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1. ミニッツ (合同評価報告書)

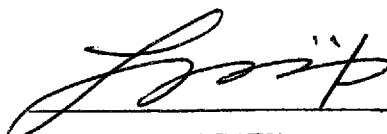
**THE MINUTES OF UNDERSTANDING
BETWEEN THE JAPANESE EVALUATION TEAM AND
THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF
THE REPUBLIC OF THE PHILIPPINES
FOR
THE BOHOL INTEGRATED AGRICULTURE PROMOTION PROJECT**


With about three months left to the termination of cooperation term of Bohol Integrated Agriculture Promotion Project (hereinafter referred to as "the Project") on July 26, 2001, which started on November 11, 1996, as stated in the Record of Discussions (hereinafter referred to as "R/D"), the Japanese Evaluation Team organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Mr. Kazuo NAKAGAWA, visited the Republic of the Philippines, in order to conduct an overall review and evaluation of the performance of the Project. In order to achieve this, a Joint Evaluation Team (hereinafter referred to as "the Team") was formed consisting of the aforementioned Japanese Team and the Philippines Evaluation Team headed by Ms. Marina T. HERMOSO, Chief, Planning Division, Regional Field Unit 7, Department of Agriculture.

The Team conducted interviews with the Japanese experts and the Philippine counterparts assigned to the Project, had a series of discussions with the authorities concerned of the Government of the Republic of the Philippines, made field surveys and exchanged views among themselves.

Mr. Ernest M. ORDOÑEZ, Undersecretary, Department of Agriculture, received and agreed the joint evaluation report which is submitted by the team, attached hereto.

Tagbilaran, July 26, 2001


KAZUO NAKAGAWA
Leader
Japanese Evaluation Team,
Japan International Cooperation Agency


ERNESTO M. ORDOÑEZ
Undersecretary
Department of Agriculture
Republic of the Philippines


**THE MINUTES OF MEETING
OF JOINT EVALUATION
ON THE JAPANESE TECHNICAL COOPERATION
FOR
THE BOHOL INTEGRATED AGRICULTURE PROMOTION PROJECT**

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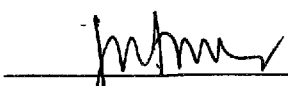
The Team conducted interviews with the Japanese experts and the Philippine counterparts assigned to the Project, had a series of discussions with the authorities concerned of the Government of the Republic of the Philippines, made field surveys and exchanged views among themselves.

As a result of discussions, the Team agreed upon forwarding to their respective governments the Joint Evaluation Report which is attached hereto.

Tagbilaran, July 26, 2001



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Japanese Evaluation Team,
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**JOINT EVALUATION REPORT
ON THE JAPANESE TECHNICAL COOPERATION
FOR
BOHOL INTEGRATED AGRICULTURE PROMOTION PROJECT**

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1. INTRODUCTION

The Government of the Philippines was faced with an enormous task of ensuring food security for the whole country, not only in the light of the national situation but also internationally. Primary to this is sufficiency in its staple food, rice and corn. The Department of Agriculture has embarked on the Key Production Area approach as an intervention to address the problem in increased food production. In stepping up its efforts, the elements such as infrastructure support, technology, marketing support necessary to enhance food production were in place.

Bohol, as the only Key Grains Area (rice) of the Central Visayas, plays a key role in ensuring regional self-sufficiency. However, to improve technologies integrating production, post production technology, linkages and collaboration among the concerned agencies, etc., were required for stabilizing food self sufficiency in the region.

With this, the Center necessitated to improve its institutional, physical and technical capabilities in the new fields of expertise such as water management for irrigation systems, farm mechanization, technology transfer, improvement of rice based farming system for location specific requirements in the province and the region as well. Based on the cooperation of Bohol Agriculture Promotion Center Project by JICA from 1883 to 1990, the request for aftercare of the project was submitted in 1995.

In response to the request, the Government of Japan through JICA dispatched the Aftercare Study Team in January 1996, and it found that the request was not for aftercare of the project but for new assistance by the Japanese Government. The team agreed to prepare for the new project, and the First Long-term Study Team was dispatched in May 1996, followed by the Second Long-term Study Team in August 1996.

Based on the discussions, both parties signed the Record of Discussion (hereinafter referred to as "R/D") and the Tentative Schedule of Implementation (hereinafter referred to as "TSI") for "Bohol Integrated Agriculture Promotion Project" (hereinafter referred to as "the Project") on October 16, 1996, in order to commence a five-year technical cooperation project starting from November 11, 1996.

In the course of the Project, JICA dispatched the Consultation Study Team for the purpose of formulating the detailed TSI. In addition, the Advisory Study Team was dispatched in October 1999, for the purpose of conducting an overall review and a interim evaluation of the performance of the Project and providing technical advice for the respective activities for securing the smooth implementation of the Project.

2. OUTLINE OF THE PROJECT

In accordance with R/D and TSI in October 1996, and revised in October 1999, the outline of the Project is as follows:

(1) Project Purpose

Agricultural productivity is increased by improving management of farming activities in the Project

sub-site.

(2) Outputs

- 1) Baseline survey and monitoring can be conducted by Bohol Agriculture Promotion Center (hereinafter referred to as "APC") staff
- 2) Improved location specific technologies for a Rice-based Farming System are adopted in the Project sub-site.
- 3) Effective management of Irrigators' Association (hereinafter referred to as "IA") activities are carried out in the Project sub-site
- 4) Technical capabilities of extension workers and key farmers in Bohol are enhanced
- 5) Agricultural promotion system is improved by enhanced collaborative linkages of APC with Local Government Unit (hereinafter referred to as "LGU") and concerned organization

3. MEMBERS OF THE JOINT EVALUATION TEAM

3-1. JAPANESE EVALUATION TEAM

(1) Mr. Kazuo NAKAGAWA: Team Leader

Managing Director, Agricultural Development Cooperation Department, JICA

(2) Mr. Teruhisa NAMBA: Agronomy/ Farm Management/ Farm Mechanization

Agronomist, Ex-JICA Expert

(3) Mr. Kouichi MATSUDA: Water Management

Section Chief of Management, Irrigation and Drainage Division, Rural Infrastructure Department, Kyusyu Regional Agricultural Administration Office

(4) Ms. Maki HAMAOKA: Evaluation Analysis

Socio-Economist, Planning Department, Japan Techno Co., Ltd.

(5) Ms. Yuko ISHIZAWA: Planning Evaluation

Staff, Agricultural Technical Cooperation Division, Agricultural Development Cooperation Department, JICA

3-2. PHILIPPINE EVALUATION TEAM

(1) Ms. Marina T. HERMOSO: Agriculture

Chief, Planning Division, Department of Agriculture RFU 7

(2) Ms. Rosalina G. ALMENDRAL: Monitoring and Evaluation

Senior Specialist, Rural Development Monitoring and Evaluation Division, Project Monitoring Staff, National Economic and Development Authority

(3) Atty. Juanito G. CANGBANGAY: Local Planning and development/ Water Management

Provincial Planning and Development Coordinator, Bohol Province

(4) Mr. Michael P. CANARES: Participatory Development

Researcher, Research Center, Divine Word College of Tagbilaran

- (5) Rev. Romeo A. DOMPOR: Community Development
Executive Director, Bohol Integrated Development Foundation, Inc.

4. OBJECTIVES OF EVALUATION

- (1) To make a comprehensive and objective evaluation of the achievements of the Project with regard to the contents of R/D, TSI and other official agreements concerned. The cooperation term that is the subject of the evaluation is five years from November 11, 1996 to November 10, 2001 (including the scheduled activities and outputs).
- (2) To highlight the insights learned in the course of implementation of the Project.
- (3) To make recommendations and suggestions to the authorities of both Governments concerned with regard to the activities before and after the termination of the Project.

5. EVALUATION OF THE PROJECT

5-1. FIVE EVALUATION CRITERIA

The Team conducted the evaluation of the Project, applying Project Cycle Management (PCM) method. In evaluation according to the PCM method, the following criteria are used:

 (1) Efficiency

Efficiency of the Project implementation is analyzed focusing on the relationship between inputs and outputs in terms of timing, quantity, quality and on the linkage with other cooperation scheme of JICA and other organizations.

(2) Effectiveness

Effectiveness is assessed by evaluating the extent to which the Project has achieved Outputs and the Project Purpose.

(3) Impact

Impact of the Project is identified as positive and negative changes produced by the Project directly and indirectly.

(4) Relevance

Relevance of the Project is assessed on the validity of the Project Purpose and Overall Goal in connection with the superordinate policies and plans (eg. development policy of the Government of the Philippines), and needs of the beneficiaries.

(5) Sustainability

Sustainability of the Project is forecasted based on the organizational, financial and technical aspects by examining the extent to which the achievement of the Project is sustained or expanded after the assistance is completed.

5-2. EVALUATION METHODS

(1) Project Design Matrix for Evaluation

This evaluation was conducted by the Team which was composed of the Japanese Evaluation Team and the Philippine Evaluation Team in accordance with the R/D, the TSI and the Project Design Matrix (PDM) through report analysis, field visits, interviews and discussions with the personnel involved in the Project. The evaluation was based on the following criteria: Efficiency, Effectiveness, Relevance, Impact, and Sustainability.

PCM evaluation method requires a PDM which summarizes the framework of the Project. The PCM method has been applied throughout the period of the planning and the implementation of the Project. PDM was formulated at the start of planning, and has been revised twice during the implementation period; First during the Management Consultation Study and the second at the Mid-term Evaluation.

The Team reviewed these PDMs, other existing project documents and the information given by the members of the Project, and formulated the PDM for the evaluation of the Project (PDM_E), which is attached ANNEX 7.

(2) Evaluation Concerned to Effectiveness

PDM_E contains "Objectively Verifiable Indicators" for "Project Purpose" and "Outputs," which show the expected outcomes. The Team evaluated the "Outputs" and "Project purpose" according to the "Objectively Verifiable Indicators" at first, and considered other supplementary points which cannot be shown as indicators, if required.

Problems affecting the realization of outputs were analyzed and necessary recommendations were made.

6. RESULTS OF STUDY

6-1. EFFICIENCY

6-1-1. Quantity, Quality and Timing of Inputs

(1) Dispatch of Japanese Experts

Twelve long-term experts in six fields of specialty and 15 short-term experts have been dispatched. Almost all were as per schedule, but the delay of dispatch of the long-term expert on farm mechanization in the beginning and the vacancy for six months of the long-term expert on farm management caused a

negative influence in implementation of activities.

(2) Counterpart Training in Japan

Fifteen counterparts completed training in Japan as per schedule.

(3) Equipment provided by Japanese side

The provision of equipment was as per schedule except the delay of laboratory rice processing equipment.

(4) Supplementary Expenditure for Local costs provided by Japanese side

The Japanese side provided a part of the Project costs, in total 35,774 thousands Japanese yen, in order to implement the Project activities more effectively. This includes support fund as a counter measure against Asian economic crisis.

(5) Assignment of counterpart staff

In total, 36 counterpart personnel have been assigned properly including two counterparts from National Irrigation Administration.

(6) Provision of land, buildings and facilities

The land and facilities required for implementation of the project have been provided.

(7) Local cost borne by the Philippine side

The Philippine side has allocated a total cost of 41 million pesos for maintenance of equipment, travel expenses, wages for contractual technical personnel, etc.

6-1-2. Linkage Between Inputs and Outputs

[Japanese side]

(1) Dispatch of experts

- 1) Some long-term experts faced some difficulties in coping up with the wide coverage of responsibilities in implementing technology transfer. The short-term experts and local experts were assigned to fill up the gap.
- 2) The assignment of a few short-term experts was considered to be too short to effect full technical transfer.
- 3) The deployment of a short-term expert for IA capacity enhancement could be done in the early stage of the project.

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(2) Equipment and Machinery

Almost all the provided equipment has been well utilized and maintained.

(3) Counterpart training

Most counterparts trained in Japan continue their work in BIAPP and perform well by applying knowledge and skills gained during training.

[Philippine side]

(4) Assignment of counterpart personnel

- 1) Counterpart personnel have enough capability and experience to work with Japanese experts. In farm mechanization section, two counterparts resigned during the project period, which caused difficulties in implementing different activities.
- 2) Two additional counterparts from NIA-PIO (National Irrigation Administration-Provincial Irrigation Officer) had been assigned in water management. Institutional Development Officers (hereinafter referred to as "IDO") have been replaced by BHIPII-IDD (Bohol Irrigation Project Phase II-Institutional Development Division) after transferring the management of CIS (Capayas Irrigation System) from NIA-PIO to BHIP II. Frequent changes of IDOs under BHIPII hampered enhancement of IA management.

(5) Provision of land, buildings and facilities

Land ownership of APC is owned by Tagbilaran city government and military reservation. An arrangement is under consideration by the city of Tagbilaran, the military, with DA for 'USUFRUCT'.

(6) Provision of recurrent expenses

A new policy after Asian Monetary Crisis was introduced, the budget for fuel and travel was cut, which adversely affected the activities related to the extension.

6-2. Effectiveness

Project Purpose: Agricultural productivity is increased by improving management of farming activities in the Project sub-site

Indicator: Average rice yield in irrigated lowland in the project sub-site is increased from 2.8t/ha(1996) to 4.0t/ha by 2001.

As a result of the activities implemented by BIAPP(Bohol Integrated Agricultural Promotion Project), the average rice yield has increased and is recorded at 4.6t/ha in wet season (hereinafter referred to as "WS"), which exceeded 4.0t/ha objective. However, the record in dry season (hereinafter referred to as

"DS") 2001 is below 4t/ha.

Technologies developed by the project have been demonstrated at farmers' fields and being disseminated through Farmers Field School (hereinafter referred to as "FFS") as well as other activities. The system of rotation irrigation was established and has been implemented. Farm implements have been improved and are being disseminated to the farmers. The vegetable cultivation was introduced as activities of Rural Improvement Club (hereinafter referred to as "RIC"), which is adopted in the individual farmers' land. However, these individual technologies have not been fully integrated into a rice-based farming system.

IA management activities were revitalized owing to the establishment of Institutional Development Section in 1999. In the light of the indicators, one of the target has been achieved in terms of attendance rate of Board of Directors (hereinafter referred to as "BOD") meeting, however that of General Assembly and Farmers' Irrigators Group (hereinafter referred to as "FIG") meeting still needs to be improved. Also, the desired rate of Irrigation Service Fee (hereinafter referred to as "ISF") collection has not been attained. Hence, the management is still not as effective as desired.

As to training for extension workers and farmers, the C/P staff have already acquired capabilities in planning and implementing the programs in collaboration with the LGUs. The same kind of training can be implemented by themselves.

The linkages with the concerned agencies remained very weak because the commitment from the LGU side is not sufficient. The management of CIS by NIA-PIO has been transferred to BHIP II. However, the responsibility of maintenance remained under NIA regional office. Therefore, the management system needs to be unified.

In the light of above, the rice production in the sub-site has been increased through the dissemination of the individual technologies. But the intention of delivery this to farmers as integrated rice-based farming system remains to be worked out. The heightening of Capayas dam and draught adversely affected to the project activities. Some of the indicators have not been achieved. Therefore, the project purpose has not been achieved and it is difficult to attain within the project period.

6-2-2. Output Level

Output 1: Baseline survey and monitoring can be conducted by APC staff

- In 1996, Baseline Survey was conducted on 487 households in Capayas Irrigation Area.
- The circumstances and backgrounds of the area were utilized for planning as well as implementation, and as a baseline data for monitoring when required.
- The interim survey conducted in April 1999 supplemented a certain qualitative data.
- While the data generated and presented have some inconsistencies, BAPC staff has been observed to slowly acquire skills in the conduct of surveys and monitoring through this particular activity. Therefore, this output is considered, achieved.

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- Project activities are monitored every three months using Plan of Operation and Progress form during BIAPP management committee meeting.

Output 2: Improved location specific technologies for a Rice-based Farming System are adopted in the Project sub-site.

- In synchronous rice planting, the achievement were 93 % DS 2000, 92% WS 2000; 85 % DS 2001. Although the target is 95 %, accomplishments approximated the objective, because damage by tungro virus disease is minimized.
- Varietal screening and selection was conducted at the project sub-site and promising varieties for irrigated, rainfed and saline-prone areas were identified.
- The adoption rate of recommended varieties was more than 90 % in WS of 2000, and 86 % in DS 2001 after varietal screening by BIAPP Staff, hence the target has almost been achieved.
- Demonstration Farms showcasing improved technologies on agronomy aspects resulted to an increase in rice production among BIAPP beneficiaries. For rice-based farming system, cropping patterns such as rice-rice-mungbean, rice-onion, rice-watermelon have been initially introduced and adopted.
- A Joint System Management (JSM) of Irrigation was introduced by National Irrigation Authority (hereinafter referred to as "NIA") resulting in an agreement between NIA and IAs in February of 2000. The project assisted IAs to fulfill its obligation as reflected in the agreement. Rotational supply of water was implemented to allow everyone equal opportunity to utilize irrigation water.
- Training for APC staff as well as IA officers/members contributed to the activities under this output. Information provided by the project played an important role for dissemination of technologies and sharing the information among the related personnel.
- Some farmers have started to internalize the value of preparing simple farm plan.
- Establishment of database for the promising crops/ poultry (production and market) as probable commodity other than rice, is on going. Technologies on agronomy, farm management, water management, and farm mechanization have been disseminated but integrating these to form part of the entire rice based farming system is still in progress and cannot be achieved within the project period.

Output 3: Effective management of IA activities are carried out in the Project sub-site.

- FIG and BOD meetings are conducted regularly per month. These are considered avenues where problems are resolved such as the maintenance of lateral canals, improving collections of ISF and others. General assemblies are conducted once a year but attendance by IA members is normally low but BOD attendance was recorded to be about 80 % in three (3) of the four (4) IAs.
- ISF collection revolves around 50 per cent from the start of the project to the time of the evaluation. Efforts of the IA Officers with the support from BIAPP Staff were constantly focused on improving collection efficiency. Low payment rate was partly due to the insufficient water in the tail end portion, increasing service area and the ISF rate prescribed by NIA. With this situation an 80 per cent target

maybe too high to achieve.

- Accounting system of the IAs was improved, resulting to transparency of financial transactions.
- The IAs in the sub-site were slowly developing their own management system to make their organization viable. But it is difficult for IAs to cope with pressures and manage day-to-day operation without the guidance from the project and IDOs from NIA. Such interventions are much needed to make these organizations viable even beyond the project life.

Output 4: Technical capabilities of extension workers and key farmers in Bohol are enhanced

Only 50 % was accomplished out of the 80 % targeted extension workers in identified municipalities to be trained during the project duration, because training on rice-based farming system cannot be fully conducted since the integration of the different technologies is still in progress. Training for enhancement of technical capabilities of extension workers and key farmers has been conducted in line with identified need of LGU technicians and key farmers in congruence with thrust and programs of ATI (Agriculture Training Institute), NIA and OPA (Office of Provincial Agriculturist). Therefore, this output can be achieved once rice-based farming system is availed for dissemination.

Output 5: Agricultural promotion system is improved by enhanced collaborative linkages of APC with LGU and concerned organization

- The rate of attendance by representatives of each agency in the monthly liaison officers meeting is always more than 90%, by which the information can be shared among agencies concerned.
- BIAPP conceptualized and initiated the formation of Bohol rice network in order to exchange information and tackle common issues pertaining to rice. It has been playing an important role as a technical working group in the Provincial Food Security meeting.
- It is observed that the linkages so far has been kept based on the inputs by the Project, such as frequent visits to the sub-site, training for the extension workers and farmers, information and materials for the farming activities, etc. The team found limited commitment by LGUs. Therefore, this output has not been achieved.

6-3. IMPACT

(1) Technical impact

	Intended	Unintended
Positive	Existence of organized community – based activity to control pest and diseases on rice and vegetables.	Request for training from a high school on rotary weeder introduced by the BIAPP. Inquiries and requests from audience of radio program by which BIAPP diffuse

	<p>Existence of an organized seed production and seed distribution system which resulted to farmers internalizing the importance of using resistant and high yielding rice varieties.</p> <p>Communal gardening of RIC was replicated in other neighboring RICs and individual backyard vegetable gardening was spread to other members</p>	<p>useful technical information in Bohol.</p> <p>Watermelon production was widely spread in upland areas rather than a secondary crop after rice.</p>
Negative		

(2) Institutional impact

	Intended	Unintended
Positive	<p>Capacitated IAs with Officers, who are capable and committed to lead. (both management & financial aspects)</p>	<p>RFU 7 of Department of Agriculture started the promotion of rural development by setting up a model barangay using BIAPP experience.</p> <p>BIAPP activities strengthen the position of APC as a vital component for rice seed production and distribution system in Bohol.</p> <p>Reactivation of RICs due to group project as in the case of Communal Vegetable production.</p>
Negative		<p>Presence of a farmer group who are against IA and NIA policies.</p>

(3) Economic impact

	Intended	Unintended
Positive	Living standard of some of the targeted farmers was improved by increased rice production and farm income and reduced expenditure as a result of vegetable consumption produced from backyard gardens.	Improvement of living conditions which made possible for them to build or repair their houses in concrete materials and to purchase television set.
Negative		

(4) Socio-Cultural impact

	Intended	Unintended
Positive	Improved interpersonal relationship between farmers was also observed through BIAPP activities such as different training and community events. Empowerment of women was also seen through the involvement of more women in organizational activities such as activities of IAs and RIC.	The importance of environmental protection was recognized through tree planting in watershed area of CIS, one of the IA activities.
Negative		Though very few cases, increased time for IA activities is heavy burden for some of IA officers. Their time for income generation activities and for family is reduced, which led to a conflict in a family. Conflict among farmers was also observed. Conflict between cooperative farmer working for cropping pattern of paddy rice and watermelon and IA was intensified to extent to which extension work of counterparts to this farmer was suspended and reliable relationship between counterparts and the farmer was lost unfortunately.

6-4. RELEVANCE

Overall goal and project purpose are still in consistent with the national policy at the time of evaluation. Increase in agricultural productivity in order to realize food security and poverty alleviation has been one of the most important issues being addressed by the Philippines Government. Gintong Ani Program utilizing key production area approach (KPA), emphasized irrigated areas as KPAs for rice. Agriculture and Fishery Modernization Act (AFMA) enacted in 1997 gives priority to research and development and extension in agriculture and fisheries as a means to achieve steady growth in agricultural productivity, which was translated into MAKAMASA Program in 1998. Modernizing agriculture to raise productivity, attain food security and increase the incomes of the rural sector and empowering them still remains to be top priorities of the Arroyo Administration as embodied in the updated Medium Term Philippine Development Plan (2001-2004).

However, it should be noted that the project may not address some needs of farmer-beneficiaries such as tenancy. It was reported that some of farmers can hardly adopt new technologies due to their minimal size of the farm land and their financial capability are low and unstable even if BIAPP staff recommended new and productive technologies.

6-5 PROSPECTS FOR SUSTAINABILITY

6-5-1. PROSPECTS FOR INSTITUTIONAL SUSTAINABILITY

(1) Implementing agency

Twenty-eight (28) staff of APC is contractual charged to regular budget of APC.

After the previous project-type technical cooperation (Bohol Agriculture Promotion Center Project), all technical staff has been absorbed getting regular plantilla positions from Department of Agriculture RFU7. However, with the current government austerity measures which include among others banning on the hiring of additional personnel, sustainability is not certain. With the direction of having rice-based farming system as the focal entry point in improving farm productivity in Capayas areas, reinforcement of technical capability from the concerned agencies to cover poultry and livestock, forage and pasture management, marketing and agribusiness may be initiated in proactive collaboration with other agencies equipped with the required technical expertise.

In addition, the Department of Agriculture RFU7 is still in the process of negotiation for the continuous use of land occupied by APC.

(2) Line agency

The management of CIS by NIA-PIO has been transferred to BHIP II. However, the responsibility of maintenance remained under NIA regional office. Therefore, the management system needs to be unified.

6-5-2. PROSPECTS FOR FINANCIAL SUSTAINABILITY

(1) Implementing agency

APC as an institution for R&D/E (Research and Development/Extention) activities has been provided a regular budget by the Philippine Government enough to cover basic operating expenses. Other financial support is needed to take care of direct project costs apart from PHILRICE, Regional R & D Funds, and GMA allocations.

(2) Local Government Units

With the changing priorities of the Local Executive at the Municipal Level towards aggressive development of the agricultural sector, project complementation should include increase budgetary allocation consideration in addition to the existing three (3) extension workers presently covering the project area.

6-5-3. PROSPECTS FOR TECHNICAL SUSTAINABILITY

(1) Most technologies introduced by the Project were almost smoothly transferred to the counterparts and its effect was recognized by farmer cooperators.

(2) The operation and maintenance (O & M) of irrigation system has been disseminated to IAs during the Project implementation, but not to an extent by which IAs were able to completely understand management/operation of irrigation system by themselves. Therefore, the O & M needs to be further supported by BHIPII.

(3) The farm machinery and equipment procured under the Project, have been well maintained by the counterparts through the enhancement of maintenance level during the Project implementation, which is supposed to be assured by the counterparts in charge.

6-5-4. PROSPECTS FOR SOCIO-CULTURAL SUSTAINABILITY

(1) The presence of farmers' group in Capayas who has been opposed to IA is one of unstable factors, which may affect the smooth implementation of IA activities. Such a social issue should be monitored by BHIPII and the necessary intervention should be taken into account.

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6-5-5. PROSPECTS FOR ORGANIZATIONAL & MANAGEMENT SUSTAINABILITY

- (1) APC has worked on improving its organizational function by holding regular general meeting or meeting of senior staff. This effort has been very effective to share information among the staff and to discuss important issues.
- (2) The organizational and management level of IAs has greatly been improved with the intervention of the project. As a result, IAs are planning, budgeting, recording, and operating & maintaining by themselves. However, their management level needs further improvement through more organizational experience.

7. CONCLUSIONS

A number of constraining factors have adversely affected project implementations specifically the El Nifio and the heightening of the Capayas Dam.

In general, the project has significantly enhanced the agricultural development in the sub-site. However, the production is not stable partly because of the delayed implementation caused by the above-mentioned elements. The major concerns still to be completed by the project are (1) the integration of the improved technologies by which the productivity is expected to increase (2) the effective management of IA, and (3) the improvement of agricultural promotion system. Therefore, the project purpose will not be able to be attained within the project cooperation period, and a certain extent of assistance is required after November 2001.

8. RECOMMENDATIONS

- (1) Further assistance from the Japanese side is necessary after the 5-year project cooperation period for conducting the activities for (1) integration of the improved technologies, (2) enhancement of farmer organizations including IAs, and (3) improvement of agricultural promotion system through strengthening the linkages among the concerned agencies.
- (2) To attain the project purpose, enhanced collaboration linkages between NIA as well as LGUs are indispensable. The team recommends DA to take actions for further commitments by the concerned agencies including bugetary allocation.
- (3) It is recommended that the technologies including farm implements such as rotary weeder developed by BIAPP be intensively disseminated in and after the project cooperation period.

- (4) For integrating of the location specific technologies for rice-based farming systems, it is recommended that interactions/coordinations/collaborations be enhanced among the sections in APC.
- (5) Bohol rice network provides an opportunity for the concerned agencies to exchange information and to solve rice issues. The provincial government is requested to take the initiative in enhancing the collaborative linkages among concerned agencies for food security in the province by involving all LGUs.

9. LESSONS LEARNED FROM THE PROJECT

- (1) It is observed that the baseline survey conducted by the project has not been fully utilized. When the same kind of survey is conducted, the design and method should be well examined in advance by a specialist and the personnel assigned to the works should be appropriately trained for collecting/compiling reliable information.
- (2) To ensure rural development project success, extensive social preparation should be done in order to achieve social acceptability and to influence cultural values that results to greater cooperation and participation of beneficiaries in project activities. It may be needed that some experts on socio-cultural aspects be assigned as well as technical specialization to capacitate staff and to conduct study on interpersonal relationship in the rural community.

10. OTHERS

- (1) Team requests APC and Department of Agriculture RFU7 to take necessary actions to secure the use of land currently occupied by APC.
- (2) The Philippines government is requested to take into consideration the following areas of concern;
 - 1) staffing complement of Bohol Agricultural Promotion Center with appropriate plantilla positions
 - 2) complementation framework should be substantiated among the concerned agencies in the form of Memorandum of Understanding or Agreement
 - 3) budget allocation commensurate with the performance targets submitted by APC
 - 4) BIAPP technologies should be verified outside Capayas area
- (3) The government of Bohol with Department of Agriculture RFU7 will study on the possibility of devolving APC to Provincial LGU.

ANNEX 1. LIST OF JAPANESE EXPERTS DISPATCHED

1. Long-term Japanese Experts

NAME	ASSIGNMENT	DURATION
Naoki IGUCHI	Team Leader	Nov. 11, 1996 – Feb. 26, 1999
Masaaki NISHIGAKI	Project Coordinator	Nov. 11, 1996 – Nov. 10, 1998
Toshio SHIBATA	Agronomy Expert	Nov. 11, 1996 – Nov. 10, 1999
Hiroshi TANAKA	Water Management Expert	Nov. 11, 1996 – Nov. 10, 1999
Hiroyuki SATO	Farm Management Expert	Nov. 11, 1996 – Nov. 10, 1998
Takeaki TOMIOKA	Farm Mechanization Expert	April 9, 1997 – Oct. 31, 1999
Ryosuke ITO	Project Coordinator	Oct. 26, 1998 – Nov. 10, 2001
Kunihiro TOKIDA	Team Leader	Feb. 14, 1999 – Nov. 10, 2001
Takashi NAKAMURA	Farm Management Expert	May 20, 1999 – Nov 10, 2001
Koji YAMAGUCHI	Farm Mechanization Expert	Oct. 19, 1999 – Nov. 10, 2001
Hiroshi ONO	Agronomy Expert	Oct. 24, 1999 – Nov. 10, 2001
Yukio SUGIMOTO	Water Management Expert	Nov. 1, 1999 – Nov. 10, 2001

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2. Short-term Japanese Experts

NAME	ASSIGNMENT	DURATION
Yoshito SUZUKI	Plant Protection	Feb. 5 – 21, 1998
Toyotaka NIWA	Water Balance Analysis Specialist	Feb. 4 – March 6, 1998
Toshihiro SUDA	Farm Management Consultation Specialist	Sept. 9 – 30, 1998
Yasumasa KOGA	Post Harvest Tech. On Rice	Jan. 11 – Feb. 10, 1999
Ieko KAKUTA	Organization Management of Irrigated Association	Feb. 10 – March 6, 1999
Jun CHINEN	Video Production for Training	March 28 – April 10, 1999
Yoshito SUZUKI	Plant Protection	July 28 – August 8, 1999
Koji YAMAGUCHI	Farm Machinery and Implement Design	July 28 – August 25, 1999
Masahiro ISOMURA	Design of Irrigation Facilities and Irrigation Planning	Sept. 1 – Sept. 29, 1999
Yasumasa KOGA	Post Harvest Tech. on Rice	Oct. 19 – Nov. 27, 1999
Ieko KAKUTA	IA Strengthening/ Improvement of Mgt. Capability of IA	March 16 – April 1, 2000
Yasumasa KOGA	Postharvest Technology on Rice	April 2 – 25, 2000
Chukichi KANEDA	Farming System Research and Extension	August 6 – 26, 2000
Ieko KAKUTA	IA Strengthening/ Improvement of Mgt. Capability of IA	Feb. 15 – March 5, 2001
Yasumasa KOGA	Postharvest Operations	Feb. 25 – March 24, 2001

ANNEX 2. LIST OF PHILIPPINE COUNTERPART PERSONNEL TRAINED IN JAPAN

NAME	SUBJECT	DURATION
Ms. Efieda B. Castillon	Agricultural Cooperatives (Group Course)	May 12 – July 4, 1997
Ms. Rufa O. Doria	Irrigation Water Management (Group Course)	May 19 – Nov. 14, 1997
Mr. Edwin D. Palgan	Upland Crops Cultivation (Group Course)	July 22 – Oct. 17, 1997
Ms. Roxanna B. Epe	Post Harvest Processing (Group Course)	Aug. 28 – Nov. 18, 1997
Mr. Alexander P. Dohig	Agricultural Machinery Management (Group Course)	April 27 – Nov. 1, 1998
Mr. Felix N. Tubiano	Pest and Diseases on Rice (Individual Course)	May 25 – Sept. 2, 1998
Ms. Edna N. Yu	Irrigation Water Management (Group Course)	May 25 – Nov. 20, 1998
Mr. Hector Eldred D. Encabo	Video Production (Group Course)	Aug. 20 – Dec. 17, 1998
Engr. Eugene C. Cahiles	Institutional Management and Planning on Extension & Research Organization	May 5 – 20, 1999
Mr. Florentino M. Evasco Jr.	Soil Analysis and Improvement	May 16 – Aug. 21, 1999
Ms. Celerina T. Galorio	Upland Farming Management and Research Training Course	Oct 17 – Dec. 18, 1999
Mr. Rodrigo R. Pechon	Farm Machinery Design	Feb. 7 – Oct. 20, 2000
Ms. Rosenda R. Bucia	The Role of Agricultural Cooperatives in the Activation of the Rural Economy	May 1 – July 2, 2000
Ms. Concordia G. Damalerio	The Personnel for Agricultural Extension Planning and Management	May 8 – July 22, 2000
Ms. Wilfreda C. Malayao	Empowerment of Rural Women	Sept. 4 – Nov. 11, 2000

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ANNEX 3 LIST OF MAJOR MACHINERY AND EQUIPMENT PROVIDED BY JAPAN (Unit value $\geq 500,000$ Yen)

JFY	ITEM No.	ITEM	SPEC	MAKER	PROCU RED Nos.	DISPO SAL	EXISTI NG Nos.	FREQUEN CY OF USE	CONDITI ON	REMARKS	VALUE(J Y)	SECTION	LOCATIO N	PROC URED PLACE	DATE OF PROCUR EMENT
96	103	COPIER		PANASONIC EP7722	1	0	1	A	A		1,030,000	PM	APC	PHILI	Mar. 1997
96	104	PICK UP TRUCK	4WD,2777CC	MITSUBISHI L200	4	0	4	A	A		5,60,4000	AG,WM, Fmec, FM	APC	JAPAN	Sep. 1997
96	1	VEHICLE	DIESEL 4WD 2,800cc	MITSUBISHI PAJERO	1	0	1	A	A		2,310,000	PM	APC	PHILI	Dec. 1997
96	2	CARGO TRUCK	DIESEL 6,577cc	MITSUBISHI	1	0	1	B	A		2,800,000	PM	APC	JAPAN	Dec. 1997
97	114	GENERATOR		YAMMAR LA 100AE	1	0	1	C	A		997,000	Fmec	UBAY	PHILI	Mar. 1998
97	116	DRYER	6ton Circulate type	SAKURA SD6000	1	0	1	C	A	During seed production	1,538,000	Fmec	UBAY RICER.B.	PHILI	Mar. 1998
97	132	PROPELLER COMBINED WIND VANE AND ANEMOGRAPH		L405DT	1	0	1	A	A		1,300,000	WM	SWARD	JAPAN	Oct. 1998
97	133	LCD VIDEO PROJECTOR		LC-4300	1	0	1	B	A		856,000	FM	APC	JAPAN	Oct. 1998
98	145	BENDING MACHINE		MAXIMA V-812-6	1	0	1	C	A	During trial making period	848,000	Fmec	APC	PHILI	Mar. 1999
98	146	LATHE MACHINE	Type-16F	EXTRON 4164-690	1	0	1	C	A	During trial making period	1,240,000	Fmec	APC	PHILI	Mar. 1999
98	148	METAL SHEET ROLLER		METALEX FR-66016	1	0	1	C	A	During trial making period	550,000	Fmec	APC	PHILI	Mar. 1999
98	3	MINIBUS	DIESEL	MITSUBISHI ROSA	1	0	1	B	A		5,652,000	SWARD	APC	PHILI	Mar. 1999
98	152	WATER DISTILATION		ADVANTEC GS-590	1	0	1	A	A		798,000	AG	APC	JAPAN	Aug. 1999
98	153	TOTAL STATION		SOKKIA SET-2010	2	0	2	A	A		2,058,000	WM	APC	JAPAN	Aug. 1999
98	156	EVAPORATION METER		ERR-101	1	0	1	A	A		878,000	WM	BES	JAPAN	Aug. 1999
98	158	PRINTING MACHINE		RISOGRAPH GR3750	1	0	1	B	A		1,080,000	FM	APC	JAPAN	Aug. 1999
98	167	PRINTING MACHINE		GR2700	1	0	1	A	A		807,000	FM	APC	PHILI	Oct. 1999
99	169	SEED STORAGE			1	0	1	A	A		1,380,000	FM	UBAY SH	PHILI	Nov. 1999

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99	170	GENERATOR	9KVA	KUBOTA ASKR180	1	0	1	C	A	Standby power for Seed storage	688,000	FM	UBAY SH	PHILI	Nov. 1999
99	171	HAND TRACTOR		KUBOTA K-120	1	0	1	C	A	Land preparation period	766,000	Fmec	UBAY SH	PHILI	Mar. 2000
99	4	GENERATOR	100kw,125KV A. 1,800rpm	OLYMPIAN	1	0	1	A	A		2,484,000	PM	APC	PHILI	Mar. 2000
99	5	TRACTOR		YANMAR F-37EX	1	0	1	C	A	Land preparation period	2,800,000	Fmec	APC	JAPAN	Jun. 2000
2000	184	VEHICLE	Diesel,2,500cc	ADVEVTUR E GLX	2	0	2	A	A		2,922,000	PM	APC	PHILI	Mar. 2001
2001	185	COMPUTER FOR EDITING	733MHZ, 60GB	POWERMAC G4	1	0	1	A	A		847,000	FM	APC	PHILI	April, 2001
2001	187	HAND TRACTOR		KUBOTA K-120	1	0	1	E	A	To be used	718,000	Fmec	APC	PHILI	May, 2001
2001	188	ATOMIC ABSORPTION SPECTROPHOTOMETER		SHIMAZU Model AA-6200	1	0	1	E	A	To be used	1,921,000	AG	APC	PHILI	July, 2001

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FREQUENCY OF USE A: DAILY

- B: WEEKLY, MONTHLY
- C: USE IN SPACIFIC PERIOD
- D: 3~11 TIMES USE /YEAR
- E: IDLE

CONDITION

- A: GOOD CONDITION
- B: PRERATIONAL IN USE
- C: CONDITION FOR REPAIR
- D: UNENABLE TO USE

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ANNEX 4. LIST OF LOCAL COSTS BOENE BY JAPAN

(1,000 Yen)

	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	Total
General Local Cost	3,258	5,403	5,098	5,912	5,492	25,163
General Local Cost (Supplementary)			2,603			2,603
Local Application Program		795	173	1,648	2,759	5,375
Technical Exchange					1,472	1,472
Security measures forProject			490		671	
Total	3,258	6,198	8,364	7,560	10,394	35,774

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ANNEX 5. LIST OF PHILIPPINE COUNTERPART PERSONNEL DIRECTLY ASSIGNED TO THE PROJECT

DIVISION / SECTION	NAMES (age)	POSITION / DESIGNATION		YEAR STARTED AT BAPC	REMARKS	
		Bohol APC	BIAPP			
Management	Engr. Eugene C. Cahiles (43) Engr. Ricardo D. Oblena	Sr. Agriculturist	Deputy Proj. Manager Project Manager	Nov. 84	Feb 99 - Project Manager Feb 99 - ARD, DA-RFU7	
Agronomy	Ms. Mary Jean C. Du (37)	Agriculturist II	Section Head	Nov. 84	July 98 - started w/ the section	
	Mr. Edwin D. Paigan (38)	Agriculturist I	Unit Head-Upland	Nov. 84		
	Ms. Concepcion B. Payapaya (45)	Agriculturist II	Unit Head-Soils	Oct. 85		
	Ms. Rizalina G. Cahiles (42)	Agriculturist I	Unit Head-Vegetables	Nov. 84		
	Ms. Ma. Wencisa B. Egama (38)	Agr1. Technologist	Technical Staff	Nov. 86		
	Ms. Efeda B. Castillon (42)	Agr1. Technologist	Technical Staff	Nov. 87		
	Mr. Felix N. Tublano (35)	Agr1. Technologist	Technical Staff	Apr. 92		
	Ms. Celerina T. Galorio (41)	Agr1. Technologist	Technical Staff	Nov. 86		
	Mr. Jose M. Bunachita (47)	Agr1. Technologist	Technical Staff	Apr. 92		
	Mr. Florentino M. Evasco Jr. (44)	Agr1. Technologist	Technical Staff	Apr. 88		
	Ms. Adoracion T. dela Cruz (37)	Agriculturist II	Technical Staff	Nov. 86		
Ms. Ma. Chona E. Meleza (34)	Agr1. Technologist	Technical Staff	Nov. 86	Sep 99 - transferred to Farm Mngt. May 2000 - transferred to Farm Mngt.		
Mr. Felipe T. Apala (40)	Agr1. Technologist	Technical Staff	Nov. 86			
Ms. Rosenda R. Bucia (42)	Agr1. Technologist	Technical Staff	Apr. 92	Nov 99 - transferred to IDS		
Water Management	Mr. Antonio S. Du (40)	Agriculturist II	Section Head	Aug. 85	Nov 99 - transferred to IDS Nov 99 - transferred to IDS	
	Mr. Tito L. Castas (44)	Agr1. Technologist	Technical Staff	Nov. 86		
	Ms. Rufa O. Doria (35)	Agr1. Technologist	Technical Staff	Apr. 92		
	Ms. Edna N. Yu (34)	Agr1. Technologist	Technical Staff	Nov. 96		
	Ms. Camila A. Descallar	NIA/IDO	Technical Staff	June 97-Nov 2000		
Mr. Saturnino A. Jamio (39)	NIA/IDO	Technical Staff	June 97-Nov 2000			
Institutional Development	Ms. Rufa O. Doria (35)	Agr1. Technologist	Section Head	Apr. 92	Nov 99 - started w/ the section	
	Ms. Edna N. Yu (34)	Agr1. Technologist	Technical Staff	Nov. 99	Nov 99 - started w/ the section	
	Mr. Medardo B. Aparece (45)	Agr1. Technologist	Technical Staff	Apr. 92	Nov 99 - started w/ the section	
	Ms. Rosenda R. Bucia (42)	Agr1. Technologist	Technical Staff	Apr. 92	Nov 99 - started w/ the section	
	Ms. Wilfreda C. Malayao (32)	Agr1. Technologist	Technical Staff	Apr. 92	Nov 99 - started w/ the section	
Farm Mechanization	Mr. Sergio M. Sumaoy (46)	Agr1. Technologist	Section Head	Nov. 86	Nov 99 - started w/ the section	
	Mr. Rodrigo R. Pechon (31)	Agr1. Technologist	Technical Staff	Nov. 96		
	Mr. Rico Rommel A. Varquez (28)	Agr1. Technologist	Technical Staff	Sep. 96		
	Mr. Alexander P. Dohlg (43)	Mechanic I	Technical Staff	Aug. 85		
	Mr. Noel T. Cahiles (30)	Agr1. Technologist	Technical Staff	Nov. 96		
	Mr. Octavio R. Quipanes (44)	Heavy Eqpt. Optr.	Technical Staff	June 84		
	Mr. Marcial D. Agad (43)	Agriculturist II	Section Head	Nov. 84-July 2000		July 2000 - transferred to BAR
Ms. Roxanna B. Epe (35)	Agr1. Technologist	Technical Staff	Feb.97-May 2000	May 2000 - resigned		
Farm Management	Ms. Aurea M. Madrio (36)	Agriculturist I	Section Head	Nov. 86	Aug 97-Mar 2000 - HRMO	
	Mr. Erlindo L. Sambiacefo Jr. (41)	Agriculturist I	Technical Staff	Nov. 86		
	Mr. German M. Makiling (42)	Agriculturist II	Technical Staff	Oct. 84		
	Mr. Rolando T. Alaan (42)	Agr1. Technologist	Technical Staff	Aug. 85		
	Ms. Concordia C. Damalerio (46)	Agr1. Technologist	Technical Staff	Apr. 92		
	Ms. Ma. Chona E. Meleza (34)	Agr1. Technologist	Technical Staff	Nov. 86		Sep 99 - started w/ the section May 2000 - started w/ the section
	Mr. Felipe T. Apala (40)	Agr1. Technologist	Technical Staff	Nov. 86		
	Ms. Ma. Corazon A. Pañdol (28)	Agr1. Technologist	Technical Staff	Apr. 98		
	Mr. Abdel A. Apalok (44)	Agriculturist II	Section Head	June 84		Mar 2000 - transferred to Coord. Off. Jan 98 - transferred to PMS
	Ms. Marlene C. Cubero (44)	Sr. Agriculturist	Section Head	Oct. 91		
	Mr. Rogelio B. Davatan (40)	Agriculturist I	Technical Staff	Apr. 92		Nov 97 - transferred to SWRDS
	Mr. Medardo B. Aparece (45)	Agr1. Technologist	Technical Staff	Apr. 92		Nov 99 - transferred to IDS
	Ms. Wilfreda C. Malayao (32)	Agr1. Technologist	Technical Staff	Apr. 92		Nov 99 - transferred to IDS
	Ms. Efeda B. Castillon (42)	Agr1. Technologist	Technical Staff	Nov. 87		July 98 - transferred to Agronomy
Training & Info	Ms. Grace Ien C. Dagala (39)	Agriculturist I	Section Head	Nov. 97		
	Ms. Barbara O. Pacatang (41)	Agr1. Technologist	Technical Staff	Nov. 97		
	Mr. Hector Eldred D. Encabo (44)	AO Eqpt. Optr.	Technical Staff	Nov. 86		

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ANNEX 6. List of Budgetary Allocation by the Philippine Side

DESCRIPTION	YEAR					TOTAL
	1996	1997	1998	1999	2000	(PhP)
Contractual Labor Cost	2,234,000	2,076,000	2,076,000	3,376,000	3,376,000	13,138,000
Travelling Expenses	645,000	1,117,000	330,000	520,200	760,000	3,372,200
Communication Services	17,000	60,000	22,000	79,800	70,000	248,800
Repair & Maintenance of Gov't. Facilities	18,000	70,000	22,000	147,510	357,000	614,510
Repair & Maintenance of Gov't. Vehicles	270,000	176,000	170,000	170,000	170,000	956,000
Transportation Services	45,000	145,000	55,000	288,100	397,000	930,100
Supplies and Materials	1,631,000	1,054,000	892,000	1,136,250	1,350,000	6,063,250
Rents	-	135,000	110,000	-	100,000	345,000
Water, Illumination and Power Services	595,000	700,000	770,000	770,000	850,000	3,685,000
Training and Seminar Expenses	1,620,000	730,000	300,000	253,000	300,000	3,203,000
Taxes and Duties	-	-	-	-	300,000	300,000
Gasoline Oil and Lubricants	270,000	300,000	330,000	438,900	330,000	1,668,900
Other Services	540,000	1,200,000	1,748,000	1,800,000	1,560,000	6,648,000
TOTAL	7,885,000	7,763,000	6,825,000	8,779,760	9,920,000	41,172,760

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ANNEX 7. Project Design Matrix for Evaluation (PDM_E)

Project Design Matrix(PDM) for Bohol Integrated Agriculture Promotion Project

Cooperation term: Nov. 11, 1998–Nov. 10, 2001

Target area (Project sub-site): Land cultivated by Irrigator's Association (IA) members in Capayas Irrigation Project (CIP)

Target group: IA members (farmers beneficiaries) in CIP

Revised: 25-Jul-01

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Agricultural production and income of farmers in Bohol are increased.	<ul style="list-style-type: none"> • Total rough rice production in Bohol is increased to 250,000 tons by 2005. • Poverty incidence is decreased by 20% by 2005 in Bohol. 	<ul style="list-style-type: none"> • Information from Bureau of Agriculture Statistics • Information from Provincial Development Office 	<ul style="list-style-type: none"> a. Bohol remains as Central Visaya's primary agriculture area. b. National policy on provision of physical facility for agriculture sector stays. c. National policy on rice price remains stable.
Project Purpose			
Agricultural productivity is increased by improving management of farming activities in the project sub-site.	Average rice yield in irrigate lowland in the Project sub-site is increase from 2.8t/ha(1996) to 4.0t/ha by 2001.	Survey by BAPC	<ul style="list-style-type: none"> a. Provincial government maintains higher priority for food security and poverty alleviation. b. BAPC remains technology promotion center for rice-based farming system. c. Bohol Irrigation Project is implemented without any delay.
Outputs			
<p>(1) Baseline survey and monitoring can be conducted by BAPC staff.</p> <p>(2) Improved location specific technologies for Rice-based farming system are adopted in the Project sub-site.</p> <p>(3) Effective management of IA activities are carried out in the Project sub-site.</p> <p>(4) Technical capabilities of extension workers and key farmers in Bohol are enhanced.</p> <p>(5) Agricultural promotion system is improved by enhanced collaborative linkages of BAPC with Local Government Unit (hereinafter referred to as LGU) and concerned organizations.</p>	<p>1. One Baseline report and 3 monitoring reports are published.</p> <p>2-1 95% of IA members adopt the synchronous rice production farming system in 2001.</p> <p>2-2 90% of IA members plant recommended rice varieties in irrigated area of the sub-site in 2001.</p> <p>3-1 Rate of attendance to meetings related with IA activities is over 90%.</p> <p>3-2 Irrigation Service Fee collection is over 80%.</p> <p>3-3 Accounting books regularly and well kept by all the four (4) IA.</p> <p>4-1. 80% of extension workers on rice-based farming system are trained.</p> <p>5-1. Rate of attendance to liaison officers' meeting is over 90%.</p>	<p>1. BAPC publications and records</p> <p>2-1 Survey by BAPC</p> <p>2-2 Record by BAPC</p> <p>3-1 Record of BAPC and NIA</p> <p>3-2 Record of BAPC and NIA</p> <p>3-3 Accounting books</p> <p>4. BAPC record and report</p> <p>Attendance list of workshop/meeting</p>	<ul style="list-style-type: none"> a. BAPC remains the function of research, training and extension on rice-based farming system. b. Trained BAPC staff continues their work at BAPC, c. NIA continues to efficiently operate the Capayas Irrigation System. d. Economic condition is stable in Bohol.

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Activities	Inputs	Inputs	Important Assumptions
<p>(1) Formulation of detailed workplan based on the baseline survey and conduct of the monitoring of Project achievement.</p> <p>1) Execution of baseline survey</p> <p>2) Preparation of Project activity plan and prioritize research subjects</p> <p>3) Monitoring of the Project</p> <p>(2) Improvement and dissemination of location specific technologies for a Rice-based Farming system in the Project Sub-site</p> <p>1) Improvement of cultivation technology</p> <p>2) Improvement of cropping systems</p> <p>3) Development of appropriate water management technology</p> <p>4) Improvement of the operation and maintenance system of irrigation facilities</p> <p>5) Improvement of farm machinery operations and postharvest technology</p> <p>6) Improvement of farm machinery utilization and management</p> <p>7) Improvement of farm management efficiency</p> <p>8) Enhancement of extension activity in order to disseminate appropriate technology</p> <p>(3) Improvement of management capability of IA in the Project Sub-site</p> <p>1) Facilitation of IA organization improvement and IA meeting</p> <p>2) Facilitation of reviewing policies and making rules</p> <p>3) Improvement of accounting system and financial management</p> <p>(4) Enhancement of training</p> <p>1) Training of agricultural extension workers of LGU</p> <p>2) Training of key farmers in Bohol</p> <p>(5) Enhancement of collaborative linkage to BAPC with LGU and concerned organization in carrying out of the Project activities of (1) to (4) above</p> <p>1) Enhancement of collaborative linkage of BAPC with line agencies and national institutions</p> <p>2) Enhancement of collaborative linkage of BAPC with LGU and the concerned local organizations</p>	<p>(Japanese Side)</p> <p>1. Long Term Experts</p> <p>1.1 Team Leader</p> <p>1.2 Coordinator</p> <p>1.3 Agronomy</p> <p>1.4 Water Management</p> <p>1.5 Farm Mechanization</p> <p>1.6 Farm Management</p> <p>2. Short-term experts</p> <p>3. Equipement and machinery</p> <p>3.1 Agricultural machinery, equipment and spare parts</p> <p>3.2 Vehicules necessary for TCP activities</p> <p>3.3 Teaching materials and communication equipment including audio-visual equipment</p> <p>3.4 Technical instrument & equipment</p> <p>3.5 Other equipment necessary for TCP activities</p> <p>4. Counterpart training</p> <p>Training of Philippine personnel in Japan.</p>	<p>(Philippine Side)</p> <p>1. Counterpart personnel</p> <p>1.1 Project Manager</p> <p>1.2 Deputy Project Manager</p> <p>1.3 Counterpart Personnel for the Expert (at least 2 for each)</p> <p>1.4 Administrative and other staff to support the Project activities</p> <p>2. Physical facilities</p> <p>2.1 Buildings, facilities, office space for the Project</p> <p>2.2 Space for machinery and equipment</p> <p>2.3 Electricity, water and communication facilities</p> <p>2.4 Other land, buildings and facilities necessary for the Project</p> <p>3. Running expenses</p> <p>All running expenses necessary for the implementation of the Project</p> <p>4. Others</p> <p>Establishment and management of committees necessary for project implementation</p>	<p>a. There is no social obstruction (land ownership, etc.) to farmers' participation to the Project.</p> <p>b. LGU and NIA actively participate and support the Project.</p> <p>c. No severe drought affects dam water reservation.</p> <p>d. Budget is available to implement the Project.</p> <p>e. BAPC staff (both permanent and casual) is fully assigned.</p> <p>f. No excessive incidence of major pests and diseases.</p> <p style="text-align: center;">PRE-CONDITIONS</p> <p>a. Farmers in the CIP are cooperative in the Project activities.</p> <p>b. Counterpart personnel is assigned for each Japanese experts.</p> <p>c. GOP counterpart fund is available.</p> <p>d. BAPC maintains its key role in rice-based farming system.</p> <p>e. DA retains physical location of BAPC.</p>

ANNEX 8. Achievement of Activities

BOHOL INTEGRATED AGRICULTURE PROMOTION PROJECT

Plan of operation and progress (as of June 2000)

TSI PROJECT ACTIVITY	FINAL TARGET	ACCOMPLISHMENT	OUTPUT	SUSTAINABILITY
TSI 1 Formulation of detailed workplan based on the baseline survey and conduct of the monitoring of Project achievement				
TSI 1-1 Execution of a baseline survey	APC staff acquire survey methods.	1. A baseline study was conducted and compiled as a baseline survey report. 2. A mid-term survey was conducted using qualitative method.	1. Obtained relevant benchmark data that can be used for monitoring. APC staffs were capacitated with survey method by implementing from preparation of survey forms, pretest, data collection, data encoding, data analysis and report making. 2. Qualitative and supplementary data was collected. APC staffs recognized the importance of socio-cultural aspects as well as technical aspects through interviewing farmers. Influenced the directions of some activities of the project.	Survey can be handled by APC staffs when a rural development project is started in other areas.
TSI 1-2 Preparation the Project activity plan and prioritize research subject	Project implementation plan should be made, reviewed and modified if necessary.	1. A detailed tentative schedule of implementation (TSI) was made in 1997. The detailed TSI was reviewed in 1999. 2. The plan of operation (PO) was made and reviewed each year through BIAPP management committee meeting. 3. Conducted annual research review. 4. Research proposals are reviewed and endorsed by BIAPP management committee.	1. BAPC staff experience and gained insights in participatory project planning. 2. Plans were regularly reviewed through feedback from progress monitoring results. 3. Research results were documented to present during in-house research review. 4. Prioritized researches are approved by BIAPP management committee. In-house research review is conducted every year including BIAPP activities.	Project implementation plan can be reviewed regularly.
TSI 1-3 Monitoring the Project	A regular monitoring system be established	1. Monitoring is conducted by using quarterly progress report based on PO. 2. Project was monitored by OVI at the end of each cropping season, and project monitoring forms provided by JICA were filled. 3. Annual reports are produced. 4. A social impact assessment was conducted.	Reports presentation has been done during BIAPP management committee meeting by using PO and progress report form. A regular monitoring system using OVI is established. Highlights of project activities and achievements were compiled in annual reports.	Regular monitoring can be sustained. However, assessment by third person may not be conducted in the future.

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Plan of Operation and Progress (Agronomy)

TSI	Target	Accomplishment	Output	Sustainability
TSI No. 2-1 Improvement of cultivation technology				
2-1-1 Varietal screening and selection	Selection of high yielding varieties of rice with resistance to pests and diseases (3-4 varieties)	<p>Selected promising varieties:</p> <ul style="list-style-type: none"> * Irrigated: PSB Rc 18, 32, 66 * Rainfed: PSB Rc 40, 42, 68 * Saline-prone: PSB Rc 84, 86, and 88 <p>PSB Rc 80 & 82 are promising for irrigated areas but need to be further tested in 2-3 seasons.</p>	<p>Almost 90% of recommended varieties were planted in 2000 WS. Varietal demos were conducted in other municipalities/provinces in Region 7 with LGU collaboration. Some LGUs show interest in establishing a seed production and distribution system following the varietal demos.</p>	Sustainable
	Determination of special purpose rice varieties	Collected information from IRRI & PhilRice; coordinated with LGUs in Region 7 for seed collection & conduct of baseline survey	Identification of aromatic, glutinous & red rice accessions in Region 7 & by-products	
2-1-2 - Improvement cultural mgt practices	Establishment of cultural management practices in lowland rice.	Verified recommended fertilizers, fertilization rate & scheme for location-specific adoption	Increasing the number of topdressing in fields with low water holding capacity ; using sulfur-containing fertilizers in fields with problems of iron toxicity. Effect of chicken dung application is promising.	Sustainable, but still verifying control measures against recurring problem of rice stemborer.
	Formulation of integrated pests & disease management	Verified effective water management to reduce kuhol damage at early vegetative stage. Adopted IPM approach & conducted two FFS. Mobilized barangay monitoring teams for rice pests & diseases surveillance.	With stable water distribution, shallow water level can be maintained to reduce kuhol damage. Farmers understood the relation between the incidence of tungro and green leafhopper with synchronous planting. Damage by tungro disease is minimize with synchronous planting.	
2-1-3 Technology verification	Verification of recommended technology on rice farmers' fields with emphasis on yield & profitability.	<p>Introduced Direct Dry-seeded Rice (DSR) with improved technology components in water-deficient areas.</p> <p>Adopted the improved Transplanted Rice technology with emphasis on fertilizer and variety technology components.</p>	Incorporation of farmers' practices in the DSR technology; yields obtained were the same as transplanted rice	Some farmers accepted the DSR technology.
TSI No. 2-2 Improvement of cropping system				
2-2-1 Improvement of rice-based cropping patterns	Selection of suitable secondary crops	Selected promising crops: onion, watermelon & mungbean	Expansion of watermelon cultivation in upland areas.	Cultivation of secondary crops in upland areas is more adaptable & profitable.
	Establishment of cultural mgt practices for selected secondary crops	Improved cultural mgt practices on selected crops. Trials on rice-onion & rice-rice-mungbean cropping patterns are conducted.	Adopted no tillage practices for mungbean & watermelon after rice. Understood difficulty in onion cultivation due to unpredictable weather condition.	
2-2-2 On-farm verification of rice-based cropping patterns	Adoption of cropping pattern on selected farmers' fields	Verified watermelon & onion after dry season rice cultivation & verifying watermelon & mungbean after dry season rice cultivation	No significant results has been obtained yet.	Cultivation of secondary crops are feasible in limited area.

Water Management Section activity situation table

The activity plan by detailed TSI			Target	The activity situation of the project		Prospect Activity
Project	Activity	Sub-activity		Activity	Result	
TSI 2. Improvement and dissemination of specific technologies for a Rice-based Farming System in the Project sub-site	TSI 2-3. Development of appropriate water management technology	TSI 2-3-1. Assessment of present condition of the Project sub-site	The CIP beneficial area is determined and other related water management data are gathered.	Interviewed farmers on their water management practices; installed meteorology equipment and collected data; conducted water quality test in the dam and necessary quantitative investigation at the paddy field; surveyed flow regime in the main canal and lateral canals and water loss investigation on the canal; prepared paddy map of each IA and every FIG.	Determined problems that need to be addressed to improve water management in CIP; upgraded the SWDRS agromet station and collected updated meteorological data; estimated the tentative water requirement of paddy field; determined the actual beneficial area per lateral canal including the canal network; determined the water discharge of main and lateral canal and formulated the H-Q relationship for each canal; determined the percent water loss in lateral canals. C/P acquired skills and knowledge in the conduct of the above technical investigations including the analysis of data.	The C/P sufficiently grasped the techniques of collecting basic data including the use of observation equipment, they can be tapped to do the same work in other areas.
		TSI2-3-2 Development of water distribution scheme	Tentative rotation irrigation plan is made.	Conducted investigation on the quantity of water for main canal and lateral canal under the rotation irrigation scheme; conducted water balance analysis to determine actual irrigable area of CIP; introduced the conduct of pre-irrigation meeting prior to start of every season.	Formulated water allocation guide to attain fair water distribution to every lateral canal; improved the implementation of rotation irrigation at the lateral canal by establishing three division blocks with specific water schedule and monitoring plan; the pre-irrigation meeting was held regularly prior to start of every season.	C/P can draft a water distribution plan according to the existing condition of an area.
	TSI2-4 Improvement of the operation & maintenance system of irrigation facilities	TSI2-4-1 Inventory and assessment of existing irrigation facilities	Present condition and problems are identified, improve-ment plan is made.	Gathered design data of the facilities from NIA-Provincial Office and evaluated the condition of each facilities; investigated the functionality of the different facilities with assistance of a short-term expert.	Submitted to NIA-BHIP II management report on the facility improvement need of CIP for possible inclusion in rehabilitation at main and lateral canals.	C/P is able to grasp and to evaluate the claim from the farmer about the irrigation facility.
		TSI2-4-2 Making and improve-ment of operation and main-tenance guidelines	O&M systems for CIP is established.	Gathered data on the operation of the facilities from CIP and on maintenance management from other irrigation systems..	The operation of irrigation facilities is according to the actual situation of CIP. The amount of water released in canals is controlled by water level based on the established H-Q relationship; prepared a draft on the basic operational procedure on water distribution at main and lateral canals.	C/P can prepare operation and maintenance guideline of irrigation system.
		TSI2-4-3 Produce of and utilization of water management manual	Water management manual for technical staff is made.	Prepare a manual that will serve as a reference material for technical person.	An outline of the manual was prepared and this will be completed to include the procedures employed in conducting the different field investigation implemented by the project including how to analyze the data gathered.	C/P can make a water management manual.

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BOHOL INTEGRATED AGRICULTURE PROMOTION PROJECT

Plan of Operation and Progress of Farm Mechanization Section

TSI	Target	Accomplishment	Output	Sustainability
2.5 Improvement of Farm Machinery Operations and Postharvest Technology				
2.5.1 Needs Assessment and Database on Farm Mechanization	Farmers' farm mechanization level is determined and farming operations are studied comprehended	Conducted survey of farm machinery and implement dealers/distributors and manufacturers; surveyed the farm mechanization condition and its need assessment; observed farm machinery related industries and organizations.	Availability of local made farm machine, implement and equipment including its spare parts are sufficient enough to the needs of the farmers, imported small surplus machines are available; data and other information on the actual farming practices of the CIP farmers, programs and activities from different gov't. and non-gov't organizations and offices are gathered.	The C/P can readily do the activities and utilized the information as a bases in the formulation of activities.
2.5.2 Performance Test and Improvement of Farm Machinery Operations	Farm machinery operations are evaluated and improved	Conducted performance tests on different agric'l machines; studied different farming operations practiced by CIP farmers; designing, making, testing and modification of farming tools and implements.	Evaluated the field capacity and working efficiency of different farm machine and equipment and on the different actual farming operations done by CIP farmer; designed and evaluated different farming tools like hand tractor-drawn wooden leveler, manual rotary weeder, tool for removing stem borer infected plant, animal-drawn rotary puddler and engine operated thresher.	The C/P learned the basic knowledge of conducting field studies, however still need to improve the analysis skill.
2.5.3 Improvement of Farm Level Postharvest Technology	Farm level postharvest operations are evaluated and improved	Conducted initial survey on the harvesting operations including the evaluation of the grain losses; measured the shattering characteristics of some rice varieties; conducted performance test of pedal thresher;	Harvesting practices differs according to the working labor conditions; PSB Rc 18 rice variety is the most shattered rice variety; the grain loss for harvesting is about 1.6%, and the threshing loss is 0.4 to 1.1%, and slightly varies according to the condition of the crop, machine and human factors.	The C/P should have to understand further on the conditions and situations of postharvest activities at the farmers field including the postharvest equipment.
2.5.4 Improvement of Rice Processing System	Rice processing system are evaluated and improved	Conducted initial survey on the quality aspects of rice; performed preliminary laboratory test on rice processing; observed rice milling operations; and initially conducted survey on rice marketing.	Rice quality in terms of whiteness and broken content depend much on the type of milling machines and partly affected by the crop cultural management and some postharvest practices at farmers level; private traders controls the price of paddy (at uniform) from the farmers that is usually sold right after harvesting;	The C/P need further understanding on the rice processing aspects.
2.6 Improvement of Farm Machinery Utilization and Management				
2.6.1 Economic Analysis of Farming Operations	Farming operations are evaluated and analyzed from economic aspect	Conducted survey on different farming operations and evaluated the cost and return of rice farming production.	The net income on rice farming production (about P18,000 per ha/cropping for farmer owners) are not enough to meet the family need especially to small scale (tenant) farmers; the machinery use for land preparation reduces only the working time (1/3 to 1/4) but doubles the hiring cost compared than the animal use.	The C/P need more knowledge to do the analysis.
2.6.2 Improvement of Farm Machinery Management System	Farm machinery management system is evaluated and improved	Conducted seminars/workshops and trainings on the field of postharvest, farm machinery tools; monitored and coordinated on the management aspect for the farmers' group/association owned farm equipment.	Seminar/workshop was facilitated together with short term expert of postharvest for rice mill operators and owners and discussed on rice processing aspect; trainings on the operation and maintenance of farm machines for land preparation was done to BIAPP utility workers and to CIP farmers; hands on skill trainings on the fabrication of rotary weeder was done to CIP farmers.	The C/P do not have enough capability to handle training on the field of postharvest.
2.6.3 Produce and Utilization of Farm Machinery Management	Farm machinery management manual is made	Collected data and other information as results and findings from the implemented field studies; collected information on published references from machine dealers and other related organizations.	Some of the results and findings on the implemented studies and other references are collected for the manual, however, at this time the activity of conducting studies to get additional information for the manual is still on-going.	The C/P has the capability to produce farm machinery management manual.

BOHOL INTEGRATED AGRICULTURE PROMOTION PROJECT

PLAN OF OPERATION AND PROGRESS - (Farm Management Section)

As of June 2001

Activities	Final Target	Accomplishment	Output	Sustainability
<p>2. Improvement and dissemination of location specific technologies for a rice-based farming system in the project sub-site</p> <p>2-7 To improve Farm Mgt. Efficiency</p>				
<p>2-7-1 Analysis of Farming Business & Management</p>	<p>Improved analytical capacity of Farm Management staff on Farm Business and Marketing Management</p>	<ul style="list-style-type: none"> . Conducted Rice Cropput Yield Survey at CIP for 7 cropping seasons (DS 1998 - DS 2001) . Conducted Market Study on Rice, Field and Veg. Crops in Bohol . Conducted Income & Expenditure Survey among farming household at CIP 	<ul style="list-style-type: none"> . Augmented & enhanced capacity of Farm Mgt staff in the collection and analysis of farm data thru survey . Generated available information from the surveys conducted 	<ul style="list-style-type: none"> . Farm Management staff has the basic skill to handle Farming Business & Marketing Mgt. - related activities
<p>2-7-2 On - Farm Demonstration</p>	<p>Introduction of improved farming system & improvement of crop productivity</p>	<ul style="list-style-type: none"> . Established 31 rice demo farms within CIP to showcase the recommended rice varieties and fertilization rates. . Established backyard vegetable production to (9) pilot cooperators, dispersed vegetable seeds to 55 farmers & conducted hands-on training on veg. nursery management to 50 IA members. . Facilitated the establishment of Communal Veg. Garden of Bay-ang, Ubay Rural Improvement Club (RIC) & supervised Individual Vegetable Garden of 12 cooperators . Established 10 upland crops technology demo for corn (2), peanut (1), mungbean (3), corn + soy-bean intercropping (1) and introduced mungbean after rice (3). . Introduced technology innovation on breeding & feeding mgt of poultry to 27 farmer cooperators; 22 for colored broiler production, 4 for breeder dispersal to upgrade the native chicken & 1 on Quail Production. 	<ul style="list-style-type: none"> . Increased adoption of the recommended technologies for rice, veg. & upland crop production . Chicken breeder dispersal have successfully improved the genetic characteristics of the native chicken . Colored broiler production have gained acceptance among CIP farmers 	<ul style="list-style-type: none"> . Establishment of demonstration farms can be done by Agronomy Section

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Activities	Final Target	Accomplishment	Output	Sustainability
<p>2-7-3 Improvement of Seed Production System</p> <p style="text-align: right;">M</p>	<p>Establishment of efficient & sustainable seed distribution scheme</p>	<ul style="list-style-type: none"> · Established on station seed production of latest recommended rice varieties in collaboration w/ PhilRice to produce quality seeds (foundation, registered & certified) for Seed Growers and farmers · Organized FIG rice seed growers in every lateral within CIP & established a rice seed distribution scheme for the IA thru barter system (1:1) 	<ul style="list-style-type: none"> · Readily available Foundation Registered or Certified rice seed stock of the recommended rice varieties · Lateral FIG Rice Seed Production & Distribution provide farmers accessible supply of the recommended rice varieties every cropping season. · Increased adoption of the recommended high yielding rice varieties. 	<ul style="list-style-type: none"> · With improvement of the scheme, IA can manage the FIG Seed Production & Distribution by themselves
<p>2-7-4 Integration of Rice-based Farming System</p>	<p>Location specific rice-based farming system is formulated & disseminated</p>	<ul style="list-style-type: none"> · Introduced vegetable, upland crop & livestock production to 2 farmer cooperators as a means of increasing farm production thru crop intensification and livestock integration. 	<ul style="list-style-type: none"> · Maximized land use & labor utilization and improved farm productivity 	<ul style="list-style-type: none"> · Expansion of demo farm areas on rice-based farming system in coordination with other sections
<p>2-7-5 Improvement of Practical Management Skill</p>	<p>Adoption of daily farm-household activities recording; practiced integrated farming system</p>	<ul style="list-style-type: none"> · Introduced simple farm record keeping activity to eight farmer cooperators at CIP · Implemented revised scheme of the Fertilizer Revolving Fund (FRF) · Conduct Farmers' Field School (FFS) on Veg Integrated Pest Management (IPM) 	<ul style="list-style-type: none"> · Some farmers were able to keep record of their daily farming household activities · FRF recipients were able to generate Capital Build Up (CBU) from the scheme · FFS still on going 	<ul style="list-style-type: none"> · Involvement of women's group or youth groups in the recording of daily farm household activities can be an alternative input assistance and CBU generation should be carried out by a legitimate organization

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BOHOL INTEGRATED AGRICULTURE PROMOTION PROJECT
Plan of Operation and Progress (as of JUNE 2001)
TRAINING AND INFORMATION SECTION

TSI Project / Activity	FINAL TARGET	ACCOMPLISHMENT	OUTPUT	SUSTAINABILITY
2. IMPROVEMENT AND DISSEMINATION OF LOCATION-SPECIFIC TECHNOLOGIES FOR RICE-BASED FARMING SYSTEM IN THE PROJECT SUB-SITE				
2-8 To enhance extension activity in order to disseminate appropriate technology				
2-8-1 Staff Development Training	Enhanced knowledge and skills on research, development and extension methods and approaches for an appropriate rice-based farming system	1. Facilitated the conduct and management of 20 staff development activities such as on <i>Basic Photography Skills, Facilitation Skills for BIAPP Team Members, Qualitative Research Methods, Project Cycle Management, Rice Tungro Disease and Stem-borer Management and Farm Business Analysis</i>	1. Adequate skills to develop proposals and conduct research, development and extension projects and activities for farmers in rice-based farm production 2. Application of participatory planning and monitoring approaches while providing technical guidance to farmer-beneficiaries of research, development and training projects and activities	In spite of budgetary constraints by the DA to offer more opportunities for human resource development, BIAPP staff are interested to enhance further their technical capabilities and skills possibly through scholarships in long-term training courses by JICA. Also, the number of BIAPP technical staff taking advanced formal education is increasing.
2-8-2 1. Production of Print and Video Information Materials	Production of print and video materials in support to the research, development and extension activities of BIAPP	1. Produced 15 edited information video on BIAPP research, development and extension activities 2. Produced 6 issues of the BIAPP Newsletter, 7 technical advisory posters and flyers, an information brochure on BIAPP, a rice production technoguide pamphlet and 3 (lunar/Julian) calendars 3. Established 26 information bulletin boards and 4 IPM information corners in the CIP barangays 4. Weekly radio broadcast of BIAPP activities and relevant information on the cultivation and management techniques of rice, vegetables and upland crops production	1. Appropriate print materials on institutional development and improved rice production techniques such as on the planting of improved varieties and integrated insect pest and disease management were produced as a collaborative effort among BIAPP Sections based on actual information needs and to enhance the extension process. 2. Increased awareness, understanding and participation by a greater number of IA members on the activities, plans and policies of the Irrigators' Associations of CIP. 3. Immediate access to relevant agricultural technical information of farmers in rice-producing municipalities through bulletin boards, regular radio broadcasts, the BIAPP Newsletter, posters and flyers.	Video and print materials are effective information campaign and extension tools only if used appropriately and intensively by LGU technicians and key farmers in the promotion of improved rice-based cropping technology to other farmers. At the project sub-site, the reach, frequency and extent of utilization of these information materials by its intended beneficiaries still need to be assessed.

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BOHOL INTEGRATED AGRICULTURE PROMOTION PROJECT
Plan of Operation and Progress (as of JUNE 2001)
TRAINING AND INFORMATION SECTION

TSI Project / Activity	FINAL TARGET	ACCOMPLISHMENT	OUTPUT	SUSTAINABILITY
2. IMPROVEMENT AND DISSEMINATION OF LOCATION-SPECIFIC TECHNOLOGIES FOR RICE-BASED FARMING SYSTEM IN THE PROJECT SUB-SITE				
2-8 To enhance extension activity in order to disseminate appropriate technology				
2-8-2 2. Training of Farmers of the Irrigators' Associations (IAs) of CIP	2.1 Assessment of training needs of IA farmers and preparation of annual training plan 2.2 Implementation of training activities on institutional development and appropriate rice-based crop production	1. Conducted 3 training need assessment activities with farmer-beneficiaries of the CIP aaaaaaaaaaaaaaaaaaaaaa 2. Facilitated the conduct of 17 institutional development training activities mostly for IA officers / leaders 3. Facilitated the conduct of 11 training and development activities on rice-based crop production and farm management	1.1 Annual training plan based on results of participatory assessment and identification of needs and problems in the management of the IA and in rice production by farmers 2.1 An improved organizational structure of the Irrigators' Associations with wider leadership and participation emanating from the Farmer Irrigators' Group (FIG). 2.2 Empowering the IA officers to independently manage IA affairs after delineation of roles and functions. 2.3 Greater transparency of IA operations with the implementation of a functional financial management and recording scheme among IA officers especially in the billing and collection of ISF. 2.4 Adoption of an appropriate water distribution scheme and rice cropping calendar 3.1 Widespread planting of adaptable and improved rice varieties 3.2 Improved rice seed production practices with the adoption of varietal selection and roguing techniques 3.3 With the application of surveillance methods (AESA, KLT and Sweep Net), more farmers are able to identify insect pests and diseases and implement the proper control measures. 3.4 Application of improved cultivation techniques of watermelon after rice in <i>sinaka</i> paddy fields and of upland crops and vegetables in upland areas at the CIP	Follow-up technical guidance after training should be continued to sustain farmers' interest and will to improve crop production and farm productivity. In order to determine the appropriate extension approach, there is a need to survey farmer-trainees on whether they were able to apply the techniques and how and why they were not able to apply it.

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The activity situation table of the project

(A.T:Progress of Activities, T.T:Progress of enhancing Technological Capability of C/

Activity plan by TSI			Target	Incharge	The activity situation of the project		The sustainability
Output	Activities	Sub-Activities			The activity	The result	
3 Improvement of management capability of IA in the project sub-site	TSI3-1 Facilitation of IA organization improvement and IA meetings		BODs facilitate the meetings by themselves	Rufa Edna Willy Rose Medard	Supported regular conference holding by FIG and BOD ,GA of four IAs. Supported the conference holding of the committee and all the member conference in IA. Updated the registration of the membership.Reactivated IA committee.	As for the conference of BOD,IA officer became able to conduct BOD meeting by themselves. In some FIG, IA member became able to conduct meeting.	C/P can support the meeting sufficiently.
	TSI3-2 Facilitation of reviewing policies and making rules		BODs revises the policies and the rules by themselves	IDS staff	Conduct 5-yr Development Plan workshop of the IA. Conduct Joint System Management workshop. Reconsidered an annual plan in the committee.Formulated policies on Election rules, Water Tender, ISF exemption.	The 5-year plan of IA was review and modified by IA officer.JSM was settled on and the memorandum was made between IA and NIA. Informed farmers about the guideline of the exemption of ISF.The committee made implemented 1-year plan.	C/P can support that the IA reconsiders its own policy and rule.
	TSI3-3 Improvement accounting system and financial management		BODs manage accounting system by themselves	IDS staff	Guided the form and the technique which NIA was using to Billing clerks, Book keepers, Treasurers. Checked document regularly and guided it.	Biling clerks, Book keepers, Treasurers were accustomed to each work and the ledger mention improved.	C/P can do the guide of the accounting work by themselves.

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BOHOL INTEGRATED AGRICULTURE PROMOTION PROJECT
Plan of Operation and Progress (as of JUNE 2001)
TRAINING AND INFORMATION SECTION

TSI Project / Activity	FINAL TARGET	ACCOMPLISHMENT	OUTPUT	SUSTAINABILITY
4. ENHANCEMENT OF TRAINING				
4 - 1 Training of Agricultural Extension Workers of LGUs in Bohol	Assessment of needs and implementation of training activities on appropriate development and extension approaches and activities to promote rice-based farm production	1. Conducted training need assessment survey of agricultural extension workers in 22 rice-producing municipalities. 2. Facilitated the conduct of 4 training activities namely: <i>On-the-Job Training on the BIAPP Baseline Survey (for Ubay DA-LGU technicians), Joint Consultative Workshops on Training for Key Farmers, Study Tour to ViSCA and Local Agribusiness Forum on Rice</i>	1. Identification of needs and problems or constraints faced by LGU technicians in the delivery of extension services especially to rice farmers 2. Participatory and consultative assessment and planning of effective training activities to enhance the technician-to-farmer extension approach	Among other things, future training programs should include improving the technical capability and skills of LGU technicians such as on the collection, analysis and effective use or application of relevant municipal agricultural data. There is a need to establish a common understanding on training objectives, methodologies and approaches to effectively carry out collaborative efforts with ATI and the Office of the Provincial Agriculturist.
4 - 2 Training of Key Farmers in Bohol	Assessment of needs and implementation of training activities to enhance the application of improved knowledge and skills on rice-based crop production and farm management	1. Conducted training need assessment survey of key farmers in 22 rice-producing municipalities. 2. Facilitated the conduct of 5 training activities namely: <i>Joint Consultative Workshops on Training for Key Farmers, Study Tour to ViSCA, Community Seminar on Crops, Livestock and Poultry Production, Local Agribusiness Forum on Rice and Refresher Seminar on Rice Production</i> 3. Facilitated the conduct of 10 Farmers' Field Day and Forum of on-farm verification trials and demonstration projects in rice production	1. Identification of needs and problems or constraints faced by farmers in irrigated and rainfed lowland rice-based crop production 2. Adoption and promotion of improved rice varieties suitable to irrigated and rainfed lowland ecosystems 3. Application of suitable and improved cultural management techniques in vegetable and upland crops production and poultry raising	Future training programs should focus on the promotion of effective and sustainable soil fertility management techniques in rice-based crop production and adaptable and profitable rice-based cropping patterns.

BOHOL INTEGRATED AGRICULTURE PROMOTION PROJECT
 Plan of operation and progress (as of June 2000)

TSI PROJECT ACTIVITY	FINAL TARGET	ACCOMPLISHMENT	OUTPUT	SUSTAINABILITY
TSI5 Enhancement of collaborative linkage of APC with LGU and concerned organization in carrying out the Project activities of TSI 1 to 4				
TSI 5-1 Enhancement of collaborative linkage of BAPC with the line agencies and national institutions	APC acts as a useful information source to national agencies.	1. National Irrigation Administration (NIA) provided counterpart personnel to BAPC and had weekly water management section meeting. The management of Capayas Irrigation System was transferred from NIA-PIO to Bohol Irrigation Project Stage II (BHPII). 2. Conducted monthly liaison officers meeting. 3. APC conducts National Cooperation Test for selecting suitable rice seed in the region.	1. Institutional development activities were fully assisted by BIAPP and IA activities were more transparent. Thus, number of IA member was significantly increased. 2. Through liaison officers meeting, information sharing was improved among concerned organization including IA, and provided solution to problems on operation and maintenance of the system. 3. Test results are shared among concerned agencies.	APC is starting to get an information flow from local to central institutions.
TSI 5-2 Enhancement of collaborative linkage with LGU and the concerned local organizations	APC acts as catalyst to share information and to coordinate activities in rural development.	1. Assisted to start Bohol Rice Net for a venue of information sharing and smooth implementation of food security programs. 2. With Agricultural Training Institute (ATI), collaborative training needs assessment of LGU technicians in the province and the region anchored on rice-based farming system. 3. BAPC has been a consistently active member of the PhilRICE seed production network 4. LGU technicians assisted in the implementation of BIAPP activities.	1. Bohol Rice Net is acting as technical working group under Bohol Provincial Food Security Council, and provides data to private institution, government institution in their rice data banking activities. 2. Providing opportunities for LGU technicians to attend staff development training as well as training for key farmers. Identified training needs/courses for a rice-based farming system to LGU technicians. 3. BAPC was able to access the latest rice variety for adaptation testing, provided budget support for research, development and extension activity, as well as providing registered seed to the Bohol Seed Growers Association. 4. LGU technician aquired technical skills which could be applied in other areas outside CIS.	APC is always requested to provide resource persons during agricultural training. APC is a core organization in seed network in the province. However, it may need stronger linkage with municipal level organizations and people's organizations. LGU technicians' skills could capacitate in sustaining BIAPP's activities in CIS.

2. 終了時評価調査表

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*現地調査時及び報告書とりまとめに際し作成したもの。

I. プロジェクトの経緯概要及び協力実施のプロセスは、本文に同じのため省略。

II. 計画達成度

(プロジェクトの計画内容がどこまで達成できたか、その度合いをプロジェクト要約ごとに把握し、「実績」の欄に記入)

プロジェクトの要約	検証指標	実績	外部条件
上位目標 ボホールの農業生産と農民の収入が向上する。	a. ボホールにおける米の年間総生産が250,000tに増加する。 b. ボホールにおける貧困率が2005年までに20%削減する。		<ul style="list-style-type: none"> ボホールが中央ビサヤの主要農業地域であり続ける。 農業セクターに対する国の施設供与方針が変わらない。 国の米価政策が変わらない
プロジェクト目標 営農活動の改善によりプロジェクト・サブサイトの農業生産性が向上する。	<ul style="list-style-type: none"> プロジェクト・サブサイトの灌漑地域における坪刈調査による平均単位収量が2.8t/ha(1996)から4.0t/ha(2001)に増加する。 	<ul style="list-style-type: none"> 1996年 2.8t/ha 1999年雨期 3.5t/ha 2000年乾期 3.2t/ha 2000年雨期 4.6t/ha 2001年乾期 3.4t/ha 	<ul style="list-style-type: none"> ボホール州政府が食糧安全保障と貧困緩和に高い優先順位を置き続ける。 APCが稲を基幹とするファームングシステムの技術推進センターであり続ける。 ボホール灌漑プロジェクトが遅滞なく実施される。
成果			
1. APCスタッフによりペーラインサーベイとモニタリングが実施される。	1. ペーラインレポート1部 モニタリングレポート3部	1-a ペーラインレポート1部(1998年3月) 1-b PO & プロセスレポート(毎四半期)	<ul style="list-style-type: none"> APCが稲を基幹とするファームングシステムの研究、研修、普及の機能を保有し続ける。 研修を受けたBAPCのスタッフがBAPCで勤務し続ける。 NIAがかかヤス灌漑システムを効率的に運営し続ける。 ボホールの経済が安定し続ける。
2. 稲を基幹とするファームングシステムのための地域適合型の改善された営農体系が採用される。	2-1 作期統一率 95% (2001年) 2-2 水利組合員の90%が2001年にサブサイトの灌漑地域に推奨水稻品種を植える。	2-1 作付け統一率 1999年雨期 85% 2000年乾期 93% 2000年雨期 92% 2001年乾期 85% 2-2 推奨品種の採用 1999年雨期 49% 2000年乾期 76% 2000年雨期 91% 2001年乾期 86%	
3. サブサイトにおいて水利組合活動の効率的な管理が行われる。	3-1 水利組合活動に関する会合の出席率 80%以上	3-1 BOD会議出席率 BOD会議出席率(2000年11月~2001年6月平均) LA 100%	

<p>4. 普及員と中核農家の技術力が強化される。</p> <p>5. 関係機関との連携強化により農業振興制度が改善される。</p>	<p>3-2 水利費徴収率 80%以上</p> <p>3-3 定期的且つ適切に記帳された出納簿 4部 (4組合分)</p> <p>4. 稲を基幹とするファームシステムに係る普及員の80%が研修を受ける。</p> <p>5. リエゾン会議出席率 90%以上</p>	<p>LB 74% LCI 85% LCC2 92% 平均 87.9%</p> <p>総会出席率 (2001年2月と6月の2回の平均) LA 44% LB 65% LCI 39% LCC2 62% 平均 52%</p> <p><u>FIG会議出席率</u> LA 90.9% LB 67.6% LCI 69.2% LCC2 66.9% 平均 73.6%</p> <p>3-2 水利費徴収率 1999年雨期 46% 2000年乾期 61% 2000年雨期 51%</p> <p>3-3 会計役、帳簿係、監査役による三重チェックされた出納簿 4部</p> <p>4. 研修対象者 97名に対する研修受講実績 1999年末まで(達成率 41.2%) 計画ワークショップ 17 研修旅行 36 スタッフ研修 5</p> <p>2000年末(達成率 53.6%) アグリビジネスイベント 12 スタッフ研修 5</p> <p>リエゾン会議出席率 1998年 100% 1999年 96% 2000年 99%</p>	
<p>活動</p> <p>1. ヘアライン調査に基づいた詳細計画策定とモニタリング</p> <p>1-1 ヘアラインサバイの実施</p> <p>1-2 活動計画策定と優先研究課題の選定</p> <p>1-3 プロジェクトモニタリング</p> <p>2. サブサイトで稲を基幹とする営農体系構築用の地域特性技術の改善と普及</p> <p>2-1 栽培技術の改善</p> <p>2-2 作付体系の改善</p>	<p>投入</p> <p>日本側</p> <p>1. 長期専門家</p> <p>1.1 チームリーダー</p> <p>1.2 業務調整</p> <p>1.3 栽培</p> <p>1.4 水管理</p> <p>1.5 農業機械</p> <p>1.6 営農</p> <p>2. 短期専門家</p> <p>3. 機材供与</p>	<p>フィリピン側</p> <p>1. カウンターパートスタッフ</p> <p>1.1 プロジェクトマネージャー</p> <p>1.2 副プロジェクトマネージャー</p> <p>1.3 各専門家に対するカウンターパート (各専門家に対し最低2名)</p> <p>1.4 プロジェクト活動支援のための事務要員</p> <p>3. 土地、建物</p> <p>2.1 プロジェクトのための建</p>	<ul style="list-style-type: none"> ・ 農民のプロジェクト参加に対して社会的障害がない。 ・ LGU と NIA が活発にプロジェクトへの参画と支援をする。 ・ 旱魃がダムの水保有に影響しない。 ・ プロジェクト実施のための予算が確保

<p>2-3 現地に適合した水管理技術の開発</p> <p>2-4 灌漑施設の操作、維持管理方式の改善</p> <p>2-5 農業機械作業と収穫後処理技術の改善</p> <p>2-6 農業機械利用・管理の改善</p> <p>2-7 営農効率の改善</p> <p>2-8 現地適応化技術の普及強化</p> <p>3. プロジェクトサイトにおける水利組合活動の強化</p> <p>3-1 水利組合組織改善と組合会議の助言指導</p> <p>3-2 水利組合方針と規則の見直し</p> <p>3-3 経理と財務管理の改善</p> <p>4. 研修強化</p> <p>4-1 地方自治体（LGU）普及員の研修</p> <p>4-2 ホールの中核農家の研修</p> <p>5. 関係機関との連携強化</p> <p>5-1 関連機関、国内機関との連携強化</p> <p>5-2 LGU との連携強化</p>	<p>3.1 農業機械、スペアパーツ</p> <p>3.2 車輛</p> <p>3.2 視聴覚機材を含む研修機材、通信機器</p> <p>3.3 技術関連機器</p>	<p>物、施設、オフィススペース</p> <p>2.2 供与機械、機材のためのスペース</p> <p>2.3 電気及び通信施設</p> <p>2.4 その他プロジェクト実施に必要な土地、建物</p> <p>3. ランニングコスト</p> <p>4. その他 プロジェクト実施に必要な委員会の設立と運営</p>	
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* 「2. 効率性」は本文に同じ。

2. 目標達成度

(1) プロジェクトの各「成果」が「プロジェクト目標」につながったその度合い。

プロジェクト目標の達成度

本プロジェクトの目標は「プロジェクト・サブサイトにおける営農体系の改善による農業生産性の向上」であり、その客観的指標は「プロジェクト・サブサイトにおける灌漑水田での平均水稲収量が 2.8t/ha(1996年)から 2001年までに 4.0t/haになる」である。

プロジェクト活動の結果、サブサイトにおける灌漑水田での平均水稲収量に顕著な増加傾向が現れ 2000年雨期作で 4.6t/haと目標値を超えた。しかしながら、乾期作については増加傾向にあるものの一度も 4.0t/haに至っておらず、安定して目標値を超えたとはいえない状況にある。

栽培分野において改善された技術は、農家圃場で展示され、FFS(ファーマーズ・フィールド・スクール)の活動により普及が強力に実施されている。水管理分野については灌漑のルールが確立され、実行されてきている。農業機械については改善を図ってきており、一部について普及し始め、作業効率の改善に貢献している。営農分野については RIC(農村改善クラブ)を通じて導入された共同菜園により野菜栽培等の広がり認められた。

水利組合については 1999年に APCに IDS(組織開発課)が創設されたことにより、その活動がかなり活性化された。その活動成果を客観的指標(添付 PDMe 参照)に照らすと、BOD 会議についてのみ目標値に達しているものの、総会や FIG 会議の出席率や水利費徴収率は目標を達しておらず、自主的な運営といえるレベルには至っていない。一方、設立時に 188名であった水利組合員数が 530名になったことは大きな成果である。

普及員及び中核農家の研修については、実施数は少ないものの地方自治体(LGU)と連携した研修の実施について研修実施のノウハウを蓄積しており、今後も同様の研修を C/Pのみで実施できる段階に達したと判断できる。

関係機関との連携については、地方自治体からのコミットメントが十分でない状況で普及システムが改善されたとはいえない。また、NIA(国家灌漑庁)の IA(水利組合)支援については、BHIPIIにマネジメントが移管されたが、維持管理部分までの全権が委譲されておらず、責任ある体制とはなっていない。

上記の通り、サブサイトの農業生産性は改善され、個々の技術の普及によりある程度向上がみられ、個別技術においては技術の移転とその普及効果が出現してきている。しかしながら、稲を基幹作物とするファームングシステムを目指し、個々の技術を統合して農家への提示することが残課題である。プロジェクトの開始後、ダムの嵩上げ工事や異常気象(旱魃)により活動に支障を来たした影響もあり、目標を達成したとはいえず、またプロジェクト終了までの数ヶ月で達成することは困難と考えられる。

成果の達成度

プロジェクト目標達成につながるのを阻害する要因

成果1: BAPCスタッフによるベースライン調査とモニタリングの実施

- プロジェクト開始直後より1年をかけて、カパヤス灌漑地区の487世帯を対象としたベースライン調査が実施された。
- 調査の結果、地区内の90%以上で水稲作付けがおこなわれていること、また水稲以外の作付けについても明らかになった。
- これらの明らかになったプロジェクト地区の背景と現状は、各専門分野の計画策定と業務実施に活用されるとともに、モニタリングの際の基礎データとして必要に応じ活用されており、ほぼ想定していた成果に達したものと考えられる。
- 99年4月には中間評価を実施し、質的な面での情報を補ってきている。
- 専門家とC/Pは農村調査に不慣れであったため、最初のベースライン調査には問題があったが、その後改善等を経て調査・モニタリン

<p>グ能力は向上してきている。</p> <ul style="list-style-type: none"> プロジェクト活動は四半期毎に活動状況表を用いてモニタリングされている。 	
<p>成果2：ファーミングシステムのための改善された現地適合型技術のサブサイトでの採用</p> <ul style="list-style-type: none"> 作期の統一については、2001年乾期は85%であったものの、2000年は90%を超えており、成果目標をほぼ達成している。この作期統一は水管理に貢献すると同時にツングロ病の被害軽減につながった。 適正品種として灌漑水田用、天水田用および耐塩性品種が選定された。 選定品種の導入が90%を超えたのは2000年雨期のみであったが特殊用途米を除くと目標レベルに達している。 栽培分野で確立された改善技術はデモンストレーションされ、FFSの活動等により普及が強力に実施された結果、農家レベルでの顕著な増収が確認された。 水稲基本作付け体系は、まず水田裏作物の選定が行われ、次いで水稲—水稲—リョクトウ、水稲—タマネギおよび水稲—スイカなどの体系が提案された。 上記の提案された作付け体系はプロジェクト地区内で徐々に普及しつつあるものの、土壌・気象条件などの制限要因から限定的な地域での採用が想定される。 LGUとの協力により、RIC（農村改善クラブ）の活動を通じて遊休地を利用した野菜及び穀物栽培の導入がはかられ、急速に拡大しつつあることが認められた。 BIAPPの指導により2000年2月にはNIAとIA間で締結された管理協定の中でTYPE2の農民による自主的水管理が取り決められ、IA間で遵守すべきローテーション灌漑ルールが確立され、実行されている。 農作業の実態把握に基づき農業機械の改善を図ってきており、実際に導入されたのは除草機のみであるが、作業効率の改善につながっている。 農家記録については農家経済について記録を作成して部分的な分析はあるものの、経営全体の分析までには至っていない。 栽培技術や水管理技術等、個々の技術については改善され、農家に提示すべき技術のメニューは準備してきているものの、経営診断を行いその結果から統合したいくつかのメニューを提示する段階には至っておらず、当初想定していた成果は達成されていない。 	<ul style="list-style-type: none"> ダム嵩上工事のため水が使用できず天水栽培となった。 エルニーニョの影響による激しい旱魃害に見舞われた。
<p>成果3：サブサイトでの水利組合活動の効率的運営</p> <ul style="list-style-type: none"> 月1回開催されるFIG会議、BOD会議は定期的に継続実施されており、支線水路の清掃、水路維持管理、水利費徴収の向上等について、問題解決の検討がなされている。 指標であるBOD会議出席率については、1つのIAを除き目標である8割を達成している。 水利費徴収率については、目標の8割を大きく下回っているが、4つのIA長、役員及びその下部組織のFIG役員は、水利費を負担し徴収率を上げるためFIG会議を通じて不払い組合員対策を検討して 	<ul style="list-style-type: none"> カバヤスタム受益農民連合（ALMABECAD）がNIAあるいはIAに対する不満から運動を展開しており、水利費支払いに影響することが懸念される。

<p>おり、その成果は、平均して 50 - 60%と徴収率は徐々に上がっている。</p> <ul style="list-style-type: none"> 4 IA の下部組織として FIG を新たに設置し、出納簿、ISF 徴収簿、会議議事録等が整理され、会計役、請求係、帳簿係の三重のチェック体制により、経理の透明性が確保されるようになった。 水利組合は、制度的にはかなり改善されてきているが、効率的且つ自主的な運営レベルには至っていない。現在レベルに留まっている水利費の徴収率は住民の意識啓蒙などを含めさらに時間がかかるものと思われる。 	
<p>成果 4：普及員と中核農家の技術能力強化</p> <ul style="list-style-type: none"> 訓練による普及員および中核農民の技術能力強化は、普及を担当するボホール州農業事務所、町村農業事務所、ATI などと協力して効果的に実施された。 普及員及び中核農民への研修の実施率は低いものの、受講した普及員については、その成果が確実に受益地での活動に結びついていることが確認された。 	<p>・普及員が町村レベルでの採用で他の省庁関連の事業も担当し業務が広範で農業普及に専念できない。</p>
<p>成果 5：連携強化による農業振興制度の改善</p> <ul style="list-style-type: none"> リエゾン会議の出席率については、目標である 9 割を常に上回っており、情報の共有化は図られていると考えられる ボホールのライスネットワークは、州食糧安全保障会議のテクニカルワーキンググループとして重要な役割を果たしている。 現場での活動においても、本プロジェクト開始以後、普及員の関与が大きくなっている様子が伺えたが、APC（プロジェクト）の積極的な活動によるところが大きく、農業振興制度が改善されたというところまでは至っていない。 	

(2) プロジェクトの各活動が成果につながった度合い	
活動の状況	成果につながるのを阻害した要因
<p>活動 1：ベースライン調査による詳細計画策定とモニタリング実施 活動 1-1：ベースラインサーベイの実施</p> <p>ベースライン調査から水稻を基本とした技術改善に主眼が置かれ、水稻以外の作物として、緩傾斜地ではキャッサバ、トウモロコシ、サツマイモおよび野菜などが作付けされていることが調査結果から明らかになった。</p> <p>活動 1-2：プロジェクト活動計画策定と研究テーマの優先付け</p> <p>参加型プロジェクト計画立案手法による暫定実施計画（案）を作成した。</p> <p>活動 1-3：プロジェクトのモニタリングの実施</p> <p>モニタリングと評価のコンセプトが BIAPP の全部課に導入されることを目指したが、導入されたのは管理部門のみであった。毎年第 2 四半期にプロジェクト活動のモニタリングが行われている。</p>	<p>・コンピューターの調達の遅れから調査のデータ分析と報告書の作成が遅れた。</p>
<p>活動 2：サブサイトで稲を基幹とする地域特性技術の改善と普及 活動 2-1：栽培技術の改善</p> <p>一部害虫の防除対策を除いては、PSB 系水稻品種の選定、特殊目的米</p>	

など品種の選定、水稻施肥方法と栽培管理技術などの技術移転の達成度は高い。また灌漑水の不足する地区で農家の畑作の経験を取り入れながら直播栽培の導入を試み、移植栽培と大差ない収量を得た。

活動 2-2：作付け体系の改善

水田裏作物選定や裏作物栽培技術の改善とその実証が試みられた。その結果、水田裏作より未利用地の畑地利用が広がったが、農家レベルで作付け体系をどのように判断し、採用するか確認には至らなかった。

活動 2-3、2-4：水管理

基礎データが整備され、C/P により気象観測を継続して収集し、現地に適合した配水計画の立案が可能となった。

灌漑施設の状態把握と評価については、国家灌漑庁地方事務所から設計資料を入手し、灌漑施設を調査した結果、既存施設の構造的な問題点や管理上の問題について取りまとめることができた。

水管理計画をさらに強化するために分水工単位で水利組合の指導が行われている。また、水管理技術者用の水管理マニュアルが他地区事例を参考にしながら整備されつつある。

活動 2-5：農業機械作業と収穫後処理技術の改善

活動 2-6：農業機械利用・管理の改善

プロジェクト後半からは農業機械利用にとらわれず、計画地域の水稻作を中心とした調査・分析を行い、慣行技術、労働形態、農機具賃貸、土地利用、作業経費などが明らかになってきた。

このことにより、農作業改善においては、試作した回転除草機は研修実施や普及活動により対象地域の農民に受け入れられその効果が出現し始めている。

畜力作業での碎土機の試作や現地製造のハンド・トラクタ、脱穀機利用については、問題点の分析・解決など、その改良に着手し始めたばかりである。

収穫後処理は、プロジェクト開始前には実績のない分野であったが、C/P は機械の特性を理解し、籾摺り、精米、米選別等の試験機器の操作能力が向上した。しかしながら、この分野は、C/P の交代により現在の C/P の経験不足のため、米品質分析、収穫後処理作業の調査・検討・分析能力は未だ低い。

活動 2-7：営農

農業経営分析については、坪刈り収量調査、栽培状況聞き取り調査、所得調査、各種ケーススタディ、経営分析等の現地専門家の活用も含めた研修を C/P に対して行い、他の定性的調査との組み合わせや、情報の処理・診断などの能力の向上が見られた。

稲生産改善技術の導入を目的とした、圃場デモンストレーションでは、BAPC 推奨施肥量、品種、移植密度の栽培展示、3 肥料区栽培比較デモ、裏野菜栽培、畑作、畜産の導入が行われた。その結果、各シーズンのデモ農家平均収量は全農家平均収量よりも毎回高い収量を示している。

水稻種子自家増殖においては、FIG を単位とする生産体制と確立させ、一般農家が等価交換で有料種子を使えるようなシステムが確立した。

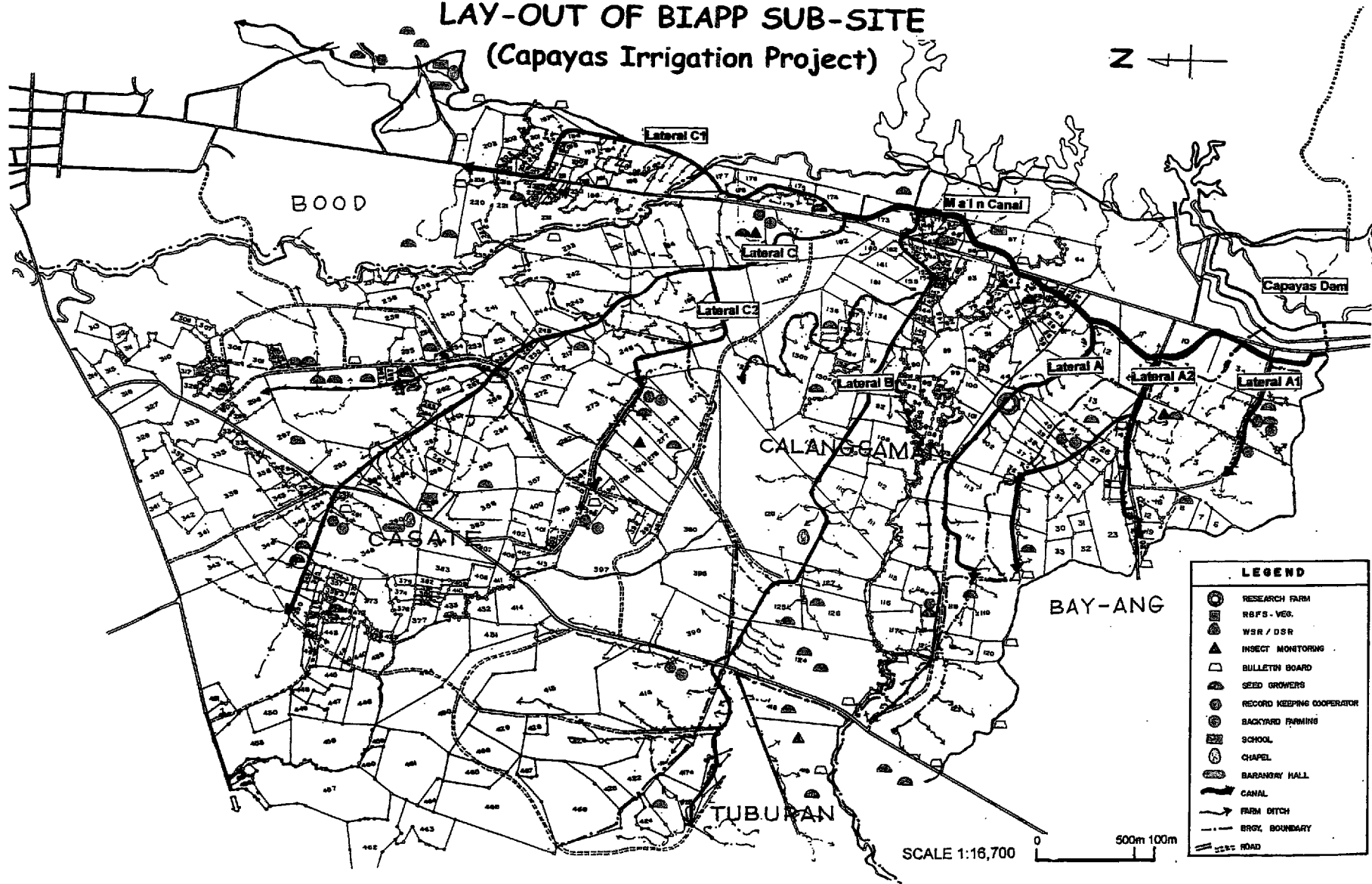
営農体系の改善については、3 農家にて稲、野菜、畑作、畜産を含めた複合栽培を導入したところ、野菜などから収入を得ている。

農家経営技術の改善については、農家記録に基づいた年間栽培計画の策定が指導され、計画に沿った作付けがなされてきた。肥料回転資金は返済率が 50% 余りと低かったが、貸出制度の見直しの結果、貸出し人数

<p>は減ったが返済率は85%以上に達した。</p> <p>活動2-8 研修</p> <p>スタッフ養成研修（ファシリテーション技術、定性調査法、PCM等）の結果、研修ニーズを考慮した研修計画をC/P自身で策定し、実施できるようになった。</p> <p>研修教材作成については、研修用ビデオ、ニューズレターの発行、テクノガイドを作成し、ラジオによる情報発信を行った。病虫害の発生時など緊急時に発行するニューズフラッシュは、農家への周知を図り一定の成果が得られた。</p>	
<p>活動3：組織強化</p> <p>4つの水利組合のFIGとBODの定例会議、委員会、全體會議を支援したところ、BODの会議は水利組合役員により自主開催ができるようになり、活動レベルに差異が見られるものの、いくつかのFIGでは水利組合員により自主開催ができるようになった。</p> <p>水利組合の5ヵ年計画ワークショップを開催し、水利組合役員により5ヵ年計画が作成された。またジョイント・システム・マネジメントワークショップを開催し、国家灌漑庁との間で覚書が締結された。水利費の徴収については、LIPAの作成について水利費の徴収を支援したところ徴収率の向上がみられた。水利費減免のガイドラインについて農家に周知が図られた。</p> <p>経理と財務管理については、それぞれの会計役、請求係、帳簿係に対して国家灌漑庁の使用している様式・手法を指導したところ、各担当はそれぞれの作業をほぼ独自にできるようになった。</p>	<p>・一部の農民団体の活動が受益地内で起こり、水利費の減額と特定農家の問題解決を主張し、水利費徴収への影響が懸念される。</p>
<p>活動5：研修強化</p> <p>LGU農業普及員への研修は、アグリビジネスフォーラム等でLGU、州、農業省、民間等間の情報、問題点の共有化が図られ、各機関の役割、連携が強化された。</p> <p>ボホール島内の中核農民研修は、最新の栽培技術の情報が提供されると共に、一定の技術の普及がなされた。</p>	

*効果、計画の妥当性、自立発展性、提言と教訓については、本文に同じ。

LAY-OUT OF BIAPP SUB-SITE (Capayas Irrigation Project)



3. サブサイト (カパヤス地区) 地図

**PRIMER ON RECOMMENDED
TECHNOLOGIES FOR
BIAPP SUB-SITE
ON
TRANSPLANTED IRRIGATED
LOWLAND RICE CULTIVATION**

VERSION II



*Bohol Integrated Agriculture
Promotion Project
Department of Agriculture
In Coordination with DA-LGU,
Ubay, Bohol*

June 1999

Introduction

The aftermath of the El Niño phenomenon and the current problems on pests and diseases (such as stemborer, blast, rice bug and tungro) has decreased rice yield levels in the BIAPP sub-site. This was enhanced by the asynchronous rice cultivation of farmers in the sub-site. Farmers persist on planting off-season rice to cover up for the great loss in production in the previous cropping seasons.

This edition of the technology recommendation brochure aims to provide farmers in the BIAPP sub-site with options and updated information regarding suitable cultivation practices and recommendations on variety, management of irrigation water in relation to the cropping calendar, management of prevailing pests and diseases, and postharvest management and storage of rice grain.

Recommended Varieties

From the results of variety trials and observation of variety performance in the farmers' fields, two varieties were found to have stable yield over several cropping seasons and tolerance to prevailing pests and diseases:

Ala (PSB Rc 18)

Average Yield

1995 Dry Season	4,895 kg/ha (122 bags/ha)
1996 Wet Season	4,930 kg/ha (123 bags/ha)
1997 Dry Season	4,812 kg/ha (120 bags/ha)
1999 Dry Season	4,700 kg/ha (118 bags/ha)

Agronomic Characters

Plant Height: 102 centimeters
 No. of Panicles/Hill: 13
 No. of Seeds/Panicle: 74
 1000-Grain Weight: 26.5 grams
 Filled Grain/Panicle: 78%
 Growth Duration: 116 days after sowing

Reaction to Diseases

Rice Blast Resistant
 Tungro Moderately Resistant
 Bacterial Blight Resistant

Reaction to Insect Pests

Stemborer Moderately Resistant
 Leaf folder Resistant
 Green Leafhopper Moderately Resistant

Jaro (PSB Rc 32)

Average Yield

1996 Wet Season	5,015 kg/ha (125 bags/ha)
1997 Dry Season	3,573 kg/ha (89 bags/ha)
1999 Dry Season	4,132 kg/ha (103 bags/ha)

Agronomic Characters

Plant Height: 94 centimeters
 No. of Panicles/Hill: 13
 No. of Seeds/Panicle: 68
 1000-Grain Weight: 25 grams
 Filled Grain/Panicle: 72%
 Growth Duration: 109 days after sowing

Reaction to Diseases

Rice Blast	Moderately Resistant
Tungro	Moderately Resistant
Bacterial Blight	Resistant

Reaction to Insect Pests

Stemborer	Moderately Resistant
Leaffolder	Moderately Resistant
Green Leafhopper	Moderately Resistant

Seed Sources

1. APC/BIAPP, Dao District, Tagbilaran City
2. Bohol Experiment Station, Gabi, Ubay, Bohol
3. Accredited Seed Growers in Ubay, Bohol and in other municipalities in Bohol

Seed Price

Registered Seeds	P 1,000.00/ 40 kg
Certified Seeds	P 730.00/ 40 kg

Seed and Seedbed

Seed Preparation

1. Use 25 gantas or 40 kg of seed for 1 hectare.
2. Use water (from irrigation canal or other nearby sources) in seed selection prior to seed soaking. Floating seeds should be discarded.
3. Soak seeds in the morning.
4. Incubate seeds the next morning.
5. Sow seeds in prepared seedbeds the following afternoon.

Seedbed

1. Use 400-sqm seedbed for 25 gantas or 40 kg of seed.
2. Sow two handfuls (approximately 100 grams) of pre-germinated seeds per 1 square meter.
3. No seedbed fertilization is required. However, organic fertilizers may be applied to promote vigorous seedlings. Inorganic fertilization may be done if seedling growth is very poor.
4. Irrigate the seedbed 2 to 3 days after sowing and keep seedbeds under submerged condition. Increase water depth gradually depending on the height of seedlings.
5. Pest and disease control may be applied as the need arises.
6. Transplant 16- to 25-day old seedlings.

Main Field Management

Field Preparation

1. Prepare field three weeks before transplanting. Fix all dikes and soak the field for 1 day to soften the soil. Plow field to incorporate weeds and rice stubbles for proper decomposition.
2. Harrow field twice prior to transplanting. Incorporate basal fertilizers before the second or final harrowing.
3. Puddling and leveling should be done before the scheduled transplanting. Importantly, field should be leveled properly to ensure uniform growth of rice crop.

Nutrient Management

1. Keep field at saturated condition and apply basal inorganic fertilizers before final harrowing and leveling using the recommended rate of 1 bag urea (46-0-0) + 2 bags diammonium diphosphate (18-46-0) + 1 bag muriate of potash (0-0-60) per hectare.
2. Mix basal fertilizers thoroughly before broadcasting into the soil.

3. Topdress 1 bag urea per hectare at 60 to 63 days after sowing for early maturing varieties and at 65 to 68 days after sowing for medium maturing varieties.
4. Refer to Table 1 for guidance on the amount of fertilizers for basal and topdress application based on the seed requirement.

Table 1. Fertilization Guide

Seed Req't (ganta)	Amount of Fertilizers (kg)			
	Basal Application			Topdress
	46-0-0	18-46-0	0-0-60	46-0-0
2	4	8	4	4
4	8	16	8	8
6	12	24	12	12
8	16	32	16	16
10	20	40	20	20
12	24	48	24	24
14	28	56	28	28
16	32	64	32	32
18	36	72	36	36
20	40	80	40	40
22	44	88	44	44
24	48	96	48	48
25	50	100	50	50

Transplanting and Replanting

1. Transplant the seedlings immediately after uprooting seedlings.
2. Practice 2-way straight row planting either at 20cm x 20cm (25 hills/sqm) or 20cm x 25cm (20 hills/sqm).
3. Practice shallow transplanting at a depth of 2 to 3 centimeters with 2 to 4 seedlings per hill.
4. Replant dead and dried up seedlings within 5 days after transplanting.

Management of Weeds, Pests & Diseases

1. Need-based chemical spraying/control. Consult with technicians from DA-LGU or from APC/BIAPP.
2. To control weeds, practice at least one hand- or rotary weeding at 2 to 3 weeks after transplanting. Practice proper land preparation and proper water management.
3. Synchronize planting schedule with neighboring fields. Ideally, the whole CIP area should schedule transplanting within a one-and-a-half month period, or one lateral canal service area may schedule transplanting within one month. Synchronization of planting schedule will reduce the build-up of insect pest populations (such as the stemborer, rice bug, and green leafhopper or GLH) as well as reduce the incidence of the rice tungro virus (RTV) disease.

4. RTV disease infects the rice crop at all growth stages but serious yield reduction will happen if infection starts at seedbed or early vegetative stage. Infection at a later stage of rice growth will result to lesser yield reduction however ratoons from previous crop will serve as virus source for the next crop. Effective countermeasures for the RTV disease are as follows:

- Synchronous planting by observing the cropping calendar thereby minimizing GLH build-up due to limited time plant host is available.
- Planting of recommended varieties like PSB Rc 18 (Ala) and PSB Rc 32 (Jaro). These varieties are tolerant to GLH or tungro damage.
- Plowing should be done immediately after harvest to avoid ratoons that may serve as virus source for the next crop.
- Observing strict field sanitation to eliminate alternate hosts of the virus and the vector.
- Allowing at least a two- to three-week fallow period to eliminate hosts of the virus and the vector.
- Applying chemicals only when needed to prevent eradication of natural enemies and beneficial insects and avoid additional expenses. Technicians from DA-LGU and APC/BIAPP should be consulted regarding proper chemical control of insect pests.

5. Handpicking and crushing of eggs of the golden apple snail or *kuhol* may control its population thereby minimizing crop damage.
6. Other recommended control measures for the golden apple snail are as follows:
 - Field should be leveled well prior to transplanting to minimize *water holes* where the golden apple snail will thrive.
 - Plant older seedlings (25 to 30 days after sowing).
 - Put screens in inlets of irrigation canals to minimize introduction of snails into the field.
 - After transplanting, maintain saturated condition of the field (no standing water) for 2 to 3 weeks. Movement of snails will be minimized therefore less crop damage. Irrigate field only at 3 weeks after transplanting. By this time, the golden apple snail will prefer to feed on young weeds and less on the growing rice seedlings.
 - In areas with drainage problem, construct small canals or *water holes* in the center of the field. The golden apple snail will concentrate on these areas therefore collection of snails will be facilitated.
 - Pasture ducks in the field after harvest until a day before final harrowing for the next cropping season. Ducks are efficient predators of snails.
 - Collect snails and use them as feed for poultry and livestock.

- Use small farm machines in land preparation. This will effectively crush snails during operation.
- Culture freshwater fishes, such as *Tilapia*, carp, and mudfish (locally known as *halwan*), and turtles in water impounding systems or small farm reservoirs. These are also efficient predators of the golden apple snail.

Water Management

1. Keep the field at saturated condition 2 to 3 weeks after transplanting. Introduce irrigation water on the third week after transplanting.
2. Gradually increase water depth as tillering starts and maintain the field in submerged condition in all stages of plant growth.
3. Reduce water depth during weeding operation and when topdressing fertilizers.
4. Drain water from the field two weeks before harvest.

POSTHARVEST AND STORAGE

Harvest and postharvest practices often determine the quality of milled rice. Immediate and

proper drying of paddy rice after harvest contributes to high quality milled rice (with 80 to 90% whole grains) that commands a higher price in the market.

Appropriate harvest and postharvest practices are as follows:

Harvesting and Threshing

- Harvest rice when 80 to 85% of the grains have matured.
- Gather cut rice in areas that are not easily flooded and cover to protect from rain.
- Refrain from harvesting rice if it is raining or after it has rained and rice is still wet.
- Thresh and clean paddy rice immediately after harvest.

Drying

- Drying of paddy rice should be done immediately after threshing and cleaning.
- Dry paddy rice on canvass sheets or *ramie* material, not directly on the ground or pavement. This will minimize fissures in the rice grain that may contribute to more broken rice at milling.
- Spread paddy rice evenly on the drying sheet to a thickness of 1 inch.

- Turn over dried paddy rice after every 30 minutes. This will promote even and uniform drying of paddy rice.
- In case of rain, cover paddy rice at once and keep it in a dry place.
- Drying should be done until approximately 14% moisture content of the grains have been attained.

Storage

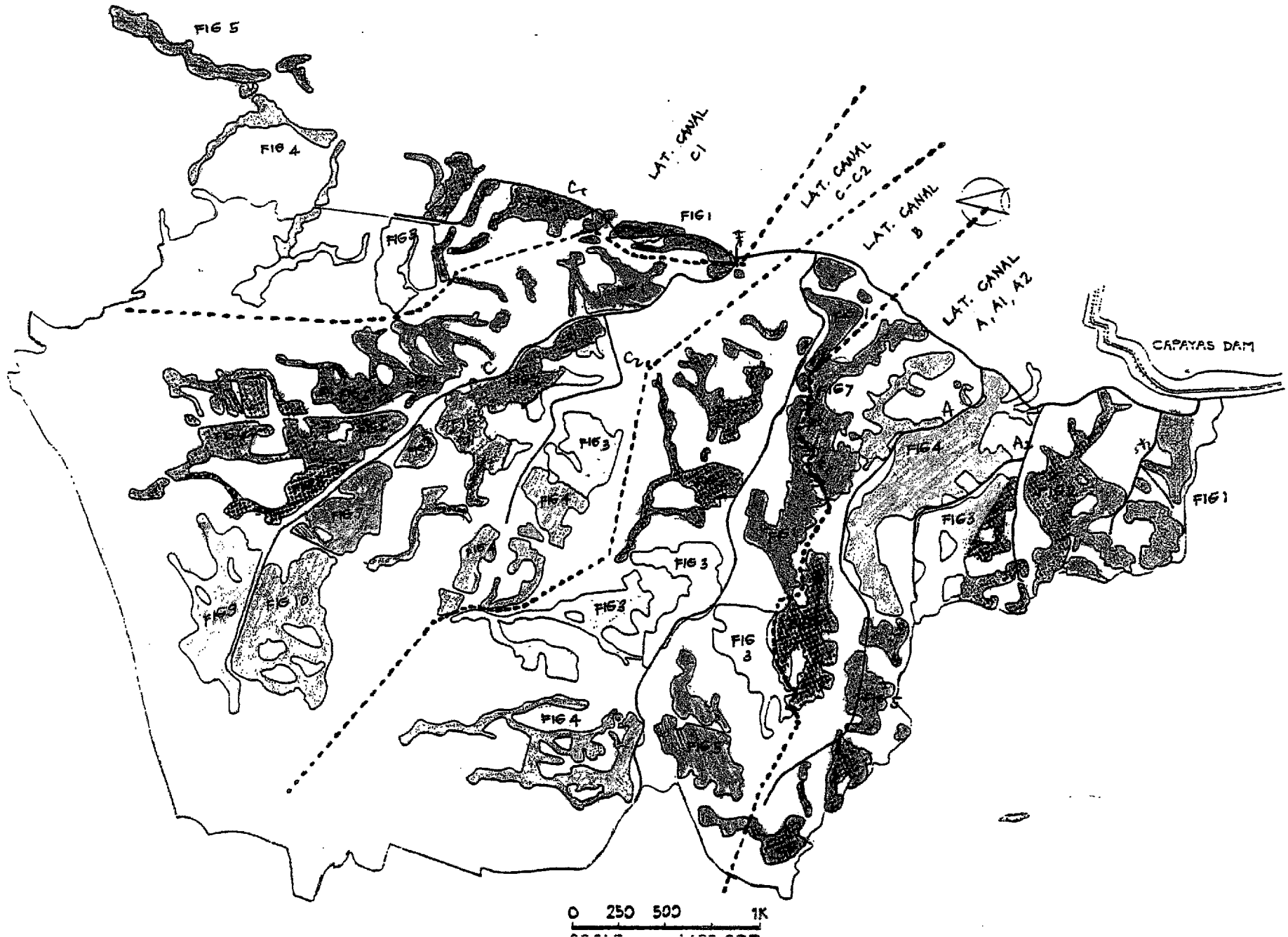
- Store paddy rice in a dry and secure place where there is less infestation of storage pests.
- Check on the stored paddy rice from time to time for any sign of damage.
- Check moisture content of stored paddy rice. If moisture content is higher than 14%, dry paddy rice again.

Other Practices

- All harvested fields should be plowed immediately after harvest to eliminate hosts of virus diseases and its insect vectors.
- After every Dry Season planting, spread rice straw all over the field to let it dry up and decompose eventually. Do not burn rice straw.
- After every Wet Season planting, pile up all rice straw in one part of the field to let it decompose.

- Keep records of all information regarding farm operations and farming expenses, such as dates of sowing and transplanting, seed and fertilizer expenses, labor expenses, among others.

LOCATION OF DIFFERENT FIG's



5. FIGごとの水田分布図

6. 水管理・水利組合関係補足資料

(1) 幹線及び支線水路の操作・維持ガイドライン概要

1) 操作ガイドライン

a. 幹線水路

作付け期別により流量を次の3区分となるよう幹線水路のゲート操作を行う。

- 代かき時期の灌漑最大時 - $1.4\text{m}^3/\text{s}$
- 普通期 - $1.0\text{m}^3/\text{s} \sim 1.2\text{m}^3/\text{s}$
- 灌漑開始と最終の2週間 - $0.6\text{m}^3/\text{s} \sim 0.8\text{m}^3/\text{s}$
- 灌漑開始と最終の2週間 - $0.6\text{m}^3/\text{s} \sim 0.8\text{m}^3/\text{s}$

b. 支線水路

- ・受益面積に対応し公平な水配分となるよう幹線水路の流量に応じ分水工のゲート操作を行う。
- ・BHIP 2側が幹線水路から各支線水路へ用水を引き込むため、ゲートキーパーが行うゲート開度の調整も年2～4回程度でよい。

Lat.	面積	幹線水路の流量 Q									
		$1.4\text{m}^3/\text{s}$		$1.2\text{m}^3/\text{s}$		$1.0\text{m}^3/\text{s}$		$0.8\text{m}^3/\text{s}$		$0.6\text{m}^3/\text{s}$	
		Q	ゲート	Q	ゲート	Q	ゲート	Q	ゲート	Q	ゲート
A1	24.0	0.064	29	0.054	28	0.045	27	0.036	26	0.027	25
A2	41.9	0.111	39	0.095	36	0.079	33	0.063	30	0.048	28
A	67.0	0.171	19	0.152	18	0.127	16	0.101	14	0.076	12
B	138.4	0.366	40	0.314	38	0.262	34	0.209	31	0.157	28
CC2	183.6	0.486	66	0.416	57	0.347	48	0.278	40	0.208	31
C1	53.5	0.142	26	0.121	22	0.101	19	0.081	16	0.061	12

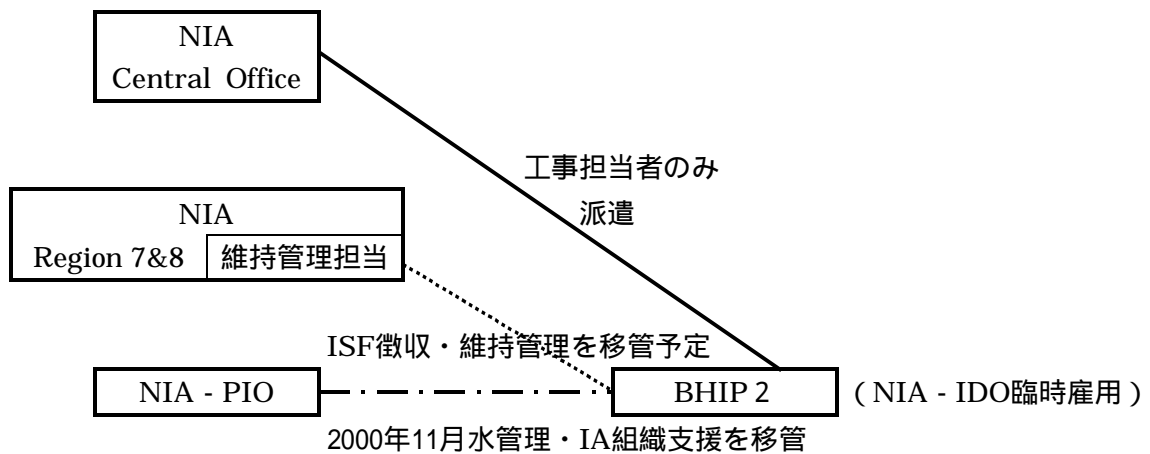
c. 他ルール

- ・10mm以上降雨があった翌日は灌漑しない。
- ・ダム洪水吐から越流する時は24時間灌漑とする。
- ・水不足の場合、4IAとNIAは協議の上、灌漑地域を特定し不足の地域に対して12時間灌漑を14～16時間灌漑、また日曜日も灌漑する。

2) 維持管理ガイドライン

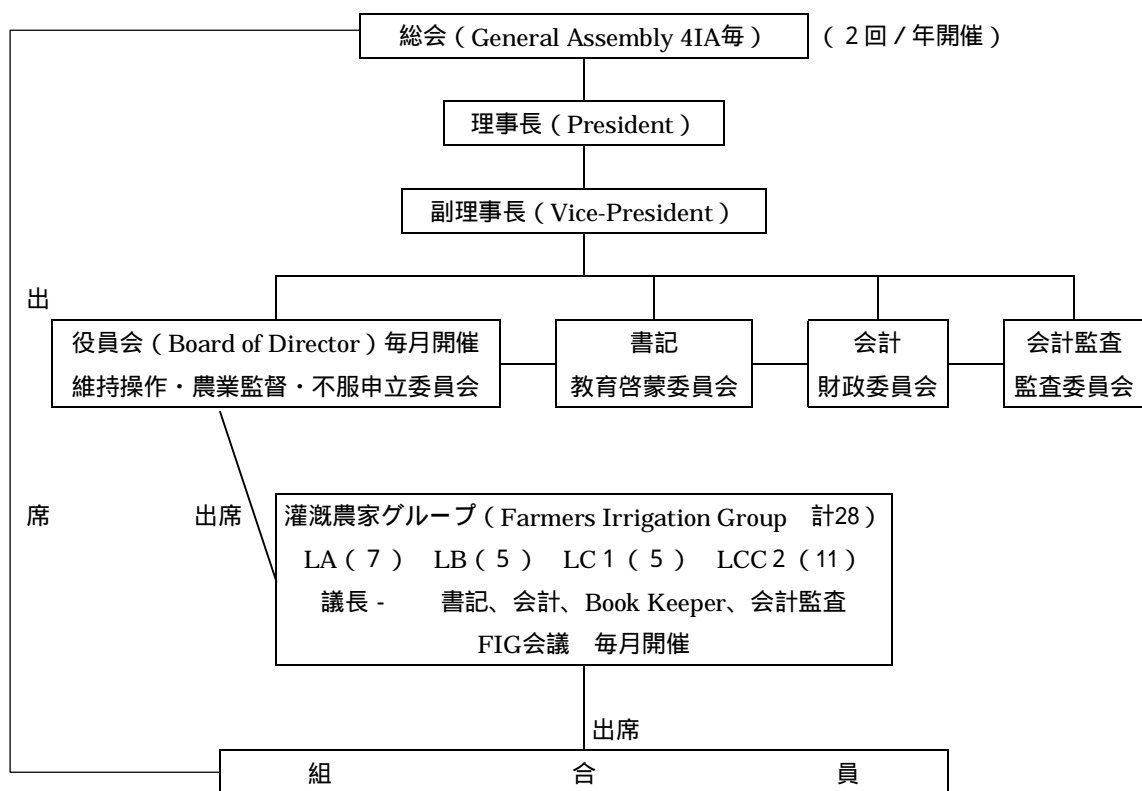
- ・水路清掃は毎灌漑前に水路清掃を行う（但しNIAが行うべき幹線水路は未実施）。
- ・幹線から各ラテラルへ配水するためのゲートが4つあるが、日常点検（油をさす等）の維持管理は必要なく、特段の維持管理規程は不要。また、操作規程はこれまでの経験から旬間、日間、時間毎の詳細な操作を要しない。

(2) CIPにおけるNIA水管理・維持管理・ISF徴収体制



注) BHIP 2 の新規受益者に対するIA組織支援 (TYPE 2) のためBHIP 2 には組織開発班 (IDD = Institutional Development Division) があり、現在、係長 (Chief) - 係長補佐の下に7人のIDOが臨時雇用されており、うち1人がカパヤス地区を担当することとなっているが、7月現在カパヤス担当のIDOは不在。

(3) IAの組織図と各種会議



(4) 規則見直し

	見直し前	見直し後
組合員費	5 ペソ	10ペソ (5-IA、2-BFIA、2-RCIA、1-NCIA)
ISF	175kg / ha	125kg / ha
GA会議	1 回 / 年	2 回 / 年 (全員)
BOD会議	1 回 / 年	1 回 / 月 (IA役員、委員会役員、FIG議長)
FIG会議	-	1 回 / 月 (全員)
IA役員 (組長・副組長)	不明	FIG議長から選出
〃 (書記・会計・会計監査)	不明	組合員から選出

ISF (125kg / ha相当の現金) の内容

			IAの収入		NIAの収入		備 考
	雨期	乾期	雨期	乾期	雨期	乾期	
ISF (Irrigation Service Fee)	75	100	37.5	50	37.5	50	50%NIA、50%IA
ASF (Addition Service Fee)	50	25	50	25	-	-	全額IAへ
合 計	125	125	87.5	75			
			70%	60%	30%	40%	

(5) ISF徴収の仕組み (LIPA = List of Irrigation Plantede Area)

- ・ 各IAのISF徴収担当者 (5 役以外) はLIPA (組合員、面積、地番) を作成 (作付後10日以内)
- ・ IA理事長は作成されたLIPAをBHIP 2 プロジェクトマネージャーへ提出・承認
- ・ LIPAに基づき各FIG議長を通しISF徴収者へ請求書を配布、関係農家へ配布 (刈取り前30日以内)
- ・ ISF徴収者は農家からISFを徴収 (期限: 雨期12月30日まで、乾期 6 月30日)
- ・ IA理事長を通してBHIP 2 プロジェクトマネージャーへ提出

(6) ISF徴収率（受益面積、受益者の変遷）

	ISF徴収率	ISF徴収面積	受益面積（全て水田植栽面積）	受益者
93年	- 54%	121ha	301ha	
94年	- 54%	122,152ha	333、364ha	
95年	- 54%	158,234ha	390、436ha	
96年	- 51%	330ha	465ha	
96年7月～97年8月	ダム嵩上げ工事			
97年12月～98年12月	エルニーニョ			
99年WS	- 46%		530ha	
00年DS	- 61%		530ha	
WS	- 51%		530ha	530
01年DS	-			

93年～96年の徴収率は50%以上というNIA規則に基づき、IDOが人為的に調整しNIAへ報告したものと考えられる。ISFを徴収した証拠が明らかにされていない。余談ながら、当該疑惑主は未だBHIP 2内に勤務している。

(7) プサオとカパヤスの比較（プサオがISF徴収率が100%な理由）

	プサオ	カパヤス
・ ISFが安い	ISF乾期40kg / ha、雨期80kg / ha	乾期、雨期とも125kg / ha
・ 用水量	豊富（毎日灌漑）	不足（2日灌漑 / 1週間）
・ 受益面積 / 農家戸数	26ha / 80戸 / 4ブロック （小規模）	530ha / 530戸 / 4ブロック （中規模）
・ 農家の結束	強い（元々の住民、血縁関係）	弱い（移住者、通いが多い）

角田短期専門家は、カパヤス農家はプサオをスタディツアーすべきとの提言をされ、実施されたがその成果は甚だ不明。

INFRASTRUCTURES

of farm-to-market roads
in of Integrated Water Management

of Construction and O & M Equipment

WATER DEVELOPMENT

of 12 Irrigators Associations
of the existing 4 IAs in CIS

PROJECT FEATURES

Volume : ZONED EARTHFILL
: 35.50 M.
: 855 M.
Volume : 1.1 MCM
Discharge : 6.36 CU.M./SEC.
: TUNNEL
Discharge : 74 CU.M./SEC.
: UNGATED CHUTE

Area : 11.20 SQ.KM.
(FOR BAYONGAN)
138.8 SQ. KM.
(FOR MALINAO)
: 314 HAS.
Level : ELEV. 52.00 M.
Level : ELEV. 41.00 M.
Capacity : 34.60 MCM
Voiur cap. : 25.10 MCM
Capacity : 9.50 MCM

Length : 12.60 KM.
Length : 55.86 KM.

: 1,230 HAS.
: 2,910 HAS.
: 1,160 HAS.

: 3,605 FARMERS

PROJECT COST ESTIMATE

	P'000
I. Construction Cost	
1. Preparation Works	16,500
2. Bayongan Dam & Appurtenant Struct.	899,301
3. Bayongan & Capayas Irrigation System	340,958
4. Force Account Works	164,533
II. Procurement of Equipment	134,750
III. Integrated Water Management System	7,500
IV. Consulting Services	216,201
V. Land Acquisition and Compensation	43,625
VI. Administration Cost	96,430
VII. Price Escalation	160,455
VIII. Physical Contingencies	104,014
IX. Tax	200,148
TOTAL	2,384,415

**PROJECT IMPLEMENTATION STATUS AS OF
30 JUNE 2001**

A. Physical Status (%)

	CY 2000	OVERALL
	Target - 51.54	1.19
	Actual - 50.95	1.18

B. Financial Status

	CY 2001	OVERALL
	Target - 63.74 M (44.09%)	90.38M (3.79%)
	Actual - 55.48 M (38.38%)	82.12M (3.43%)

C. Status of Current Year Allocation

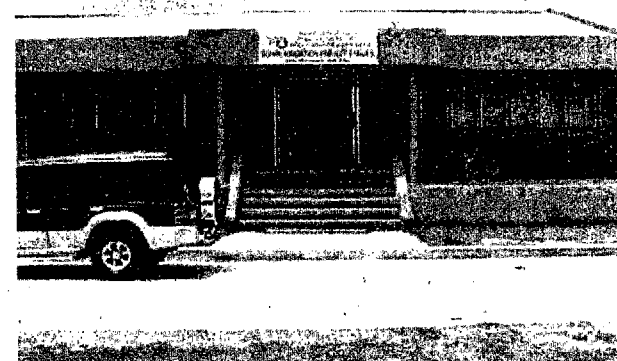
CY Programmed Amount - P	144,567,973.00
Overall Program	- 2,384,415,000.00

For more information write or call:

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Department of Agriculture
NATIONAL IRRIGATION ADMINISTRATION
BOHOL IRRIGATION PROJECT STAGE II



GENERAL INFORMATION

&

PROJECT UPDATE

As of 30 June 2001

HISTORICAL BACKGROUND

OBJECTIVES

GENERAL INFORMATION

PROJECT : BOHOL IRRIGATION PROJECT
STAGE II

AGENCY : NATIONAL IRRIGATION
ADMINISTRATION

FINANCING : JAPAN BANK FOR
INTERNATIONAL
COOPERATION (JBIC)

ESTIMATED COST : P 2.384 BILLION

SCHEDULED : YEAR 2000 - 2005

AREA : 5,300 HECTARES, INCLUDING
750 HAS. OF EXISTING AREA
AT CAPAYAS SYSTEM

PERMANENT AREA : 3,605

OWNER : SAN MIGUEL, UBAY AND
TRINIDAD

START DATE : DECEMBER 28, 1999

COMPLETION DATE : DECEMBER 28, 1998

FINANCING : 15.58%

PROCUREMENT : INT'L. COMPETITIVE
BIDDING

CONSULTANT : NIPPON KOEI CO. LTD IN
ASSOCIATION WITH PKII
ENGRS, IPI AND SDS

Formulated as WAHIG-PAMACRSALAN IRRIGATION PROJECT in 1972, the project has evolved into what is now BOHOL IRRIGATION PROJECT (BHIP), an irrigation component of BOHOL INTEGRATED AREA DEVELOPMENT PROJECT. The Feasibility Study conducted in 1980-82 with financial assistance from DECF under PH-P35, conceived to irrigate more than 10,000 has. of farm lands in the north eastern part of the province when completed. The over-all project development provided for a multi-stage project implementation and integrated systems operation of the following systems;

Malinao Irrigation System (Stage I) - 4,960 has.
Capayas Irrigation System - 1,160 has. (Including
Capayas extension)
Bayongan Irrigation System (Stage II) - 4,140 has.

On September 1983 OECF loan PH-P63 was approved in the amount of ₱ 4.6 billion for the implementation of Stage I. Almost simultaneously with Stage I, Capayas Irrigation Project financed out of JICA grant fund was implemented and completed in 1991 whose advance operation will serve as demonstration and show window for irrigated agriculture in the area in anticipation for the completion of a much bigger areas of Stages I & II in the near future.

After completion of Stage I in 1996, Detailed Engineering for Stage II was immediately conducted utilizing Stage I loan balance. After complying and meeting with the requirements of NEDA-ICC, the project was included for negotiation in the 23rd Yen loan package. Finally on December 28, 1999 a loan with Japan Bank for International Cooperation (JBIC) was approved in the amount of ₱ 6.078 billion (PH-P202) for BHIP Stage II project implementation. Exactly one year ahead though, the Project's Environmental Compliance Certificate (ECC) was granted by EMB-DENR on December 28, 1998.

THE PROJECT AREA

The project area is located in the north-eastern part of Bohol island and approximately 100 kms. from Tagbilaran City, the capital of Bohol province. The irrigation area lies on elevation 40 m to 5 m. from south to north direction with mildly undulating hilly topography located in the municipalities of SAN MIGUEL, UBAY and TRINIDAD. The area is formed by the sedimentary formation consisting mainly of siltstone, mudstone and sandstone. The proposed Bayongan Dam and Reservoir is located about 6 km. south-east of SAN MIGUEL. It is situated across Bayongan river just downstream of the confluence of two creeks. The reservoir area covers *barangays Sto. Niño, Bayongan and Camanaga of SAN MIGUEL, La Suerte of PILAR, and Los Angeles and Buenavista of UBAY.*

- a. To establish irrigated agricultural development of the province.
- b. To increase agricultural productivity and income of inhabitants in and around the project area
- c. To improve farmers living standard.
- d. To increase employment opportunities in the area.
- e. To contribute to the development of the rural socio-economic conditions.
- f. To provide stable rice supply to Central Visayas region.
- g. To become rice granary of the Central Visayas region

SCHEME OF DEVELOPMENT

Because of the very small catchment area of Stage II Bayongan reservoir (11.2 sq.km.), most of its water supply will come from Malinao reservoir of Stage I with a catchment area of 138.8 sq.km. It is estimated that about 63.5 MCM of water per year will be transferred from Malinao reservoir to Bayongan reservoir thru Malinao Main canal previously designed and constructed to accommodate the required discharge.

At km. 16 + 880 of Stage I main canal, a spillway structure will be constructed and connected to a concrete chute which will divert and convey water down to Stage II reservoir located at an elevation approximately 100 meters below stage I service area with a gross storage capacity of 34.6 MCM.

The Bayongan (Stage II) main canal is so designed to act as link canal to the existing Capayas reservoir to augment water supply thereto to cope up with the water requirement of proposed extension area included in BHIP Stage II project implementation.

Upon completion, a state of the art telemetering instruments/devices shall be installed to hasten the complex task of multi-reservoir operations.

SCOPE OF WORK

- A) CIVIL WORKS
 1. Construction of 35.5 m. zoned earthfill reservoir dam
 2. Construction of diversion chute from BHIP Stage I main canal to Bayongan reservoir, BHIP Stage II
 3. Construction of Bayongan Main Canal to connect Capayas reservoir
 4. Construction of Canal distribution network to 4,550 has. of new areas
 5. Construction of Drainage Facilities
 6. Rehabilitation and extension of Capayas laterals
 7. Construction of on-farm level facilities

8. プロジェクト終了時組織体制概念図

平成11年7月19日

ボホール総合農業振興計画 (BIAPP)

プロジェクト終了時の組織体制概念図 (時田私案)

