

## **CHAPTER 10    MANUALS AND CAMPAIGN TOOLS FOR IA STRENGTHENING**

### **10.1    Manuals**

#### 10.1.1    Framework of Manuals

The 45 sets of existing manuals and modules prepared by the IDD, SMD, Project Offices of previous irrigation development projects, and other donor agencies were collected, reviewed and examined. Most manuals were prepared for the use of the NIA's staff and trainers. There was little material in the manuals for the use of IAs and farmers, and generally there was none for specific strengthening of IA's activities.

Needs assessment was undertaken in identifying the manual requirements of both the NIA and IA. As a result of this process, the target manual users for IA strengthening were identified for both the NIA and IA. The composition and contents of the manuals were designed as follows:

- (a) IA Strengthening Module (for trainers use)
  - Introduction
  - NISO-IA management module
  - Guide for Project Cycle Assistance for IA strengthening
  - Directory of existing manuals and modules
- (b) Steward of Water, A guide for Farmers (for IA member farmers)
  - Stewardship of water
  - Farmer's guide to managing the irrigation system
  - Attachment (key forms and references)
- (c) Maintenance and Rehabilitation Guide for Irrigators Association Members (for IA member farmers)
  - First step in implementing maintenance and rehabilitation
  - Maintenance
  - Rehabilitation
  - Important basic tips on construction works

#### 10.1.2    Manual Contents

Most of the contents, with the exception of the reference materials, were drafted during the field survey. One set was for trainers and two sets were for IA farmer

members. These manuals were verified and finalized, applying the comments from the NIA's field staff and IA members during the field work.

(1) IA Strengthening Module (for trainers use)

The manual covers the whole spectrum of activities in pre-irrigation, irrigation and post-irrigation during the entire cycle of cropping seasons. The manual specifies the activities that should be done per hierarchical level of the organization. The module focused on the flow of IA management, comprising stepwise activities as shown in Figure 10.1. The step-by-step process was guided by the following contents:

- Objectives;
- Outputs with respective reference material;
- Procedural activities referred by each output;
- Input requirement;
- Pre-conditions;
- Technical information for key issues; and
- Source of further information (reference)

The “Guide for PCM for IA Strengthening” is aimed at applying participatory assessment of IA activities using the PCM method. The guide covers, among other things, a brief on PCM, instructions for facilitation, and monitoring and evaluation through an IA functionality survey. The directory of existing manuals and modules is a list of manuals and modules with brief contents and comments. The directory answers further technical questions for NIA staff and trainers.

(2) Steward of Water, A guide for Farmers (for IA member farmers)

The IA guidebook is an informative medium detailing specifically the roles and responsibilities of being an IA member. The responsibilities focus on water conservation, protection and maintenance of systems, payment of dues and other water fees, and participation in O&M activities. Illustrations were made to simplify presentations.

(3) Maintenance and Rehabilitation Guide for Irrigators Association Members (for IA member farmers)

The manual presents, in a simple way, how an IA member can perform his/her role in maintenance and rehabilitation works. The definition of technical terms was simplified for easy understanding and procedures for actual maintenance and rehabilitation were localized for ease in application. Illustrations were included to enhance the learning process.

## 10.2 Campaign Video Programs

Three sets of campaign video programs were prepared in the Study. The contents are briefly described below:

- (1) Video Program 1: A Day in the Life of Mang Conrado (A success story, featuring a member of Badagoy Irrigators Association)

The video program covered an introduction to Badagoy IA's history, activities and informative features that led to its success. The video is intended to motivate other IAs to become strong and self-reliant organizations. The outline of the video program is summarized as follows:

1. Intro: Mang Matias on a typical day
2. Badagoy: the irrigation system and the association
3. How it all began (A bit of history)
4. The brave 18 (1949)
  - The long journey
5. What's been done
  - Awards and commendations
  - Irrigated area and cropping intensity
  - ISF collection efficiency without service fees collectors (80-96%)
  - Equity generation (P500,000 raised 1968-1978); IA has no loan
  - Solvency and diversified income sources
  - Membership growth (200 to 1,350)
  - Regular meetings with high turnout at meetings (96-100%)
  - Monitoring functions successfully devolved to 15 districts
  - Support for livelihood projects (tilapia and hito fishpond), duck and egg production, vegetable garden
  - Special assistance to members
  - Assistance to communities: Chapel improvement, road construction, setting up of potable water facilities, participation in community functions such as fiestas and town anniversaries, loaning of furniture
  - Satisfied membership (consistently Outstanding functionality survey results (93-111% in 1996-2000)
6. How they do it (Operating features)
  - Cropping calendar
  - Water distribution scheme
  - ISF collection
  - Meetings
  - Rewards and penalties
  - Repair and maintenance
  - Complete documentation and record-keeping
  - Continuous institutional development
7. People make a difference (The organization responsible)
  - The officers
  - The members

- (2) Video Program 2: Enhancing NIA-IA Partnership in Irrigation System Management

The video describes the NIA and IAs as entities sharing the responsibility of managing irrigation systems successfully. It explains the respective roles and responsibilities of the organizations, discusses issues and problems related to

irrigation management, and presents the NIA-IA partnership as a strategy to achieve sustainable irrigation systems. The outline of the video is summarized as follows:

1. Introduction: Importance of irrigation in increasing farm productivity
2. NIA and IAs: Sharing the responsibility for developing sustainable irrigation systems
3. Sustainability issues and problems in irrigation
  - Costs and unrealized benefits
  - Problems
4. Confronting the issues and problems
  - Indicators of success
  - Dynamic NIA-IA partnership
5. Closing message: creed for successful NIA-IA partnership

### (3) Video Program 3: Approaches to Strengthening Irrigators' Associations

The video discusses recommended measures to strengthen irrigators associations. It explains the concepts and describes the basic steps involved. It features presentation by trainers as well as testimonials of IA leaders who have experienced implementation of specific approaches. The outline of the video is summarized as follows:

1. Introduction: Results of IA functionality surveys in the last 3 years
2. Strengthening IA members' critical thinking: project cycle management (PCM)
3. Steps in conducting PCM workshops
  - Participation analysis
  - Problem analysis
  - Objective analysis
  - Alternative analysis
  - Project design matrix
  - Operational plan
4. Recommended concepts for strengthening IA
  - Synchronized irrigation farming management
  - Farmland trust
  - Assembly market
5. Conclusion: The challenge of building organizational strength

## 10.3 Campaign Posters

A campaign poster, enticing the IAs to become strong organizations, was designed for use with representative NISs and IAs during the second field survey. Considering the present situation of IAs, roles of IAs in countryside development, and suggestions from workshop participants, the JICA Study Team prepared some campaign slogans. The draft campaign poster was submitted together with the Interim Report and used as a campaign tool in the second field survey. Based on the comments from NISs and IAs, the draft campaign poster was refined for mass production.

## 10.4 Homepage

The Study Team prepared and discussed with NIA counterparts the contents and schedule for introducing the JICA Study through the NIA web site. Opening a homepage for the JICA Study on the NIA web site was agreed by the NIA and the information on the JICA Study was presented as follows:

(a) Year 2002

August : Background, objectives, approach, schedule and methodologies of the study

December : Study results on classification of NISs and IAs, and summary of Interim Report

(b) Year 2003

January : Survey activities and findings at the model project sites for formulation of IA strengthening action plan

February : Introduction of GIS and database systems on NISs and IAs

March : Introduction of Action Plan for IA strengthening

The Electronic Data Processing (EDP) staff, under the NIA Corporate Planning, maintain the NIA homepage. The EDP staff are now revising the NIA web site to integrate it with the DA web site according to the DA's recommended guidelines. The NIA web site, leasing the CYBERSPACE server in 2002, was integrated with the DA's national information network in 2003.

## CHAPTER 11 IMPLEMENTING ORGANIZATION, COST ESTIMATE AND EVALUATION OF PILOT IA STRENGTHENING PROJECT

### 11.1 Organization for Project Implementation

Appropriate organizational structures and working committees will be established and designated at the central, region and field offices to facilitate execution of project activities in the pilot NISs. At the central office, a project management office will be established as the overall technical and financial coordinator. A steering committee will also be created to assist the Project Management Office (PMO) in making policy-decisions. Counterpart offices will be established at the region and field offices for execution of project activities. The proposed offices will be given sufficient authority as regards utilization of budget and staff, subject to the usual accounting and auditing rules, to minimize costly delays in project implementation. The proposed units and corresponding staff are shown in Figure 11.1 and summarized below.

**Project Implementation Organization : Proposed Units and Staff**

Central	Region	Field
<b>Unit</b>		
(1)Project Management Office, under IDD as lead department	Regional Pilot Team, with Region IDD as lead division	Field Pilot Team, with NISO as lead
(2)Steering Committee		
<b>Function</b>		
Overall technical and financial coordination	Regional coordination	Prepare program of work and budget Facilitate and execute day-to-day activities
<b>Staff</b>		
<ul style="list-style-type: none"> <li>• Project Manager (1)</li> <li>• Assistant Project Manager (1)</li> <li>• Institutional Development Officer (1)</li> <li>• Engineer (2)</li> <li>• Administrative/Finance (1)</li> </ul>	<ul style="list-style-type: none"> <li>• Regional Coordinator (1)</li> <li>• Institutional Development Officer (1)</li> <li>• Engineer (1)</li> </ul>	<ul style="list-style-type: none"> <li>• Team Leader (NISO Superintendent)</li> <li>• Coordinator (Incumbent IDO)</li> <li>• IA Representative (on call)</li> <li>• LGU Representative (on call)</li> </ul>

Note: Figure in parenthesis shows number of staff  
Source: Study Team

### 11.2 Project Cost Estimate

#### 11.2.1 Cost Estimate for Pilot Projects

Total costs for the pilot IAs in six NISs are composed of (i) institutional

development cost, (ii) system rectification cost, and (iii) administrative cost. The administrative cost includes the NIA management cost, and engineering, supervision and administrative cost of NIA offices. The total cost for the pilot projects given below is estimated at about Php 182.7 million.

**Total Project Cost for Pilot Project**

Work Items	Cost (Php '000)
1. Institutional Development Cost	68,531
2. System Rectification Cost	83,734
Sub-total of Direct Cost	152,265
3. Administrative Cost	30,453
Total	182,718

Source: Study Team

### 11.2.2 Cost Estimate for National Replication

The project cost was estimated at Php 22.7 billion or US\$ 434 million, consisting of Php 921 million (US\$ 18.4 million) for the six (6) Pilot NISs and Php 20.8 billion (US\$ 416 million) for the rest of the eligible NISs and summarized below.

**Cost Estimate of Nationwide Replication Cost**

Description	Nos.of NIS	Service Area (ha)	Estimated Project Cost (Php million)			
			Institutional Development	System Rectification		Total
				Lateral	Main	
Six Pilot NISs	6	15,340	0 (US\$ 0 mil)	239 (US\$ 4.8 mil)	682 (US\$ 13.6 mil)	921 (US\$ 18.4 mil)
Rest NISs	147	473,130	1,204 (US\$ 24.1 mil)	6,799 (US\$ 136.0 mil)	12,775 (US\$ 255.5 mil)	20,778 (US\$ 415.6 mil)
Total	153	488,470	1,204 (US\$ 24.1 mil)	7,038 (US\$ 140.8 mil)	13,457 (US\$ 269.1 mil)	21,699 (US\$ 434 mil)

Source: Study Team

## 11.3 Project Benefit Estimate and Evaluation

### 11.3.1 Financial Pilot Project Evaluation

#### (1) Pilot Project Benefits

The following project benefits are expected based on the assumptions applied:

##### 1) Increase in cropping intensity under irrigation

An increase in cropping intensity by at least 5% during the wet and dry seasons is expected in all of the pilot NIS areas by applying rotational irrigation water distribution and water saving farming. In addition, the

irrigation facilities in the pilot IA areas of will be rehabilitated. The increase in cropping intensity of pilot IA areas was assumed to increase by at least 10%. The harvested area of the pilot NISs will increase as follows.

**Area Harvested with and without Project Conditions (unit: ha)**

NIS	Physical Area (ha)	Present/ Without Project		Future/ With Project		Increment	
		Wet	Dry	Wet	Dry	Wet	Dry
SanFabian	2,288	1,510	1,120	1,620	1,190	110	70
Angat	4,151	2,700	3,650	2,860	3,780	160	130
Bago	12,700	7,490	7,620	8,000	7,870	510	250
Labangan	3,195	1,850	1,920	2,040	2,110	190	190
Pulangui	11,415	9,700	9,930	10,270	10,390	570	460
Mal	2,613	2,380	1,860	2,530	1,910	150	50

Source: Study Team

## 2) Increase in crop productivity

Certified seed, fertilizers, agro-chemicals and proper farming practices will be intensively applied under the IAs' farmland trust management, together with technical assistance from NISO and other concerned line agencies. At least 0.3 ton/ha increased productivity of paddy rice is therefore expected for the area of pilot IAs and 0.1 ton/ha for the pilot NIS areas without IAs. The paddy production will increase as follows.

**Paddy Production with and without Project Conditions (Unit: ton)**

Area	Present/ Without Project	Future/ With Project	Increment
SanFabian	10,040	10,890	850
Angat	25,110	26,760	1,650
Bago	52,080	55,730	3,650
Labangan	13,150	15,160	2,010
Pulangui	75,450	80,590	5,140
Mal	19,440	20,360	920

Source: Study Team

## 3) Increase in ISF collection

The above increases in cropping intensity and crop productivity will be accrued by the IA's organizational strengthening and rational O&M activities, which subsequently increase the ISF collection efficiency. The ISF is expected to achieve a collection efficiency of 80% at the end of the pilot period. The ISF collection of the pilot NISO was estimated as



follows.

**ISF Collection with and without Project Conditions (Unit: Php ‘000)**

Area	Present/ Without Project	Future/ With Project	Increment
SanFabian	1,119.0	2,322.0	1,202.2
Angat	2,219.2	7,050.8	4,831.6
Bago	5,548.	13,619.6	8,071.6
Labangan	1,681.4	3,584.4	1,903.0
Pulangui	10,782.0	17,794.0	7,012.0
Mal	2,795.7	3,884.4	1,088.7

Source: Study Team

4) Decrease in O&M cost

The pilot NISs will reduce their O&M cost, specifically on manpower expenditure, due to the transfer of O&M to the IAs, and the introduction of a computerized billing system for the ISF collection.

(2) Financial Pilot Project Evaluation

1) O&M Cost for NISO

The ISF to be collected in the future will be shared by IAs under the JSM contract. Applying the present level of ISF rate per ha, an equivalent amount at 50% of ISF collection efficiency will be remitted to the NIS, while the other half will be retained by the IAs for O&M and other rehabilitation costs. In this Study, the applicable O&M cost for NIS management was assessed considering the available income from ISF and other sources, the ISF sharing with IAs, and NIA management cost requirements at 10% of the NIA’s share. The available O&M cost per ha will vary from Php 550/ha to Php 1,320/ha. The WB-funded IOSP II estimated the ideal O&M cost at about Php 1,500/ha.

Based on the available funds from pilot NISs in the future, Angat, Pulangui and Mal RISs are expected to have more than enough revenue to satisfy the Php 1,500/ha O&M cost. San Fabian and Bago NISs, however, will not be able to cover the ideal O&M cost and hence there is a need to further reduce the cost. The only way to do that is to rehabilitate the systems so that efficiency will improve.

**Financial Assessment of NISO Income and Expenditure for Pilot Project**

Item	San Fabian 2,288 ha	Angat 4,151 ha	Bago 12,700 ha	Labangan 3,195 ha	Pulangui 11,415 ha	Mal 2,613 ha
<u>Present/Without Project (Php)</u>						
1. Income	1,378,100	4,430,900	5,718,100	2,590,300	13,867,100	3,662,300
(Per ha)	(600)	(1,070)	(450)	(810)	(1,210)	(1,400)
2. Expenditure	2,392,000	4,570,800	7,599,000	2,248,600	11,118,600	2,028,400
(Per ha)	(1,050)	(1,100)	(600)	(700)	(970)	(780)
<u>Future/With Project (Php)</u>						
1. Income						
Before sharing	2,307,900	8,447,300	12,205,300	4,076,900	18,884,500	4,294,100
(Per ha)	(1,010)	(2,040)	(960)	(1,280)	(1,650)	(1,640)
After sharing	1,539,300	6,109,000	7,692,100	2,888,900	12,987,400	3,008,800
(Per ha)	(670)	(1,470)	(610)	(900)	(1,140)	(1,150)
2. Available O&M cost						
After NIA mgt. cost						
(10%) & sharing (Per ha)	(600)	(1,320)	(550)	(810)	(1,030)	(1,040)
3. NISO O&M Cost						
available						
After NIA mgt. cost						
(10%) & Sharing	1,372,800	5,479,300	6,985,000	2,588,000	11,757,500	2,717,500
Balance from the present						
scale	-1,019,200	908,500	-614,000	339,400	638,900	689,100

Source : Study Team

## 2) Crop budget

Crop budgets covering financial cost and return with and without project conditions were prepared by applying input requirements, crop yields and prices of respective commodities. The irrigation service fee applied was 2.5 cavans/ha in the wet season and 3.5 cavans/ha in the dry season for Angat RIS, and 2.0 cavans/ha and 3.0 cavans/ha for the rest of the pilot NISs.

The increase in financial net income per ha varies from Php 1,700 to Php 3,110 for the pilot IAs' area and Php 520 to Php 1,400 for the non-pilot IAs' at the respective pilot NISs.

**Net Return per ha, Paddy**

(Unit Php/ha)

Item	San Fabian	Angat	Bago	Labangan	Pulangui	Mal
1. Present/Without Project						
Irrigated Area						
Wet Season	13,650	11,770	10,170	8,120	8,260	10,860
Dry Season	16,290	13,496	9,050	10,330	10,430	15,060
Rainfed Area (Wet S)	10,360	9,780	8,020	5,720	6,130	8,640
2. Future/With Project(Irrigated)						
Pilot Area						
Wet Season	16,380	13,460	13,280	9,820	11,010	12,760
Dry Season	18,510	15,407	12,170	12,030	13,010	16,950
Others Area						
Wet Season	14,420	12,380	11,570	8,640	9,380	11,460
Dry Season	16,890	14,220	10,470	10,860	11,560	15,650
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3. Increment (Irrigated)						
Pilot Area						
Wet Season	2,730	1,690	3,110	1,700	2,750	1,900
Dry Season	2,220	1,911	3,120	1,700	2,580	1,890
Others Area						
Wet Season	770	610	1,400	520	1,120	600
Dry Season	600	724	1,420	530	1,130	590

Source: Study Team

### 3) Farm budget

Farm budget analysis was made by assessing the anticipated change in farm income and production cost for the average operating farm size by tenurial status. The situation with and without project conditions was analyzed. With project conditions, non-farm incomes and living expenditures were assumed to be the same amount as those without project conditions in order to be able to evaluate the direct impact of the pilot project on farm income .

Increase in income from farming is minimal, estimated at 2% to 18%, mainly due to the small operating farm size and low increases in crop yield. On the other hand, the impact on net reserves is significant at 19% to 340% increase from the present level, particularly for farmers who do not own land.

### Farm Budget Analyses of Pilot Project

Area	Ave. Size (ha)	Present/Without Project (Php)			Future/With Project (Php)			Increase (%)	
		Income	Expendi.	N.Reserve	Income	Expendi.	N.Reserve	Income	N.Reserve
San Fabian	0.53								
Owner Operator		45,230	35,800	9,430	46,980	35,800	11,180	3.9	18.6
Lessee		39,690	34,800	4,890	41,440	34,800	6,640	4.4	35.8
Tenant		37,630	34,140	3,490	38,790	34,140	4,650	3.1	33.2
Caretaker		31,200	28,600	2,600	31,760	28,600	3,160	1.8	21.5
Angat	0.68								
Owner Operator		49,250	43,800	5,450	51,260	43,800	7,460	4.1	36.9
Lessee		43,730	39,800	3,930	45,740	39,800	5,940	4.6	51.1
Tenant		40,070	37,140	2,930	41,080	37,140	3,940	2.5	34.5
Caretaker		34,240	33,600	640	34,840	33,600	1,240	1.8	93.8
Bago	2.05								
Owner Operator		69,390	59,600	9,790	78,930	59,600	19,330	13.7	97.4
Lessee		52,630	47,500	5,130	62,170	47,500	14,670	18.1	186.0
Tenant		47,680	45,000	2,680	52,450	45,000	7,450	10.0	178.0
Caretaker		40,820	39,800	1,020	43,680	39,800	3,880	7.0	280.4
Labangan	1.96								
Owner Operator		62,550	55,000	7,550	65,780	55,000	10,780	5.2	42.8
Lessee		50,610	48,000	2,610	53,840	48,000	5,840	6.4	123.8
Tenant		48,770	46,500	2,270	50,380	46,500	3,880	3.3	70.9
Caretaker		45,260	44,100	1,160	46,230	44,100	2,130	2.1	83.6
Pulangui	1.97								
Owner Operator		69,400	58,000	11,400	77,920	58,000	19,920	12.3	74.7
Lessee		54,620	48,800	5,820	63,140	48,800	14,340	15.6	146.4
Tenant		48,740	46,790	1,950	52,250	46,790	5,460	7.2	180.0
Caretaker		43,387	42,630	757	45,937	42,630	3,307	5.9	336.9
Mal	1.12								
Owner Operator		58,850	52,300	6,550	62,330	52,300	10,030	5.9	53.1
Lessee		45,170	40,500	4,670	48,650	40,500	8,150	7.7	74.5
Tenant		37,560	35,240	2,320	39,310	35,240	4,070	4.7	75.4
Caretaker		35,320	33,490	1,830	36,370	33,490	2,880	3.0	57.4

Source: Study Team

### 11.3.2 Economic Pilot Project Evaluation

#### (1) Pilot Project Benefits

The assumptions are indicated in Annex 12. The main benefits will be realized from the increases in paddy cropping areas and productivity in the wet and dry seasons. The economic benefit was estimated as the increment of the net production value (NPV) from the present without project conditions to the future expected result with project conditions. The NPV already incorporates an incremental farm production cost, as derived from the crop budgets. The Project benefit varies from Php 2,070/ha to Php 3,230/ha as follows:

Net Production Value of Pilot Project							
Item	San Fabian	Angat	Bago	Labangan	Pulangui	Mal	Total
Total NPV (Php'000)							
Present/Without Project	29,799	78,875	156,986	36,138	193,988	54,244	550,030
Future/With Project	34,894	87,458	189,573	46,190	230,849	59,138	648,102
Increment	5,095	8,583	32,587	10,052	36,861	4,894	98,072
Per ha							
Php/ha	2,230	2,070	2,570	3,150	3,230	1,870	2,700
US\$/ha	44.6	41.4	51.4	63.0	64.6	37.4	54.0

Source: Study Team

## (2) Pilot Project Cost

The economic project cost was estimated by applying the standard conversion factor (SCF) of 0.91 to the financial project cost. The total economic project cost was estimated at Php 166.3 million as follows:

<b>Pilot Economic Project Cost (Unit: Php '000)</b>							
Item	San Fabian 2,288 ha	Angat 4,151 ha	Bago 12,700 ha	Labangan 3,195 ha	Pulangui 11,415 ha	Mal 2,613 ha	Total 36,362 ha
1. Institutional Development Cost	3,924	7,119	21,782	5,480	19,578	4,480	62,363
2. System Rectification Cost	10,125	5,687	7,798	32,344	9,958	10,286	76,198
Sub-total	14,049	12,806	29,580	37,824	29,536	14,766	138,561
3. Administration and others	1,744	3,164	9,679	2,435	8,700	1,990	27,712
Total Cost	15,793	15,970	39,259	40,259	38,236	16,756	166,273

Source: Study Team

The economic operation and maintenance (O&M) cost was defined as the increment of expenditures between the “without” and “with” project conditions. The financial O&M cost under the “without” and “with” project conditions was converted to the economic value by applying the SCF (0.91). The incremental economic O&M cost was estimated as follows:

<b>Economic O&amp;M Cost (Unit: Php '000)</b>							
Annual	San Fabian	Angat	Bago	Labangan	Pulangui	Mal	Total
O&M Cost							
Without Project	2,177	4,160	6,915	2,047	10,118	1,845	27,262
With Project	1,249	4,986	6,356	2,355	10,700	2,474	28,120
Increment	-928	826	-559	308	582	629	858

Source: Study Team

## (3) Project Evaluation

Economic internal rate of return (EIRR) for the whole pilot project was calculated at 56.3 % varying from 23.9% to 88.3% for each pilot NIS. The rates indicate sufficient economic viability for the pilot projects.

<b>Pilot Projects, EIRR</b>							
	San Fabian	Angat	Bago	Labangan	Pulangui	Mal	Total
EIRR (%)	38.0	46.6	79.9	23.9	88.3	24.7	56.3

Source: Study Team

## CHAPTER 12 CONCLUSIONS AND RECOMMENDATIONS

### 12.1 Focus in Post-study Seminar

The post-study seminar on May 28, 2003 served as the final forum for presenting the results of the Study and deliberating on important policy issues affecting the strengthening of IAs. The seminar focused on three issues: (a) IA membership; (b) sharing of responsibility between NIA and IA for the O&M of irrigation systems; and (c) livelihood opportunities for IAs, which are summarized as follows.

1. The main issue for IA membership is the defective membership structure stemming from membership being voluntary. There was a consensus among the seminar participants, including IA leaders and members, to impose mandatory membership through an irrigation development act rather than an irrigators association act. The irrigation development act would also define the comprehensive elements required for sustainable irrigation development, including requirements for IAs. In the interim, it was suggested that the NIA Board would issue the necessary circulars to require the IAs to amend their by-laws to provide for mandatory membership. The NIA-IDD will spearhead this activity, defining the elements of mandatory membership, for example whether it be targeted at individuals or all household members.
2. No definitive consensus was reached on the sharing of responsibility between NIA and IA for O&M of irrigation systems subject to on-going foreign funded projects for which NIA would pursue IMT. A concern was expressed that there seemed to be a misconception among NIA field personnel and IAs whereby they naively viewed IMT as simply the sharing of collected ISF between NIA and IA. A consensus was reached that NIA would have to assess the problems affecting the existing IMT programs. In the end, it was stressed that NIA would always strive to work with greater partnership with the IAs to sustain irrigation development.
3. The consensus on improving livelihood opportunities for IAs was to strengthen the capital build-up. It was also expressed that NIA and IAs would tackle the assembly market as proposed in the Study, making reference to the experiences of Badagoy IA and Lower Marber in Davao del Sur, together with initiating a price information system.

## 12.2 Conclusions

1. The Study presented action plans deemed essential for the strengthening of IAs. The outputs or components of the action plans that emerged are basic and these were supplemented by the Study Team to achieve maximum results during the implementation period. The main reason why the outputs are basic is because institutional efforts introduced earlier were not sustained either by the NIA or by the IAs. The constraints to sustainability were a combination of facility defects and social and economic factors.
2. New and cost-effective concepts and approaches were advanced by the Study to improve: the modality of strengthening the IA organization and formulation; the execution of O&M plans; and financial performance. These new concepts are not meant to supplant existing intervention schemes, however, and will be implemented based on the availability and adaptability of local resources. It is proposed that they be immediately implemented in the pilot NISs.
3. Physical rehabilitation of the systems to improve irrigation efficiency will be required on a selective basis only. Where the facilities are badly damaged and non-functional, it is impossible to execute practical and sound O&M practices. Physical rehabilitation is essential wherever the government desires to accelerate the implementation of IMT. However, full rehabilitation must never be a pre-condition for transferring system management to the IAs. The IAs must be made to share the responsibility for rehabilitating the systems with NIA.
4. Changes to legislation and NIA policy will be needed to remove legal infirmities surrounding the juridical status of the IAs. The removal of these legal infirmities is closely linked with the implementation of the IMT or JSM. It should be emphasized that the strengthening of IAs and implementation of IMT are intertwined with one another. While there are existing governing laws, it is imperative that clearer and unified policies are adopted relative to: (a) IMT contracts; (b) IA membership enhancement; (c) ISF pricing and incentives; and (d) water rights .
5. The overall impact of the IA strengthening program was evaluated to be financially and economically feasible for the pilot NISs. It is likely that a similar result would be seen if economic and financial evaluation were conducted nationwide. The investments would cover direct institutional development and

system rectification, including overhead costs. Improved cropping intensity, higher yields of paddy and higher farm incomes are expected to accrue to the IA members. ISF collection efficiency is expected to improve with better yields and higher farm incomes. The NISO will similarly gain from the improved capacities of the IAs through higher ISF payment and reduction in O&M costs.

6. The overall EIRR of the pilot NIS is calculated at more than 50%, and the EIRR of individual pilot NIS ranges from 24% to as high as 90%. The rates indicate sufficient economic viability.

### **12.3 Recommendations**

1. NIA should implement immediately the action plan envisaged for the pilot NISs. This should present a good learning process for implementing IA strengthening on a bigger scale. NIA therefore must provide the essential budget and logistic support for institutional development to be able to commence the essential ground works. NIA can facilitate the mobilization of logistic support provided its Board can immediately issue MCs supportive of institutional development.
2. The nationwide replication of IA strengthening, inclusive of system rectification, should be packaged as a separate project for external financing given the huge cost requirement. Given the cost configuration, NIA should explore a program-type loan so that much of the institutional costs can be funded.
3. NIA should also address the impending reorganization before it can embark on a nationwide replication. The reorganization will allow enough elbowroom to execute the strengthening program, particularly in the choice and recruitment of people at the region and field levels.
4. NIA should take positive steps towards establishing policy and legal frameworks to formalize the institutional status of IAs, beginning with preparation of studies and discussion papers and ultimately the adoption of formal policies and drafting of legislation. NIA should also allocate more personnel and budget to divisions and departments responsible for institutional and system management to ensure that there are adequate resources for enhancing partnerships with IAs and sustainable irrigation development.



# *Tables*

**Table 2.1 Comparative Features of NIAs Streamlining Plan (1/2)**

Item	JICA Study Team/*	NIA's Proposal/**	Remarks
<b>1 Hierarchy</b>			
1.1 Central	1.1 Central Office (CO)	1.1 Central Office	1. In terms of hierarchy and/or spatial delineation of offices, the JICA proposal has only a single organic body per office. The NIA proposal retained two offices at the field, that of the IMO (the old PIO) and the NISO.
1.2 Region	1.2 Area Irrigation Operations Office (AIOO)	1.2 Area Irrigation Office (AIO)	
1.3 Field	1.3 Provincial Irrigation Management Office (PIMO)	1.3 Irrigation Management Office/ National Irrigation Systems office(IMO/NISO)	
<b>2 Functions &amp; Mandate</b>			
2.1 Central Office	2.1 Planning and policy, engineering support and monitoring.	2.1 Planning and policy, project development, implementation, systems operation and institutional development	2. The JICA proposal is clear in the delineation of functions among the 3 offices. The JICA proposal devolved project development and implementation to the region and O & M to the field offices. The NIA proposal retained project development and implementation and systems O & M support at the CO. Full devolution and decentralization is absent in NIA proposal.
2.2 Regional Office	2.2 Project development and implementation	2.2 Project implementation	
2.3 Field Office	2.3 Systems operation and maintenance	2.3 Systems operation and maintenance	
<b>3 Organization Structure</b>			
3.1 Central Office	3.1 2 sectors and 3 service offices. Sector Offices: Planning and Monitoring Finance and Management Service Offices: Legal Service Internal Audit Service Public Affairs & Information	3.1 2 sectors and 3 service offices Sector Offices: Engineering & Operations Finance and Administrative Service Offices: Legal Service Corplan and Public Affairs Internal Audit Service	3.1 Both proposals have the same number of sector and service offices at the CO. Organizationally, however, the sector offices are different. The NIA proposal retained the old set-up through mergers of departments with minimal consideration of devolution and decentralization policies. The JICA's proposed structure for the sector offices recognized these policies as inevitable considerations to limit the functions of the CO and give greater autonomy to the region and field offices.
3.2 Regional Office	3.2 3 divisions and one support unit for AIOO Divisions: Engineering Operations Support Finance and Administrative Support : Planning and Monitoring Unit	3.2 3 divisions for AIO Divisions : Engineering Operations and Institutional Devt. Finance and Administrative	3.2 Organizationally, both proposals are the same. NIA adopted generally the JICA's Study Team recommendation, except for the inclusion of planning & monitoring unit.
3.3 Field Office	3.3 3 sections for PIMO and separate PMO for new projects  PIMO Sections: Operations Engineering & Maintenance Finance and Administrative PMO : Programming & Monitoring & Eval. Contract Management Project Preparation & Coord. Administrative and Finance  Dam and Reservoir Centralized administrative and dam and watershed management as two separate sections. Dam section has electrical/mechanical and maintenance units. The watershed management section has maintenance unit	3.3 2 sections for IMO/NISO and implicitly new PMO for new projects Sections: Operations and Maintenance Administrative and Finance  Dam and Reservoir 4 sections : Watershed Electrical & Mechanical Instrumentation Administrative & Finance	3.3 The NIA proposal differs significantly from the JICA proposal. The JICA proposal considered the PIMO as the organic structure for merged PIO and NISO as well as the district offices under MARIIS and UPRHIS. The district offices will adopt the PIMO structure. NIA's IMO and NISO will co-exist at the field with the latter office under the IMO. Merging and/or integration is not absolute.  Organization for dam and reservoir offices (for UPRHIS and MARIIS) equivalent to PIMO/IMO are different. The JICA proposal considered functional integration with support units to each function, while NIA proposal considered sectoral organization.

\* The Strengthening of NIA's Management System, October 2001

\*\* NIA's Streamlining Plan, January 2002

**Table 2.1 Comparative Features of NIAs Streamlining Plan (2/2)**

<b>Item</b>	<b>JICA Study Team/*</b>	<b>NIA's Proposal/**</b>	<b>Remarks</b>
<b>4 Number and geographic groupings of Regional offices</b>	4 Six (6) AIOOs delineated as follows: a) Northern Luzon AIOO-Regions 1, 2, CAR and MRIIS b) Central Luzon AIOO- Regions 3 and UPRRIS c) Southern Luzon AIOO- Regions 4 and 5 d) Visayas AIOO- Regions 6,7, and 8 e) Eastern Mindanao AIOO- Regions 10,11 & 13 f) Western Mindanao AIOO- Regions 9 & 12	4 Six (6) AIOs delineated as follows: a) Northern Luzon AIO - Regions 1,2, CAR and MRIIS b) Central Luzon AIO - Region 3 and UPRRIS c) Southern Luzon AIO - Regions 4 and 5 d) Visayas AIO - Regions 6, 7, and 8 e) Eastern Mindanao AIO - Regions 10, 11 & 13 f) Western Mindanao AIO - Regions 9 & 12	4 NIA proposal adopted the JICA's Study Team proposed regional integration and grouping.
<b>5 Number of Manpower/Positions</b>			
5.1 Central Office	5.1 320	5.1 450	5.1 The JICA estimates are based on full devolution and decentralization of CO functions on project development and implementation to the region, hence fewer personnel are required compared to NIA's estimates.
5.2 Regional Office	5.2 640	5.2 622	5.2 The JICA and NIA estimates do not differ significantly as the structure in the regions are similar.
5.3 Field Office	5.3 3340	5.3 3921	5.3 The JICA estimates assume that there is only a PIMO at the field office and that IMT will be fully implemented. The NIA estimates still consider the existence of the IMO, the old PIO and the NISO. In effect, the NIA will retain its people both at the provincial and systems offices.
Total = 4300		Total =4993	
<b>6 Retirement package</b>	6 Multiplier coefficient of 1.5, 2 and 2.5 for every year of service depending on length of service for retirement gratuity.	6 Same as JICA proposal	

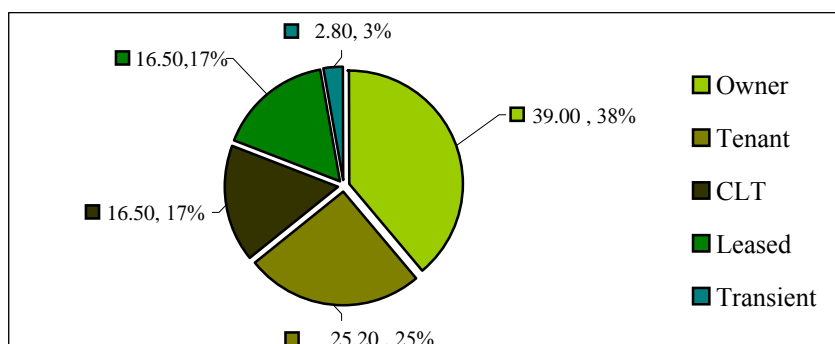
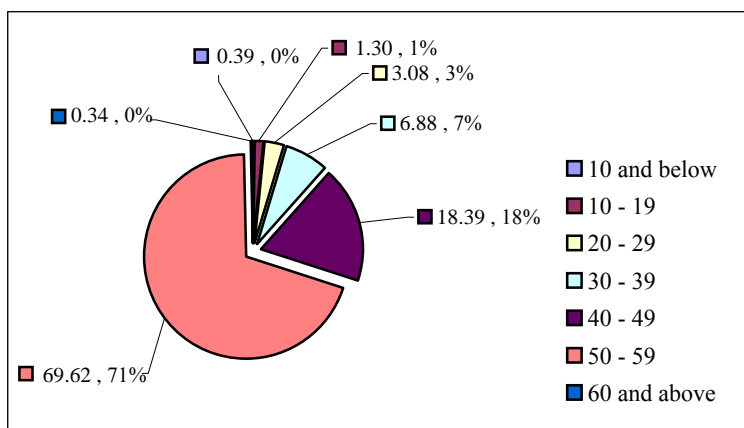
\* The Strengthening of NIA's Management System, October 2001

\*\* NIA's Streamlining Plan, January 2002

**Table 4.1 Selected Indicators of NIS-IAs (1/4)**

1. Ratio of actual members to potential members

Actual Members (%)	Freq.	Percent
10 and below	8	0.39
10 - 19	27	1.30
20 - 29	64	3.08
30 - 39	143	6.88
40 - 49	382	18.39
50 - 59	1446	69.62
60 and above	7	0.34
<b>Total</b>	<b>2,077</b>	<b>100</b>

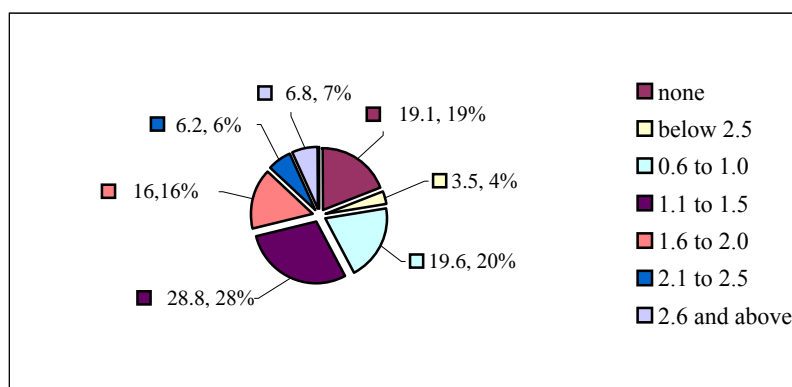


2. Land Tenure Status

Actual Member	Certificate of Land										Total	
	Owner		Tenant		Transfer		Leased		Transient			
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
below 50	6,955	4.40	5,904	5.80	2,028	3.00	1,723	2.6	288	2.50	16,898	4.1
		41.20		34.90		12.00		10.20		1.70		100
51 to 65	5,865	3.70	5,445	5.30	1,120	1.70	2,318	3.50	465	4.10	15,213	3.70
		38.60		35.80		7.40		15.20		3.10		100
66 to 75	5,132	3.20	3,808	3.70	1,263	1.90	3,130	4.70	327	2.90	13,660	3.40
		37.60		27.90		9.20		22.90		2.40		100
76 to 85	9,710.00	6.10	6,844	6.70	2,537	3.80	3,502	5.20	788	6.90	23,381	5.70
		41.50		29.30		10.90		15.00		3.40		100
86 to 95	10,043	6.30	5,946	5.80	4,260	6.30	5,036	7.50	1,376	12.00	26,661	6.50
		37.70		22.30		16.00		18.90		5.20		100
96 and above	121,211	76.30	74,713	72.80	55,943	83.30	51,438	76.60	8,214	71.70	311,519	76.50
		38.90		24.00		18.00		16.50		2.60		100
<b>Total</b>	<b>158,916</b>	<b>100</b>	<b>102,660</b>	<b>100</b>	<b>67,151</b>	<b>100</b>	<b>67,147</b>	<b>100</b>	<b>11,458</b>	<b>100</b>	<b>407,332</b>	<b>100</b>
		39.00		25.20		16.50		16.50		2.80		100

3. Average Farm holding of IA Members

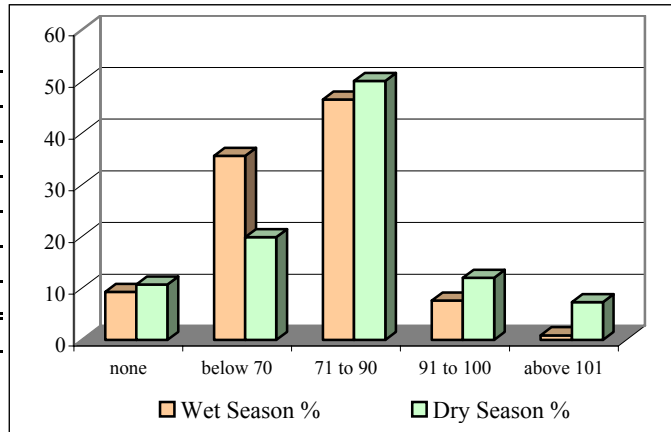
Farm Size (Ha.)	Freq.	Percent
none	389	19.1
below 2.5	71	3.5
0.6 to 1.0	399	19.6
1.1 to 1.5	587	28.8
1.6 to 2.0	325	16
2.1 to 2.5	127	6.2
2.6 and above	139	6.8
<b>Total</b>	<b>2,037</b>	<b>100</b>



**Table 4.1 Selected Indicators of NIS-IAs (2/4)**

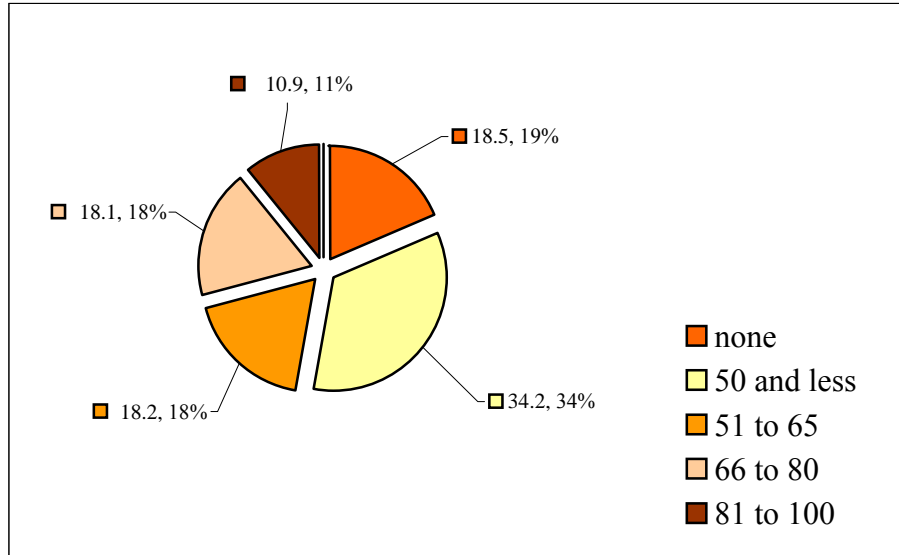
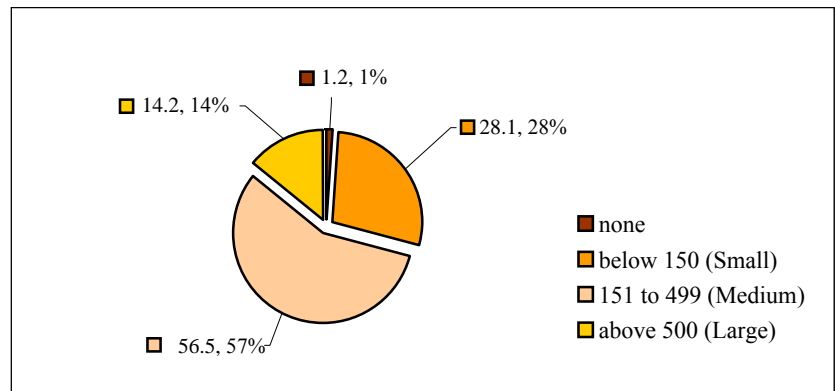
4. Productivity by Season (Yield of Palay)

Cavans/Ha.	Wet Season		Dry Season	
	Freq.	%	Freq.	%
none	190	9.3	218	10.7
below 70	726	35.6	406	19.9
71 to 90	947	46.5	1020	50.1
91 to 100	155	7.6	244	12
above 101	19	0.9	149	7.3
<b>Total</b>	<b>2,037</b>	<b>100</b>	<b>2,037</b>	<b>100</b>



5. Service Area of IA by Category

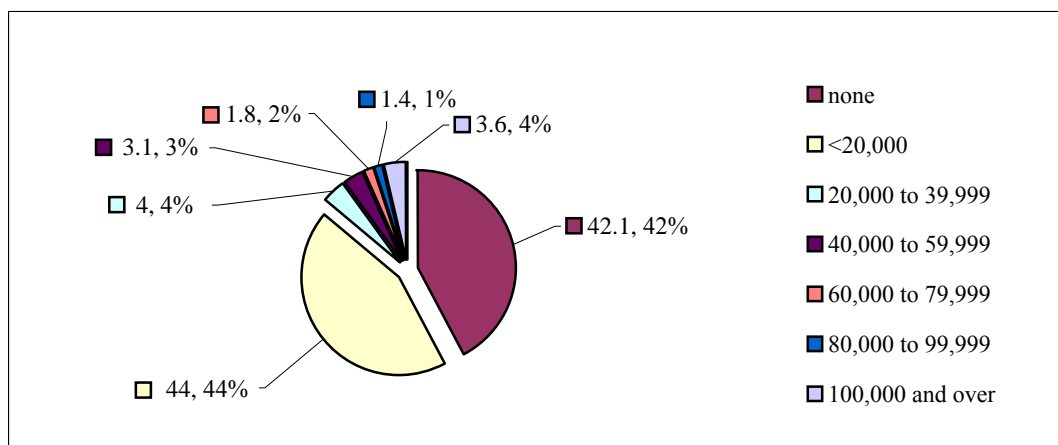
Area (Ha.)	Freq.	Percent
none	25	1.2
below 150 (Small)	573	28.1
151 to 499 (Medium)	1,150	56.5
above 500 (Large)	289	14.2
<b>Total</b>	<b>2,037</b>	<b>98.8</b>



6. ISF Collection Efficiency of IA

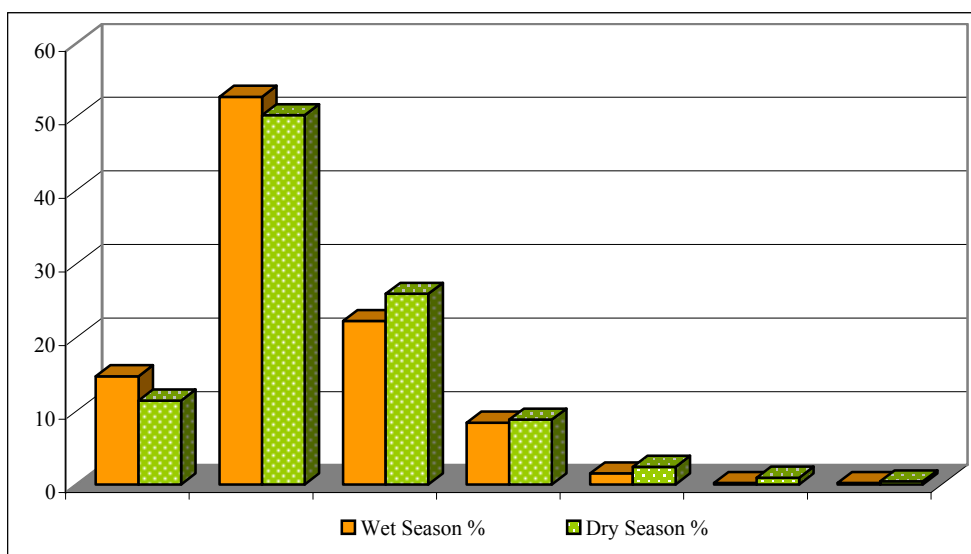
Collection Efficiency (%)	Freq.	Percent
none	377	18.5
50 and less	697	34.2
51 to 65	371	18.2
66 to 80	369	18.1
81 to 100	223	10.9
<b>Total</b>	<b>2,037</b>	<b>100</b>

**Table 4.1 Selected Indicators of NIS-IAs (3/4)**



**7. IA Network**

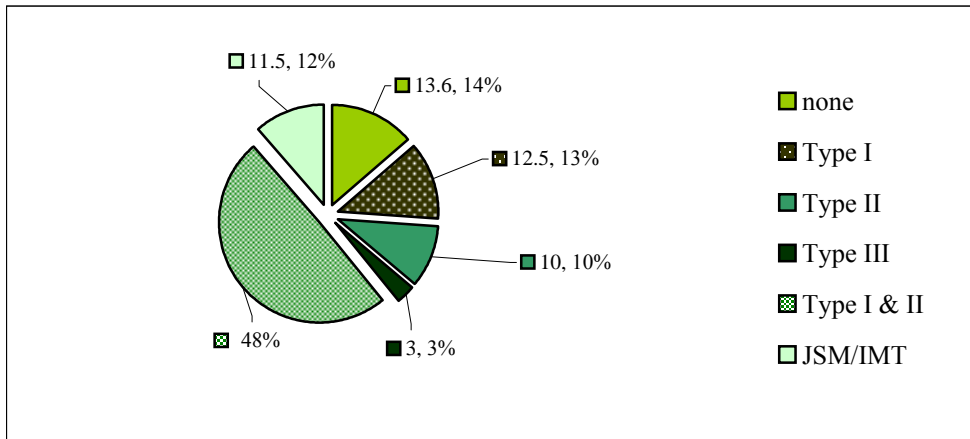
Pesos	Freq.	Percent
none	857	42.1
<20,000	897	44
20,000 to 39,999	82	4
40,000 to 59,999	63	3.1
60,000 to 79,999	36	1.8
80,000 to 99,999	29	1.4
100,000 and over	73	3.6
<b>Total</b>	<b>2,037</b>	<b>100</b>



**8. Family Income of IA Members**

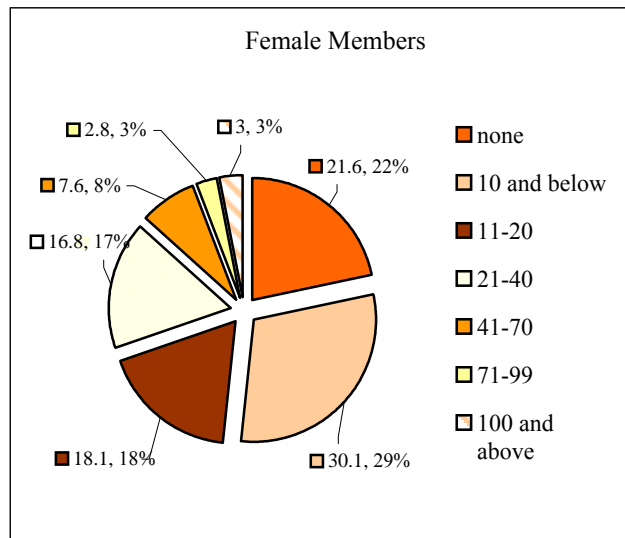
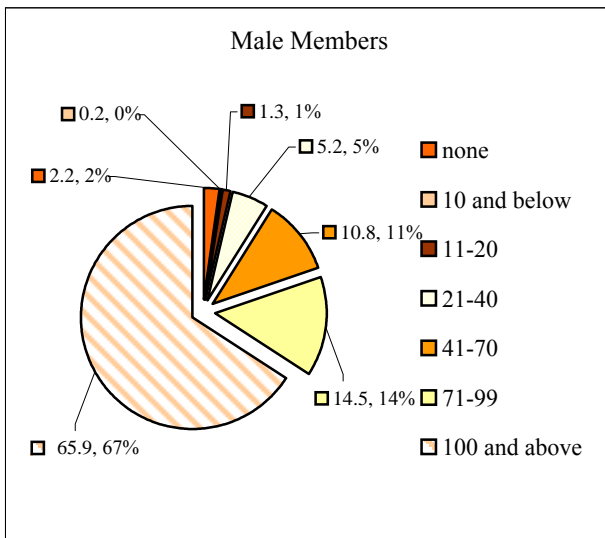
Cavans/Ha.	Wet Season		Dry Season	
	Freq.	%	Freq.	%
none	299	14.7	232	11.4
<20,000	1,074	52.7	1,023	50.2
20,000 to 39,999	453	22.2	527	25.9
40,000 to 59,999	171	8.4	180	8.8
60,000 to 79,999	30	1.5	48	2.4
80,000 to 99,999	5	0.2	19	0.9
100,000 and over	5	0.2	8	0.4
<b>Total</b>	<b>2,037</b>	<b>100</b>	<b>2,037</b>	<b>100</b>

**Table 4.1 Selected Indicators of NIS-IAs (4/4)**



9. Distribution of IA by Type of Contract

Contract	Freq.	Percent
none	278	13.6
Type I	254	12.5
Type II	203	10
Type III	62	3
Type I & II	1,006	49.4
JSM/IMT	234	11.5
Total	2,037	100



10. Number and Percent of IA Members by Gender Classification

Number of IA Members	Male		Female		Average Percent
	Freq.	Percent	Freq.	Percent	
none	44	2.2	441	21.6	2.2
10 and below	4	0.2	613	30.1	0.2
11-20	26	1.3	368	18.1	1
21-40	105	5.2	343	16.8	4
41-70	221	10.8	154	7.6	8
71-99	295	14.5	57	2.8	13.5
100 and above	1,342	65.9	61	3	71.1
Total	2,037	100	2,037	100	100

**Table 4.2 Issues and Problems Affecting IA's Functionality**

Operation and Maintenance (O&M)	Organization	Finance
1. Non-adherence to cropping calendar - Lack of funds for inputs during wet season	1. Lack of incentives to expand membership, especially non-IA members.	1. Low production and farm income 2. Shortage of ISF shares
2. Non-adherence to water delivery/distribution plan - Closure of lateral gates for non-irrigation - Deliberate destruction of canals & steelgates - Illegal diversion of water - Ignore water delivery schedule - Shortage of water - Upstream users leave turnout gates fully open	- Non-members can use water upon payment of ISF - Inequity in water usage vis-à-vis landholding size - Multiple membership by virtue of transient farming 2. Lack of cooperation from downstream users due to shortage of water - High degree of inactive members among downstream users	3. Delayed remittance of ISF shares 4. Shortage of capital for farm inputs 5. Lack prudence in financial transactions - Low CBU and high overhead cost - Weak savings mobilization - Syndrome of financial dependency culture from NIA relying mainly from ISF shares as revenue
3. Non-adherence to ISF collection Plan - Unauthorized deduction of members obligation, CBU, and other dues, from ISF payment - Unclear understanding in ISF rate shifts from socialized (Estrada administration) to current rates (2 cavans during wet & 3 cavans during dry seasons, respectively) - Low production - High collection efficiency target - Deliberate non-payment by erring members - Non-reporting of billable ISF collection, collusion between field personnel and members	3. Misappreciation of membership responsibilities - ISF contribution - Ignore obligation payment - Minimal role of women - Passive role for non-landowners & dominance of influential leaders 4. Defective IA by-laws - Non recognition of formal rights of members - Restricted economic and financial access - Agency imposed rather than by members preparing their own by-laws based on felt needs 5. Inadequate leadership skills	6. Limited economic activities - IAs activities focused only on water mgt. - Few livelihood activities 7. Limited support extended either by NIA or external agencies. - Inadequate training modules, & non-conduct of TNA - Target based of training rather than demand-based - Low funding priority
4. Lack of understanding about IMT contract provisions - ISF sharing - Repairs belong to NIA and not IA - Delayed payment for Type I contract	- Educated farmers doubt leadership integrity - IA Chairperson arbitrarily appointing TSAG leaders - Officers keep their positions too long, thus breeding ground for corruption	
5. Lack of funds to repair service road and farm ditches - Use of toll fee as source of fund unacted by NIA - Inability of NIA to repair major work on time	6. Low level of skills - Inadequate training 7. Limited support extended either by NIA or external agencies.	
6. Limited support extended either by NIA or external agencies. - Inadequate training modules, & non-conduct of TNA - Target based of training rather than demand-based - Low funding priority	- Inadequate training modules, & non-conduct of TNA - Target based of training rather than demand-based - Low funding priority	



**Table 5.1 Status of ISF Collection Efficiency in NISs under IMT / JSM**

Region	S. No.	Name of NIS	Service Area (ha)	IMT/JSM Targete Area		IMT/JSM Contracted		Av. ISF C. E.(96-00)		ISF C. E. in 2001		Change	Project
				Area (ha)	(%)	Area (ha)	(%)	Current	Incl. Back	Current	Incl. Back		
1	1	Bonga 1	298	298	100%	298	100%						IOSP II
1	2	Bonga 2	674	674	100%	674	100%	System facilities transferred to					IOSP II
1	3	Bonga 3	202	202	100%	202	100%	IAs and amortized					IOSP II
1	4	Cura	431	431	100%	431	100%						IOSP II
2	5	Baggao	2,067	707	34%	707	100%	56%	64%	73%	115%		IOSP II
2	6	IAAPIS	2,308	489	21%	489	100%	59%	63%	100%	111%		IOSP II
2	7	Tumauini	3,673	3,615	98%	570	16%	36%	39%	68%	73%		WRDP
2	8	Magapit	10,914	9,321	85%	2,708	29%	44%	54%	22%	30%		WRDP
2	9	Lower Chico	1,856	1,856	100%	0	0%	NA					WRDP
2	10	Solana	2,777	2,777	100%	0	0%	NA					WRDP
2	11	Baua	2,494	1,253	50%	0	0%	66%	70%	92%	97%		WRDP
2	12	San Pablo-Cabagan	1,308	1,308	100%	1,375	105%	54%	66%	56%	57%		WRDP
MRIIS	13	MRIIS District 1	21,797	12,440	57%	12,440	100%	49%	58%	57%	62%		IOSP II
MRIIS	14	MRIIS District 2	23,241	23,241	100%	9,319	40%	52%	66%	47%	56%		WRDP
MRIIS	15	MRIIS District 3	23,442	13,382	57%	13,382	100%	63%	70%	62%	65%		IOSP II
MRIIS	16	MRIIS District 4	19,890	11,356	57%	11,356	100%	62%	78%	78%	93%		IOSP II
3	17	Camiling	8,580	814	9%	202	25%	9%	21%	12%	15%		WRDP
4	18	Agos	1,435	1,435	100%	1,435	100%	23%	45%	25%	70%		IOSP II
4	19	Sta. Maria-Mayor	1,773	1,773	100%	974	55%	55%	59%	40%	41%		IOSP II
4	20	Cantingas	310	310	100%	310	100%	18%	23%	24%	24%		IOSP II
4	21	Baco-Bucayao	6,327	1,103	17%	442	40%	54%	78%	83%	95%		WRDP
4	22	Batang-Batang	3,020	1,142	38%	257	23%	NA					WRDP
4	23	Balanac	1,300	1,040	80%	1,040	100%	NA					WRDP
4	24	Pagbahán	1,083	1,083	100%	175	16%	31%	34%	42%	42%		WRDP
5	25	Barit	2,260	2,260	100%	2,260	100%	NA					IOSP II
5	26	Matogdon	530	530	100%	530	100%	44%	70%	39%	49%		IOSP II
6	27	Jalaur Proper	8,839	2,540	29%	252	10%	23%	36%	28%	46%		WRDP
6	28	Sibalom-Tigbauan	2,120	2,020	95%	0	0%	25%	46%	32%	65%		WRDP
7	29	Mlang	3,220	2,981	93%	2,981	100%	19%	42%	22%	40%		WRDP
8	30	Pongso	714	714	100%	714	100%	46%	97%	23%	34%		IOSP II
8	31	Andanan	5,550	3,500	63%	0	0%	59%	70%	44%	53%		WRDP
8	32	Bao	1,917	1,917	100%	1,917	100%	45%	91%	26%	41%		ISIP II
8	33	Mainit	1,760	1,760	100%	1,760	100%	47%	70%	18%	30%		ISIP II
8	34	Tibak	1,630	1,630	100%	1,630	100%	NA					ISIP II
8	35	Binahaan North	1,801	1,801	100%	1,801	100%	36%	77%	19%	60%		ISIP II
8	36	Binahaan South	1,410	1,410	100%	1,410	100%	NA					ISIP II
8	37	Lower Binahaan	1,200	1,200	100%	0	0%	NA					ISIP II
8	38	Guinarona	646	646	100%	0	0%	NA					ISIP II
8	39	Daguitan	850	850	100%	0	0%	NA					ISIP II
8	40	Bitó	1,411	1,411	100%	1,411	100%	53%	46%	49%	52%		ISIP II
9	41	Dipolo	1,600	1,600	100%	125	8%	42%	176%	46%	103%		WRDP
10	42	Maranding	4,808	4,808	100%	4,808	100%	NA					IOSP II
10	43	Roxas-Kuya	1,011	1,011	100%	1,011	100%	88%	112%	97%	116%		WRDP
12	44	Malasila	4,006	4,006	100%	4,006	100%	14%	30%	27%	65%		IOSP II

Data source : SMD - NIA

- Note
- (1) ISF Collection Efficiency (C. E.) Current = Current Year ISF Collected / Current Year ISF Collectible
  - (2) ISF Collection Efficiency (C. E.) Incl. Back = (Current Year + Back account ISF Collected) / Current Year ISF Collectible
  - (3) IMT contracted under WRDP as of June 2002
  - (4) JSM contracted under ISIP II as of January 2003
  - (5) NA : Data incomplete or not available

**Table 7.1 Major Feature of the Selected National Irrigation System**

Selected NIS	San Fabian	Angat	Bago	Labangan	Pulangui	Mal
Location:						
Region	I	III	VI	IX	X	XI
Province	Pangasinan	Bulacan	Negros Occidental	Zamboanga del Sur	Bukidnon	Davao del Sur
Operation Started	1970	1967	1969	1960	1984	1992
Annual Rainfall (mm)	2,804	2,271	2,305	3,659	3,160	2,017
Number of Farmers	3,005	18,647	5,439	1,608	28,427	2,779
Number of IA members	1,833	16,871	4,130	250	6,696	1,605
Number of IA	7	90	17	2	17	15
Service Area (ha)	2,288	29,374	12,700	3,195	11,415	2,613
Headwork Type	Diversion Dam	Diversion Dam	Diversion Dam	Diversion Dam	Diversion Dam	Diversion Dam
Design Discharge at Intake (m3/sec)	8.44	45.24	19.05	6.95	19.8	5.3
Length of Canal (km)						
Main Canal	15.5	56.5	29.8	15.5	105.1	18.5
Lateral Canal	37.8	524.5	156.7	60.4	195.2	26.0
Drainage Canal	7.6	331.0	58.0	54.7	266.0	23.0
Length of Service Road (km)	54.7	254.5	171.0	52.3	226.0	38.0

Source: NIA Data Base

**Table 7.2 Functional Status of the Selected National Irrigation System Facilities**

Selected NIS	San Fabian		Angat		Bago		Labangan		Pulangui		Mal	
	Total	Funct.	Total	Funct.	Total	Funct.	Total	Funct.	Total	Funct.	Total	Funct.
<b>Canal (km)</b>												
Main Canal	15.5	(19.8%)	56.5	(55.8%)	29.8	(10.1%)	15.5	(16.2%)	105.1	(74.3%)	16.7	(100.0%)
Lateral Canal	12.2	(32.5%)	524.5	(5.8%)	156.7	(3.2%)	60.4	(17.6%)	195.2	(29.4%)	23.2	(56.1%)
<b>Structures along Main Canal (nos)</b>												
Head/Checkgate	5	(20.0%)	13	(92.3%)	52	(25.0%)	8	(12.5%)	32	(34.4%)	10	(90.0%)
Turn-out Gate	64	(0.0%)	221	(45.2%)	130	(19.2%)	79	(3.8%)	102	(28.4%)	7	(57.1%)
Conveyance	29	(17.2%)	129	(83.7%)	44	(38.6%)	29	(86.2%)	82	(40.2%)	36	(58.3%)
<b>Structures along Lateral Canal (nos)</b>												
Head/Checkgate	20	(15.0%)	183	(80.9%)	293	(45.4%)	23	(21.7%)	63	(34.9%)	24	(66.7%)
Turn-out Gate	288	(0.3%)	1883	(55.5%)	738	(20.7%)	255	(3.9%)	502	(36.1%)	50	(56.0%)
Conveyance	53	(5.7%)	722	(76.3%)	347	(55.9%)	114	(94.7%)	273	(48.4%)	39	(59.0%)
<b>Road (km)</b>												
Service	54.73	(54.3%)	254.50	(39.3%)	171.00	(25.1%)	52.33	(89.8%)	226.00	(19.2%)	38.00	(47.4%)
Access	21.00	(76.2%)	303.50	(32.9%)	7.37	(0.0%)	16.25	(86.2%)	129.00	(39.5%)	12.00	(83.3%)

Note : Funct. : Percentage of Functional

Source : SMD MC13

**Table 7.3 Summary of Problems and Objectives Identified by Detailed Survey at 6 NIS Covering 17 IA's (1/3)**

NIS Classification	RIS	IA Aspect	Problem		Objectives	
			Common	Specific	Common	Specific
Water Constraint	San Fabian	Organization	<p>Core Problem: Organizations are non functional.</p> <p>Immediate causes:</p> <ul style="list-style-type: none"> <li>* No plans, programs, policies and regulations prepared.</li> <li>* Roles and responsibilities are unclear to the officers.</li> <li>* Inactive members (70-85%)</li> <li>* Low IA membership (less than 50%)</li> <li>* No clear records and filing system.</li> </ul> <p>* Vacancies in BOD and TSAG leadership positions.</p> <p>* Irregular BOD meetings and membership assembly.</p>		<p>Core Objective: Organizations are revitalized &amp; functional.</p> <p>Sub-Objectives:</p> <ul style="list-style-type: none"> <li>* Formulated plans, programs, policies and regulations.</li> <li>* Roles and responsibilities of leaders are clearly defined and understood.</li> <li>* Active members is 90%.</li> <li>* Membership is 80% from target.</li> <li>* Records are updated and filing system is installed.</li> </ul> <p>* Election is conducted regularly per by-laws provisions.</p> <p>* Meetings of BODs and IA membership is regularized.</p>	
		Operation and Maintenance	<p>Core Problem: Low cropping intensity and low farm income.</p> <p>Immediate causes:</p> <ul style="list-style-type: none"> <li>* Insufficient water supply.</li> <li>* Water delivery and distribution schedule are not followed.</li> <li>* Less than 50% of farmers attend maintenance activities.</li> <li>* No regular maintenance work.</li> <li>* Destroyed and damaged irrigation structures and facilities.</li> <li>* Unauthorized turnouts.</li> <li>* Inappropriate farming technology used by farmers.</li> <li>* No monitoring from NIA.</li> </ul>	<ul style="list-style-type: none"> <li>* BGM IA: Synchronize use of supplemental water from Osnit creek and restoration of NIA deep well.</li> <li>* BGM &amp; San Juan IA's: Policies for proper use shallow tube wells of farmers not formulated.</li> </ul>	<p>Core Objective: Improvement of cropping intensity to (125/150%)</p> <p>Sub-Objectives:</p> <ul style="list-style-type: none"> <li>* Sufficient water supply during the year.</li> <li>* Water delivery and distribution schedule is strictly followed by farmers.</li> <li>* At least 80% of farmers participated in cleaning activities.</li> <li>* Conducted regular maintenance works.</li> <li>* Irrigation structures and facilities are repaired and maintained.</li> <li>* Unauthorized turnouts are closed.</li> <li>* Cropping calendar system is formulated and practiced by farmers.</li> <li>* Installed monitoring system of NIA.</li> </ul>	<ul style="list-style-type: none"> <li>* BGM IA: Water distribution schedule formulated and followed.</li> <li>* BGM &amp; San Juan IA's: Formulated policies for proper use of shallow wells of farmers for proper guidance.</li> </ul>
		Financial	<p>Core problem:</p> <p>Immediate causes:</p> <ul style="list-style-type: none"> <li>* Lack of capabilities in financial recording &amp; management.</li> <li>* Low collection of ISF (less than 30%)</li> </ul> <p>* No collection of IA dues.</p> <p>* No defined collection strategy on ISF and membership dues.</p> <p>* No income generating plan and capital build-up.</p> <p>* Unavailable records for financial auditing.</p>		<p>Core Objective:</p> <p>Sub-Objectives:</p> <ul style="list-style-type: none"> <li>* Developed skills of IA officers in bookkeeping &amp; financial management.</li> <li>* High collection of ISF from members (75-100%).</li> <li>* 75-100% of membership dues is collected.</li> <li>* Clear collection policies and procedures for ISF and membership dues.</li> <li>* Formulated and implemented income generating plan and capital build-up.</li> <li>* Finance records are prepared and audited regularly.</li> </ul>	

**Table 7.3 Summary of Problems and Objectives Identified by Detailed Survey at 6 NIS Covering 17 IA's (2/3)**

NIS	RIS	IA Aspect	Problem		Objectives	
			Common	Specific	Common	Specific
Potential Un-exploited Type	Angat Bago Labangan Pulangui	Organization	<p>Core Problem: Organizations are weak in leadership and management performance.</p> <p>Immediate causes:</p> <ul style="list-style-type: none"> <li>* 70-90% of IA members are inactive.</li> <li>* Higher rate of non IA member cultivators (40-85% of farmers are non-IA)</li> <li>* BOD and IA meetings are not regularly conducted.</li> <li>* Information not properly disseminated.</li> <li>* Records are incomplete and not updated.</li> <li>* By-laws provisions are not reviewed &amp; updated.</li> <li>* Vision, Mission, Goals, Plans &amp; Programs are not formulated.</li> <li>* 75-100% of standing committees are not functional.</li> <li>* Limited skills in planning, implementation, monitoring and evaluation.</li> <li>* No membership education conducted.</li> <li>* Officers are overstaying and not formally elected as provided in the by-laws.</li> </ul>	<ul style="list-style-type: none"> <li>* Labangan: Too large area of coverage (around 1,500 ha/IA) with limited organizational activities, particularly the Muslim farmers.</li> <li>* Pulangui: NIA-IA relation is unfavorable, particularly in Mad IA.</li> <li>* Bago: Covers wide area of operation (based on WM division) in AMANA IA only.</li> </ul>	<p>Core Objective: Organizations are effective in implementing leadership and management functions.</p> <p>Sub-Objectives:</p> <ul style="list-style-type: none"> <li>* 80-100% of IA members are active.</li> <li>* All farmer-cultivators are IA members.</li> <li>* BOD &amp; IA meetings are conducted regularly.</li> <li>* Regularized information dissemination.</li> <li>* Records are complete and updated.</li> <li>* Conducted review of by-laws and proposed amendments.</li> <li>* Formulated strategic development plans, programs and policies.</li> <li>* Standing committees are organized and functional.</li> <li>* Trained and capable leaders in planning, implementation, monitoring and evaluation.</li> <li>* Membership education conducted.</li> <li>* Officers are elected by members as per by-laws provisions.</li> </ul>	<ul style="list-style-type: none"> <li>* Labangan: IA reorganization based on hydrological boundaries.</li> <li>* Pulangui: Adequate supervision of NIA &amp; IA on the implementation of WDD system &amp; schedule.</li> <li>* Bago: Reorganization of AMANA IA to cover smaller water management area (by lateral).</li> </ul>
		Operation and Maintenance	<p>Core Problem: Low O&amp;M management performance.</p> <p>Immediate causes:</p> <ul style="list-style-type: none"> <li>* * WDD schedule and cropping calendar plan is not properly adopted by farmers.</li> <li>* * Deteriorated irrigation structures and facilities.</li> <li>* * Maintenance work is not regular.</li> <li>* * O&amp;M management technology not transferred to IA by NIA.</li> <li>* * Absence of O&amp;M plans and policies.</li> <li>* * O&amp;M policies not strictly implemented.</li> </ul>	<ul style="list-style-type: none"> <li>* Pulangui: Higher cropping intensity (&gt;190%) against lower ISF collection performance (&lt;50%)</li> </ul>	<p>Core Objective: High O&amp;M management performance.</p> <p>Sub-Objectives:</p> <ul style="list-style-type: none"> <li>* Cropping calendar plan and WDD is synchronized and managed accordingly.</li> <li>* Rehabilitated irrigation structures and facilities.</li> <li>* Conducted regular maintenance work.</li> <li>* Officers are trained on system management and operation technology.</li> <li>* Plans &amp; policies prepared &amp; implemented.</li> <li>* Policies are strictly imposed with sanctions.</li> </ul>	<ul style="list-style-type: none"> <li>* Pulangui: Increased ISF collection to 100%</li> </ul>
		Financial	<p>Core Problem: Poor financial management performance.</p> <p>Immediate causes:</p> <ul style="list-style-type: none"> <li>* * Low ISF collection (31-53%)</li> <li>* * No collection of IA dues.</li> <li>* * Financial plan and budget not formulated.</li> <li>* * Accounting system not properly installed.</li> <li>* * No other income generating activities.</li> <li>* * No capability to prepare project proposal for fund sourcing from outside groups.</li> </ul>	<ul style="list-style-type: none"> <li>* Bago &amp; Labangan: Remuneration from type 1 contract not received.</li> <li>* Pulangui: Miss use of IA incentives by IA leaders.</li> <li>* Bago &amp; Labangan: Unremitted ISF collection.</li> </ul>	<p>Core Objective: Organization is financially viable and capable to manage support services to members.</p> <ul style="list-style-type: none"> <li>* 90% ISF collection performance.</li> <li>* 100% collection of members dues/fees.</li> <li>* Plan &amp; budget is formulated &amp; followed.</li> <li>* Installed proper accounting system.</li> <li>* Developed income generating projects.</li> <li>* Technical assistance from NIA &amp; other line agencies is provided.</li> </ul>	<ul style="list-style-type: none"> <li>* Bago &amp; Labangan: Remuneration of type 1 contract &amp; incentives of type 2 contract is promptly paid by NIA.</li> <li>* Pulangui, Bago &amp; Labangan: Strict monitoring of IA officers/leaders in its financial operations/transactions.</li> </ul>

**Table 7.3 Summary of Problems and Objectives Identified by Detailed Survey at 6 NIS Covering 17 IA's (3/3)**

NIS Classification	RIS	IA Aspect	Problem		Objectives	
			Common	Specific	Common	Specific
Market-Away Type	Mal	Organization	<p>Core Problem: Organizations are weak in leadership.</p> <p>Immediate causes:</p> <ul style="list-style-type: none"> <li>* Inactive IA members (50-70%)</li> <li>* Membership is only (45-65%) from target.</li> <li>* Absentee BOD and does not know their duties and responsibilities.</li> <li>* BOD and IA meetings are not regularly conducted.</li> <li>* Plans, Programs &amp; Policies are not formulated and by-laws provisions are not understood by leaders and members.</li> <li>* Standing committees are not functional.</li> <li>* Limited leadership and management competencies of leaders.</li> <li>* Insufficient records and filing system not installed.</li> </ul>		<p>Core Objective: Organizations are functional and with strong leadership.</p> <p>Sub-Objectives:</p> <ul style="list-style-type: none"> <li>* Members are active (100%)</li> <li>* Membership performance is 100%.</li> <li>* Attendance of BOD to meeting is 100%</li> <li>* BOD and IA meetings are regularly conducted.</li> <li>* Plans, programs and policies are formulated according to by-laws provisions and clearly understood by members.</li> <li>* Standing committees are functional.</li> <li>* High capabilities of officers/leaders in leadership and management functions.</li> <li>* Recording and filing system is installed.</li> </ul>	
		Operation and Maintenance	<p>Core Problem: Inadequate water supply to all target irrigation areas during dry season.</p> <p>Immediate causes:</p> <ul style="list-style-type: none"> <li>* WDD is not properly managed by IA.</li> <li>* O&amp;M policies are not completed &amp; documented properly.</li> <li>* O&amp;M policies not strictly implemented.</li> <li>* Irrigation canal is not properly maintained.</li> <li>* Illegal practices of farmers.</li> <li>* No type 1 contract implemented.</li> <li>* Degradation of watershed areas.</li> <li>* Structural problem (small canal).</li> <li>* Deteriorated irrigation structures and facilities.</li> </ul>	<ul style="list-style-type: none"> <li>* Malkaira IA: Clogging of canals due to problem of garbage disposal.</li> </ul>	<p>Core Objective: Adequate water supply all throughout the year (two cropping per year)</p> <p>Sub-Objectives:</p> <ul style="list-style-type: none"> <li>* WDD is properly managed.</li> <li>* O&amp;M policies are formulated &amp; documents are disseminated to members.</li> <li>* Policies are strictly imposed with sanctions.</li> <li>* Irrigation canals are properly maintained.</li> <li>* Illegal practices of farmers are stopped.</li> <li>* Type 1 &amp; 2 contracts implemented.</li> <li>* Linkages with DENR for joint action.</li> <li>* Redesigning and rehabilitation work.</li> <li>* Regular maintenance work.</li> </ul>	<ul style="list-style-type: none"> <li>* Malkaira IA: Regular canal clearing is conducted and waste disposal program is launched.</li> </ul>
		Financial	<p>Core Problem: Insufficient income to sustain administrative and O&amp;M activities.</p> <p>Immediate causes:</p> <ul style="list-style-type: none"> <li>* ISF incentives policy is not clearly defined.</li> <li>* Ineffective fund management system.</li> <li>* Financial plan and budget not formulated.</li> <li>* Limited sources of funds.</li> <li>* Membership is hesitant to pay their dues.</li> <li>* Incomplete financial documents/records.</li> </ul>	<ul style="list-style-type: none"> <li>* Labakafia IA: No transparency of IA fund to members.</li> </ul>	<p>Core Objective: Sufficient funds to support O&amp;M and organizational activities.</p> <p>Sub-Objectives:</p> <ul style="list-style-type: none"> <li>* Revised ISF incentives benefit for member.</li> <li>* Effective fund management system.</li> <li>* Formulated financial plan &amp; budget.</li> <li>* Operate various income generating project</li> <li>* Formulated capital-build-up program.</li> <li>* Prepared regular financial report/audit..</li> </ul>	<ul style="list-style-type: none"> <li>* Labakafia IA: Financial reports is regularly prepared and presented to members for information &amp; comments.</li> </ul>

**Table 7.4 Input Requirement for Pilot NIS-IA Strengthening, IA Organization (1/3)**

Inputs	NIS Classification: Pilot NIS-IA:	Potential Un-Exploited Type					Market Away Type Mal
		Water Constrain Type	Angat	Bago	Labangan	Pulangui	
		San Fabian					
<b>IA:</b>							
1. Active participation of IA officers and leaders in meetings and training seminars.		1	1		1	1	1
2. Traveling expenses to officers/leaders to attend meetings and trainings outside the area.		2	2	2			2
3. Venues for meetings and training seminars at the field level.		3	3	3			3
4. Members' counterpart for foods during meetings and training seminars at the field level.		4	4	4	4		
5. Voluntary works during "bayanihan" activities of the IA.		5					5
6. Records of IA activities.			6		6		6
7. Coordination with LGUs for technical and materials resources.				7	7		
8. Timely information to farmers and IA members.				8			
9. Technical preparatory activities at the field level for meetings and training.				9			9
10. Monitoring members participation in IA activities.						10	
11. Typewriter and office supplies/stationery.							11
<b>NIA:</b>							
1. Masterlist of farmers.		1					
2. Minutes of meetings of IA.		2	2				
3. Logistic support (venue, vehicles, etc.) and budget for IA activities.		3	3			3	3
4. Trainers' training for pre-membership seminars, organization development and leadership		4	4		4		
5. Support for IA membership survey/profiling of actual tillers.			5				
6. Organizing assistance to IA.				6			
7. Monitoring and evaluation mechanism of the IAs and project.				7	7	7	
8. Monthly coordination meetings .				8			
9. Technical and materials supports for IAs from different line agencies.					9		9
10. Assistance in planning and implementation of plans and programs of IAs.						10	10
11. Training manuals and training kits for trainees.							11

**Table 7.4 Input Requirement for Pilot NIS-IA Strengthening, IA Operation and Maintenance (2/3)**

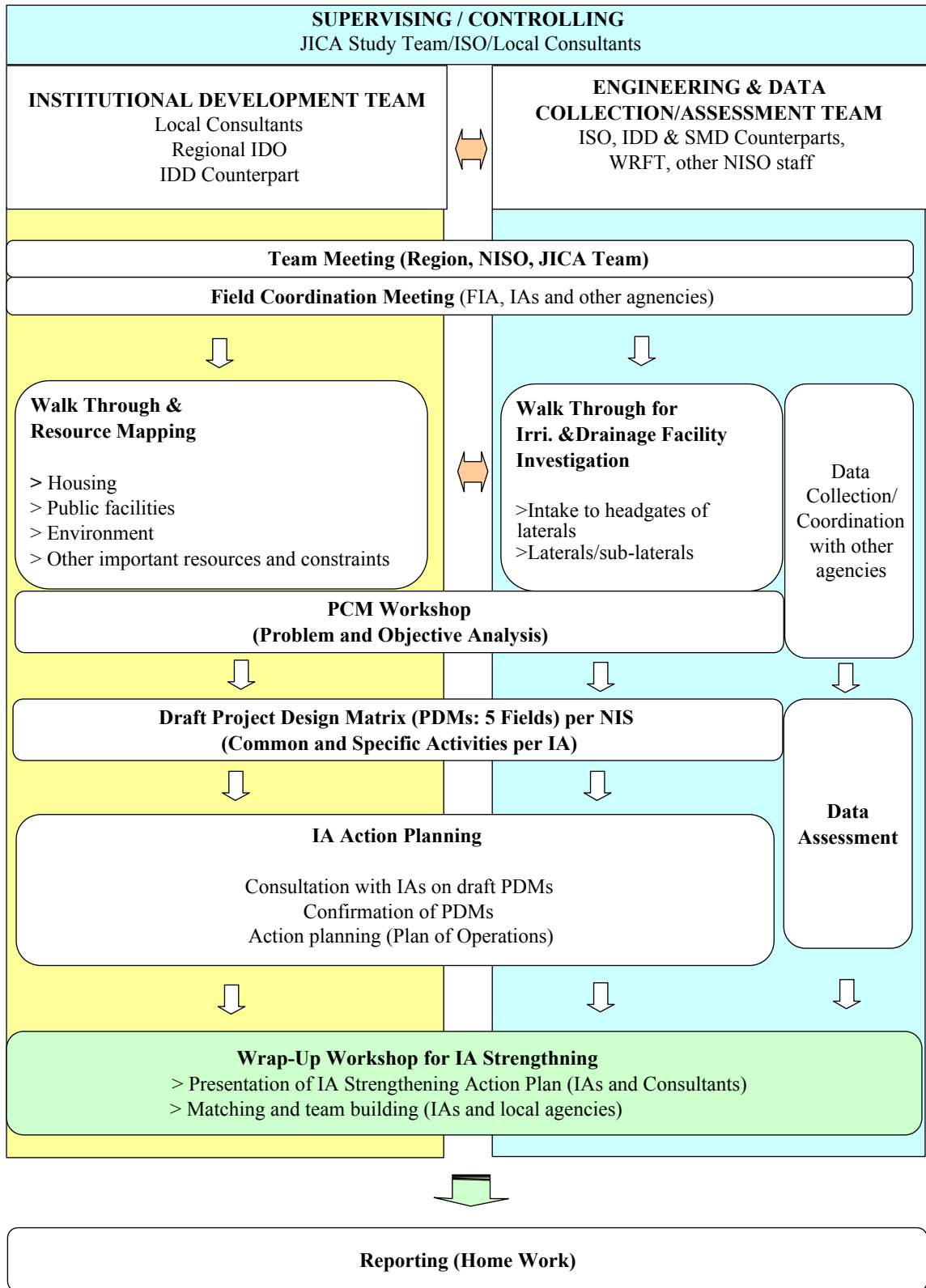
Inputs	NIS Classification: Pilot NIS-IA:	Water Constrain Type	Potential Un-Exploited Type					Market Away Type
		San Fabian	Angat	Bago	Labangan	Pulangui	Mal	
<b>IA:</b>								
1. Active participation of IA members in O&M policy planning, implementation, rehabilitation and maintenance (cleaning) works.		1	1	1	1	1	1	1
2. Trainable leaders for the different TSAs to handle O&M works.		2		2	2			
3. Coordination with LGUs, and line agencies for O&M arrangements.			3	3	3			
4. Local materials for repair and maintenance activities of the irrigation canals and farm ditches.				4	4			6
5. Resources for food counterpart during O&M trainings/workshops/meetings.				5				5
6. Voluntary labor for O&M (repair and maintenance works)		6						6
7. Small farm tools and equipment for repair and maintenance works.		7						
<b>NIA/Other Agencies:</b>								
1. Hydrological data and maps, engineering reports and cost estimates for repair and maintenance budget.		1	1			1		1
2. Fund allocation for repair and maintenance of the NIS major facilities.		2	2	2	2			
3. Support for the O&M project from LGUs and line agencies.				3	3	3		
4. Training for IA leaders in O&M policy planning, implementation, monitoring and evaluation works and system management.		4				4		4
5. Training on scientific irrigation farming technology to IA members-farmers.			5					
6. Facilitation of joint walkthrough with LGUs.						6		6
7. Crops and technology needed by farmers.		7						
8. Logistic support (supplies, fuel, vehicles, equipment) for O&M trainings and operations of IAs.		8	8					8

**Table 7.4 Input Requirement for Pilot NIS-IA Strengthening, IA Financial Performance (3/3)**

Inputs	NIS Classification: Pilot NIS-IA:	Water Constrai n Type	Potential Un-Exploited Type				Market Away Type
		San Fabian	Angat	Bago	Labanga n	Pulangui	Mal
IA:							
1.	Attendance of IA officers and leaders during workshops and training to enhance skills in financial management.	1		1			1
2.	Local counterpart fund or donations for IA projects, training and O&M activities.			2			2
3.	Financial assistance for IA livelihood projects from other line agencies.	3		3			
4.	Members patronage to IA livelihood projects and business.	4	4	4	4	4	
5.	Market networking with other IAs.			5			
6.	Members' capital-build-up and savings.	6	6		6	6	6
7.	Monitoring and audit report of IA financial performance.				7	7	
8.	IA task force per TSA for ISF and membership dues collection.					8	
9.	Participation of IA wives for IA dues collection.					9	
10.	Voluntary works of IA officers, leaders and members in the implementation of income generating projects.						10
NIA/Other Agencies:							
1.	Technical and logistic support to IA for trainings and meetings.	1		1			1
2.	Technical assistance on financial management, entrepreneurship and bookkeeping functions.	2	2			2	2
3.	Assistance in ISF collection of IAs.					3	
4.	Assist IA in listing of water users per TSA per IA.	4					4
5.	Monitoring and evaluation reports of IAs financial operations and recommended solutions.			5	5	5	
6.	Support for livelihood program and other technical assistance from line agencies.	6	6	6	6	6	
7.	Assistance in market information network among IAs (NIS/CIS), private traders, LGUs and line agencies for better price and assembling market facilities such as warehouse, dryers, etc.			7			7
8.	Report of IAs' ISF collection performance.	8	8				8
9.	Project proposals, business planning and feasibility study.				9	9	
10.	Funding for post harvest facilities.						10
11.	Technician for operating post harvest facilities.						11



# *Figures*



**Figure 7.1 Composition of PRA Team and Survey Activities**

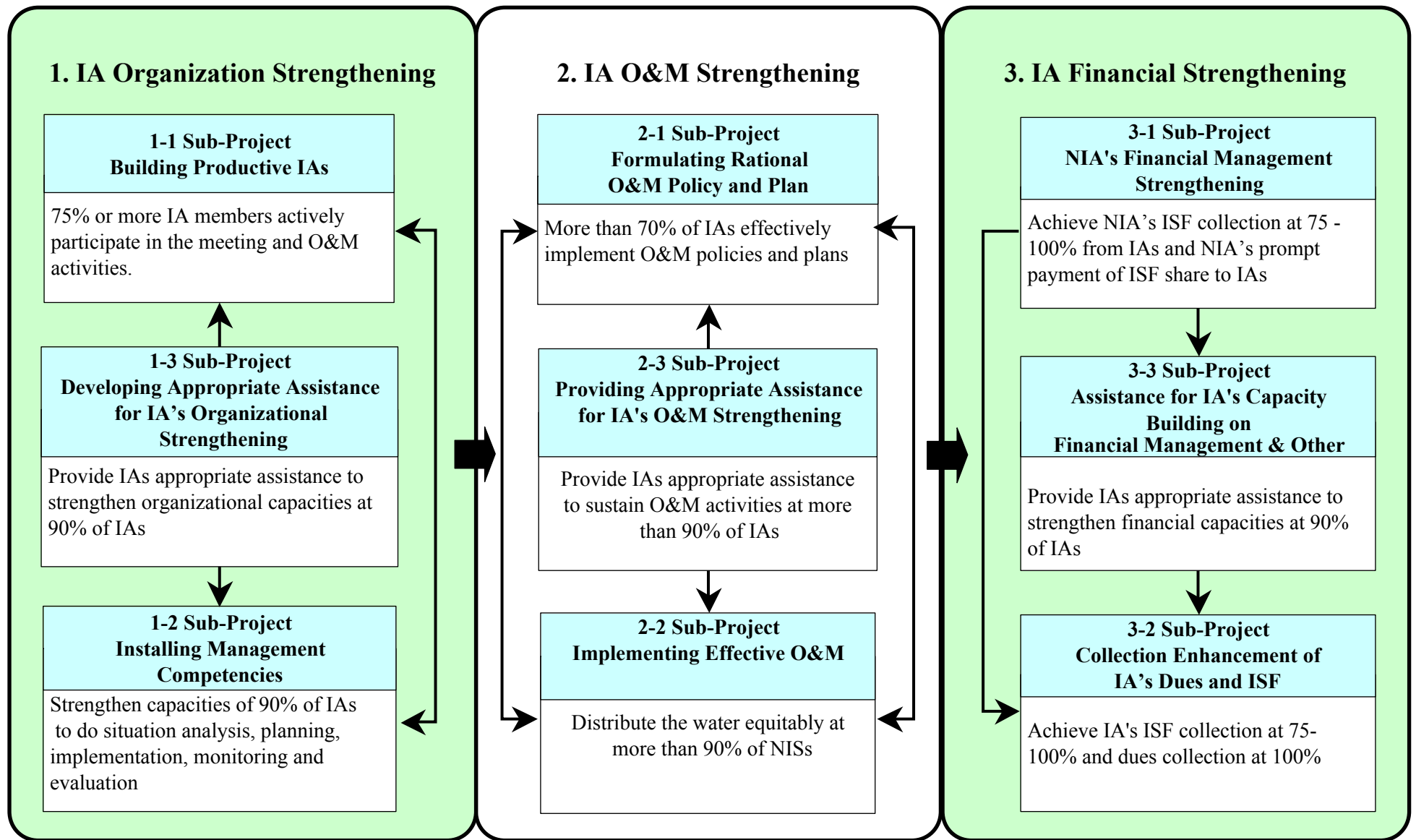
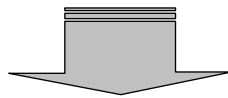
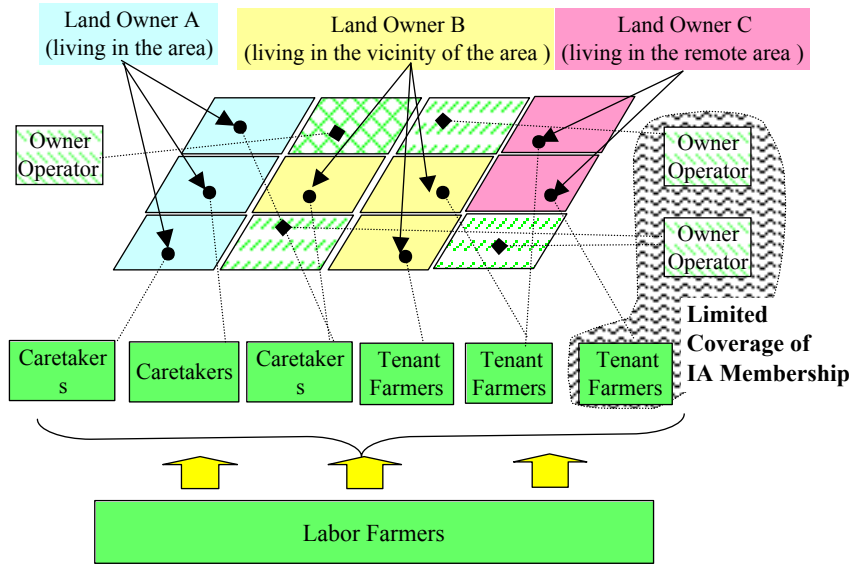
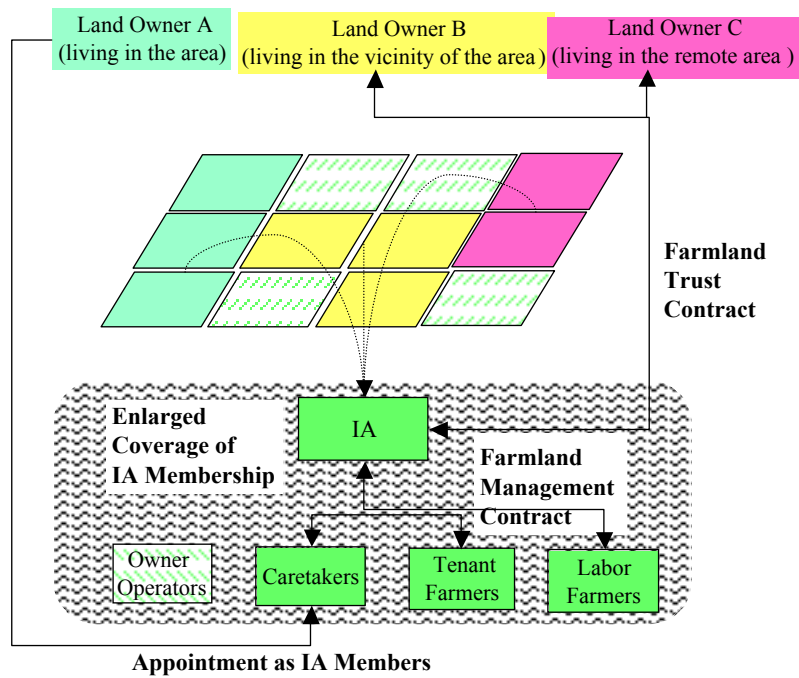


Figure 8.1 Linkage of Sub-Projects for IA Strengthening

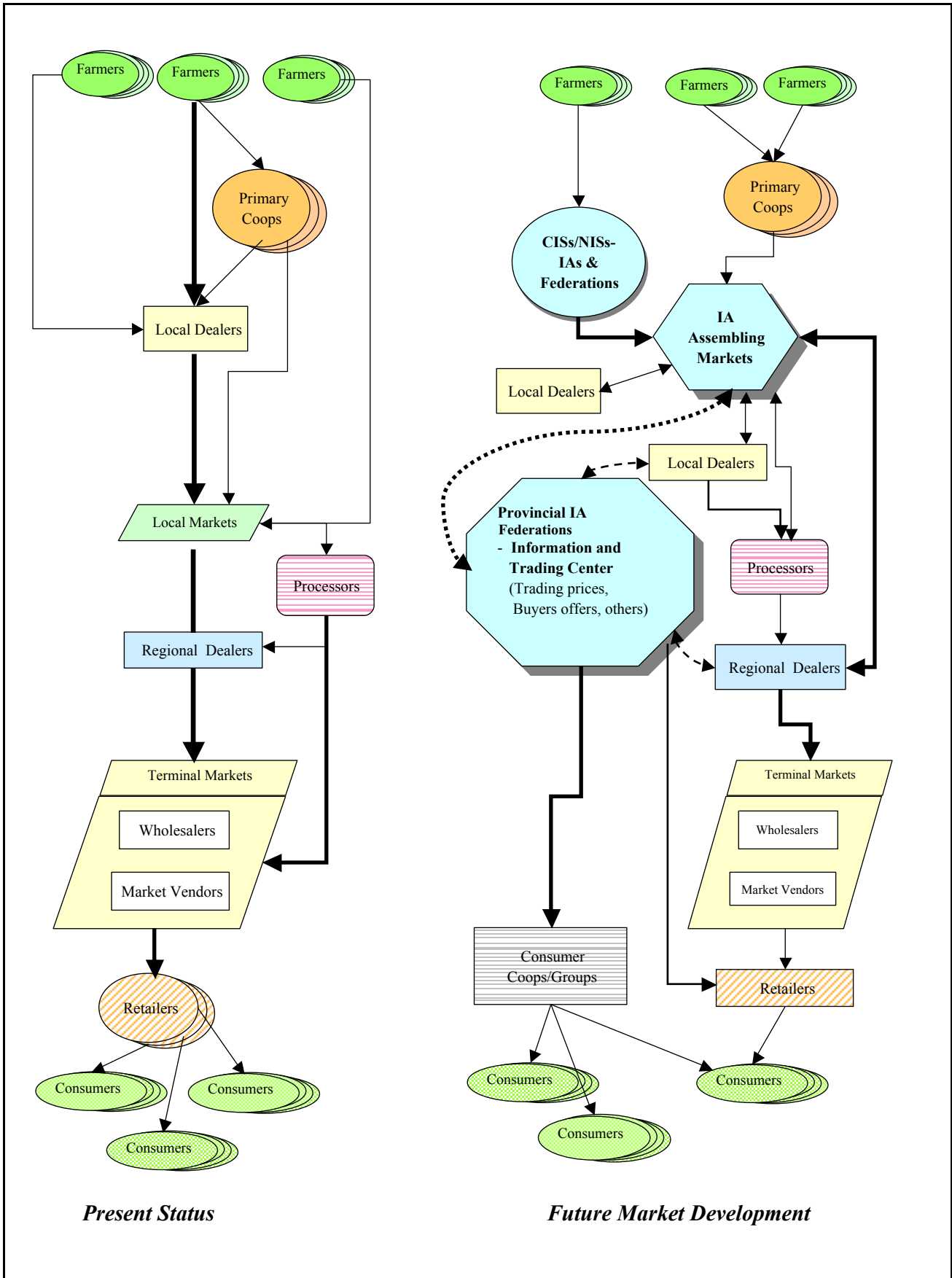
**Individual Farming Contract between Land Owners and Farmers  
(Tenant, Caretakers, Labor Farmers)**



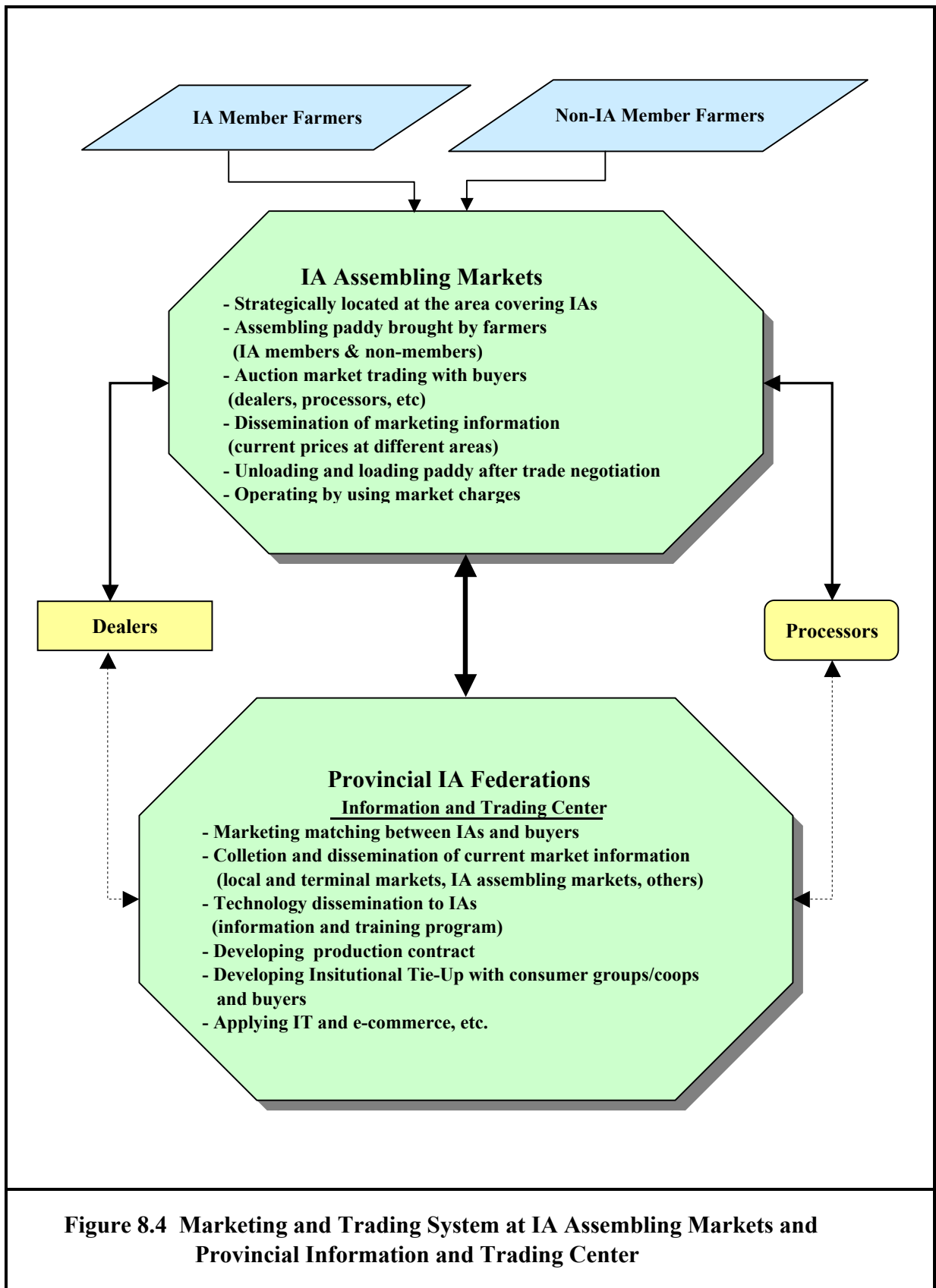
**Farmland Trust Management by IA**



**Figure 8.2 IA Membership Enlargement through Farmland Trust Management by IA**



**Figure 8.3 Framework for IA-Based Market Development**



**Figure 8.4 Marketing and Trading System at IA Assembling Markets and Provincial Information and Trading Center**

**Figure 8.5 Implementation Schedule for Action Plans for IA Strengthening (1/4)**

**1. Pilot Activities for IA Organizational Strengthening (Sub-Project 1-1, 1-2 and 1-3)**

Outputs	Activities	Pilot Activities for IA Strengthening			
		2002	2003	2004	2005
		1	2	3	4
Preparatory Works (Assignment of NIA Task Force and Working Teams, Financial Arrangement)					
NIA-1 Registered and Updated master list	NIA-1.1 Conduct complete enumeration of potential members.				
	NIA-1.2 Update jointly (NIA-IA) the master list indicating tenure status of each member				
NIA-2 Practical training schemes and organizational strategies	NIA-2.1 Assess functional structures of IAs and develop participatory and community-based organizational approaches.				
	NIA-2.2 Conduct training impact evaluation and training needs analysis (TNA) in coordination with RIOs, NISOs, IAs and other agencies				
	NIA-2.3 Develop improved IA training packages, and conduct trainers' training,				
	NIA-2.4 Establish training teams at the regional and provincial levels to train leaders using improved methodologies				
	NIA-2.5 Establish coordination with other agencies to provide technical assistance to IAs				
NIA-3 Unified IMT policy	NIA-3.1 Review jointly (NIA-IA) the existing IMT contracts and draw up a comprehensive policy				
NIA-4 Active System Management Committee (SMC)	NIA-4.1 Establish SMCs in all NISs				
IA-1 Active membership	IA-1.1 Conduct BOD meeting to finalize membership criteria and profile of potential members				
	IA-1.2 Request NIA/DAR to get the data on all potential water users/actual tillers				
	IA-1.3 Prepare membership recruitment plan through the conduct of pre-membership seminar				
	IA-1.4 Finalize new master list and submit application to SEC				
IA-2 Improved leadership quality and functions	IA-2.1 Prepare agenda and conduct regular meetings				
	IA-2.2 Establish proper documentation, provide copies of reports, and facilitate resolution of issues with participation				
	IA-2.3 Identify potential leaders and implement regular elections				
	IA-2.4 Conduct regular review and amendment of by-laws and notify members				
	IA-2.5 Revive and activate all working committees to plan and execute programs and policies				
IA-3 Enhanced Skills	IA-3.1 Deputize leaders to attend training programs and use them as trainers to train at least 50% of members using improved training modules				
IA-4 Installed of systems and procedures	IA-4.1 Install logbook system				
	IA-4.2 Collect, review and consolidate records				
	IA-4.3 Conduct proper turn-over of documents				
	IA-4.4 Prepare records of discussion				
	IA-4.5 Update records				
IA-5 Established of essential coordination mechanism	IA-5.1 Conduct regular dialogues with LGUs and other support institutions				
	IA-5.2 Organize and plan the establishment of councils				
	IA-5.3 Conduct election of council officers				
	IA-5.4 Study status of provincial federation				
	IA-5.5 Execute an strengthening plan for provincial federation				
IA-6 Re-organized TSA	IA-6.1 Study service area and define cost-effective and manageable TSA				
	IA-6.2 Consolidate TSA based on new hydrological boundaries				
IA-7 IA Center Facility	IA-7.1 Arrange lands and building for IA center				
	IA-7.2 Request for funding				

Note: : JICA Study Team : NIA (Other Agencies) : IAs

**Figure 8.5 Implementation Schedule for Action Plans for IA Strengthening (2/4)**

**2. Pilot Activities for IA O&M Strengthening (Sub-Project 2-1, 2-2 and 2-3)**

Outputs	Activities	Pilot Activities for IA Strengthening			
		2002	2003	2004	2005
		1	2	3	4
NIA-1 Written and practical O and M policies	NIA-1.1 Deliberate issues affecting implementation of O&M policies and plans		■		
	NIA-1.2 Settle the issues jointly with IA through consultation with SMC considering equity and practicality in the use of water		■		
	NIA-1.3 Develop enforcement measures specifying penalties, incentive and responsibilities in NIA		■		
	NIA-1.4 Obtain LGU ordinance to prevent illegal dumping and squatting along canals		■		
	NIA-1.5 Adapt the Water Code for illegal water users		■		
	NIA-1.6 Assist IAs to formulate O&M policies and plans before start of cropping season		■		
NIA-2 Established Coordination System	NIA-2.1 Suggest and recommend strategies on how conflicts could be resolved		■		
	NIA-2.2 Request TSAG leaders to coordinate with SMC and LGUs to settle conflicts amicably		■		
NIA-3 Training Packages	NIA-3.1 Develop improved IA training packages on O&M methodologies and other strategies	■	■		
	NIA-3.2 Establish training teams at regional and provincial levels		■		
	NIA-3.3 Conduct trainers training		■	■	■
	NIA-3.4 Provide skills training to NISO's O&M staff		■	■	■
	NIA-3.5 Establish liaison with other public institutions to provide technical assistance to IAs		■		
	NIA-3.6 Monitor and evaluate progress of training		■	■	■
NIA-4 Strict Enforcement of O&M policies and plans	NIA-4.1 Prepare water distribution, and monitoring plan jointly with IAs under assistance from resource persons		■	■	■
	NIA-4.2 Disseminate water delivery plan and schedule to IAs at accessible places (bulletin boards at every diversion and delivery point)		■	■	■
	NIA-4.3 Implement operational plan within NIS jurisdiction		■	■	■
	NIA-4.4 Monitor, record and evaluate water delivery		▲	▲	▲
	NIA-4.5 Conduct walk through inspection of irrigation facilities jointly with IAs after harvest and calamity		■	■	■
	NIA-4.6 Implement maintenance plan within NIA jurisdiction		■	■	■
	NIA-4.7 Develop efficient procedures for identification and prioritization of rehabilitation works through participatory approach	■	■	■	■
	NIA-4.8 Rehabilitate and install control structures and measuring devices at intake and head gates	■	■	■	■
	NIA-4.9 Modify turn-outs to proper size of pipe diameter for land preparation and provide gates for normal irrigation	■	■	■	■
IA-1 Written, practical and rational O&M policies and plans	IA-1.1 Conduct O&M orientation workshop for leaders		■		
	IA-1.2 Facilitate consultation meeting with members		■		
	IA-1.3 Prepare O&M information materials		■		
	IA-1.4 Set-up information boards for notification/ratification of O&M policies		■		
	IA-1.5 Jointly prepare with members the O&M plans and ratify accordingly through participatory process		■		
IA-2 Established coordination system	IA-2.1 Request NIA to regularly convene the SMCs		■	■	■
	IA-2.2 Conduct regular dialogues with members		▲	▲	▲
	IA-2.3 Activate service committees and clothe them with powers to resolve conflicts		■	■	■
	IA-2.4 Reorganize and mobilize TSAG leaders for intensive information dissemination		■	■	■
IA-3 Training Package	IA-3.1 Request NIA to conduct live-in and role modeling training to leaders and members		■	■	■
	IA-3.2 Request NIA to conduct regular orientation on the preparation of O&M plans		■	■	■
	IA-3.3 Conduct training to at least 50% of members		■	■	■
	IA-3.4 Develop a methodology for transferring skills to members		■	■	■
IA-4 Strict Enforcement of O&M plans and policies	IA-4.1 Prepare jointly with NIA the cropping calendar and implement		■	■	■
	IA-4.2 Prepare WDD jointly with NIA and implement		■	■	■
	IA-4.3 Jointly conduct with NIA information dissemination programs about the cropping calendar and WDD		■	■	■
	IA-4.4 Request NIA to conduct orientation on contract provisions		■	■	■
	IA-4.5 Consult with members about incentive structure		■	■	■
	IA-4.6 Finalize Type I and II contracts and renew with NIA		■	■	■
	IA-4.7 Activate service committees to disseminate and enforce penalties		■	■	■
	IA-4.8 Conduct regular cleaning of canals and farm ditches		■	■	■
	IA-4.9 Request NIA to repair and rehabilitate damaged irrigation systems		■	■	■
	IA-4.10 Mobilize members for regular maintenance of canals and farm ditches		■	■	■
	IA-4.11 Close illegal turnouts and other illegal activities and enforce corresponding penalties		■	■	■
	IA-4.12 Request NIA to provide shallow tube wells at cost		■	■	■
	IA-4.13 Coordinate with LGU for additional funding support		■	■	■

Note: ■ : JICA Study Team ■ : NIA (Other Agencies) ■ : IAs



**Figure 8.5 Implementation Schedule for Action Plans for IA Strengthening (3/4)**

**3. Pilot Activities for IA Financial Strengthening (Sub-Project 3-1, 3-2 and 3-3)**

Outputs	Activities	Pilot Activities for IA Strengthening			
		2002	2003	2004	2005
		1	2	3	4
NIA-1 Improved ISF collection policies and procedures	NIA-1.1 Review and amend, if necessary, existing ISF incentives and exemptions		■		
	NIA-1.2 Review and amend, if necessary, existing ISF rates using appropriate water pricing strategy		■		
	NIA-1.3 Develop and implement cost-effective collection policies and strategies		■		
	NIA-1.4 Conduct dialogues with IAs, DA, DAR, DILG, and other agencies on legal and procedural system		■		
	NIA-1.5 Establish institutional arrangement between LRA and NIA to prevent transfer of irrigated lands with ISF arrears		■		
	NIA-1.6 Design and implement mass media campaign on ISF collection to instill awareness among NIA employees		■	■	■
	NIA-1.7 Study and modify existing procedures of monthly releases of sub-allotment advice requirements to facilitate timely allocation and processing of payments of IA remuneration and collection incentives		■		
	NIA-1.8 Study the generation of seed fund out of ISF shares to improve the liquidity of IAs		■		
	NIA-1.9 Reconcile and update IFRs, master list and parcellary maps to increase billing and collected areas		■	■	■
NIA-2 Training Package	NIA-2.1 Review through TNA all existing training on financial matters and design a simple and integrated financial management training for leaders and members	■	■		
	NIA-2.2 Establish a training core team on financial management system at the region and provincial levels to conduct hands-on and coaching jobs to leaders and members		■		
	NIA-2.3 Study and restore computerized billing system and institute a crash training for adoption of the computerized system		■	■	■
	NIA-2.4 Institute IA financial auditing system and implement a basic course on audit		■	■	■
	NIA-2.5 Collaborate and establish liaison with other agencies to get their technical and financial assistance for IAs		■	■	■
	NIA-2.6 Conduct trainers training and establish training teams at regional and provincial level		■	■	■
IA-1 Internal ISF policies and procedures	IA-1.1 Conduct dialogues and planning sessions with members and solicit ISF and members' dues policy proposals		■	■	
	IA-1.2 Prepare the policies and implementing rules and guidelines and circulate for ratification		■	■	
	IA-1.3 Implement the policies through intensive communications program		■	■	
	IA-1.4 Monitor and evaluate performance			▲	▲
IA-2 Training Package	IA-2.1 Coordinate with NIA and present a training proposal		■	■	■
	IA-2.2 Design an appropriate financial management training using live-in and role modeling scheme		■	■	■
	IA-2.3 Conduct the training to at least 50% of members on financial management, and develop second line IA leaders (by IA trainers)		■	■	■
IA-3 Systems and Procedures	IA-3.1 Appoint bookkeepers and activate financial record keeping and audit		■	■	■
	IA-3.2 Consolidate all financial records, and develop procedural system for transactions and control		■	■	■
IA-4 Market-related and income projects	IA-4.1 Negotiate with NIA for renewal of Type I and II contract		■	■	■
	IA-4.2 Prepare and submit documents to NIA, and install systems and procedures for implementation		■	■	■
	IA-4.3 Prepare fund raising and income generating policies and proposal		■	■	■
	IA-4.4 Discuss in assembly meeting and ratify for implementation		■	■	■
	IA-4.5 Prepare specific project proposal (through assistance from NIA and other agencies)		■	■	■
	IA-4.6 Solicit the funding requirement and counterpart fund from members		■	■	■
	IA-4.7 Implement and monitor performance		▲	▲	▲
	IA-4.8 Prepare a plan of action for assembly marketing program		■	■	■
	IA-4.9 Conduct market research and market planning workshop		■	■	■
	IA-4.10 Conduct training to leaders on operations (bulk volume transport and deposit, invitations of potential buyers, pricing, etc.		■	■	■
	IA-4.11 Install the market center		■	■	■

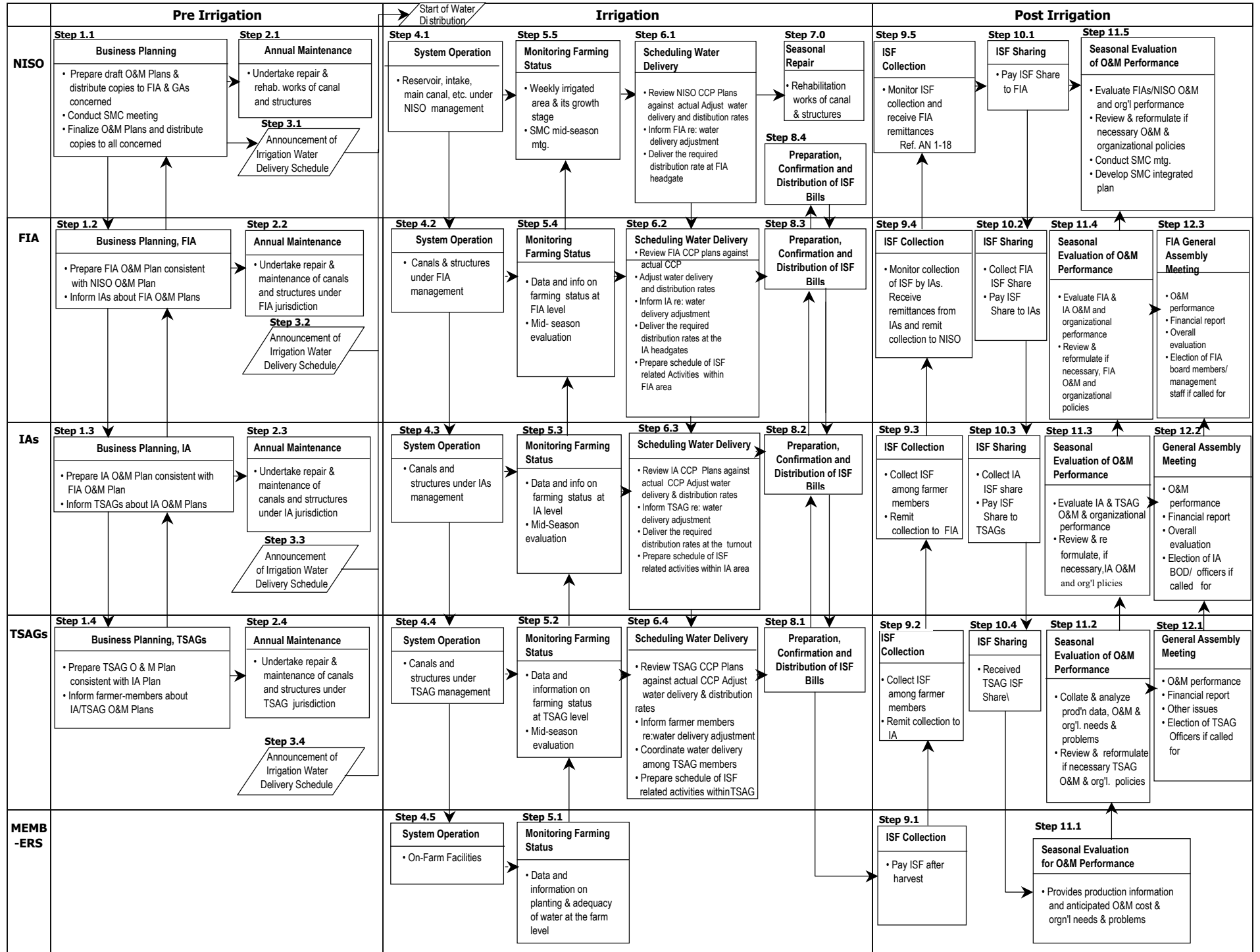
Note: ■ : JICA Study Team ■ : NIA (Other Agencies) ■ : IAs

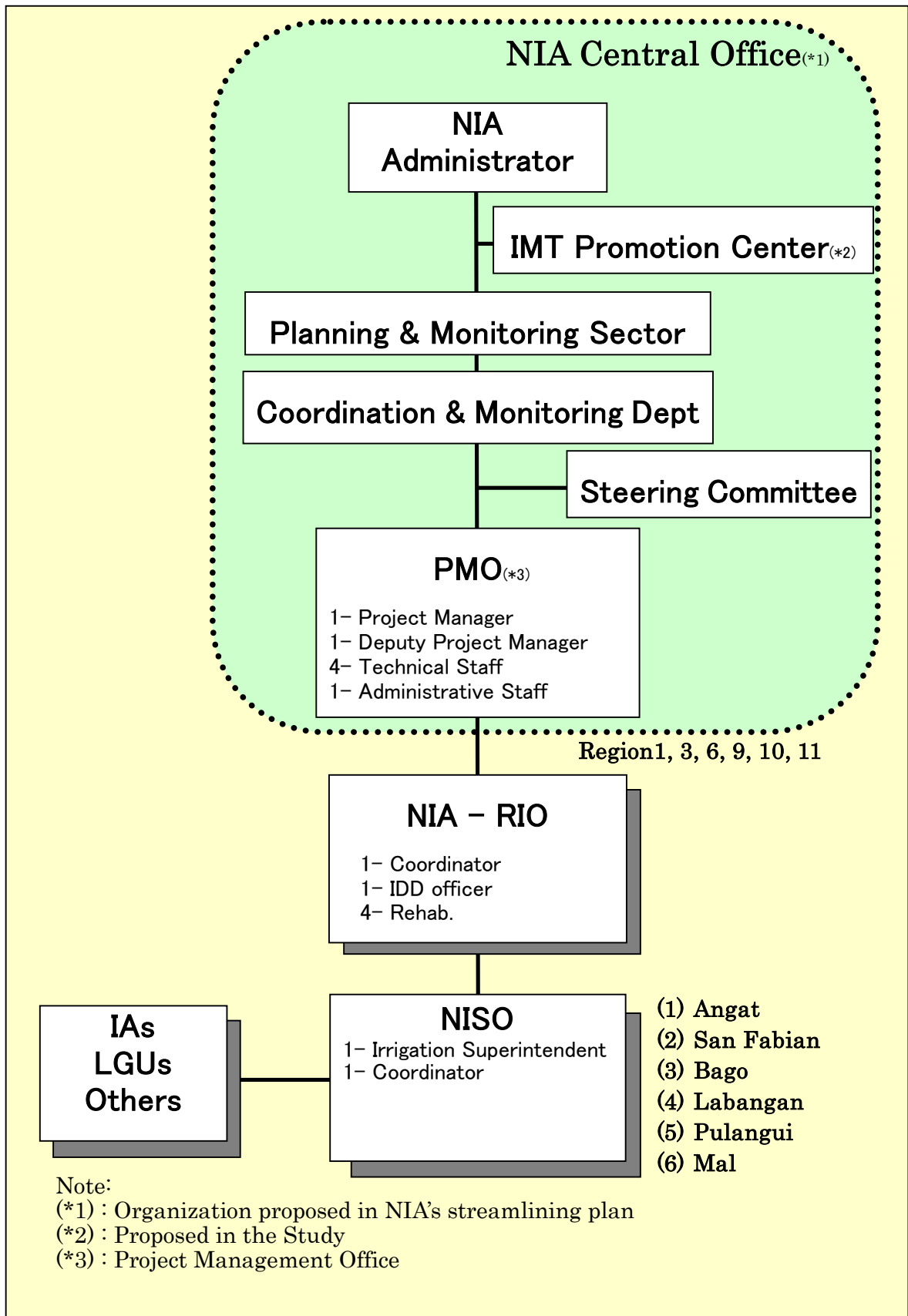
**Figure 8.5 Implementation Schedule for Framework Action Plan for IA Strengthening (4/4)**

**5. Nationwide Replication for IA Strengthening**

Project Activities	Nationwide Replication for IA Strengthening											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
	0	1	2	3	4	5	6	7	8	9	10	
1. Assessment of pilot activities	■											
2. Preparation of Nationwide Replication Plan	■											
3. Fund Arrangement	■	■										
4. Training Program												
For NIA Trainers		■	■	■	■	■	■	■	■	■	■	■
For IA Leaders		■	■	■	■	■	■	■	■	■	■	■
5. Organization of NIA-IA Working Teams (regional level)		■	■	■	■	■	■	■	■	■	■	■
6. Joint Study for IA Strengthening		■	■	■	■	■	■	■	■	■	■	■
7. Implementation of Nationwide Program for IA Strengthening												
7.1 NIA's Institutional Development Programs												
IA strengthening program		■	■	■	■	■	■	■	■	■	■	■
Computerized billing system		■	■	■	■	■	■	■	■	■	■	■
JSM/IMT promotion		■	■	■	■	■	■	■	■	■	■	■
NIA Organizational Strengthening		■	■	■	■	■	■	■	■	■	■	■
7.2 NIS Joint Rehabilitation Programs												
Detailed Design and cost estimate		■	■	■	■	■	■	■	■	■	■	■
Joint rehabilitation works		■	■	■	■	■	■	■	■	■	■	■
Water resources development works		■	■	■	■	■	■	■	■	■	■	■
7.3 IA Strengthening Programs												
Organizational strengthening		■	■	■	■	■	■	■	■	■	■	■
O&M strengthening		■	■	■	■	■	■	■	■	■	■	■
Financial strengthening		■	■	■	■	■	■	■	■	■	■	■
8. Periodical monitoring and evaluation		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲

Figure 10.1 Flow Diagram on IA Management





- (1) Angat
- (2) San Fabian
- (3) Bago
- (4) Labangan
- (5) Pulangui
- (6) Mal

Note:  
 (\*1) : Organization proposed in NIA's streamlining plan  
 (\*2) : Proposed in the Study  
 (\*3) : Project Management Office

**Figure 11.1 Organization of Project Implementation**