8) Construction works to promote terminal facilities Improvement Project for the Operation & National Irrigation Systems (UPRIIS) (1) Expansion and improvement of irrigation facilities (head-works, reused weirs, and irrigation canals, etc.) (2) Construction of drainage canals (3) Partial repairs of the Talavera River (4) Improvement of the NIA UPRIS system (5) Maintenance and management plans (6) Farmers' organization establishment plans Improvement Project for the Operation & Maintenance of Magat River Integrated Irrigation	No case covered by this study	No case covered by this study

- | | | |
|---|--|--|
| (1) Expansion of irrigated areas
(2) Improvement of water management
(3) Improvement of irrigation facilities
(4) Improvement of maintenance and management
(5) Improvement of agricultural production and farmers' organizations | | |
|---|--|--|

4-6-2 Discussions on external factors

As the five development studies under evaluation were primarily designed to formulate project plans to improve irrigation infrastructure, the crucial point in determining the studies' utilization levels is whether they have successfully been developed into projects. Four of the five studies have been developed into projects and the following two went into operation:

1. "Ilocos Norte Irrigation Project" (development study)

Implemented projects: "Ilocos Norte District Outskirts Irrigation Facility Plan"
(grant aid, 1980 E/N)

"Ilocos Norte Irrigation Plan (Stage I)" (loan aid, 1980 L/A)

2. "Improvement Project for the Operation & Maintenance of National Irrigation Systems (UPRIIS)"

Implemented project: "Central Luzon Irrigation Project" (loan aid, 1998 L/A)

In addition, among the target development studies, there are two in which project inputs were conducted with financial assistance from international organizations or from Japan that was directed within, or in relation to, the target area (i.e., cases of indirect utilization). These are as follows:

1. "Improvement Project for the Operation & Maintenance of National Irrigation Systems (AMRIS, 18 Districts)"

Related projects:

"Upland-Field Irrigation Technology Development (Phase I)"
(project-type technical cooperation, 87-92)

"Upland-Field Irrigation Technology Development (Phase II)"
(project-type technical cooperation, 93-98)

"Repair Project for Irrigation Regulating Reservoir in the Angat River"
(grant aid, 96)

Part of "Irrigation Operation Support Project I (IOSP I)"
(World Bank loan, 88-92)

Part of "Irrigation Operation Support Project II (IOSP II)"
(World Bank loan, 93-00)

Part of "Water Resource Development Program (WRDP)"
(World Bank loan, 97-02)

2. “Improvement Project for the Operation & Maintenance of Magat River Irrigation”

Related Projects:

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

As for those plans other than the “Ilocos Norte Irrigation Project” and the “Improvement Project for the Operation & Maintenance of National Irrigation Systems (UPRIIS),” several reasons can be cited why they were not directly utilized:

- 1) Overwhelming financial restrictions
- 2) Policy changes by the Philippine government
- 3) Reduced priority being assigned to projects covering districts into which certain inputs have already been made, as a means of ensuring equitable regional allocation of development benefits.
- 4) Failure to win donor interest for projects identified as high priority by the Philippine government.

Of these four factors, policy change (reason #2) was a key factor in the non-utilization of the “Mabini Region Agricultural Development Project.” The proposals in this feasibility study included construction plans for irrigation facilities covering over 10,000ha. However, after the study was completed, the Philippine government changed its policy emphasis away from large-scale expansion of irrigation facilities and toward repairs to existing facilities, in a move linked to the nation’s deteriorating balance of trade (brought on by fluctuating conditions in the agricultural markets). Consequently, the projects were not implemented.

Meanwhile, both the “Improvement Project for the Operation & Maintenance Irrigation Systems (AMRIS, 18 Districts)” and the “Improvement Project for the Operation & Maintenance of Magat River Integrated Irrigation” were at least partly affected by reduced national priority for areas already receiving other projects inputs (reason #3). Both areas received support from the World Bank’s IOSP effort and from the WRDP. Indeed, areas covered by the AMRIS plan received emergency repairs on head-works through Japanese grant aid as well as project-type technical cooperation for experimental farm fields.

The first factor (i.e., financial restrictions) was the most common, and applied to almost all projects under evaluation which were not implemented.

For the second factor (i.e., policy changes), the “Mabini Region Agricultural Development Project” is a representative example. The proposals in this feasibility study included construction plans for irrigation facilities covering over 100,000ha in area. However, after the study was completed, the Philippine government changed its policy emphasis from large-scale expansion of irrigation facilities to repairs to existing facilities, due to a deteriorating balance of trade, causing the projects not to be implemented.

The third factor (i.e., reduced priority for projects covering districts in which certain inputs

have already been made) was relevant both to the “Improvement Project for the Operation & Maintenance of National Irrigation Systems (AMRIS, 18 Districts)” and the “Improvement Project for the Operation & Maintenance of Magat River Integrate Irrigation.” Areas covered by these projects also received inputs by the World Bank’s IOSP effort and WRDP. With the AMRIS plan specifically, the same areas were targeted for emergency repairs on head-works by Japanese grant aid and by project-type technical cooperation, which seems to have further lowered priority.

At the same time, several factors were considered favorable for implementation in the projects under evaluation:

- 1) Project implementation was prompted by the urgent needs of farmers.
- 2) Operations were prompted by joint implementations with other projects.

An example of 1) is the “Ilocos Norte Irrigation Project.” According to some information sources, farmers’ needs in the target area were growing, which laid the foundation for successful implementation of the project. The high probability of success elicited support from provincial governments, and further raised the plan’s national priority.

The representative example of 2) is the “Improvement Project for the Operation & Maintenance of National Irrigation Systems (UPRIIS).” At the time of this feasibility study’s implementation, the emphasis was on repairs to existing facilities rather than expansion of new irrigation facilities. The study’s proposals thus did not include new expansion projects. However, when the “Central Luzon Irrigation Project” (1998, L/A) was adopted, the Mid-Term Development Plan emphasized the expansion of new irrigation facilities. The main project thus included a component calling for expansion of new irrigation facilities, in addition to one for securing water sources in the north. At the project’s implementation stage, a component calling for repair of existing facilities was included as part of the proposals in the feasibility study, thus leading to the projects’ implementation.