JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

DEPARTMENT OF AGRARIAN REFORM (DAR)
REPUBLIC OF THE PHILIPPINES

THE STUDY ON THE DEVELOPMENT OF AGRARIAN REFORM COMMUNITIES [ARCs] IN THE PROVINCE OF ISABELA IN THE REPUBLIC OF THE PHILIPPINES

APPENDIX

JANUARY 2001

SANYU CONSULTANTS INC.
I. C. NET LIMITED

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A.1 Implementing Arrangement

A.2 List of Personnel contacted by the Study Team during the Study Period

Government Agency	Technical Working Group (TWG)	Counterpart
NEDA	ARD Milagros Rimando	Sandra Mabazza
DENR	Leonardo Sibbaluca	PENRO - Jorge Lucero/ Samuel Berlin CENRO Cauayan - Felix Taguba/ Alcendres Abuen CENRO Cabagan - Jaime Frogoso/ Luz Soriano CENRO San Isidro - Alberto Obedoza/ Henry Costales CENRO Roxas - Marcelo Pattaguan/ Rodrigo Cayaban CENRO Ilagan - William Savella/ Rene Gannaban
DPWH	Manuel Y. Alejo (1st District) Reynato M. Ubina (2nd District) Avelino Lubo (3rd District) Pedro Baliton (4th District)	Melecio Sibal Ricardo A. Atos, Jr. Oscar G. Gumiran Mina Montero/Mario Soledad
DA-CVIARC	Danilo Tumamao	William Contillo
Provincial Agriculture Office	Marilyn V. Caro	
Provincial Veterinary Office	Angelo Naui	Rogelio Tiburcio/Felix Macanas
NIA-PIO	Ramon R. Fabios	Cesar Menor
NIA-Tumauini	Gualfredo Martinez	
NIA-Cabagan	Wilfredo Salvador	
NIA-MARIIS	Bienvenido R. Besa	Cauayan-Carmelo Salvador San Manuel- William Oppnes Santiago-Eddie Ramos San Mateo-Frank Bumagat
LGU-Province	Nestor Salvador	All Municipal Planning & Dev't. Officers
DAR-Region	ARD Angelito Castillo	Cornelio Palos Andres Cafugauan
DAR PROVINCIAL OFFICE		
Designation	Name	Position
Provincial Project Coordinator	Ronald B. dela Rosa	Provincial Agrarian Reform Officer II
Assistant Provincial Project Coordinators	Cipriano Roque Andres C. Estera	Provincial Agrarian Reform Officer I CARPO-PBD
Provincial Technical Coordinator/ Facilitator	Cherrie L. Mangoba	SARPO
Rural Infrastructure Coordinator	David B. Villanueva	
Economic and Rural Enterprise Coordinators	Ricardo F. Juan Constantino C. Gammad	
Institutional Development Coordinators	Gabriel Dalloran Alma D. Bueno	
Administrative Support	Zenaida P. Mesa Namnama P. Santos Buenafe Benitez Francisco Nicolas	

Annex

Implementing Arrangement

for

The Study on

the Development of Agrarian Reform Communities (ARCs)

in the Province of Isabela

in

the Republic of the Philippines

agreed upon between

Department of Agrarian Reform

and

Japan International Cooperation Agency

Manila, May 19, 1999

Conrado S. NAVARRO
Undersecretary
for Field Operations and Support Services
Department of Agrarian Reform,
The Government of the Republic of the Philippines

Naomi KAWATA
Leader
The Preparatory Study Team
Japan International Cooperation Agency

Witnessed by

Benjamin G. DY
Governor
Province of Isabela

I. INTRODUCTION

In response to the request of the Government of the Republic of the Philippines (hereinafter referred to as "GOP"), the Government of Japan (hereinafter referred to as "GOJ") has decided to conduct the Study on the Development of Agrarian Reform Communities (ARCs) in the Province of Isabela (hereinafter referred to as "the Study"), and exchanged the Notes Verbales with GOP concerning the implementing of the Study.

Japan International Cooperation Agency (hereinafter referred to as JICA), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, shall undertake the Study in accordance with the relevant laws and regulations in force in Japan.

On the part of GOP, Department of Agrarian Reform (hereinafter referred to as "DAR") shall act as the counterpart agency to the Japanese Study Team (hereinafter referred to as "the Team") and also as the coordinating body in relation with other governmental organizations and non-governmental organizations concerned for smooth implementation of the Study.

The present document constitute the implementing arrangement between JICA and DAR under the above mentioned Notes Verbales exchanged between two government.

II. OBJECTIVES OF THE STUDY

The objectives of the study are as follows:

(1) Formulate a Master plan for the development of ARCs in the Province of Isabela,which aims to improve agricultural productivity and income in the objective areas by providing necessary support services,
(2) Conduct a Feasibility study on the priority project(s) or area/ARCs selected in the Master plan, and
(3) Carry out technology transfer to Philippine counterpart personnel through on-the-job trainings in the course of the Study.

III. STUDY AREA

The Study shall cover 22 ARCs in the province of Isabela (the list of the ARCs is attached as ANNEX 1) and the location map is attached as ANNEX 2.

IV. SCOPE OF THE STUDY

In order to achieve the said objectives, the Study shall consist of two (2) phases and the following items:

1. Phase I (Master Plan Study)

1.1 Collect and review existing data and information relevant to the Study and carry out field surveys and interviews to obtain additional data on the following items:

(1) Natural conditions
a. Topography

b. Meteorology
c. Hydrology
d. Geology
e. Soil
f. Others

(2) Social and Economic conditions
a. Economic indices (Population, Household, Employment, etc.)
b. Basic social services
c. Regional / provincial economy
d. Farmers' economy
e. Land tenure
f. Agricultural / Rural Credit
g. Others

(3) Agriculture
a. Land use and Farming Practices
b. Agricultural production
c. Water use
d. Irrigation and Drainage
e. Farmers' organization
f. Institutions and Extensions service
g. Agricultural support system
h. Post-harvest and Marketing
i. Others

(4) Agricultural and Rural infrastructure
a. Irrigation and Drainage facility
b. Post-harvest and Marketing facility
c. Water supply system
d. Farm and Rural road network
e. Others

(5) Environmental aspects
a. Natural environmental aspect
b. Social environmental aspect
c. Others

(6) Community development aspect
a. Farmers' organizations and local institutions
b. Gender and development concerns, programs and projects
c. Others

(7) Other Information relevant to the Study
a. Administrative Organizations
b. Comprehensive Agrarian Reform Program (CARP)
c. Others

1.2 Collect and review the existing projects, studies and national / provincial development plans relevant to the Study

1.3 Analyze the collected data and information, and identify major constraints and potentials for the development of the area

1.4 Conduct Initial Environmental Examination (IEE)

1.5 Formulate the Master Plan including following components:
(1) Agricultural Infrastructures,
(2) Extension Services,
(3) Rural credit and savings,
(4) Post-harvest and Processing,
(5) Marketing, and
(6) Institution and Capacity Building.

1.6 Prepare the Financial plan and Evaluation

1.7 Prepare Conclusions and Recommendation

1.8 Select high priority project(s) or area / ARC(s) for the Feasibility study in Phase II

2. Phase II (Feasibility Study)

2.1 Prepare the topographic map(s) at scale of 1/4,000 for designing of agricultural infrastructure, if necessary

2.2 Conduct the field survey to obtain the supplementary data and information

2.3 Conduct the feasibility study and prepare the following items:
(1) Optimum development plan of the high priority area,
(2) Preliminary design of major structures,
(3) Estimate of project costs and benefits,
(4) Financial plan, and
(5) Implementation plan.

2.4 Evaluate the project(s)

2.5 Prepare Conclusions and Recommendations

V. STUDY SCHEDULE

The Study shall be carried out in accordance with the Tentative Work Schedule attached as ANNEX 3.

VI. REPORTS

JICA shall prepare and submit the following reports, written in English, to GOP:

Inception Report	: Twenty (20) copies at the commencement of the Study
Progress (1) Report	: Twenty (20) copies at the end of Phase I
Interim Report	: Twenty (20) copies at the commencement of Phase I
Progress (2) Report	: Twenty (20) copies at the end of Work in Philippines of Phase II
Draft Final Report	: Twenty (20) copies at the end of Phase II Philippines side shall submit written comments on the Draft Final Report to JICA in one (1) month of time.

Final Report : Forty (40) copies in two (2) months after the receipt of comments on the DF/R from Philippine side

VII. UNDERTAKING OF GOP

In accordance with the Notes Verbales exchanged between GOJ and GOP, GOP shall accord privileges, immunities and other assistance to the Team and, through the authorities concerned, take necessary measures to facilitate the smooth conduct of the Study.

1. GOP shall be responsible for dealing with claims which may be brought by the third parties against the members of the Team and shall hold them harmless in receipt of claims and liabilities arising in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims and liabilities arise from gross negligence or willful misconduct of the above mentioned members,

2. DAR shall, at its own expense, provide the Team with the following, if necessary, in cooperation with other agencies concerned:

   (1) Available data and information related to the Study,
   (2) Counterpart personnel,
   (3) Suitable office space with necessary equipment in Manila and the Study area, and
   (4) Credentials or identification card to the members of the Team.

3. DAR shall make necessary arrangement with other governmental and non-governmental organizations concerned for the following:

   (1) To secure the safety of the Japanese study teams,

   (2) To permit the members of the Team to enter, leave and sojourn in the Philippines for the duration of their assignment therein,

   (3) To exempt the members of the Team from taxes, duties, fees and other charges on equipment, machinery and other materials brought into the Philippines for the conduct of the Study,

   (4) To exempt the members of the Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Team for their services in connection with the implementation of the Study,

   (5) To provide necessary facilities to the Team for remittance as well as utilization of the funds introduced into the Philippines from Japan in connection with the implementation of the Study,

   (6) To secure permission for entry into private properties or restricted areas for the conduct of the Study,

   (7) To secure permission for the Team to take all data and documents (including photographs and maps) related to the Study out of the Philippines to Japan, and

(8) To provide medical services as needed. Its expense will be chargeable on members of the Team.

VIII. UNDERTAKING OF GOJ

In accordance with the Notes Verbales exchanged between GOJ and GOP, GOJ through JICA, shall take the following measures for implementation of the Study:

(1) To dispatch, at its own expense, study teams to the Philippines, and
(2) To pursue technology transfer to the Philippines counterpart personnel in the course of the Study.

IX. CONSULTATION

JICA and DAR shall consult with each other in respect of any matters that may arise from or in connection with the Study.

ANNEX 1

List of the Objective ARCs of the Study

1. Name of ARC : Municipality; Barangay

(1) **Lapogan:** Tumauini; Lapogan

(2) **Quiling:** Roxas; Quiling

(3) **San Placido:** Roxas; San Placido

(4) **San Manuel:** Echague; San Manuel

(5) **San Miguel:** Ramon; San Miguel

(6) **Amulungan-Rizal:** Santiago City; Amulungan-Rizal

(7) **Isabela Settlement:**

Angadanan; (La Suerte Cluster) San Marcelo, La Suerte, San Vicente, Buenavista, Victory

San Guillermo; (SANCOSA Cluster) San Mariano Sur, San Mariano Norte, Colorado

(DIPASIVI Cluster) Dipacano, Parawan, Sinalugan, Villa Remedio

(CENEA Cluster) Centro I , Centro II , Nakar, Anonang, Estrella

(8) **Minagbag:** Quezon; Minagbag

(9) **Cabaruan:** Naguillan; Cabaruan

(10) **Capirpiriwan:** Cordon; Capirpiriwan

(11) **Fermeldy:** Tumauini; Fermeldy

(12) **Luzon:** Cabatuan; Luzon

(13) **Progresso:** San Guillermo; Progreso

(14) **Yeban Norte/Benito Soliven:** Benito Soliven ; Yeban Norte, Yeban Sur

(15) **Canan:** Cabatuan; Canan

(16) **Andarayan:** Delfino Albano; Andarayan

(17) **Bantug Petines:** Alicia; Bantug Petines

(18) **Dalena & Simanu:** San Pablo; Dalena, Simanu

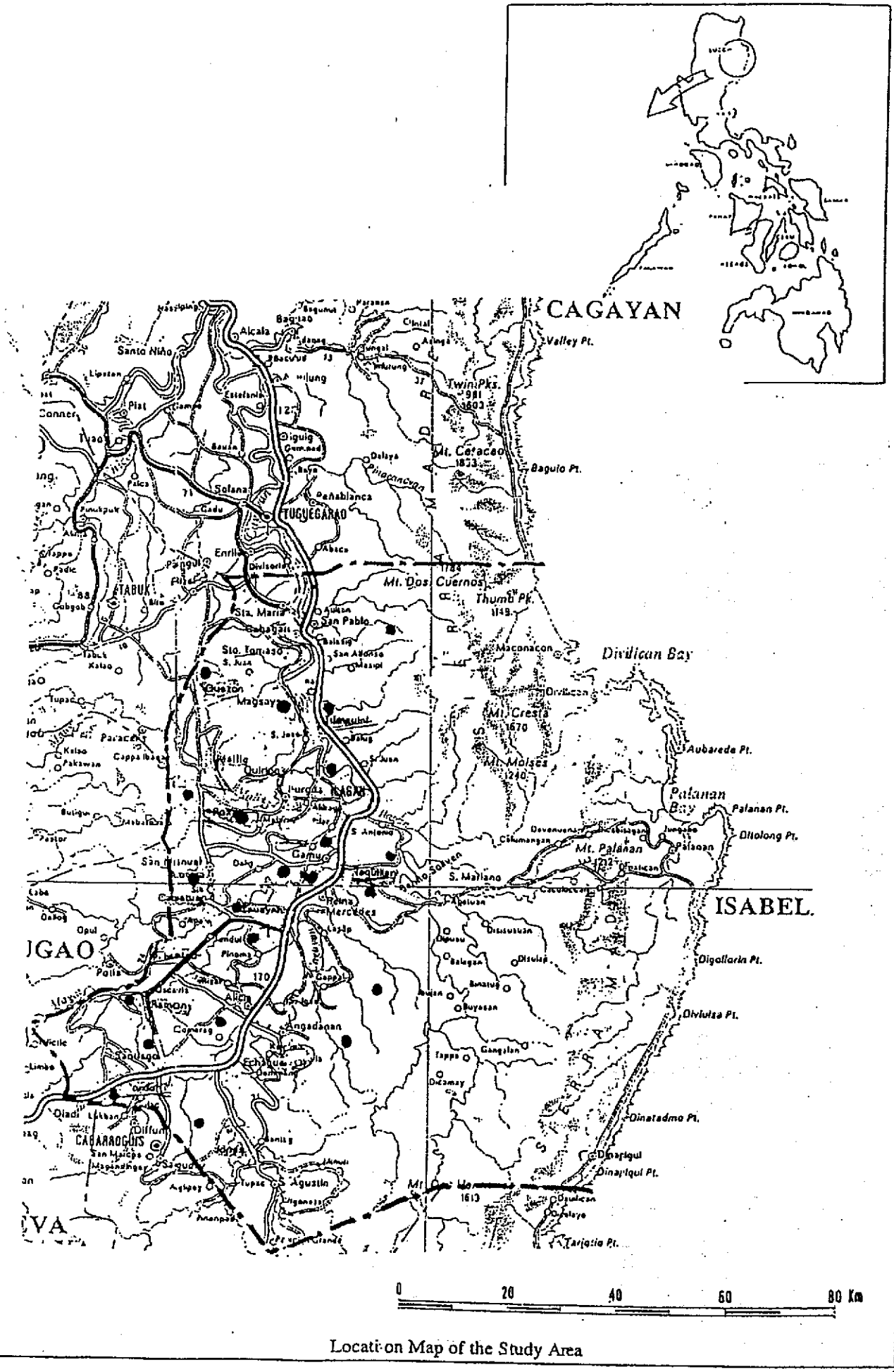
(19) **Dammao:** Gamu; Dammao

(20) **San Miguel Burgos:** Burgos; San Miguel Burgos

(21) **San Ramon:** Aurora; San Ramon

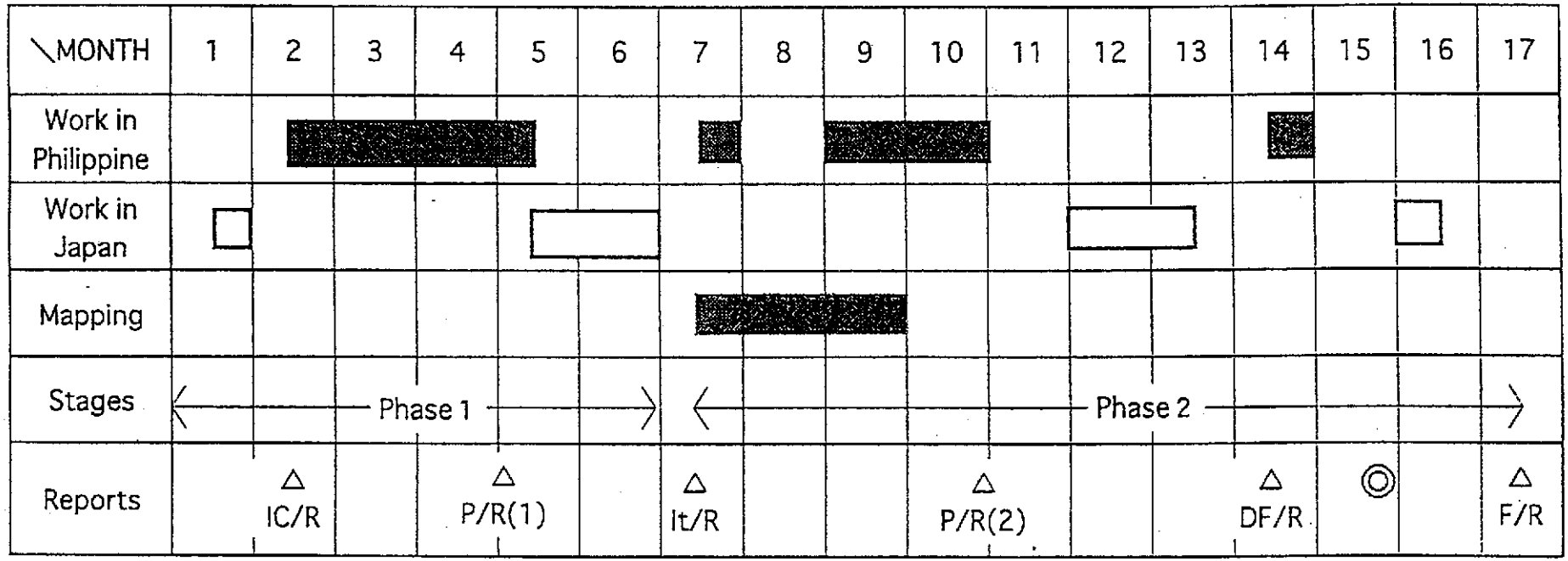
(22) **Viola Estate Cluster:** R. Mercedes; Viola Estate

ANNEX 2



Location Map of the Study Area

TENTATIVE WORK SCHEDULE



(Remarks)

Ic / R	: Inception Report
P / R(1)	: Progress Report(1)
It / R	: Interim Report
P / R(2)	: Progress Report(2)
Df / R	: Draft Final Report
F / R	: Final Report
◎	: Comments on Df /R by Philippine side

Minutes of Meetings
on
Implementing Arrangement
for
The Study on
the Development of Agrarian Reform Communities (ARCs)
in the Province of Isabela
in
the Republic of the Philippines

agreed upon between

Department of Agrarian Reform

and

Japan International Cooperation Agency

Manila, May 19, 1999

Conrado S. NAVARRO
Undersecretary
for Field Operations and Support Services
Department of Agrarian Reform,
The Government of the Republic of the Philippines

Naomi KAWATA
Leader
The Preparatory Study Team
Japan International Cooperation Agency

Witnessed by

Benjamin G. DY
Governor
Province of Isabela

I. INTRODUCTION

In response to the request of the Government of the Philippines, the Preparatory Study Team headed by Mr. Naomi KAWATA (hereinafter referred to as "the Team"), was sent to Philippines by the Government of Japan through the Japan International Cooperation Agency (hereinafter referred to as "JICA"), from May 9 to May 27, 1999 for the purpose of discussing and confirming the Implementing Arrangement for the Study on the Development of Agrarian Reform Communities (ARCs) in the Province of Isabela (hereinafter referred to as "the Study").

The Team held a series of discussions with the relevant authorities of the Government of the Philippines represented by Mr. Conrado S. NAVARRO, Undersecretary, Department of Agrarian Reform (hereinafter referred to as "the Philippine Side").

As a result of the discussions, the Philippine Side and the Team agreed on the Implementing Arrangement for the Study.

The following are the main issues discussed and agreed upon by both sides in relation to the Implementing Arrangement for the Study. The list of participants in the series of meetings is attached as ANNEX.

II. RESULTS OF DISCUSSIONS

1. Title of the Study

Both sides agreed that the title of the Study shall be changed from "The Master Plan Study on the Development of Agrarian Reform Communities (ARCs) in the Province of Isabela" to "The Study on the Development of Agrarian Reform Communities (ARCs) in the Province of Isabela" because the formulation of Master Plan and the Feasibility study are conducted in the Study.

2. Study Area

Both sides agreed that the study shall cover twenty two (22) ARCs established in Isabela Province listed on ANNEX 1, attached to the Implementing Arrangement. The nine (9) ARCs and one (1) cluster out of the existing thirty one (31) ARCs in the province shall be excluded from the Study because these ARCs have already been funded by World Bank (Agrarian Reform Communities Development Project).

The Team presented its concern that it is not desirable to have any foreign-assisted project launched in the said study area during the Study period. On the other hand, the Philippine side explained it cannot prevent spontaneous activities of the LGUs such as preparing project proposals. In case any foreign-assisted projects arise, both sides confirmed that the Philippine side shall provide the study team details of the projects and the Steering Committee (refer to the item 5. below) shall be convened to discuss how the projects should be dealt with in the Study.

3. Environment aspect

Regarding to the item 1.5 of the Implementing Arrangement, both sides agreed that Environment aspect shall be considered in the formulation of the Master Plan.

4. Selection of the ARCs for the Feasibility Study

Both sides agreed that the following criteria shall be basically adopted in selecting the ARCs for the Feasibility Study. The details of these criteria shall be discussed in the course of the Master Plan study.

(1) The ARC shall be suitable models of development. The method of development used in the Study would be applied to other ARCs in the province, taking into consideration characteristics such as topographic conditions, cropping patterns and so on,

(2) The residents of the ARC shall be eager for the development of the ARC they belong to, and

(3) There is/are project(s) in the ARC which require urgent implementation.

5. Steering Committee and Technical Working Group

For the smooth and efficient implementation of the Study, both sides agreed that it is necessary to establish the Steering Committee, to be chaired by Undersecretary of Department of Agrarian Reform at the central office level. The committee shall be composed of the representatives from following institutions:

- Department of Agrarian Reform,
- Provincial Government of Isabela,
- National Economic and Development Authority,
- National Irrigation Administration,
- Department of Public Works and Highways,
- Department of Environment and Natural Resources,
- Department of Agriculture,
- JICA Study Team and JICA Philippine Office,
- Embassy of Japan, and
- Other institutions concerned.

Both sides also agreed that a Technical Working Group shall be established at the provincial level and shall work in close cooperation with the study team to be dispatched from Japan in the study Area. The Technical Working Group shall be composed of the representatives from following institutions:

- Provincial Agrarian Reform Office of Isabela,
- Local Government Units,
- field office of National Irrigation Administration,
- field office of Department of Public Works and Highways,
- field office of Department of Environment and Natural Resources,
- field office of Department of Agriculture, and
- Other institutions concerned.

6. Counterpart personnel

Both sides agreed that DAR shall take responsibility for assigning necessary number of qualified counterpart personnel prior to the arrival of the Study team.

7. Evaluation of the project

Regarding item 2.4 of the Implementing Arrangement, both sides agreed that the description of social and natural environment impact and benefits of the project(s) shall be prepared together with the financial and economic evaluations. Both sides confirmed that this description shall not be considered as the Environment Impact Assessment (EIA).

8. Environment Impact Assessment (EIA)

Both sides confirmed that the Philippine side shall be responsible for the conduct of EIA, if necessary.

9. Necessary Equipment and Facilities for the Study

The Government of the Philippines committed to provide the Study team with drivers and desks, chairs, use of telephone lines, cellular phones and telephone with facsimile function in suitable office space both within the DAR building in Manila and within the the Provincial Agrarian Reform Office in Cauayan, Isabela.

The Government of the Philippines requested that vehicles, personal computers and photocopiers for the Study be provided by the JICA. The Study team promised to convey the request to the JICA headquarters.

10. Training of Counterpart Personnel

The Philippine side requested the counterpart training in Japan for an effective technology

ANNEX

LIST OF PARTICIPANTS

Philippine Side:

Department of Agrarian Reform (DAR)

Mr. Conrado S. NAVARRO	Undersecretary for Operations
Mr. Rolando LL. QUERUBIN	Undersecretary, Financial Management Staff
Ms. Susana LEONES	Director, Bureau of Agrarian Reform Beneficiaries Development
Mr. Adelberto BANIQUED	Director, Project Director of WB-ARCDP
Mr. Carlos O.ABAD SANTOS	OIC-Asst. Director, Bureau of Agrarian Reform Beneficiaries Development
Ms. Ma. Celerina AFABLE	PDO V, PDMS, FAPSO
Mr. Ronald B. DELA ROSA	PARO II, Provincial Agrarian Reform Office
Ms. Erlinda DOLATRE	PDO IV, OIC, PDMS
Ms. Florida ROMERO	PDO III, Japan-JICA desk officer, PDMS
Ms. Ma. Cristina DAGDAG	SARPO, PDMS / FAPs
Ms. Irma CANLAS	PDO III, PDMS / FAPs

Provincial Government of Isabela

Mr. Benjamin G. DY	Governor

National Irrigation Administration

Mr. Pedro F. DE GUZMAN	Assistatnt Project Manager

Department of Public Works and Highways

Mr. Jose C. GUANZON	Project Manager-CARP-CLBU
Mr. Ricardo BAMERO	Planning Officer V
Mr. Ricardo INCIONG	Deputy Project Manager-CARP-CLBU

Department of Environment and Natural Resources

Mr. Michael Patrick TADEO	CDO IV

Department of Agriculture

Ms. Arsenia PEREZ	Coordinator, Region II

Japanese Side:

Preparatory Study Team

Mr. Naomi KAWATA	Leader
Mr. Hiroshi KANZAKI	Agriculture
Mr. Tadafumi KAWAI	Agricultural and Rural Infrastructure
Mr. Satoko EMOTO	Rural Society
Mr. Toshio OGAWA	Coordinator
Mr. Makoto ASAI	Assistant Coordinator

JICA Philippine Office

Mr. Tetsuji IIDA	Assistant Resident Representative

JICA Expert

Mr. Mitsukuni WATANABE	Department of Agrarian Reform

transfer. The Study team promised to convey the request to the JICA headquarters.

11. Final Report

The Government of the Philippines agreed that the Final Report shall be made accessible to the public.

附属資料４．収集資料リスト

１．図書等

(1) 1998 Philippine Statistical Yearbook
(2) 1993 Isabela Provincial Profile
(3) Medium Term Agrarian Reform Development Plan (1999-2004)2冊
(4) A COMPILATION OF ENVIRONMENT AND NATURAL RESOURCES POLICY ISSUANCES CY 1996
(5) FEASIBILTY STUDY Delfin Albano CPIP Delfin Albano,Isabela
(6) NGO-PO PARTNERS Consultative Workshop
(7) MUNICIPAL DEVELOPMENT PLAN OF TUMAUINI,ISABELA
(8) MUNICIPAL DEVELOPMENT PLAN CY 1999-CY 2001 San Guillermo,Isabela
(9) Provincial Physical Framework Plan Province of Isable
(10) OPERATIONS MANUAL ON AGRARIAN REFORM COMMUNITIES DEVELOPMENT
(11) A COMPILTION OF ENVIRONMENT AND NATURAL RESOURCES POLICY ISSUANCES CY 1995
(12) A Compilation of Administrative and Operational Issuances Related to the Provision of Support Services to Agrarian Reform Beneficiaries
(13) ADMINISTRATIVE ISSUANCES AND PERTINENT MEMORANDUM CIRCULARS INDEX
(14) ADMINISTRATIVE ISSUANCES AND PERTINENT MEMORANDUM CIRCULARS BOOK 1
(15) ADMINISTRATIVE ISSUANCES AND PERTINENT MEMORANDUM CIRCULARS BOOK 2
(16) ADMINISTRATIVE ISSUANCES AND PERTINENT MEMORANDUM CIRCULARS BOOK 3
(17) ADMINISTRATIVE ISSUANCES AND PERTINENT MEMORANDUM CIRCULARS BOOK 4
(18) Procedural Manual for DAO 96-37

２．地形図等

地形図	地図名	地図番号	(入手したIndexmap上での番号)
(1)	Bunhian	7276-Ⅰ	(3270-Ⅰ)
(2)	Cordon	7276-Ⅱ	(3270-Ⅱ)
(3)	Napalinong	7376-Ⅱ	(3369-Ⅰ)
(4)	Virgoneza	7375-Ⅰ	(3369-Ⅱ)
(5)	Maddela	7375-Ⅳ	(3369-Ⅲ)
(6)	Cauayan	7376-Ⅰ	(3370-Ⅰ)
(7)	Santiago	7376-Ⅲ	(3370-Ⅲ)
(8)	San Mateo	7376-Ⅳ	(3370-Ⅳ)
(9)	Tumauni	7377-Ⅰ	(3371-Ⅰ)
(10)	Ilagan	7377-Ⅱ	(3371-Ⅱ)
(11)	Roxas	7377-Ⅲ	(3371-Ⅲ)
(12)	Penablanca	7378-Ⅱ	(3372-Ⅰ)
(13)	Queson	7377-Ⅳ	(3372-Ⅲ)
(14)	Tugegarao	7378-Ⅲ	(3372-Ⅳ)
(15)	Dinapique Point	7476-Ⅱ	(3469-Ⅱ)
(16)	Mount Dos Hermanos	7476-Ⅲ	(3469-Ⅲ)
(17)	San Mariano	7476-Ⅳ	(3470-Ⅳ)
(18)	Divilacon Bay	7477-Ⅰ	(3471-Ⅰ)
(19)	Palanan	7477-Ⅱ	(3471-Ⅱ)
(20)	Sindon	7477-Ⅲ	(3471-Ⅲ)
(21)	Mount Cresta	7477-Ⅳ	(3471-Ⅳ)
(22)	Baguio Point	7478-Ⅲ	(3473-Ⅲ)

行政区分図

(23) Region Ⅱ Cagayan Valley (1989)
(24) Province of Cagayan (1990)
(25) Province of Cagayan (1990)

その他

(26) CATALOGUE OF NAMRIA PRODUCTS AND SERVICES

A.2 List of Personnel contacted by the Study Team during the Study Period

Department of Agrarian Reform (DAR)

Mr. Cinrado S. NAVARRO	Undersecretary For Operations
Mr. Carlito T. Anonuevo	Asst. Secretary For Support Services
Mr. Carlos Abad Santos	Asst. Director, BARBD'
Mr. Jose Mari B. Ponce	Director/Executive Director PDMS/Fapso
Ms. Celerina F, Afable	PDO V, Chief Division B – PDMS/Fapso
Ms. Florida Romero	PDO III, Japan-JICA Desk Officer, PDMS
Ms. Ma. Cristina Dagdag	SANPO, PDMS/FAPS
Ms. Roseanne Cabriole	PDO LI, PDMS
Ms. Nora A. Briones	PDO LI, PDMS
Mr. Mitsukuni Watanabe	CARP Review And Analysis Advisor

JICA Philippine Office

Mr. Toshiyuki Kuroyanagi	Deputy Resident Representative
Mr. Tetsuji Iida	Assistant Resident Representative

National Irrigation Administration (NIA)

Eng. Alfonso De Los Reyes	Supervising Engineer A [Vice/Altemate)
Mr. Damindor P. Visaya	Assistant PIO
Mr. Cesar T. Menor	Engineer A, PIO
Ms. Milagrita A. Domindo	Institutional Development Officer, PIO
Ms. Rosalia B. Acob	Institutional Development Officer, PIO
Mr. Herme O. Reyes	NIA, Isabela PIO
Mr. Frorentio C. Banniqueo, Jr.	Managa, District I, MRIIS, NIA, Batal, Santiago
Mr. Eduardo P. Ramos	District I, MRIIS, NIA
Mr. Rendro B. Almayda	District III, (Pump Station No.3), MRIIS, NIA
Mr. Pelagio S. Gamad, Jr.	Manager, District III, MARIS, NIA
Mr. Armando Talampas	District III, NIA, MRIIS, San Manuel
Mr. Wilfredo U. Salvador	Irrigation Superintendent, San Pablo-Cabagan System, NIA
Mr. Gualfredo C. Martinez	Irrigation Superintendent, Tumauini NIS (not met)
Mr. Ramon R. Fabros	Engineer, Provincial Irrigation Officer
Mr. Proceso T. Domingo	Project Manager of Small River Irrigation Project

Department Of Public Works And Highways (DPWH)

Mr. Ricardo Bamero	Planning Officer V (Vice/Alternate)
Ms. Mina D. Montero	District IV, Santiago City
Mr. Jack T. Rigor	District IV, Santiago City

Department Of Environment And Natural Resources (DENR)

Mr. Silverio Velez	Carp Coordinator

Department Of Agriculture (DA)

Ms. Arsenia Perez	Coodinator, Region II (Vice/Altemate)

JICA Expert

Dr. Michio Araragi,	Team Leader, SRDC Project Phase II
Dr. Toshiaki Ookura	SRDC Project Phase II
Mr. Masaru Imamura	Coordinator SRDC Project Phase II

Department of Science Technology

Dr.Mario V. Capanazana,	Chief Science Research Specialist

Bureau of Plant Industry

Mr. Danilo T. Dannug	Fruit Trees and Perennials
Mr. Romeo P. Ayos	Chief Plant Nursery

Bureau of Agricultural Statistics

Ms. Anna Eusebio	Cost of Production
Ms. Nerita Ramos	Prices

Cagayan Economic Zone Authority

Mr. Ireneo V. Vizmonte	Senior Deputy Administrator

Cagayan Valley Integrated Agricultural Research Center (CVIAR)

Mr. Tumamang	Breeder, corn,
Mr. Danilo Tumamao	Center chief

Regional Crop Protection Center

Dr. Orlando J. Lorenzana	Agri. Center Chief III

Regional Soils and Water Management

Mr. Fedelino R. Cabantac	Agriculturist II

Provincial Veterinary Office

Dr. Angelo Navi	Chief

Regional National Food Authority

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Appendix B Present Conditions of Objective ARCs/Clusters

Table B.2.1 Present agricultural conditions

No.	ARCs	Topography	soil	Farm land (ha)	Major crops	Area planted	No. of cropping	Cropping pattern of major crops												yield/ha (cavan)
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Lapogan	mixture of flat & hilly	sandy loam	894	rice	95														
					(irrigated)	20	2						rice					rice		80
					(non-irri.)	75	1										rice			50
					corn	460	2						corn					corn		75
2	Quiling	almost flat	clayey loam	229	rice	151														
					(irrigated)	151	2		rice					rice						80-108
					corn	69	2													63-84
4	San Manuel	mixture of flat & hilly	clayey loam	749	corn	400	2	corn						corn						42
					rice(irri.)	230	2	rice					rice							45
					other	49														
5	San Miguel	almost flat	clayey loam	436	rice(irri.)	297	2	rice						rice						88-127
					rice(no irr)	30	1													
					corn	76	2	corn					corn							78
6	Amalungan-Rizal	almost flat	silty loam	305	rice(irri.)	305	2	rice						rice						80-90
7. Isabela Settlement																				
7-1	La Suerte cluster	almost hilly	clayey loam	1,103	corn	882	2	corn						corn						71-75
	La Suerte				rice	193														
	Buenavista				(irrigated)	179	2	rice(spring)						rice(spring)						64-67
	Victory				(non-irri.)	14	1													
	San Marcero				banana, ot	28	contin.													
	San Vicente																			
7-2	DIPASIVI Cluster	almost hilly	clayey loam	1,172	corn	489	2	corn						corn						77-80
	Dipacano				rice	92														
	Parawan				(non-irri.)	20														
	Sinalugan				(irrigated)	72														34-47
	Villa Remedio				banana	503														
					other	88														

No.	ARCs	Major varieties	selling price/kg		Other crops	Animals	Needs & Problems by farmers
			dry season	wet season			
1	Lapogan		7.00-8.00		Mung bean, sweet potato, egg plant, squash	carabao(190), cattle(31),	irrigation, machines, solar dry yard, warehouse, capital, truck
		RC18, 10, 28, 52, IR62, 5			tobacco, string bean, okra, bitter gourd	pig(50), chicken, duck	
					jack fruit, mango, coconut, santol, star apple,		
			6.00	4.80-6.00	pomelo, calamansi, avocado		
2	Quiling				tobacco, bitter gourd, tomato, squash,	carabao(58), cattle(76),	Pests and diseases
			8.00	5.00	sponge gourd, water melon,	pig(200), goat(52), chicken.	
					coconut, star apple, banana, mango	duck, game fowl	
4	San Manuel	Pioneer SMC, Corn World		5.00-6.70	mung bean, string bean, sweet potato,	carabao(500), cattle(500)	irrigation, solar dry yard, road, marketing, RTV disease
					cassava, egg plant, taro	pig(200), goat(10), chicken	
		IR52,66,64,74,72, RC10,30		6.00-8.00	mango, banana	duck	
5	San Miguel	IR64, 28, RC10	8.00	(dried)7.80	sweet potato, pea nut, mung bean, cassava	carabao(150), cattle(1,000),	capital, solar dry yard, road, RTV disease and pests
				(not dried)5.80	egg plant, string bean, squash, bitter gourd	pig(1,400), goat(30), chicken,	
		Ayala			coconut, jack fruit, santol, cashew, banana	duck, game fowl	
6	Amalungan-Rizal	IR64,60, RC10,28,54,64		(dried)6.00	egg plant, beans, bitter gourd, taro, cassava	carabao(160), cattle(113),	solar dry yard, machines, pumps
				(not dried)4.00	sweet potato, sponge gourd, tree tomato	pig(103), goat(35), chicken,	
					coconut, jack fruit, santol, mango, calamansi	duck, game fowl	
7. Isabela Settlement							
7-1	La Suerte cluster	Cargil, Pioneer, Asian	6.00	4.90	egg plant, cassava, sweet potato, mung bean	carabao(549), cattle(366)	capital, road, bridge, solar dry yard, pumps, warehouse(15mx20m), community center, farm machines
	La Suerte				bitter gourd, okra, squash, taro	pig(750), goat(14), horse(21)	
	Buenavista	RC10, IR64, Bordagon,Biniding	7.50	6.50	mango, avocado, tamrind, calamansi,jack fruit	chicken, duck, game fowl	
	Victory				coconut, pomelo, pineapple		
	San Marcero				Gmelina		
	San Vicente						
7-2	DIPASIVI Cluster			5.80-6.00	beans, peanut, cassava, pechay, egg plant	carabao(360), cattle(82)	Reservoir, capital, solar dry yard, machines, pumps, warehouse, mechanical dryer
	Dipacano				sweet potato, pepper	pig(341), goat(20), chicken	
	Parawan				coffee, coconut, jack fruit, santol, avocado	duck, game fowl	
	Sinalugan				pianeapple, star apple, guyabano, banana,		
	Villa Remedio				mango, guava, papaya		

Table B.2.1 Present agricultural conditions

No.	ARCs	Topography	soil	Farm land (ha)	Major crops	Area planted	No. of cropping	Cropping pattern of major crops												yield/ha (cavan)
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
7-3	CENEA cluster	almost hilly	clayey loam	1,568	corn	778	2	corn					corn							68-71
	Centro I				rice(irri.)	123														
	Centro II				banana	438	contin.													
	Nakar				other	141														
	Estrella																			
	Anonang																			
8	Minagbag	mixture of flat & hilly	clayey loam	909	rice(irri.)	390	2	rice					rice							75-100
					corn	400	2	corn				corn								65-86
					other	42														
9	Cabaruan	mixture of flat & hilly	clayey loam	513	rice	183														
					(irrigated)	53	2	rice							rice					64-69
					(non-irri.)	130														43
					corn	320	2	corn					corn							74
					other	10														
10	Capirpiriwan	mixture of flat & hilly	clay	370	corn	179	2	corn						corn						74-78
					rice	102														
					(irrigated)	47	2	rice						rice						64-84
					(non-irri.)	55	1													43
11	Fermeldy	river terrace	loam,sandy	311	corn	306	2	corn					corn							84-108
					tobacco				tobacco					mung			(corn)			8-9bail
12	Luzon	almost flat	clayey loam	462	rice	415														
					(irrigated)	415	2	rice					rice							103-148
					corn	28														
					other	19														
13	Progreso	almost hilly	loam	284	banana	325														
					corn	137														61-66
					other	60														

FN : T-B-1 in Appen-T-B-1.xls

No.	ARCs	Major varieties	selling price/kg		Other crops	Animals	Needs & Problems by farmers
			dry season	wet season			
7-3	CENEA cluster	Cargil, Pioneer, Asian,	6.50	4.80-6.00	cassava, sweet potato, egg plant,string bean	carabao(637), cattle(361)	road, solar dry yard, capital, animals, machines, pumps, marketing
	Centro I	Corn World			mung bean, taro, bitter gourd, okra, squash	pig(1,291), goat(234),	
	Centro II				avocado, mango, tamarind, santol, jack fruit	horse(12), chicken, duck	
	Nakar				bread fruit, coconut, pomelo, guava	game fowl	
	Estrella				Gmelina, coffee		
	Anonang						
8	Minagbag	IR64, RC10, PSBRC28,26	8.50-9.00	7.00	egg plant, bitter gourd, tomato, mung bean	carabao(500), cattle(2,000)	irrigation, road, solar dry yard, canal rehabilitation
					squash, string bean, peanut, chili,	pig(500), goat(100), horse(3)	
		Pioneer, Corn world, Easy	5.00	4.00-6.00	mango, calamansi, star apple, banana, santol	chicken, duck, game fowl	
					guava, avocado, tamrind, pineapple,guyabano		
9	Cabaruan		8.00	6.50	peanut, beans, cassava, sweet potato,	carabao(208), cattle(126)	capital, marketing, road, solar dry yard
					avocado, star apple, banana, mango,	pig(258), goat(20), horse(4)	
						chicken, duck	
			6.00	3.00			
10	Capirpiriwan	hybrid yellow corn	6.00		sweet potato, cassava, peanut, water melon	carabao(127), cattle(124)	irrigation, road, solar dry yard
					beans, egg plant, bitter guord, cabbage	pig(102), goat(92),	
		IR64, 28			mango, coconut, jack fruit, calamansi,	chicken, duck, game fowl	
					Gmelina, mahogany		
11	Fermeldy	Cargill 818,909,	4.50-4.80	4.00	tobacco, mung bean, egg plant, tomato, okra	carabao(6), cattle(500),	machines, financial support, irrigation, solar dry yard, corn sheller, flood, pests
		Pioneer 3014			squash, bitter gourd	pig(250), goat(10), chicken	
		Native(tobacco) 20% farmers			fruit for home consumption	duck	
12	Luzon				peanut, beans, okra, egg plant, squash,	carabao(35), cattle(300)	finacial support, solar dry yard, RTV disease
			7.00	5.00	bitter gourd,	pig(600), goat(20), chicken	
					coconut, jackfruit, avocado, star apple,	duck	
					banana, mango		
13	Progresso				beans, peanut, cassava, ginger, garlic, pechay	carabao(78), pig(110),	farm machines, technology, typhoon, flood
			5.00	3.50	egg plant, tomato, water melon, pepper	goat(30),horse(5),chicken	
					sweet potato, onion	game fowl, duck	
					coconut, jack fruit, santol, coffee, citrus		

Table B.2.1 Present agricultural conditions

No.	ARCs	Topography	soil	Farm land (ha)	Major crops	Area planted	No. of cropping	Cropping pattern of major crops												yield/ha (cavan)
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
14	Yeban Norte/Benito Solven	mixture of flat & hilly	clayey loam	1,103	corn	936	2	corn						corn						80
					rice	116														
					(irrigated)	48	2	rice						rice						98
15	Canan	almost flat	sandy loam/clay	696	rice(irri.)	678	2	rice					rice							120-129
					other	18														
16	Andarayan	river terrace	clayey loam	353	rice	315														
					(non-irri.)	180	1													68
					(irrigated)	135	2(3)			continuous cropping										85-90
					corn	15														
17	Bantug Petines	almost flat	clayey loam	450	rice(irri.)	444	2	rice					rice							100-105
					other		6													
18	Shimanu-Dalena	mixture of flat & hilly	loam, sandy	1,035																
	Dalena				corn	600	2	corn				corn								70
	Shimanu Norte																			
	Shimanu Sur				rice(ir)	287	2				rice					rice				56-72
					(non-irri)	124														
19	Dammao	mixture of flat & hilly	sandy loam	171	rice	105	2		rice							rice				74-78
					rice, corn		2	rice					corn							
					corn	62	1						corn							72
20	San Miguel, Burgos	almost flat	loam, sandy	596	rice	260														
					(irrigated)	260	2	rice							rice					53-56
					corn	328														72-78
					other	8														

FN : T-B-1 in Appen-T-B-1.xls

No.	ARCs	Major varieties	selling price/kg		Other crops	Animals	Needs & Problems by farmers
			dry season	wet season			
14	Yeban Norte/Benito Solven				beans, egg plant, bitter gourd, tomato,	carabao(630), cattle(850)	reservoir, solar dry yard, road
					squash, taro, water melon,	pig(740), goat(33), chicken	
					coconut, jack fruit, santol, pineapple,	duck	
					star apple, banana, mango		
15	Canan	RC10, 64, IR64	8.00-8.50	6.00	cassava, ginger, okra, bitter gourd, squash	carabao(50), cattle(550)	road, mechanical dryer, capital, drainage, RTV disease
					taro,	pig(500), goat(30), chicken	
					coconut, jack fruit, santol, star apple,	duck, fish culture	
16	Andarayan		8.90	7.00	egg plant, cassava, string bean, mung bean,	carabao(107), cattle(98)	irrigation, capital, machines, road, solar & mechanical dryer, RTV disease
		RC10,20,30,56			squash, bitter gourd, tomato	pig(533), goat(127), chicken	
		Isabela var (native)			mango, banana, coconut, tamarind, star apple	duck	
		white corn					
17	Bantug Petines		7.22	6.00	beans, okra, egg plant, pechay, tomato,	carabao(41), cattle(18)	capital, warehouse, mechanical dryer
					sweet potato for home consumption	pig(110), goat(113), chicken	
					coconut, star apple, banana, mango	duck, game fowl	
18	Shimanu-Dalena				bitter gourd, mung bean, egg plant, okra	carabao(1,300), cattle(100)	road, capital, solar dry yard, machines, warehouse, mechanical dryer
	Dalena	Ayara, Pioneer, Asian	6.00	5.00	sweet potato, squash, pechay	pig(360), goat(50), chicken	
	Shimanu Norte	Corn World, Cargil			mango, banana, coconut, avocado, pomelo	duck	
	Shimanu Sur	RC10, 18, IR64,66,58	8.00	8.00	jack fruit, star apple, tamarind, coffee		
19	Dammao	C18,28, IR64,54, RC10	8.00	(dried)6.00	mung bean, penut,	carabao(30), cattle(30)	capital, irrigation, community center, road, fish pond, debt, RTV disease
				(not dried)4.50		pig(20), goat(50), chicken	
				4.90			
20	San Miguel, Burgos				Squash, egg plant, string bean, bitter gourd,	carabao(41), cattle(61)	capital, machines, solar dry yard, warehouse, mechanical dryer
		RC54, 10, IR64			tomato, pechay, okra	pig(100). goat(8), chicken	
		ditto	7.50	(dried)6.00	mango, santol, tamarind, banana, star apple,	duck	
				(not dried)4.00	pomelo, guava, coconut		

Table B.2.1 Present agricultural conditions

No.	ARCs	Topography	soil	Farm land (ha)	Major crops	Area planted	No. of cropping	Cropping pattern of major crops												yield/ha (cavan)
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
21	San Ramon	almost flat	clayey loam	225	rice(irri)	135	2	rice						rice						110-120
					corn	87	2	corn						corn						96-120
22	Viola Estate clu.	river terrace	loam, sandy	993	corn	982	2	corn						corn						94
	Santiago				tobacco			tobacco					corn				(mung)			
	Banquero																			
	Binansang				other	11														
	Sallcong																			

Sources: hearing from farmers, observation, ALDA, agricultural statistics of Isabela in 1997

No.	ARCs	Major varieties	selling price/kg		Other crops	Animals	Needs & Problems by farmers
			dry season	wet season			
21	San Ramon	IR64, 52,54,60, RC10	8.00	6.00	tobacco, beans, egg plant, cabbage, tomato	carabao(40), cattle(80)	road, multi-purpose pavement, farm technology, debt, RTV disease
					citrus	pig(200), goat(20), duck,	
		Corn World, Asian Hb, Ayana				chicken	
22	Viola Estate clu.	Corn World, Asian, Ayana		5.50	mung bean, tobacco, peanut, okra, pechay	carabao(324), cattle(283)	flood control, solar dry yard, road, machines, warehouse, pumps, community center
	Santiago				egg plant, tomato, squash, pepper,	pig(544), goat(12), chicken	
	Banquero				coconut, santol, banana, mango,	duck, game fowl	
	Binansang	IR64,RC10					
	Sallcong						

Appendix B Present Conditions of Objective ARCs/Clusters

B.1 Lapogan ARC (No. 1)

a) History

Lapogan ARC located in the municipality of Tumauini was established in 1993 that include one Barangay, namely Lapogan. The Barangay residents are mostly Ilocanos, however, the original residents of the ARC are the Kalingas and Gaddangs. The word "Lap-og" is derived from the Kalinga word that means loam soil. The word was later changed to Lapogan, which means a place where loam soil is present.

b) Location

Lapogan Barangay is designated for full Lapogan ARC, which is one of 46 Barangays of Tumauini municipality and located at the northern portion of the province. The Lapogan is around 13.5 km south of poblacion of Tumauini and 23 km north of Ilagan, the capital of Isabela province , and 5 km from Maharlika Highway, from Manila to Apari. The Lapogan is faced to Cagayan River on south and west. The Lapogan is bounded on the north by Sto Nino Barangay, on the east by Liwanag Barangay, on the south by the Ilagan municipality and on the west by the of Quirino municipality.

c) Socio-Economic Conditions

The Barangay has an annual revenue allotment amounting to 436,631 pesos that correspond to 194 peso/head. It has a total population of 2,251 with a male-female population of 1,265 and 986, respectively. The number of households is 398 with an average family size of 5.7. Out of the 398 household, 274 or 68 % are ARBs. The number of female ARBs is 18, 7 of which belong to some organization.

The Barangay has a total area of 993 ha, the total agricultural area of which is 894 ha. About 95 ha are planted to palay, 27 ha of which is irrigated and the remaining is non-irrigated. About 410 ha is planted to corn. The DAR LAD working scope is 442 ha, of which about 404 or 91 % has been distributed as of third quarter of 1999. The average landholding of an ARB is 1.5ha.

d) Natural Conditions

Topographic Condition

The Lapogan has a generally flat on river terrain with an estimated farmland of 894 ha and around 10 ha for inland fishery. Some area of the Barangay has inundation during the flood due to low elevation along the river.

Water Resources

The Cagayan River is one of the major sources of water in case the pump irrigation project will be used. This will provide full irrigation to rice area as well as corn as there will be sufficient supply of water throughout the year.

e) Agricultural Conditions

Lapogan is located near the Cagayan and flat at the river terrace. Out of 894 ha for farming, 75 ha are rain fed rice and merely 20 ha are with rice under shallow well irrigation, and 460 ha are planted with corn. Soils are sandy loam. Cropping intensity is estimated 148 % in the ARC. Most of farmers owe debt to private traders for farm input.

Rice is grown once a year under the rain fed condition. It is planted in September and harvested in January. The rain fed rice yielded 50 cavans/ha on average in January, 1999 and was sold at 7.00 to 8.00 pesos/kg and needed 14,700 pesos/ha as production cost, and the net income ranged from 2,800 to 5,300 pesos/ha. Irrigated rice is grown twice during May to September and October to February, yielding about 90 cavans/ha. Net income was from 16,800 to 21,300 pesos/ha in a cropping season.

Corn is planted twice a year without irrigation from April to September, and from October to February. Corn yielded 75 to 80 cavans/ha and was sold at 4.80 to 6.00 pesos/kg in the wet season, earning 4,000 to 10,000 pesos/ha as a profit, and 90 cavans/ha and sold at 6.00 pesos/kg in the dry season, 13,000 pesos/ha.

Vegetables as mung bean, string bean, sweet potato, egg plant, squash, tobacco, okra, bitter gourd are grown at backyard garden, and mung bean, sweet potato, egg plant and squash are sold to the local market when farmers have surplus of production. Fruit trees are grown at the backyard as well, and mango and jackfruit are sold to the local market. Animals are kept in a small scale at the homestead and Carabao, cattle, goat, pig make good money when they are sold. Farmers need irrigation, farm machines such as a tractor and hand tractors, solar dry yard and multi-purpose pavement, warehouse, capital for farm input, and truck. (refer to table B-2-1)

f) Economic Condition of Farm Household

The average production for corn and irrigated palay are 65 and 80 cavans sold to private

traders at 6.00 pesos and 8.00 peso/kg, respectively. After deducting the production cost of 10,000 peso/ha for corn and 12,000 peso/ha for irrigated palay, the net income per hectare is estimated at 19,000 pesos for corn and 40,000 pesos for irrigated palay for two cropping seasons.

Swine breeding is common off-farm income source with approximately 50 heads being sold to the market annually accruing a net income of about 75,000 pesos on a total ARC basis. The other source of income of ARBs is fishing, usually undertaken during off-farm season. The average ARB household generates around 76,000 pesos of total net income, 95 % of which are derived from farm income.

g) Farmer Beneficiaries and Organization

There are two organizations in the ARC, namely, the Lapogan Multi Purpose Cooperative Inc. and the Lapogan Rural Improvement Club, with a total member of 119 and 53, respectively.

The Lapogan MPCI, was organized in 1988 and registered with CDA in 1989 with a total CBU of 29,000 pesos. It has at present a CBU of 47,500 pesos from additional share collection and the birthday-regalo program. The cooperative has cash on hand/bank in the amount of 50, 800 pesos. The assetts of the cooperative are two solar dryers (660 and 450 sq. m) from DA and DAR and mechanical dryer (9HP Honda with 12 bags capacity per two hours).

The Cooperative obtained a loan from LBP twice in 1990. The first loan was paid in full. However, the second loan is not yet paid. The reason cited for non-payment of loan are the occurrence of calamity that affected their crops and the non-payment of crop insurance. The present program/activity of the Lapogan MPCI is the increase of capital build-up through continuous collection of loan, collection of additional capital share of 50 kgs of corn per cropping and the birthday regalo program where 10 peso is collected from each member and presented as gift to the member birthday celebrant. The amount is added to the member's share capital.

The cooperative became dormant from 1991 to 1998 due to loan problems. It was re-activated in October 1998 after realization that their community will not get projects unless they are organized. The main problem of the new set of officers is the loan from LBP that has not been paid since 1990. The loan balance is only about 200,000 pesos, however, due to penalty and interest the loan amount has increased to about 500,000. The officers have difficulty collecting payment from the 29 original members who acquired loan from the cooperative in 1990. The cooperative plans to establish a program of intensive collection of capital share to increase cooperative cash resources. To make the cooperative effective and sustainable they need the following: more training, increase share capital, secure additional loan and condonement of LBP loan penalty and interest. The training needed by the cooperative are value orientation, credit

management and delinquency control, IPM, skills on multiple cropping, gardening, aqua-culture, feed/silage production and additional PMES.

The Rural Improvement Club, composed mostly of women are engaged mainly in the clean and green program of the Barangay. The RIC members attended training on floor wax making, meat processing, sewing and Christmas ball decor making. Except for the clean and green activity, the RIC is inactive.

h) Marketing and Credit

The sale of products is carried out by the farmer individually. Both rice and corn are sold to the private traders. Livestock products are sold to private individuals.

The Lapogan MPCI has obtained loan from the following agencies, as follows:

Type	Source & Year	Amount in Pesos	Interest Rate	Repaid Amount	% of Capital Repaid	Main reason for Non-Payment
Production Loan	LBP-1990	489,000	12%	272,000	55%	Calamity/Non-payment of PCIC insurance
Livelihood	DOLE-July 1999	50,000	0%	New		

Source) JICA Study Team

The loan from LBP was re-lend to the original 29 cooperative members as production loan in 1990-1991 in the amount of 6,000 peso/ha. The 29 members who obtained the loan have paid only about 55 % of their loan. The loan obtained from the cooperative were used to buy farm inputs such as seeds, fertilizers and chemicals. The MPCI is willing to pay their loan to LBP but is requesting the condonation of loan interest and penalty. However, they have indicated that they cannot yet pay the whole balance as required by LBP.

Through the recommendation of the cooperative, some members were able to access loan from the LGU-MAO, the Plant Now Pay Later Seed Loan, the Open Source Pump (OSP) to four members and the Shallow Tube Well (STW) to one member.

The cooperative has been granted loan by DOLE in the amount of 50,000 pesos. The amount has been re-channeled to the youth for the goat dispersal program.

j) Agricultural and Rural Infrastructures

Irrigation System

The Lapogan was included in the Tumauini Irrigation Project (now Tumanuini Irrigation System, NIS) as early as 1979, and a canal about 800 m was already constructed leading to the heart of Lapogan but for no apparent reason, the canalization was abandoned. However, 27 ha of rice field are irrigated by nine (9) pumps intaking from Cagayan river and ground water. The specifications of pumps they use, are 3 to 4 inches with 7 to 12 hp of engine.

Road and Farm to Market Road

Road going to town proper of Lapogan from poblacion of municipality and provincial capital is Maharlika Highway and barangay road from the highway. Roads in the barangay are divided as follows;

-Roads in the town proper 2.0 km (Width of road is ranged from 3 m to 5 m)
-Roads in the agricultural field 7.0 km (Width of road is about 4.0 m)

Post Harvest facilities

There are 12 solar dryers as post harvest facility and one concrete pavement (hereinafter refer to MPP = Multi-Purpose Pavement) as a dryer which was implemented by CARP program as follows;

	Number	Size	Total area
Solar Dryer	12	15 m x 28 m	5,040 sq.m
MPP	1	800 m x 5 m	4,000 sq.m

There is no mechanical dryer and warehouse.

Potable Water Supply

There are wells as potable water resources as follows;

	House Hold	Well	Percentage
Level – 1	353	56	16 %
Level – 2	0	-	-
Level – 3	0	-	-

It was not found remarkable bacteria in the drinking water from well, according to the simplified bacteriological testing paper.

k) Operation and Maintenance Conditions

Road and Farm to Market Road

Maintenance of the municipal roads and Barangay roads has been done by municipal office based on the request of Barangay. However, maintenance of road is not enough because municipal office has not enough maintenance equipment

Potable Water Supply System

Wells for drinking water are maintained by the users. When pump repairing is required, the cost is contributed equally by neighbors using the pump.

B.2 Quiling ARC (No.2)

a) History

Quiling ARC located in the municipality of Roxas was established in 1993 that include one Barangay, namely Quiling. The ARC area was formerly called Hacienda Nuesa that was subjected to land reform in 1972. The area was originally occupied by the Kalingas. The word Quiling is a bamboo specie that is very abundant in the area during its olden times. The Barangay residents are mostly Ilocanos. The ARC was awarded a Certificate of Recognition in 1999 as outstanding ARC.

b) Location

Quiling ARC is located at the northeastern part of the of Roxas municipality which is northwestern part of the Isabela province at left bank of Cagayan river. It is traversed the main canal of SIFRIS Irrigation Canal, and is bounded on the north by Dona Concha Barangay, on the east by Quirono municipality, on the south by Siffu river and on the west Anao Barangay. It is three (3) km away from National Highway between Santiago and Tuguegarao.

c) Socio-Economic Conditions

The Barangay has an annual revenue allotment amounting to 490,302 pesos in 1999 that correspond to 454 pesos per head. It has a total population of 1,079 with a male-female population of 574 and 505, respectively. The number of households is 188 with an average family size of 5.7. Out of the 188 household, 145 or 77 % are ARBs. The number of female ARBs is 9, all of who belong to some organization.

The Barangay has a total land area of 240 ha, the total agricultural area of which is 151 ha mostly planted to palay. The DAR LAD working scope is about 200 ha, of which about 199 ha or 99.8% has been distributed as of third quarter of 1999. The average landholding of an ARB is 1.4 ha.

d) Natural Conditions

Quiling ARC is generally flat with farm land of 247 ha ha.

e) Agricultural Conditions

The total agricultural land is 229 ha. Most of them are planted with rice and the rest is with corn and tobacco. Soils in the fields are clayey loam. Drainage is well done. A farmer

holds about 1 ha on average. Cropping intensity is 176 % in the ARC.

Rice is grown twice a year under MARIS, irrigation system. Average yield is usually 100 cavans/ha in the wet season from June to October, but last harvest in the season was only 60 cavans/ha due to serious rice tungro virus damage. Dry season rice yielded 100 cavans/ha on average from December to April. Price of rice ranged from 5.50 to 8.00 pesos/kg, depending upon the moisture content of grains. Direct seeding is a usual practice in the ARC and the cost of production is from 17,000 to 13,000 pesos/ha. The net income from rice production was worked out 14,500 pesos to 23,000 pesos per ha.

Yellow corn and tobacco or white corn are rotated in cropping in the rainfed 50 ha fields Yellow corn was grown from April to September, it yielded 70 cavans/ha on average, and the price fluctuated from 3 to 5 pesos/kg, and earned 7,600 to 16,000 pesos/ha. White corn was planted under a contract with a vender, earning 10,000 pesos/ha constantly. Tobacco is grown under a contract with Lancaster, private company who provides farmers with input in a low interest rate, 7 % per cropping. Vegetables are intercropped with tobacco in some fields.

Vegetables and fruits are grown at the backyard, but string bean (1 peso/piece), egg plant (5 pesos/5 to 6pieces) and bitter gourd (12 pesos/kg) can be sold to the local market. Animals are kept in a small scale, 190 Carabaos, 31 cattle, 50 pigs, and uncountable chickens and ducks in the ARC. Farmers suffer from rice tungro virus disease and snails on rice, corn borer and downey mildew on corn, army worm on tobacco, and lady bug on vegetables.

f) Economic Condition of Farm Household

The average production for rice is 110 cavan/ha per cropping season sold to private traders at 8.00 peso/kg. After deducting the production cost of 12,000 pesos for palay, the net income per hectare is estimated at 64,000 pesos two cropping seasons.

Swine breeding is common off-farm income source with approximately 50 heads being sold to the public market annually accruing a net income of about 75,000 pesos on a total ARC basis. The average ARB household generates around 83,760 pesos of total net income, 97 % of which are derived from farm income.

g) Farmer Beneficiaries and Organization

There are two organizations in the ARC, namely, the Quiling Multi Purpose Cooperative Inc. and the Agrarian Reform Beneficiaries Association, with a total member of 75 and 50, respectively.

The Quiling MPCI was organized in 1993 and registered with the CDA in 1994 with a total CBU of 7,200 pesos. It has at present a CBU of 32,901 pesos from share collection and the birthday-regalo program. The cooperative has cash on bank in the amount of 7,822 pesos. Accounts, loans and interest receivable amounts to 22,749 pesos. It has a 420 sq. m solar dryer provided under the CARP program. The cooperative is affiliated with the CAVALCO. The cooperative became inactive from 1995 to 1996. It was re-activated in 1997 after the realization that their community will not get projects unless they are organized.

The Quiling MPCI has a marketing tie-up with the National Food Authority (NFA). Their other activities are poultry raising loan, capital build-up and maintenance of solar dryer. The capital build-up program includes the "Birthday Regalo" where members contribute five pesos each for a birthday celebrant. The amount collected is added to the share capital of the member. The management staff of the cooperative receive incentive allowances ranging from 500 to 1,000 peso/month. To make the cooperative more effective and sustainable, the cooperative cited the need for active participation and cooperation of members, additional capital, warehouse, and transportation. The training needs cited are management and value orientation and livelihood opportunities training on fish culture, poultry and swine raising.

The Agrarian Reform Beneficiaries Association (ARBA) was organized in 1984 to assist farmer beneficiaries in their land tenure problems. The ARBA is now very active due to land problems with the heirs of the former hacienda owner.

h) Marketing and Credit

The sale of products is carried out by the farmers through the cooperative. Members sell their palay to NFA at the price of 9.00 peso/kilo. An incentive of 0.025 centavo/kilo sold is given to the cooperative by the NFA. Another 0.025 centavo is given to farmers as transportation cost incentive.

The Quiling MPCI has submitted application for loan to LBP for palay trading and has revised their proposal three times with the assistance of CAVALCO. They expect to get the loan approval within this year.

The cooperative provides credit to their members as follows:

Type of loan	Poultry raising loan
Loan amount extended to members	2,000 pesos per member
Total amount extended to members	16,000 pesos
Number of members who obtained loan	8 members
Interest rate	12% per annum
Maturity of loan	3 months
Security/Guarantee	Animal/property documents
Payment schedule	Every three months

j) Agricultural and Rural Infrastructures

Irrigation System

173 ha of farm land of 229 ha are irrigated by SIFRIS North Main Canal from SIFRIS diversion dam under District III of MRIIS of NIA. The main canal is run about 9.2 km in the ARC. Farm ditch were constructed and maintained by Irrigators' Association other than main canal.

Road and Farm to Market Road

Main road to Quiling ARC from town proper of Roxas is National Highway and service road of SIFRIS North Main Canal. Distance from town proper to center of Quiling ARC is about 7 km. There are two farm to market roads, which is formed as barangay boundary with Camaal barangay and barangay boundary with Anao barangay.

Solar Dryer

There are solar dryer and MPP as a dryer in the barangay for drying of rice and corn as follows;

	Number	Size	Total Area
Solar Dryer	1	50 m x 50 m	2,500 sq.m
MPP	1	804 m x 5 m	4,020 sq.m

There is no mechanical dryer and warehouse.

Potable Water Supply System

There are wells as potable water resources as follows;

	House Hold	Well	Percentage
Level – 1	260	195	75 %
Level – 2	0	-	-
Level – 3	10	10	100 %

Level –3 means portable water supply system to tap in the house directly from the well by pump with motor.

k) Operation and Maintenance

Irrigation System

Main irrigation Canal is maintained by NIA, inside slope of canal is eroded. Farm ditch

was maintained in cutting glass and repairing the slope and barm before irrigation season start.

Road and Farm to Market Road

National Highway and service road of SIFRIS North Main Canal as a main approach road are maintained by DPWH and NIA. Barangay roads are maintained by Barangay with assistance of LGU.

Potable Water Supply System

Wells for drinking water are maintained by the users. When pump repairing is required, the cost is contributed equally by neighbors using the pump.

B-3 San Manuel ARC (No. 4)

a) History

San Manuel ARC located in the municipality of Echague was established in 1993 that include one Barangay, namely San Manuel. The Barangay was originally a virgin forest area with plenty of wild animals and was considered a good hunting place. The Barangay residents are mostly Ilocanos. However, the original residents of the ARC are the Aetas and Yogads. The original name of the Barangay was "Atelan" coming from the word "Attay Lan Nabattang" because the Yogad hunters always say this word that means only manure of animals. The Yogads were always dismayed because whenever they hunt, they only find manure of animals. The name of the Barangay was changed to San Manuel after the name of the Felix Manuel, the leader who helped developed the area.

b) Location

San Manuel Barangay is located at the western astern in Echague municipality which is southern part of the Province. Cagayan river flows at east side away of the Barangay. And the San Manuel is bounded on the north by San Antonia, on the south by Sta Maria, on the east by San June & Pangal and on the west by Santiago city. And town proper of the San Manuel is 14 km away from poblacion of Echague on National Highway.

c) Socio-Economic Conditions

The Barangay has an annual revenue allotment amounting to 363,000 pesos in 1999 that correspond to 305 peso/head. It has a total population of 1,164 with a male-female population of 594 and 570, respectively. The number of households is 235 with an average family size of 5.0. Out of the 235 households, 134 or 53 % are ARBs. The number of female ARBs is 20, about 10 of who belong to some organization.

The Barangay has a total land area of 1,519 ha, the total agricultural area of which is 749 ha. About 400 ha are planted to corn and 300 ha to irrigated palay. The DAR LAD working scope is 297 ha, of which about 286 ha or 96 % has been distributed as of third quarter of 1999. The average landholding of an ARB is 2.1 ha.

d) Natural Conditions

Topographic Condition

The San Manuel has 1,519 ha of total land which is mixed of flat and hilly area.

e) Agricultural Conditions

Corn is grown in 400 ha, and rice is in 300 ha, partly irrigated with pumps. The area is located at the gentle slope and soils are clayey loam.

Corn is grown twice a year, one from May to October and another from November to March, yielding 50 cavans/ha. Corn was sold at 5.00 pesos/kg in wet and 6.70 pesos/kg in dry, and earned 4,500 to 8,750 pesos/ha. Rice is grown once under rainfed condition from May to October, yielding 40 cavans/ha, and twice with pump irrigation from May to September and from November to March, yielding 100 cavans/ha.

Vegetables are grown at the backyard, such as mung bean, string bean, sweet potato, cassava, egg plant, kankon and taro. Mango and banana are grown in a small scale. Carabao, cattle, pig, chicken and duck are kept in a small scale at homestead. Telapias are kept in the ponds and sold to the local market. Small Farmer Reservoirs (SFR) are used for fish culture and irrigation. Farmers need irrigation for the paddy fields, solar dry yard and mechanical dryer, marketing information and farm to market road. Rice is affeceted seriously by rice tungro virus disease. Natural gas is produced near the ARC by Philippine National Oil Company (PNOC) which proposes mechanical dryer utilizing heat from the power plant.(refer to Table B-2-1)

f) Economic Condition of Farm Household

The average production for corn and irrigated palay are 100 and 80 cavans sold to private traders at 6.00 and 8.00 peso/kg, respectively. After deducting the production cost of 10,000 peso/ha for corn and 12,000 peso/ha for palay, the net income per hectare is estimated at 80,000 pesos for both corn and palay for two cropping seasons.

Swine breeding is common off-farm income source with approximately 300 heads being sold to the market annually accruing a net income of about 1,350,000 pesos on a total ARC basis. Cattle fattening are also major source of income with 200 heads sold to the meat vendors accumulating a net income of 900,000 on an ARC basis. The other source of income of ARBs is tilapia production, usually undertaken during off-farm season with net income of 41,650. The average ARB household generates around 129,000 pesos of total net income.

g) Farmer Beneficiaries and Organization

There are three organizations in the ARC, namely, the San Manuel Multi Purpose Cooperative Inc., Green Ladies Organization and Rural Improvement Club.

The San Manuel MPCI, was organized in 1990 and registered with the CDA in the same

year. It has at present a CBU of 429,075 pesos from additional share collection. The MPCI's cash on hand/bank is about 163 thousand pesos. The activities of the cooperative are production loan, tractor rental and swine dispersal. The production loan program was started in 1994. The tractor is rented out at 1,000 peso/ha. The tractor operator received 10 % from the tractor income. About 15 % of members have benefited from the swine dispersal that has started in 1997. The assets of the cooperative are a 2,000 sq. meter residential area acquired at 15 peso/sq. meter with a present value of 25 pesos per sq. m. and the 89 HP John Deree 4-wheel tractor acquired in 1998 in the amount of 1.912 million pesos.

The cooperative's major problem is the delay of payment of loans of cooperative members. The cooperative intends to undertake marketing of rice and corn. It has a pending application with the NFA for marketing tie-up. The needs cited by the cooperative area pre and post harvest facilities like mechanical dryer, thresher, warehouse and hand tractor; trading capital for marketing activities; transportation and additional training for members and officers mostly on cooperative ownership and refresher courses on basic cooperative knowledge.

The Rural Improvement Club and the Green Ladies Association, composed mostly of women are engaged mainly in the clean and green program of the Barangay. The officers of these two organizations differ, however, they have the same set of members. The RIC members attended training on quilt making and would be willing to undertake other quilting projects. However, they have no capital and market for production.

h) Marketing and Credit

The sale of products is carried out by the farmer individually. Both rice and corn are sold to the private traders. Livestock products are sold to meat vendors. The cooperative has applied with the NFA for the marketing of the cooperative member's palay production.

The MPCI has been initially granted a loan by LBP in 1994. The LBP loan is about 900,000 re-structured from their previous loan. Collection rate is 40 % full payment, 35 % partial payment and 5 % no payment (not willing to pay). The main problem related to this is the delay in the payment of loans by members. The loan from LBP was re-lend to the 72 cooperative members as production loan in the amount of 12,000 peso/ha. The loan obtained from the cooperative consist of farm inputs such as seeds, fertilizers and chemicals. Cash value of loan is only about 4,000 intended for labor expenses. The MPCI has also been granted a loan from the CAP-PBD DAR Program to acquire a tractor. The tractor loan is payable within 7 years with amortization of 197,000 pesos semi-annually.

The cooperative has accounts/loans receivable amounting to 825,084 and account/loan

payable amounting to 2.4 million pesos. The loan payable to LBP is 754,147 while the long term loan (tractor loan) is about 1,625,200 pesos.

j) Agricultural and Rural Infrastructures

Irrigation System

Out of farm land of 749 ha, about 100 ha of paddy land is irrigated by 25 numbers of small irrigation pumps intaking from Likiad and other creeks. However, water source is very limited so that only 100 ha of paddy can be irrigated by rotation.

Road and Farm to Market Road

Town proper of the San Manuel to National Highway is connected by provincial road with length of seven (7) km in gravel pavement. Poblacion of Echague is located another seven(7) km away through this Highway. And Length of farm roads within the barangay is 4 km, and about 6 km is in the town proper.

Post-Harvest

Solar dryer and MPP as a dryer existed in San Mauel are show below;

	Number	Size	Total area
Solar Dryer	1	25 x 18 m	420 sq.m
MPP	1	50 x 4 m	200 sq.m

There is no mechanical dryer and warehouse.

Water Supply System

There are wells as potable water resources as follows;

	House Hold	Well	Percentage
Level –1	250	225	90 %
Level –2	0	-	-
Level –3	0	-	-

k) Operation and Maintenance

Irrigation System

Small irrigation pumps owned by individual villagers maintained by users, and pumps funded by DA or other agencies also maintained by individual beneficiaries as required.

Road and Farm to Market Road

In general, Barangay roads are maintained by Barangay councils with assistance of LGU.

LGU provides heavy machinery and materials, and Barangay shoulders to supply fuel for machinery, food and miriyanda to operators and so on.

Potable Water Supply System

Wells for drinking water are maintained by the users. When pump repairing is required, the cost is contributed equally by neighbors using the pump.

B-4 San Miguel ARC, Ramon (No. 5)

a) History

San Miguel ARC located in the municipality of Ramon was established in 1994 that include one Barangay, namely San Miguel. The area was formerly sitio Batuang part of Barangay Ozcariz, Santiago in the 1930s. The area became Barangay San Miguel (of Santiago) in May 1949. In 1964, Ramon became a municipality and San Miguel became one of its Barangay. The name San Miguel was derived from the name of the original founders where four of them were named Miguel. The Barangay residents are mostly Ilocanos.

b) Location

San Miguel Barangay, is located at the mostly center in Ramon municipality which is southeastern of the Province at left bank of Cagayan river and at just south of Magat Reservior. And the San Miguel is bounded on the north by General Aguinaldo, on the south by Pagrang-ayan, on the east by Bugallon Norte and on the west by Planas Barangays. And town proper of the San Miguel is approximately 2.5 km away from poblacion of Ramon which located along National Highway to Santiago city.

c) Socio-Economic Conditions

The Barangay has an annual revenue allotment amounting to 600,378 pesos in 1999 that correspond to 186 pesos per head. It has a total population of 3,231 with a male-female population of 1,606 and 1,625, respectively. The number of households is 674 with an average family size of 4.8. Out of the 674 households, 85 or 12 % are ARBs. The number of female ARBs is 5, all of who belong to some organization.

The land area of the Barangay is about 535 ha. The ARC has a total of 436 ha of agricultural land, and 327 ha of which is planted to palay. The DAR LAD working scope is 217 ha. Of this, about 209or 96.3 % has been distributed as of third quarter of 1999. The average landholding of an ARB is 2.5 ha.

d) Natural Conditions

Topographic Condition

The San Miguel is flat area and has a total land area of 535.5 ha of which farm land is 436 ha slightly rolling hilly with rice terrace and corn cultivation.

e) Agricultural Conditions

Rice is grown in 327 ha, major crop in the ARC, and other crops such as corn (76 ha), sweet potato (8 ha), peanut (5 ha) and mung bean (2 ha) occupy small land area. The area is flat and partly gently sloping with clayey loam.

Rice is grown twice a year, the wet season from June to October and the dry season from December to March, yielding 100 to 120 cavans/ha, earning 14,000 to 33,000 pesos/ha. The price of rice was 5.80 pesos/kg in wet and 7.80 pesos/kg in dry in the rainy season, and many farmers were obliged to sell in wet, because it was difficult to dry rice in the rainy condition. Rice is grown in a uniform pattern in the ARC. 90 % of farmers transplant rice in the ARC. They practice integrated pest management (IPM) which worked well. Corn is grown twice as well, in the rainy season from May to September, and in the dry season from November to March.

The other vegetables are grown at the backyard, such as eggplant, string bean, squash and bitter gourd. Animals like cattle, pig, Carabao, goat and chicken are kept in a small scale at homestead. Fish is grown for consumption and sale to the local market. Farmers need capital, solar dry yard, farm to market road. Rice yield is affected by rice tungro virus disease, rice blast, green and brown leaf hopper, stem borer and rice bug. Most farmers owe debt to private traders.(refer to Table B-2-1)

f) Economic Condition of Farm Household

The average production for rice is 80 cavans per ha per cropping season sold to private traders at 8.00 peso/kg. After deducting the production cost of 12,000 peso/ha, the net income per hectare is estimated at 46,400 (for two croppings). Swine breeding is common off-farm income source with approximately 20 heads being sold to the market annually accruing a net income of about 30,000 pesos on a total ARC basis. The average ARB household generates around 86,251 pesos of total net income, 97 % of which are derived from farm income.

g) Farmer Beneficiaries and Organization

There is one cooperative and three women's organizations in the ARC, namely, the San Miguel Super Multi Purpose Cooperative Inc., the Ramon Green Ladies Organization divided into three sub-groups, the most active of which is the Nasa Auto Savings Green Ladies Organization, the Rural Improvement Club (RIC) and the Samahang Kababaihan Ng San Ramon (SAKARA). Since there are several women's organization in the ARC area, they have been advised by the LGU to merge all the organizations into one under the umbrella of RIC.

The cooperative has 78 members with 10 female members. The San Miguel Super

MPCI was organized in 1988 and registered with CDA in the same year with a total CBU of 88,836 pesos. It has at present a CBU of only 2,500 pesos contributed initially by the officers of the cooperative as a start-up capital.

The cooperative became dormant after 1995. At present, only the Board of Directors (BOD), officers and other committee members meet regularly. The focus of the meeting is on how to pay the cooperative loan to LBP. The officers of the cooperative want to entice members to join them in the re-activation of the cooperative. However, the members are reluctant to participate due to the cooperative's failure. The MPCI has no activity at present.

The women's group has different set of officers but with the same membership composition. The most active, the Nasa Auto Savings Green Ladies Organization, composed mostly of women are engaged in auto saving's program contributing 20 peso/month for 8 months a year for fund mobilization. From the funds generated, the group engage in livelihood activities like swine dispersal, buy and sell of bagoong, etc. The other main activity of the organization is the clean and green program of the Barangay. The organization members attended training on floor wax making, meat processing, cosmetology, peanut brittle making, puto/siopao making. The women's organizations are very active. They have been advised to merge all the organizations into one under the umbrella of the RIC.

h) Marketing and Credit

The sale of products is carried out by the farmer individually to the private traders. Livestock products are sold to private individuals. The farmers obtain loans from private traders for their production and personal expenses. The amount is paid back after the cropping season at an interest rate of 30 % in cash or in kind.

The loan obtained by the MPCI from the LBP in the amount of 732,000 pesos was re-lend to the cooperative members as production loan in 1990 and 1991 in the amount of 6,000 peso/ha and 8,000 pesos, respectively. Only 324,000 pesos has been repaid to LBP. The loan obtained from the cooperative were used to buy farm inputs such as seeds, fertilizers and chemicals. The reason cited for non-payment of loan is the occurrence of calamity that affected their crops and the non-payment of crop insurance. Only 10 farmers have paid their loans in full. The rest have only made partial payments. The main problem of the cooperative officers who were newly installed is the collection of loan payment of members.

j) Agricultural and Rural Infrastructures

Irrigation System

Out of 436 ha farm land within the Barangay, 410 ha is irrigated by four (4) lateral canals named OC-1, OC-1a Lat-1 and Lat-2 canals with total length of 6.9 km diverted from South High canal of MRIIS under NIA. Furthermore, 17 nos. of small irrigation pumps are used for supplementary irrigation supplying to the rice field from creeks.

Road and Farm to Market Road

Distance to poblacion of Ramon is 2.5 km with gravel pavement road, and National Highway connects to Santiago City with concrete pavement in ten (10) km. Length of farm roads within the Barangay is 4.5 km, and about 3.5 km is in town proper.

Post-Harvest

Solar dryer and MPP as a dryer are shown below;

	Number	Dimensions	Area
Solar Dryer	9	15 x 28 m	3,780 sq.m
MPP	1	80m x 4m	320 sq.m

There is no mechanical dryer and warehouse.

Water Supply System

There are wells as potable water resources as follows;

	House Hold	Well	Percentage
Level –1	674	132	20 %
Level –2	0	-	-
Level –3	0	-	-

k) Operation and Maintenance

Irrigation System

NIA responds to maintain two(2) lateral canals on major works with machinery such as repairing eroded inside slope of canals. According to interviews of IA members, IA also engages maintenance of lateral canals once a month other than major works. And farm ditches are fully maintained by IA in cutting glass and repairing the slope before irrigation season starts. And water charge paid by IA are categorized as follows;

	Categories		
Land Holding	① less than 2 ha	② 2 ~ 5 ha	③ over 5 ha
Wet season	1.5 cavan/ha	2.5 cavan/ha	5.0 cavan/ha
Dry season	2.0 cavan/ha	3.5 cavan/ha	5.0 cavan/ha

Road and Farm to Market Road

According to interview to Barangay captain, Barangay roads are maintained by Barangay councils with assistance of LGU. LGU provides heavy machinery, and Barangay shoulders to supply fuel for machinery, gravel material (170 peso/load), and food and miriyanda to operators and so on.

Potable Water Supply System

Wells for drinking water are maintained by the users. When pump repairing is required, the cost is contributed equally by neighbors using the pump.

B-5 Amulungan-Rizal ARC (No. 6)

a) History

Rizal-Amulungan ARC located in Santiago City was established in 1993 that include one sitio in Barangay Rizal, namely Amulungan. The Barangay residents are mostly Ilocanos.

b) Location

Amulungan is one of sitios in Rizal Barangay. The Barangay is located at the western astern in Santiago City municipality and is bounded on the south by Ramon municipality. Amulungan-Rizal ARC is southwestern of the Province at left bank of Cagayan river and right bank of Magat river. And the Amulungan is two (2) km away from National Highway between Santiago and Tuguegarao.

c) Socio-Economic Conditions

The Barangay has an annual revenue allotment amounting to 1.5 million pesos in 1999 that correspond to about 181 peso/head. It has a total population of 8,269 with a male-female population of 4,366 and 3,903, respectively. The number of households is 1,677 with an average family size of 4.9. Out of the 1,677 households, 202 or 12 % are ARBs. The number of female ARBs is 5.

The Barangay total land area is about 325 ha with a total agricultural area of 310 ha. Amulungan, a sitio of Rizal has an irrigated palay area of 305 ha. The DAR LAD working scope is 254 ha., of which about 222 or 87.6% has been distributed as of third quarter of 1999. The average landholding of an ARB is 2.1 ha.

d) Natural Conditions

Topographic Condition

The Amulungan is flat area with rice cultivation which is irrigated by MRIIS.

e) Agricultural Conditions

Major crop in the ARC is only rice grown in 305 ha. The area is mainly flat and partly with gentle slope, soils are silty loam. Average holding is 2 ha per a farmer. Cropping intensity is 200 % in the ARC.

Rice is grown twice a year, in the rainy season from June to October and in the dry season from December to April. Average yield is 80 to 85 cavans/ha in the rainy season and 90 to 95 cavans/ha in the dry season. The price was 4 pesos/kg in wet palay, and 6 pesos/kg in dry palay. 80 % of farmers transplant rice and 20 % practice direct seeding. Farmers practice integrated pest management and suceeded in reducing nitrogen fertilizer.

Vegetables are grown at the backyard or on the dykes of paddy fields such as egg plant, string bean, bitter gourd, taro, sweet potato, cassava and sponge gourd. Carabao and cattle are grown for draft animal, and pig, chicken and duck are kept in small scale. Fish such as telapia, carp and catfish make good money, but a few farmers grow them because of capital constraints. Farmers need multi-purpose dry yard, milling machine and irrigation pumps. (refer to Table B-2-1)

f) Economic Condition of Farm Household

The average production for palay is 80 cavans sold to private traders at 8.00 peso/kg. After deducting the production cost of 12,000 peso/ha, the net income per hectare is estimated at 40,000 pesos for two cropping seasons.

Cattle fattening are common off-farm income source with approximately 27 heads being sold to the traders annually accruing a net income of about 121,500 pesos on a total ARC basis. The average ARB household generates around 37,329 pesos of total net income, 94 % of which are derived from farm income.

g) Farmer Beneficiaries and Organization

There are two organizations in the ARC, namely, the Rizal-Amulungan Multi Purpose Cooperative Inc. and the Rural Improvement Club.

The Rizal-Amulungan MPCI was organized in 1988 and registered with the CDA in 1989 with total members of 230. The cooperative has been very active in the early nineties engaged in many activities such as, palay marketing and trading, production loan, hauling, solar dryer and pre-post harvest rental, etc. It has many fixed assets like office and warehouse, rice mill, solar and mechanical dryer, 6-wheel and 10-wheel vehicle, hand tractor, reaper, and water pump. However, the cooperative has been inactive and non-operational since 1998 due to loan collection and payment problems and cooperative organization mismanagement. The Cooperative has accumulated a loan of almost 14 million pesos that includes interest and penalty that is long overdue.

The ARBs mostly located in Amulungan cited the need to form another organization

separate from the existing cooperative.

The Rural Improvement Club, composed mostly of women are engaged mainly in the clean and green program of the Barangay. The RIC members attended training on food processing and preservation. Except for the clean and green activity, the RIC is inactive.

h) Marketing and Credit

The sale of products is carried out by the farmer individually and is sold to the private traders in Santiago City. Livestock like cattle products are sold to private traders.

The Rizal-Amulungan MPCI has obtained loan from the following agencies, as follows:

Type	Source & Year	Amount in Pesos	Interest Rate	Repaid Amount	% of Capital Repaid	Main reason for Non-Payment
Production Loan	LBP-	9,800,000	10%/ cropping			Calamity
Integrated Post harvest Facilities	DAR-DBP Window III Financing Program	4,229,302	12%	149,322	.03%	Cooperative has been inactive since 1998 due to non-payment of loans of members & management problems

Source) JICA Study Team

The loan from LBP was re-lend to the cooperative members as production loan in 1990 to 1991 in the amount of 6,000 peso/ha. The loan obtained from the cooperative were used to buy farm inputs such as seeds, fertilizers and chemicals. As of 1995, loans receivable from production loan amounted to 4.4 million pesos excluding interest and penalty. The members of the cooperative also obtained loan for cattle raising amounting to 503,402 pesos. Other accounts receivable from members amount to 60,395. The main problem of the cooperative is the accumulated loan that has not been paid since 1996. Attempts to re-organize the cooperative has failed.

j) Agricultural and Rural Infrastructures

Irrigation System

310 ha of cultivable area within the ARC are irrigated by two (2) lateral canals of Lat. B-1 and B-1a diverted from MRIIS under NIA. Lengths of the canals are 2.6 km and 1.8 km within the Amulungan respectively. Farm ditch are maintained by Irrigators' Association (IA) other than Lateral canals.

Road and Farm to Market Road

Municipal road with gravel traverses in the Rizal Barangay to center of the ARC with 2.5 km connecting National Highway with concrete pavement which connects Poblacion Santiago City with 3 km.

Post-Harvest

Solar dryer and MPP as a dryer are shown below.

	Number	Size	Total area
Solar Dryer	2	450 sq.m	900 sq.m
MPP	-	-	-

There is one(1) mechanical dryer with capacity of 90 cavans/10 hours and one warehouse with capacity of about 5,000 cavans under cooperative, but not used because cooperative is not fanctioned.

Water Supply System

There are wells as potable water resources as follows;

	House Hold	Well	Percentage
Level –1	100	100	100 %
Level –2	0	-	-
Level –3	0	-	-

k) Operation and Maintenance

Irrigation System

NIA responds to maintain two (2) lateral canals on major works with machinery such as repairing eroded inside slope of canals. According to interviews of IA members, IA also engages maintenance of lateral canals other than major works with remuneration of 1,440 peso/month/km.

And farm ditches are fully maintained by IA in cutting glass and repairing the slope before irrigation season starts.

Road and Farm to Market Road

Municipal road as a main approach from the Amulungan to National Highway is maintained by LGU. Barangay roads are maintained by Barangay councils with assistance of LGU. LGU provides heavy machinery and materials, and Barangay councils shoulder to supply fuel for machinery, food and miriyanda to operators and so on.

Water Supply System

Wells for drinking water are maintained by the users. When pump repairing is required, the cost is contributed equally by neighbors using the pump.

B-6 Isabela Settlement ARC

a) History

Isabela Settlement ARC was established in 1993 that include five clusters, namely Colorado, DIPASIVI, La Suerte, CENEA, and Aromin. Only DIPASIVI, La Suerte, and CENEA are included in the Study that involve six (6), five (5), and four (4) Barangays, respectively. The CENEA and DIPASIVI Clusters are located in the municipality of San Guillermo while La Suerte Cluster is located in the municipality of Angadanan. The Settlement ARC was formerly part of the Peredo Edcor Estate Farm under the municipality of Angadanan. The estate was established as a settlement area during the time of then Defense Secretary Magsaysay and priority settlers were the rebel returnees and retired soldiers. In 1968, the San Guillermo municipality was created and its name was derived from the mayor of Angadanan whose family name was Guillermo.

La Suerte Cluster ARC (No. 7-1)

b) Location

La Suerte Cluster is located at southeastern astern in of Angadanan municipality where Sinalugan river traverses in the Cluster and is at Right Bank of Cagayan river. The Cluster is consists of five (5) barangays named La Suerte, Victory, San Marcelo, Buenavista and San Vicente. And the Cluster is bounded on the north by San Roque & Mangandingay barangays, on the southeast by of San Gullermo municipality and on the west by Mabuhay & Bunnay barangays. And barangay proper of La Suerte which is center of the Cluster is located at about 20 km away from poblacion of Angadanan at opposite side of Cagayan river.

c) Socio-Economic Conditions

The total annual revenue allotment of the five (5) Barangays is 1,479,775 pesos in 1999 that correspond to 380 peso/head. The cluster residents are mostly Ilocanos. However, the majority ethnic group differ by Barangay, viz. Barangays La Suerte and San Vicente are dominantly Ilocanos, Barangay San Marcelo are mostly Gaddangs while Barangays Victory and Buenavista are predominately Itawes. The cluster has a total population of 3,894 with a male-female population of 1,777 and 2,117, respectively. The number of households is 642 with an average family size of 6.1. Out of the 642 households, 551 or 86 % are ARBs. The number of female ARBs is 74, of which 45 belong to some organization.

The total land area of the Cluster Barangay is 1,935 ha. The cluster has a total agricultural area of 1,103 ha with about 900 and 200 ha planted to corn and palay, respectively.

The DAR LAD working scope is about 1,919 ha. Of this, about 1,916 or 99.8 % has been distributed as of third quarter of 1999. The average landholding of an ARB is 4.6 ha.

d) Natural Conditions

Topographic Condition

The Cluster has a total land area of 1,935 ha occupied by La Suerte 1,093 ha, Victory 298 ha, San marcelo 182 ha, Buenavista 45 ha and San Vicente 317 ha respectively. Land terrain of the Cluster is hilly area.

e) Agricultural Conditions

This cluster is characterized as undulated hills with corn and banana. Corn is grown in 882 ha, banana in 20 ha at the periphery of cornfield or along the streams. Rice is grown only at the bottom of the valleys for local consumption. A farmer holds 2 to 6 ha of agricultural land. Pineapple and mango are starting to grow in the cluster. Gmelina is planted here and there, which is good for soil conservation and income. Landslide occurred at the ridge of hills and soil is eroded in the sloping corn field. Four Barangays except La Suerte are hard to reach particularly in the rainy season, hence very difficult to carry farm products out to the market.

Corn is grown twice a year in the rainy season from May to October, and in the dry season from November to April, yielding 60 to 70 cavans/ha. Corn needs 16,280 pesos of production cost per a hectare. The price of corn was 6.00 pesos/kg in April and 4.90 pesos/kg in October, earning 11,000 pesos/ha at most, but farmers lose money (sayad) often with corn growing in the remostest area as Barangay Victory. Banana can be harvested anytime in a year, but very hard to carry them to the market in the rainy season.

Pineapple, mango and Gmelina are increasing in the cluster other than corn, banana and rice. Cassava, mung bean and sweet potato are planted as well. Fruit trees such as coconut, avocado, calamansi, jackfruit, star apple are grown at the backyard. Animals as Carabao, cattle, horse, chicken, duck and pig are kept at the homestead. Carabao is very important here not only to plow the field but also to haul farm products. Carabao sleigh is only the way to send farm products to the market particularly in the rainy season.

Farmers suffer from inaccessibility to the market in the rainy season, and they request to construct and rehabilitate roads and bridges. They need a community center at a Barangay, solar dry yard, multi-purpose pavement, warehouses, irrigation pumps, and farm machines as tractor for plowing, corn sheller and thresher. (refer to Table B-2-1)

f) Economic Condition of Farm Household

The average production for corn and irrigated palay are 50 and 40 cavans sold to private traders at 6.00 and 8.00 peso/kg, respectively. After deducting the production cost of 10,000 peso/ha for corn and 12,000 peso/ha for rice, the net income per hectare is estimated at 10,000 pesos for corn and 8,000 pesos for palay for two croppings.

Swine breeding is common off-farm income source with approximately 50 heads being sold to the market annually accruing a net income of about 75,000 pesos on a total cluster basis. The average ARB household generates around 34,500 pesos of total net income, 72 % of which are derived from farm income.

g) Farmer Beneficiaries and Organization

There are three organizations in the ARC, namely, the La Suerte Multi Purpose Cooperative Inc., San Marcelo Farmers MPCI and the Rural Improvement Club, with a total member of 36, 75 and 93, respectively.

The La Suerte MPCI, was organized in 1995 and registered with the CDA in the same year with a total CBU of 13,500 pesos. It has at present a CBU of 29,000 pesos from additional share of 500 pesos per cropping. Due to the cooperative's fear of insolvency, it has not obtain loan from lending agencies. With the cooperative's stand on not securing loan, some 70 potential members have signified interest to join the cooperative. The cooperative acquired a sari-sari store in 1998 from a private trader at 9,800 pesos.

The main activity of the La Suerte MPCI is to increase capital build-up for re-lending to members. Their re-lending scheme is unique. The sari-sari store is operated by a cooperative member that is subject to change every 6 month. Application for the operation of the store is open to members. The applicant is asked to formulate plan of operation for the sari-sari store and indicate the credit need. Credit is provided to the accepted store operator for the store. The credit condition is 20% interest rate for 6 months, payable after harvest. According to the officials, 27 out of 36 members have signified interest to become store operator with loan request ranging from 1,000 to 2,300 pesos. The officers have cited an operator's net profit of about 1,000 peso. The cooperative is still reluctant to avail loan from government lending agencies. However, they plan to expand their activities and obtain farm machinery.

The San Marcelo Farmers MPCI is a newly established cooperative (1998), and not yet registered. The cooperative has no activity, hence inactive.

Rural Improvement Club, composed mostly of women is engaged mainly in the clean and

green program of the Barangay. The RIC was established in 1994 and rather active in the sense that their share capital has constantly been increasing, from 2,700 pesos in 1994 to 27,000 in 1999. Their major activities are re-lending and animal dispersal. The loans provided to members ranges from 300 to 2,000 pesos with a 10 % monthly interest. The loan is provided only to recipients of swine dispersal program. DA provided 34 piglets that the RIC dispersed to members. The member payback the swine by dispersing two piglets to the next recipient member. The loan obtained by the member is used to acquire the needed facility for the breeding of the swine.

h) Marketing and Credit

The products are sold by farmer individually. Rice produce is for home consumption while corn and banana are sold to the private traders. A total of 20 ha of banana plantation scattered in several areas has become popular as crop diversification of corn. Banana is sold at 35 pesos per 100 pieces that is harvested every two month. Out of 1,000 hills per ha, the farmers are able to earn 210,000 peso/year. Livestock products are sold to private traders. Due to the presence of several private traders with rice mill and truck in Barangay La Suerte, it has become the center of trade of farm products of five (5) adjacent Barangays.

The La Suerte MPCI has no loan because the officials feel that it is not yet capable to avail of loan at this time.

In 1997, Rural Improvement Club has obtained a 10,000 peso loan called "RIC Loan" from the provincial Government for soap making. They have repaid all their loan. However, the members indicated that soap making is not viable because of high material cost and lack of running cost.

i) Agricultural and Rural Infrastructures

Irrigation System

There is no irrigation system in the Cluster. Only La Suerte barangay has two (2) numbers of small irrigation pumps for rice cultivation of 2 ha.

Road and Farm to Market Road

Total Length of barangay roads within La Suerte, Victory, San Marcelo, Buenavista and San Vicente are approximately 18 km, 1.4 km, 4.5 km, 1.5 km and 2.5 km respectively, but most roads are not paved by gravel or concrete.

Respective barangays are located at difficult terrain to access to the poblacion of

Angadanan. The route from each barangay to the poblacion is as shown below;

Poblacion ←←← La Suerte ←←← Buenavista ←←← Victory

Poblacion ←←← La Suerte ←←← Buenavista ←←← San Marcelo

Poblacion ←←← San Vicente

During wet season, villagers are insisted to walk some distances to go to poblacion. Distances to poblacion by road conditions during wet season are shown in following table;

Barangay	La Suerte	Buenavista	Victory	San Marcelo	San Vicente
Concrete paved road	2.0 km	2.0 km	2.0 km	2.0 km	2.0 km
Gravel paved road	11.0 km	13.0 km	13.0 km	13.0 km	3.0 km
None paved road	-	1.0 km	3.0 km	4.5 km	2.5 km

Post-Harvest

There are solar dryer and MPP as a dryer in the ARC for drying of rice and corn of each barangay as follows;

Barangay	La Suerte			Buenavista			Victory		
	Nos.	Size	Area.	Nos.	Size	Area	Nos.	Size	Area
Solar Dryer	6	15 x 28 m	1,680 sq.m	0	-	-	0	-	-
MPP	4	80 x 4 m	1,280 sq.m	1	70m x 4m	280 sq.m	0	-	-

Barangay	San Marcelo			San Vicente		
	Nos.	Size	Area	Nos.	Size	Area
Solar Dryer	1	15 x 28 m	420 sq.m	1	15 x 28 m	420 sq.m
MPP	0	-	-	0	-	-

There is no mechanical dryer and warehouse in any barangay.

Water Supply System

There are wells as potable water resources of each barangay as follows;

	La Suerte			Victory			San Marcelo			Buenavista			San Vicente		
	H/H	Well	%	H/H	Well	%	H/H	Well	%	H/H	Well	%	H/H	Well	%
Level-1	365	22	6%	50	2	4%	76	0	-	75	4	5%	75	4	5%
Level-2	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Level-3	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-

Barangay San Marcelo has one pump with engine at spring for taking the potable water, however capacity of engine is not enough to convey the water to barangay, therefore villagers are forced to go to spring.

It was not found remarkable bacteria in the drinking water from well, according to the simplified bacteriological testing paper.

j) Operation and Maintenance

Irrigation System

There is no irrigation system in the La Suerte Cluster

Road and Farm to Market Road

In general, Barangay roads are maintained by barangay councils with assistance of LGU. LGU provides heavy machinery and materials, and barangay shoulders to supply fuel for machinery, food and miriyanda to operators and so on.

Water Supply System

The users maintain wells for drinking water. When pump repairing is required, the cost is contributed equally by neighbors using the pump.

B.7 Dipasivi Cluster ARC (No. 7-2)

a) Location

Dipasivi Cluster is located at southwestern part in San Guillermo municipality which is southern portion of Isabala Province at right bank of Cagayan river. The Cluster is consists of four (4) Barangays named Dipacamo, Palawan, Sinalugan and Villa Remedios. And it is bounded on the north by San Mariano Sur Barangay, on the southeast by of Echague municipality and on the west by Cenea Cluster. Distance of poblacion of San Guillermo to town proper of Dipacamo is approximately 4.5 km with gravel paved road.

b) Socio-Economic Conditions

The total annual revenue allotment of included 4 Barangays in 1999 is 1,067,000 pesos that correspond to 658 pesos per head. The cluster residents are mostly Ilocanos, except for Barangay Palawan that is predominantly Tagalog. The cluster has a total population of 1,620 with a male-female population of 827 and 793, respectfully. The number of households is 341 with an average family size of 4.8. Of the 341 households, 311 or 91 % are ARBs. The number of female ARBs is 35, of which 34 belong to some organization.

The total land area of the Cluster Barangay is 2,118 ha. The cluster has a total agricultural area of 1,172 ha, about 489 ha of which are planted to corn and 92 ha to palay. Banana area is about 438 ha. The DAR LAD working scope is about 1,799 ha. Of this, about 1,777 ha or 98.8% has been distributed as of third quarter of 1999. The average landholding of an ARB is 7.5 ha.

c) Natural Conditions

Topographic Condition

Dipasivi Cluster has a total land area of 2,118. Land of the Cluster is hilly area.

d) Agricultural Conditions

Of 1,172 ha total agricultural land, 489 ha are planted with corn, 503 ha with banana and the rest with rice and white teak (Gmelina). A Farmer holds about 2.5 ha on average.

Yellow corn is grown twice a year in the rainfed fields. Average yield is usually 75 cavans/ha in the wet season from May to October. Dry season rice yields 60 cavans/ha on average from November to March or April. Price of yellow corn fluctuates from 5.80 to 6.00 pesos/kg.

The production cost is estimated 18,000 to 20,000 pesos/ha. The net income from corn production is worked out around 10,000 pesos/ha.

Out of 503 ha banana fields, 180 ha are planted in Parawan. Two varieties are planted; one is "Sava" which is a kind of cooking banana, another is "Lakatan" good for table. It is possible to harvest 12 times in a year, average yield of both varieties is around 60,000 pieces/ha. Prices of Sava and Lakatan are 50, 60 pesos/100 pieces respectively. The cost of production is estimated about 10,000 pesos/ha, the net income is worked out 20,000 to 26,000 pesos/ha. Private traders usually come to pick the products up. Farmers can sell banana directly in the market at 5 pesos higher price per 100 pieces.

Rice is grown for home consumption in the limited fields. White teak is planted in more than 50 ha, but it does not reach a time for cutting. Vegetables and fruits are grown mainly for home consumption at the backyard. Animals are kept in a small scale, 360 Carabaos, 82 cattle, 341 pigs, uncountable chickens and ducks in this ARC. Farmers need reservoir, financial support for farming, solar dry yard, farm machines as corn sheller and tractor, solar dry yard, pumps, warehouse, and mechanical dryer. (refer to Table B-2-1)

e) Economic Condition of Farm Household

The average production for corn and banana are 50 cavan/cropping and 10,000 pieces every 2 month. These are sold to private traders at 7.00 pesos and 35 pesos per 100 pieces, respectively. The farmers produce rice in less than 1 ha of land for home consumption. After deducting the production cost of 10,000 peso/ha for corn and 4,000 peso/ha for banana, the net income per hectare is estimated at 15,000 pesos for corn for two cropping and 17,000 pesos for banana.

Swine breeding is common source of off-farm income with approximately 40 heads being sold to the market annually accruing a net income of about 60,000 pesos on a total cluster basis. Barangay Palawan, through the cooperative, started tilapia production. However, tilapia is sold only within the vicinity of the Barangay at 60 to 70 peso/kilo. The total annual income from tilapia is more or less 20,000 peso. The average ARB household generates around 35,000 pesos of total net income, 85 % of which are derived from farm income.

f) Farmer Beneficiaries and Organization

There are two organizations in the ARC, namely, the Dipacamo-Palawan Settlers Multi Purpose Cooperative Inc. (DPS-MPC), and the Dipacamo Rural Improvement Club with a total member of 40 and 85, respectively.

The DPS-MPC was organized in 1980 and registered with the CDA in 1990 with a total CBU of 9,000 pesos. It has at present a CBU of 50,000 pesos from additional share of 500 pesos every cropping. The Cooperative once had a 150,000 peso loan from OBOG Rangay BIDANI Foundation with interest rate of 15 % per cropping and 6 months' repayment period. They had so far obtained loan three times after completion of loan payment. The cooperative is rather active. Its main activities are farm input distribution and marketing of member-farm produce under the assistance of BIDANI. The cooperative intends to venture to tilapia cultivation project using a 20 ha water reservoir. However, they still have to formulate necessary rule with the adjacent Barangays, because the reservoir is common source of irrigation water.

The Dipacamo RIC was established in 1982, but has been inactive until recently. The RIC collect from new entrant 27 pesos for registration and 25 pesos annual due. RIC is also assisted by BIDANI in terms of management. In 1998, BIDANI introduced the swine dispersal loan project from the Provincial Cooperative Office (PCO). With the 10,000 peso's loan from PCO, the RIC bought three swine and distributed this to 3 RIC officers at 16 %annual interest. The borrowers were requested to disperse piglet to the next RIC member for the expansion of the program. From the payment of the three officers, the loan from the PCO can be repaid. Through this scheme, the RIC can generate a fund of 1,600 pesos annually.

g) Marketing and Credit

Under the assistance of BIDANI, farmers are encouraged to buy and sell product through the cooperative. The DPS-MPC is dealing with both farm input and output distributions.

For the farm inputs' distribution, DPS-MPC has two purchasing channels. One is with private traders. The cooperative buys the fertilizer from traders (urea and 14-14-14) with 15 % interest/cropping then sells to members with interest of 20 %/cropping. The cooperative also deals with the Ayala Seed Co for corn seeds (Pioneer, Cargil, and Ayala). It buys the seed at 1,650 to 1,800 peso/bag (the price already includes interest) and distributes the seed to members. The 30 members usually buy about 50 cavans of corn seed.

The DPS-MPC assist the member-farmers in marketing their products by contracting directly with private traders thus selling corn at higher price by 0.3 peso/kg. A total of 30 member market their corn produce through the cooperative and consequently, the cooperative is dealing with more or less 1,500 cavans of corn every cropping season.

h) Agricultural and Rural Infrastructures

Irrigation System

There is no irrigation system in the Cluster. Only Dipacamo and Villa Remedios barangays have small irrigation pumps for rice cultivation of about 13 ha.

Road and Farm to Market Road

Total Length of barangay roads within Dipacamo, Palawan, Villa Remedios and Sinalugan are approximately 15 km, 1.4 km, 7.5 km, 5 km and 22 km respectively. but most roads are not paved by gravel or concrete.

Respective barangays are located at difficult terrain to access to the poblacion of San Guillermo. The route from each barangay to the poblacion is as shown below;

Poblacion ←←← Dipacamo ←←← Palawan ←←← Sinalugan

Poblacion ←←← Dipacamo ←←← Villa Remedios

During wet season, villagers are insisted to walk some distances to go to poblacion. Distances to poblacion by road conditions during wet season are shown in following table;

Barangay	Dipacamo	Palawan	Villa Remedios	Sinalugan
Concrete paved road	-	-	-	-
Gravel paved road	4.5 km	4.5 km	4.5 km	4.5 km
None paved road	-	1.5 km	3.5 km	1.0 km

Post-Harvest

There are solar dryer and MPP as a dryer for drying of rice and corn of each barangay as follows;

Barangay	Dipacamo			Palawan			Villa Remedios			Sinalugan		
	Nos.	Size	Area	Nos.	Size	Area	Nos.	Size	Area	Nos.	Size	Area
Solar Dryer	1	15 x 28m	420 sq.m	1	16 x 85m	1,360q.m	1	15 x 28m	420 sq.m	0	-	-
MPP	2	40 x 3m	240 sq.m	0	-	-	0	-	-	1	50 x 4 m	200 sq.m

There is no mechanical dryer and warehouse in any barangay.

Water Supply System

There are wells as potable water resources of each barangay as follows;

Barangay	Dipacamo			Palawan			Villa Remedios			Sinalugan		
	H/H	Well	%	H/H	Well	%	H/H	Well	%	H/H	Well	%
Level-1	126	28	22%	90	13	14%	41	8	20%	83	7	8%
Level-2	-	-	-	-	-	-	-	-	-			
Level-3	-	-	-	-	-	-	-	-	-			

It was not found remarkable bacteria in the drinking water from well, according to the simplified bacteriological testing paper.

i) Operation and Maintenance

Irrigation System

There is no irrigation system in the Cluster

Road and Farm to Market Road

In general, Barangay roads are maintained by Barangay councils with assistance of LGU. LGU provides heavy machinery and materials, and Barangay shoulders to supply fuel for machinery, food and miriyanda to operators and so on.

Water Supply System

Wells for drinking water are maintained by the users. When pump repairing is required, the cost is contributed equally by neighbors using the pump.

B.8 Cenea Cluster ARC (No. 7-3)

a) Location

Cenea Cluster is located at southwestern astern in San Guillermo municipality which is southern portion of Isabala Province at right bank of Cagayan river. The Cluster is consists of five (5) Barangays named Centro I, Centro II, Nakar, Estrella and Anonang. And the Cluster is bounded on the northwest by Angadanan municipality, on the south by of Echague municipality and on the east by Dipasivi Cluster. Poblacion of San Guillermo is located in the Centro I and II Barangays.

b) Socio-Economic Conditions

The CENEA ARC Cluster includes five Barangays, namely Anonang, Centro I, Centro II, Estrella and Nakar. Barangay Estrella was named after the then DAR Secretary Conrado Estrella while Nakar was named after General Nakar an American who stayed in the area during World War II. Barangay Anonang took its name from the Anonang fruit that was abundant in the area during the time of its establishment. Many of the settlers of the CENEA cluster are Ilocanos, mostly coming from Tarlac, Nueva Ecija and Ilocos provinces.

The CENEA ARC Cluster has a total annual revenue allotment amounting to 1,428,000 pesos in 1999 that correspond to 299 pesos per head. It has a total population of 4,773 with a male-female population of 2,425 and 2,348, respectively. The number of households is 938 with an average family size of 5.1. The number of ARBs is 1,989. The female ARBs is 380, 13 of which belong to some organization.

The total land area of the Cluster is 2,030 ha. With a total agricultural area of 1,568 ha. About 778 ha is planted to corn while about 211 ha planted to palay. Banana area is the second largest with 438 ha. The DAR LAD working scope is 1,598. Of this, about 1,579 ha or 98.8 % has been distributed as of third quarter of 1999. The average landholding of an ARB is 1.01 ha.

c) Natural Conditions

Topographic Condition

Dipasivi Cluster has a total land area of 2,030. Land terrain of the Cluster is hilly area.

d) Agricultural Conditions

This cluster is located at the hilly area planted mainly with corn of about 778 ha. Banana

is planted at the periphery of cornfield and around streams totally in 438 ha. Rice is grown at the bottom of the valleys in small scale good for the local consumption.

Corn is grown twice a year in the wet season from April to September, yielding 60 to 70 cavans/ha, and dry season from November to March, yielding 50 cavans/ha. The production cost was 15,800 pesos/ha. The price was 6.50 pesos/kg in March, and 4.80 to 6.00 pesos/kg in September. Net income was 5,000 pesos/ha at most, and farmers found loss of money through corn growing (sayad). White corn is grown for home consumption. Banana is making better money than corn, and women produce banana vinegar as well as pineapple vinegar in small scale in the ARC.

Sweet potato, pineapple, papaya and cassava are grown in small scale. Avocado, pomelo, jackfruit, mango, coconut and tamarind are planted at the backyard. Vegetables as eggplant, squash, taro, pechay, radish, mustard, peanuts are backyard crops. A few heads of animals as Carabao, cattle, pig, chicken and duct kept at the homestead. Farmers need road, solar dry yard, capital for farming, draft animals, farm machines as hand tractor, tractor, corn sheller and irrigation pumps, and marketing of farm products. (refer to Table B-2-1)

e) Economic Condition of Farm Household

The average production for corn, irrigated and non-irrigated palay area 72, 85 and 30 cavan/ha, respectively. These are sold to the local traders in San Guillermo at 6.00 and 8.00 pesos, respectively. Banana is sold at 35 to 40 peso/100 pieces. The production of banana is about 40,000 pieces every two month. Banana production brings about 18,000 peso net income per hectare. After deducting the production cost of 10,000 peso/ha for corn, and 8,000 to 20,000 peso/ha for palay, the net income per hectare is estimated at 22,000 pesos for corn, 4,000 pesos for non-irrigated palay, and 44,000 pesos for irrigated palay for two cropping seasons.

The average ARB household with irrigation facilities generates around 25,000 pesos of total net income, while those without facilities earns about 15,000 pesos. About 97 % of average income are derived from farm income.

f) Farmer Beneficiaries and Organization

There are three organizations in the CENEA Cluster, namely, the San Guillermo Multi Purpose Cooperative Inc. located in Centro I and II, the Nakar Multi Purpose Cooperative Inc. and the Rural Improvement Club.

The San Guillermo MPCI was organized in 1988 and registered with the CDA in September 21, 1991. It has at present a CBU of 311,261 and savings of 10,767 pesos from

additional share collection and the birthday gift. The biggest share capital contributed by a member is only 2,580 while the smallest amount is 500 pesos. The total number of members is 335 with 120 female members and 215 male members. The activities of the cooperative are production loan and agro-processing using banana, pineapple and rootcrops, the by-product of which are banana chips and vinegar, pineapple vinegar and candy, cassava and ube powders. The main products produced are banana and pineapple vinegar. The LBP provided loan assistance to the cooperative for its production loan activities while the DOST provided multi-purpose drying machine, cash assistance for utensils and training to the cooperative. The cooperative's major problem at present is the collection of loan from members totally amounting to 2.57 million pesos. The amount was re-lend to 204 members, with maximum amount of loan amounting to 77,989 pesos for one member. The reasons cited for the poor collection/repayment were competition with traders, non-accessibility of borrower-member and calamity (drought and too much rain). The suggestions cited to make the cooperative more viable are re-structuring of loan with LBP, provision of transportation and communication and venturing into other business activities related to banana, pineapple and corn by-products.

The Nakar ARB Multi-Purpose Cooperative was organized in 1991 and registered with the CDA in 1992. Upon registration, it has 36 members. At present it has 65 members. The present activity of the Nakar ARB MPCI is the rental of 4-wheel tractor acquired in January 1999 through the DAR-CAP Program and the collection of loan payment from members. From 1992 to 1996, the main activity of the cooperative was the re-lending program from the share capital contribution. The cooperative has loaned out 73,000 pesos to 40 members. However, the activity was stopped in 1997 because of non-payment of loans by the members. The reasons cited for the non-payment of the loans is the drought and La Nina that occurred during the year.

The Rural Improvement Club, composed mostly of women are engaged mainly in the clean and green program of the Barangay. The RIC members attended training on dressmaking and food processing. The RIC had a fund raising activity in 1999. From the funds raised they were able to construct an RIC office. However, the fund generated was not sufficient, hence the building is still unfinished. They intend to raise additional capital for the completion of the building through beauty contest and other fund drive activities.

g) Marketing and Credit

The sale of products is carried out by the farmer individually. Both corn and banana are sold to the private traders in San Guillermo. Rice is mostly produced for home consumption.

The San Guillermo MPCI has obtained a working capital loan from the LBP in the amount of 2 million pesos in 1996 with an interest rate of 14 %. The MPCI has paid only the

interest amounting to 300,000 pesos. The cooperative is negotiating with the LBP for the re-structuring of their loan.

The Nakar MPCI was able to obtain a loan to acquire a four-wheel tractor from the DAR-CAP-PBD Program. The loan amount is about 1.8 million pesos payable within 5 to 7 years. The loan amortization is 200,000 pesos every six month. The Cooperative has so far paid only110,000 for its first amortization.

h) Agricultural and Rural Infrastructures

Irrigation System

There is no irrigation system in the Cluster. Only Nakar and Anonang Barangays have small irrigation pumps for rice cultivation of about 55 ha.

Road and Farm to Market Road

Total Length of barangay roads within Centro I, Centro II, Nakar, Estrella and Anonang are approximately 5.0 km, 1.5 km, 5.5 km, 4.8 km and 5.0 km respectively, but most roads are not paved by gravel or concrete.

Respective barangays are located at difficult terrain to access to the poblacion of San Guillermo. The Centro I and Centro II are the part of poblacion of San Guillermo. The route from each barangay to the poblacion is as shown below;

Barangay	Centro I	Centro II	Nakar	Estrella	Anonang
Concrete pave	-	-	-	-	-
Gravel pave	-	-	3.5 km	-	4.0 km
None paved road	-	-	-	2.5 km	-

Post-Harvest

There are solar dryer and MPP in the barangays for drying of rice and warehouse of each barangays as follows;

Barangay	Centro I			Centro II			Nakar		
	Nos.	Size	Area	Nos.	Size	Area	Nos.	Size	Area
Solar Dryer	1	15 x 28 m	420 sq.m	1	15 x 28 m	420 sq.m	1	15 x 28 m	420 sq.m
MPP	1	1000m x 4m	4000 sq.m	1	1000m x 4m	4000 sq.m	1	250m x 4m	1000 sq.m

Barangay	Estrella			Anonang		
	Nos.	Size	Area	Nos.	Size	Area
Solar Dryer	2	15 x 28 m	840 sq.m	2	15 x 28 m	840 sq.m
MPP	2	80m x 4m	640 sq.m	1	50m x 4m	200 sq.m

There is no mechanical dryer or warehouse in any barangay.

Water Supply System

There are wells as potable water resources of each barangay as follows;

	Centro I			Centro II			Nakar			Estrella			Anonang		
	H/H	Well	%	H/H	Well	%	H/H	Well	%	H/H	Well	%	H/H	Well	%
Level-1	325	97	30%	363	95	26%	104	17	16%	73	29	40%	73	9	12%
Level-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Level-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

It was not found remarkable bacteria in the drinking water from well, according to the simplified bacteriological testing paper.

i) Operation and Maintenance

Irrigation System

There is no irrigation system in the Cluster

Road and Farm to Market Road

In general, Barangay roads are maintained by Barangay councils with assistance of LGU. LGU provides heavy machinery and materials, and Barangay shoulders to supply fuel for machinery, food and miriyanda to operators and so on.

Water Supply System

Wells for drinking water are maintained by the users. When pump repairing is required, the cost is contributed equally by neighbors using the pump.

B.9 Minagbag ARC (No. 8)

a) History

Minagbag ARC located in the municipality of Quezon was established in 1994 that include two Barangays, namely Abut and Minagbag. Barangay Abut was declared part of Minagbag clusters only in October 1999. The ARC area was formerly a settlement area administered by the LASEDECO. Many emigrants settled in the area in 1954 due to the development of the Chico River Irrigation Project. Majority of the immigrants are Ilocanos and Pangasinenses. The ethnic group in the area are the Igorot and Kalingas. Barangay Minagbag derived its name from the criss-crossing creeks found in the area coming from the mountain slopes whom the residents call in their dialect "magbogan".

b) Location

Minagbag Barangay is located at the northern astern in Quezon municipality which is northwestern of the Isabela Province at left bank of Cagayan river. And the Minagbag is bounded on the west by Kalinga Apayao province and on the south by Abot Barangay. The Minagbag is traversed by National Highway to Tuguegarao.

c) Socio-Economic Conditions

The two Barangay had an annual revenue allotment amounting to 984,214 pesos in 1999 that correspond to 232 pesos per head. The two Barangays have a total population of 4,239 with a male-female population of 2,201 and 2,038, respectively. The number of households is 831 with an average family size of 5.1. Out of the 831 households, 219 or 26 % are ARBs. The number of female ARBs is 5, all of who belongs to some organization.

The total land area of the two Barangays is 6,695 ha. The ARC has a total agricultural area of 2,278 ha, of about 400 and 540 ha are planted to palay and corn, respectively. The DAR LAD working scope of about 713 ha. Of this, about 671 or 94.2 % has been distributed as of third quarter of 1999. The average landholding of an ARB is 3.1 ha.

d) Natural Conditions

Topographic Condition

The Minagbag has 3,952 ha of total land which consists of flat area with paddy land, slightly rolling hilly with corn or pasture land and mountains with forestry.

e) Agricultural Conditions

Rice is grown in 390 ha with irrigation and corn is grown in 400 ha with the natural rainfall. An average land holding is 1.8 ha per a farmer. Soils are clayey loam and soil erosion occurs at the undulated areas.

Rice is grown twice a year under irrigation from June to October, and from December to April. The first crop yielded 80 cavans/ha and was sold at 7.00 pesos/kg, earning 16,000 pesos/ha after deduction of 12,000 pesos/ha for production cost. The second crop produced 100 to 130 cavans/ha and was sold at 8.50 to 9.00 pesos/kg, making profit of 30,500 to 46,500 pesos/ha. Farmers apply IPM (Integrated Pest Management) for crop protection. Rain fed rice is grown once a year, planted in July and harvested in November, and yielded very well this year, 90 cavans/ha, compared with ordinary yield of 50 to 60 cavans/ha. The yield produced the net income of 19,500 pesos/ha.

Corn is grown twice a year, planted in April and harvested in July to August in the wet season, and planted again in November and harvested in March in the dry season. It yielded 30 to 40 cavans/ha in the wet season, sold at only 4.00 pesos/kg, losing from the crop or making even the crop this year, but the dry season yields 60 cavans/ha, and were sold at 5.00 pesos/kg, earning 7,000 pesos/ha.

Vegetables such as bitter gourd, egg plant, tomato, mung bean, pea nut, squash, string bean and chili are grown at the backyard, and the first five vegetables earn good money when they are sold to the local market. Fruit trees as mango, calamansi, star apple, banana, santol, guava, avocado, tamarind, pineapple, guyabano and chico are grown at the backyard, the surplus is sold to the local market. Farmers need irrigation, farm to market road, solar dry yard and canal rehabilitation. Rice tungro virus causes loss of yield. (refer to Table B-2-1)

f) Economic Condition of Farm Household

The average production for corn and palay are 35 and 70 cavans sold to private traders at 6.00 pesos and 8.00 peso/kg, respectively. After deducting the production cost of 10,000 peso/ha for corn and 12,000 peso/ha for palay, the net income per hectare is estimated at 1,000 pesos for corn and 32,000 pesos for palay for two cropping seasons.

Swine breeding is common off-farm income source with approximately 20 heads being sold to the market annually accruing a net income of about 30,000 pesos on a total ARC basis. The average ARB household generates around 32,068 pesos of total net income, 93 % of which are derived from farm income.

g) Farmer Beneficiaries and Organization

There are three organizations in the ARC, namely, the Epiphany Multi Purpose Cooperative Inc., Minagbag Multi Purpose Cooperative Inc. and the Rural Improvement Club, with a total member of 426, 182 and 81, respectively.

The Ephipany MPCI was organized in 1989 and registered in 1990 with CDA with a total CBU of 224,000 pesos. It has at present a CBU of 7.3 million pesos. The sources of funds of the cooperative are from share capital, savings deposit, time deposit, grants-in-aid, loan from LBP and DTI. The cooperative cash/bank on hand amounts to 399,417. Saving and time deposit generated is some 1.3 million pesos.

The present activities of the Epiphany MPCI are production and providential loan, palay marketing, agri-input trading and mini-banking operations. The assets of the cooperative are land, building, solar dryer, store and office, transport/service vehicle. The reasons cited for success of the cooperative are leadership and management capability, financial stability/liquidity, systematic record keeping and documentation, savings mobilization, etc. The needs cited by the cooperative are additional solar dryer, warehouse, transportation for hauling and the completion of the cooperative building to house the training and clinic center. The cooperative plans and program include review of cooperative existing policies and amendment of obsolete ones; increase membership capital share; savings mobilization campaign and the provision of full time management team. It also has plans to engage in other activities like palay trading, health care services, mini-rice mill operation and consumer store operation.

The Minagbag MPCI was organized in 1989 and registered with CDA in 1995 with 182 total members, 90 of who are ARBs. The cooperative has been inactive since 1998 due to non-payment of loans by members.

The Rural Improvement Club, composed mostly of women are engaged mainly in the clean and green program of the Barangay. The RIC members attended training on dressmaking, soap making, meat processing, quilting and decorative ball making. Except for the clean and green activity, the RIC is inactive. However, the RIC was able to facilitate construction of RIC building through fund raising activities in the 1980s.

h) Marketing and Credit

The sale of products is carried out by the farmer individually. Both palay and corn are sold to the private traders. However, through the Epiphany MPCI, some palay products are sold to the NFA. Livestock products are sold to private individuals.

The Epiphany and Minagbag MPCI were able to obtain loan from the following agencies, as follows:

Type	Source & Year	Amount in Pesos	Interest Rate	Repaid Amount	% of Capital Repaid	Main reason for Non-Payment
Epiphany MPCI:						
RDCL	LBP-	1,963,500	14%			Loan due is paid on time
Micro-Livelihood Projects	DTI	900,000	%			Loan due is paid on time
Minagbag MPCI						
IPHF	DAR-DBP	4,229,000		72,000	.01%	Loans are long due
Production Loan	LBP	1,200,000				
Trading Loan	FICO Bank	350,000				
Seed Loan	CVIARC	45,000		10,000	22%	

The collection payment of the Epiphany MPCI is 98 % from 1995-1997. However, in 1998, re-payment rate has decrease to 85 %. The cooperative officers are very confident that the loan balances of members will be re-paid after the next cropping season. The reason cited for non-payment of loan is the calamity (El Nino and La Nina) that occurred in 1998.

The type of loans provided by the Epiphany MPCI are livestock loan, production loan and providential/emergency loan. The rate of interest is 18% per annum. The total amount of loan extended to 312 members is about 11.4 million. The security to the loans' are share capital, savings deposit and land titles. The members are given collection letter once their loan is not paid on due date.

j) Agricultural and Rural Infrastructures

Irrigation System

Out of 909 ha farm land, 500 ha is irrigated by three (3) lateral canals named Lat.A extra, A'-1 and DC-2 extension canals with total length of 9.3 km diverted from Chico River Irrigation System (CRIS) under NIA. Minagbag SRIS (Small Reservoir Irrigation System) with command area 70 ha, was constructed in 1970 by NIA and taken over to IA, however, after implementation of CRIS in 1973, Minagbag SRIS had been involved in NIS. And on-going project implemented by DPWH named Mingbag SWIP is now under construction.

Road and Farm to Market Road

National Highway to Tuguegarao with concrete pavement traverses in the Minagbag and distance to poblacion of Quezon is eight (8) km away. Length of farm roads is 24 km, and about 5 km is in town proper area within the Minagbag.

Post-Harvest

Solar dryer, MPP as a dryer and warehouse are shown below;

	Number	Size	Total area
Solar Dryer	22	25 x 18 m	9,900 sq.m
MPP	1	50 x 4 m	200 sq.m
Warehouse	1	-	-

There is no mechanical dryer.

Potable Water Supply System

There are wells as potable water resources as follows;

	House Hold	Well	Percentage
Level –1	465	43	9 %
Level –2	0	-	-
Level –3	0	-	-

It was not found remarkable bacteria in the drinking water from well, according to the simplified bacteriological testing paper.

k) Operation and Maintenance

Irrigation System

NIA responds to maintain two(2) lateral canals on major works with machinery such as repairing eroded inside slope of canals. According to interviews of IA members, IA also engages maintenance of lateral canals once a month other than major works. And farm ditches are fully maintained by IA in cutting grass and repairing the slope before irrigation season starts. And IA pays 2 cavan/ha at wet and 3 cavan/ha at dry season for water charge.

Road and Farm to Market Road

In general, Barangay roads are maintained by Barangay councils with assistance of LGU. LGU provides heavy machinery and materials, and Barangay shoulders to supply fuel for machinery, food miriyanda to operators and so on. In the case of rehabilitation carried out in 1999 march, according to interview to officials, Barangay councils shouldered fee of hiring machinery from LGU, labor cost and even gravel materials.

Potable Water Supply System

Wells for drinking water are maintained by the users. When pump repairing is required, the cost is contributed equally by neighbors using the pump.

B.10 Cabaruan ARC (No. 9)

a) History

Cabaruan ARC located in the municipality of Naguillian was established in 1994 that include one Barangay, namely Cabaruan. The Barangay founded in the 1920s was formerly a logging area. Its residents are migrants, mostly coming from Nueva Ecija and Ilocos Province. The word "Cabaruan" is an Ilocano term meaning "newest".

b) Location

Cabaruan Barangay is located at southwestern astern in Naguilian municipality which is mostly center of Isabela Province at right bank of Cagayan river. The Cabaruan is approximately 13 km away from poblacion of Nagulian. And it is bounded on the north by Flores Barangay, on the south by Caunayan Creek, on the east by Manaring and on the west by Minanga Barangays.

c) Socio-Economic Conditions

The Barangay has an annual revenue allotment amounting to about 300,600 pesos that correspond to 239 pesos per head. It has a total population of 1,085 with a male-female population of 555 and 530, respectively. The number of households is 279 with an average family size of 3.9. Out of the 279 households, 252 or 90 % are ARBs. The number of female ARBs is 18, 7 of who belong to some organization.

The total land area of the Barangay is 2,968 ha. The Barangay has a total of 513 ha of agricultural land, 320 ha of which are planted to corn and 183 ha to palay. The DAR LAD working scope of about 301 ha has been totally distributed as of third quarter of 1999. The average landholding of an ARB is 1.4 ha.

d) Natural Conditions

Topographic Condition

The Cabarugan has a total land area of 2,968 ha of which farm land is 513.0 ha with mixed area of flat and hilly. About 30 % of farm land is cultivated by paddy in low land and 70 % is by corn in upland.

e) Agricultural Conditions

The total agricultural land is 513 ha, 320 ha are planted with corn and 183 ha with rice.

Soils in the field are clayey loam. A Farmer holds about 1.0 ha on average.

Yellow corn is grown twice a year with natural rainfall from April to August in the wet season, and from September to February in the wet season. Average yield in both seasons is 70 cavans/ha, and the price fluctuates from 3.00 to 6.00 pesos/kg, and earns around 10,000 pesos/ha. Once calamity happens, farmers obtain no benefit from corn production due to low yield.

Out of 200 ha rice fields, 100 ha is irrigated from small farm reservoir or by water pumps. At the bottom of hills, some springs supply irrigation water. Average yield is usually 70 cavans/ha in the wet season from June to November, 80 cavans/ha from December to March in the dry season. Price of rice ranges from 6.50 to 8.00 pesos/kg. The cost of production is estimated around 12,000 pesos/ha. The net income from rice production is worked out 12,000 pesos to 24,000 pesos/ha.

Root crops, vegetables and fruits are grown at the backyard, but one farmer who is a board director of mango growers association produces seedlings of mango and citrus in a large scale. Animals are kept in a small scale, 208 Carabaos, 126 cattle, 258 pigs, 20 goats and uncountable chickens and ducks in this ARC. There are 31 small fishponds in the ARC. Farmers need capital for farming, marketing of fruits, road, solar dry yard. (refer to Table B-2-1)

f) Economic Condition of Farm Household

The average production for corn and palay are 50 and 90 cavans sold to private traders at 6.00 and 8.00 peso/kg, respectively. After deducting the production cost of 10,000 peso/ha for corn and 12,000 peso/ha for palay, the net income per hectare is estimated at 24,000 pesos for corn and 20,000 pesos for palay for two cropping seasons.

There are a variety of off-farm income sources in the ARC area such as livestock, animal rent and orchard production, mainly mango and calamansi. The other income sources are mango spraying and transportation due as a consequence of orchard production. The average ARB household generates around 40,325 pesos of total net income, 95 % of which are derived from farm income. The average household earns more or less 2,000 peso from off-farm sources.

g) Farmer Beneficiaries and Organization

There are two organizations in the ARC, namely, the Cabaruan Mannalon Multi Purpose Cooperative Inc. (CAMAMCO), and the Isabela Green Ladies Organization (IGLO), with a total member of 122 and 65, respectively.

The CAMAMCO was organized in 1991 and registered with CDA in 1992. It has at present a CBU of 5,000 pesos. The cooperative own a 1,000 sq. m residential lot. The main

activity of the MPCI is the collection of loan payments. The other activities are cattle dispersal and scheduling of use of solar dryer. The DA provided the cooperative 10 cattle and one bull. The number of offspring produced was 8 dispersed to other cooperative members by draw lot. Succeeding offspring will continuously be dispersed in the future.

The CAMAMCO has been assisted by LBP from 1993. However, it started encountering loan collection problem from 1996. The CAMAMCO became inactive from 1998 due to problems on non-payment of loan by some members. Many members, especially the paying members want to re-activate the cooperative after realizing that their community will not get projects unless they are organized. The good paying members are planning to organize a sub-group composed of interested and good paying members so that they can be provided continuos assistance by LBP.

The IGLO, composed mostly of women are engaged mainly in the clean and green program of the Barangay. The IGLO members attended training on quilting, basket weaving and food processing. Except for the clean and green activity, the IGLO is inactive.

h) Marketing and Credit

The sale of products is carried out by the farmer individually. Both rice and corn are sold to the private traders in Cauayan. Rice production is low and mostly for home or Barangay consumption. Livestock products are sold to private slaughters while fruits are sold to the market directly by the farmers themselves.

The common source of credit is the private traders within the Barangay with interest rate of 30 % per cropping. The private traders assist the borrower in the marketing of the produce by providing transportation. The Barangay lender together with the farmer brings the produce to the private traders in Cauayan. By so doing, the lender can immediately be paid after the sale of the farm product. Farmer pays 0.10 centavos per kilo for transport cost from Cabaruan to Cauayan.

The cooperative obtained a loan from LBP in 1993 and was re-lend to 42 cooperative members as production loan in the amount of 6,000 peso/ha. In 1996 and 1997, the cooperative again secured loan from LBP. It was during this period that many members have not paid their loan. About 10 % have fully paid loans, 60 % had partial payments and 30 % have no payments. The reason cited for non-payment of loan is the occurrence of calamity that affected their crops and the non-payment of crop insurance. The interest rate was 20 % per annum payable after each cropping season. The total cumulative loan of the cooperative in 1997 was 800,000 and this increased to 1,532,354 in 1999 due to surcharges and penalty. The good paying members pay directly their loan to LBP. The loan obtained from the cooperative was used to buy farm inputs such as seeds, fertilizers and chemicals. The majority of MPCI members are willing to pay their

loan to LBP. However, some 30 % of member borrowers are not willing to pay their loan.

j) Agricultural and Rural Infrastructures

Irrigation System

There is no irrigation system in the brangay. However, approximately 100 ha of paddy land is irrigated by 30 numbers of Small Farm Reservoir (SFR) funded by DA, 8 numbers of small irrigation pumps and springs.

Road and Farm to Market Road

Distance of market road to pobalacion of Naguilian is about 10 km, and access to National Highway with crossing Cagayan river is 8 km. Total Length of barangay roads within the ARC is 15 km.

Post-Harvest

Solar dryer, MPP as a dryer and warehouse are shown below;

	Number	Size	Total area
Solar Dryer	2	15 x 28 m	840 sq.m
MPP	1	2.5m x 210m	525 sq.m

There is no mechanical dryer and warehouse.

Water Supply System

There are wells as potable water resources as follows;

	House Hold	Well	Percentage
Level –1	226	26	12 %
Level –2	0	-	-
Level –3	0	-	-

It was not found remarkable bacteria in the drinking water from well, according to the simplified bacteriological testing paper.

k) Operation and Maintenance

Irrigation System

Small pump facility owned by individual are maintained by users. And SFR funded by DA maintained by Barangay councils.

Road and Farm to Market Road

In general, Barangay roads are maintained by Barangay councils with assistance of LGU. LGU provides heavy machinery and materials, and Barangay shoulders to supply fuel for machinery, food and miriyanda to operators and so on. In the case of concrete pavement (L=210 m, W=2.5 m) of municipal road. in the Barangay constructed in 1999 August, construction cost was shared by Municipal government and Bgy. Council of which rate was 50 to 50 %. Municipal government supplied materials such cement, reinforcement, gravel and sand, and Bgy provide same materials and villagers contribute manpower as labor. (Barangay council is composed 7 councilors. Each councilor is responsible for 30 m length of constructed pavement.)

Water Supply System

Wells for drinking water are maintained by the users. When pump repairing is required, the cost is contributed equally by neighbors using the pump.

B.11 Capirpiriwan ARC (No. 10)

a) History

Capirpiriwan ARC located in the municipality of Cordon was established in 1994 that include one Barangay, namely Capirpiriwan. The Barangay's name was derived from a bird named "pirpiriwan" that was found dominant in the area in the early 1950's. Its residents are mostly Ilocanos coming from Pangasinan and Ilocos Province.

b) Location

Capirpiriwan Barangay is located at the southwestern part Cordon Municipality which is at the southern most of the Isabela Province at left bank of Cagayan river. The Capirpiriwan is traversed by South High Main canal of MRIIS and National Highway. It is bounded on the north by Wigan, on the south by Sagat, on the east by Turod Sur and on the west by Caquilingan Barangays respectively. The Capirpiriwan is traversed by National Highway to Tuguegarao. The ARC is only one (1) km away from poblacion of Cordon town and away from ten (10) km from Santiago city.

c) Socio-Economic Conditions

The Barangay has an annual revenue allotment amounting to 561,699 pesos in 1999 that correspond to 203 pesos per head. It has a total population of 2,772 with a male-female population of 1,403 and 1,369, respectively. The number of households is 630 with an average family size of 4.4. Out of the 630 households , 81 or 12 % are ARBs. The number of female ARBs is 6, all of who belong to some organization.

The total land area of the Barangay is 1,322 ha. The Barangay has agricultural area of 370 ha, 179 ha of which are planted to corn, 77 ha to irrigated palay and 38 ha to non-irrigated palay. The DAR LAD working scope is about 140 ha, of which about 125 ha or 88 % has been distributed as of third quarter of 1999. The average landholding of an ARB is 1.5 ha.

d) Natural Conditions

Topographic Condition

Capirpiriwan Barangay has a total land area of 1,322 ha with mixture flat and hilly land.

e) Agricultural Conditions

Corn is grown in 179 ha and rice in 47 ha with irrigation and 55 ha without irrigation. Soils are clay and soil erosion is in progress at the slope of hills. Land holding of a farmer is 1.0 ha on average.

Corn is grown twice a year in the wet season from June to October and in the dry season from November to April, yielding 75 cavans/ha on average in both seasons. But many farms in the slope are left abandoned because price of corn was low these days. Farmers sometimes lose money from corn production. Rice is grown at the bottom of narrow valleys where water is collected. Where the fields are irrigated, rice is grown twice a year in the same season as corn, but once a year with natural rainfall. Rice yields 70 to 100 cavans/ha with irrigation and 42 cavans/ha without irrigation.

Root crops are grown, such as sweet potato and cassava. The other vegetables as string bean, mung bean, peanut, bitter gourd, eggplant and kankon are planted in small scale. Carabao, cattle, pig and goat, and chicken are kept in small scale. Farmers need irrigation, road and solar dry yard. (refer to Table B-2-1)

f) Economic Condition of Farm Household

The average productions for corn, irrigated palay and non-irrigated palay are 33, 70 and 42 cavan/ha sold to private traders at 6.00 and 8.00 peso/kg, respectively. After deducting the production cost of 8,000 peso/ha for corn, 12,000 peso/ha for irrigated palay and 5,000 pesos for non-irrigated palay, the net income per hectare is estimated at 3,800, 32,000 and 6,800 pesos, respectively for two cropping seasons.

Swine breeding is common off-farm income source with approximately 20 heads being sold to the market annually accruing a net income of about 30,000 pesos on a total ARC basis. The average ARB household generates around 10,975 pesos of total net income, 27 % of which are derived from farm income. The average household earns more or less 8,000 peso from off-farm sources.

g) Farmer Beneficiaries and Organization

There are two organizations in the ARC, namely, the Rang-ayan Multi Purpose Cooperative Inc., and the Rural Improvement Club Auto Savings Group, with a total member of 119 and 46 respectively.

The Rang-ayan MPCI was organized in 1991 and registered with CDA in April 1995 with

total membership of 64. The MPCI was re-organized in 1996 and new officers were elected. The Cauacan Farmer's ASG was merged with the MPCI to increase the MPCI's CBU and membership. It has collected a capital build-up of 20,586 pesos. From the organization's collected CBU, it started providing loans to members. However, the lending operation has stopped because of the non-payment of loan by members. Due to the non-payment of loans, the cooperative has become in-active. The officers are trying to re-activate the cooperative by tapping the LBP, DAR and other national elected officials for financial resources. However, the cooperative cannot meet the criteria required for obtaining loan. The Cooperative's present cash on hand and cash on bank is only 1,300 pesos. The Cooperative owns 4 post harvest facilities (420 sq.m) acquired as grants from various sources like DA, Congressional funds, etc.

The RIC, composed mostly of women are engaged mainly in the clean and green program of the Barangay. The RIC members have stopped their auto-saving's activity.

h) Marketing and Credit

The sale of products is carried out by the farmer individually. Both rice and corn are sold to the private traders in Santiago. Rice production is low and mostly for home or Barangay consumption. Livestock products are sold to private traders by farmers themselves.

The common source of credit is the private traders within the Barangay with interest rate of 30 % per cropping.

The cooperative provided loan to members with amounts ranging from 500 to 1,000 pesos with interest rate of 40 % per cropping. The amount loaned out was taken from the collected capital share. However, the members have not paid their loans citing calamity as reason for non-payment of loan. The MPCI has collectible accounts of 19,190 from its members.

j) Agricultural and Rural Infrastructures

Irrigation System

Out of a total land area of 1,278 ha within the barangay, farm land is 1,177 ha of which areas of 46.5 ha are irrigated by South High Main canal of MRIIS. And other agricultural lands of 15 ha are irrigated by small deep tube well pumps.

Road and Farm to Market Road

National Highway to Manila with concrete pavement traverses in the ARC and distance to poblacion of Cordon is one (1) km away. Length of farm roads is 24 km, and about 6 km is in town proper.

Post-Harvest

There are solar dryer, MPP as a dryer and warehouse in the Capirpiriwan as follows;

	Number	Sizes	Total area
Solar Dryer	6	15 x 28 m	2,520 sq.m
MPP	2	60 m x 4 m	480 sq.m
Warehouse	3	-	-

There is no mechanical dryer.

Potable Water Supply System

There are wells as potable water resources as follows;

	Town Proper			Sitio Estampa			Sitio Canacan			Sito Cama		
	H/H	Well	%	H/H	Well	%	H/H	Well	%	H/H	Well	%
Level-1	225	11	5%	105	11	10%	105	10	10%	53	5	9%
Level-2	75	38	51%	0	-	-	0	-	-	0	-	-
Level-3	68	-	-	0	-	-	0	-	-	0	-	--

k) Operation and Maintenance

Irrigation System

NIA responds to maintain South High Main canal. Deep tube well small pump owed by individual beneficiaries maintained by users.

Road and Farm to Market Road

In general, Barangay roads are maintained by Barangay councils with assistance of LGU. LGU provides heavy machinery and materials, and Barangay shoulders to supply fuel for machinery, food and miriyanda to operators and so on.

Water Supply System

Wells for drinking water are maintained by the users. When pump repairing is required, the cost is contributed equally by neighbors using the pump.

B.12 Fermeldy ARC (No. 11)

a) History

Fermeldy ARC located in the municipality of Tumauini was established in 1994 that includes one Barangay, namely Fermeldy. The Barangay residents are mostly Ibanags, however, the original residents of the ARC are the Gaddangs. The former name of the Barangay was San Francisco derived from the former owner whose name is Francisco. In 1972, the land was covered by OLT under PD 27. When the Barangay was subdivided into two under the reign of Mayor Romarico Eugenio, the southern part was named Fermeldy in commemoration of President Ferdinand Marcos, Imelda Marcos and Gov. Faustino Dy.

b) Location

Fermeldy Barangayis located at 2 to 3 km northern away from right bank of Cagayan river in northern astern in Tumauini municipality which is northern part of the Isabela Province. And town proper of the Fermeldy is approximately five (5) km away from National Highway to Tugeugarao. And the Fermeldy is bounded by Moldero Barangay on the north, on the south by Malamag West Barangay, on the east by Santa Barangay and on the west by Fugu Norte Barangay.

c) Socio-economic Conditions

The Barangay has an annual revenue allotment amounting to 413,269 pesos in 1999 that correspond to 287 pesos per head. The staple food of the residents is corn. It has a total population of 1,438 with a male-female population of 750 and 688, respectively. The number of households is 257 with an average family size of 5.6. The numbers of total ARBs are 439 of which 15 are female ARBs, 1 of who belong to some organization.

The total land area of the Barangay is 519 ha. The ARC has a total agricultural area of 311 ha, and 306 ha of which are planted to corn. Tobacco is alternately planted to some corn areas during the dry season. The DAR LAD working scope is about 477 ha. Of this, about 368 ha or 77.3 % has been distributed as of third quarter of 1999. The average landholding of an ARB is 0.83 ha.

The Plan International, an NGO has supported the Barangay for 10 years until June 1999. It has provided projects, such as, two units of solar dryers, construction of day care center, and construction of 44 units of low cost housing for the poor. According to the Barangay officials, the Plan International projects have improved the standard of lifestyle of the villagers and contributed to the improvement of malnourished children.

d) Natural Conditions

Topographic Condition

The Fermeldy has a total land area of 519 ha of which farm land is 311 ha with flat and hilly area.

e) Agricultural Conditions

Corn is grown in 306 ha, and 20 % of them (61 ha) are planted with tobacco. The ARC is located at the river terrace with sandy loam. Average holding of a farmer is 1 to 2 ha. Cropping intensity is 200 % in the ARC. The area is often flooded when the water level becomes very high in the Cagayan river, and the flood makes permanent water pool at the center of the corn fields, which makes hard to cross over.

Corn is grown twice a year in the wet season from April to September, yielding 30 to 40 cavans/ha, and in the dry season from October to March, yielding 40 to 50 cavans/ha. Corn was sold at 4.00 pesos/kg in September and at 4.50 to 4.80 pesos/kg in April to private traders. The cost of production was 9,000 pesos/ha, earning merely 3,000 pesos/ha at most. Tobacco is grown from December to May, yielding 8 to 9 bails/ha, and mung bean from September to November, then Corn from April to September in some fields. The variety of tobacco is conventional Native tobacco. A bail of tobacco was sold at 1,500 pesos. The production needed 14,000 pesos for tobacco, where tobacco made just even or loss of income.

Tobacco is grown at 20 % of the fields and mung bean at 10 %, other vegetables as egg plant, tomato, okra, squash, bitter gourd, etc., and fruit trees at the backyard. Animals such as Carabao, cattle, pig, chicken and goat are kept in small scale at the homestead. Farmers need farm machines (tractor, corn sheller), financial support, irrigation system and solar dry yard. They suffer from flood and insects difficult control. (refer to Table B-2-1)

f) Economic Condition of Farm Household

The average production for corn and irrigated rice are 60 cavans sold to private traders at 6.00 peso/kg. After deducting the production cost of 10,000 peso/ha, the net income per hectare is estimated at 16,000 pesos for two croppings. Rice produced is for home consumption and very seldom monetized.

Swine breeding is common off-farm income source with approximately 50 heads being sold to the market. The selling of swine annually brings about a net income of about 75,000 pesos on a total ARC basis. The average ARB household generates around 37,000 pesos of total net

income, 98 % of which are derived from farm income.

g) Farmer Beneficiaries and Organization

There are two organizations in the ARC, namely, the Masuerte Multi Purpose Cooperative Inc. and the Fermeldy Auto Savings Group, with a total member of 65 and 33, respectively.

The Masuerte MPCI was organized in 1989 and registered with the CDA in the same year with a CBU of 10,800 pesos. It has at present a CBU of 4,850 pesos.

The cooperative has been supported by LBP from 1990 to 1994. The loan from LBP has not been paid and is long overdue. Due to the loan problem with LBP it became inactive and dormant since 1995. The cooperative started to re-organize in 1999. On August 1999, it elected its new set of officers. The members are required to pay a share of 200 pesos each for 5 cropping season. Initially members pay the capital share of 200 pesos and membership fee of 50 pesos as starting fund. Only 20 of 65 members have paid their capital share. The cooperative's present activity is the collection of share capital.

The major disappointment of the cooperative is the non-payment of loan to the LBP that caused it's downfall and failure. The cooperative members cited that the re-organization will have a chance to succeed because of the following reasons: willingness of the cooperative members to revive the organization; new members and officers are younger and with college degree/education; they have already learn from the failure of the past. The members have cited that to make the cooperative sustainable and viable they have to intensify capital share collection and request for re-structuring of loan with LBP. The cooperative have plans to merge with the existing Auto Savings Group to increase share capital and membership.

The Fermeldy Auto Savings Group (FASG) is an informal organization established in 1994 with initial members of 20, all male. Its members have increased to 33 in 1999 with one female member. The FASG has a capital build-up of about 37,000 pesos. The present activities of the FASG are production and providential credit to its members and the continuos' collection of capital share of 200 pesos every cropping season. The FASG provide credit to its members using the capital share collection. The Group intend to secure loan from lending institutions and to engage in other activities like marketing and sale of inputs.

h) Marketing and Credit

The sale of products is carried out by farmers individually. Both rice and corn are sold to the private traders. Livestock products are sold to private slaughters.

The Masuerte MPCI obtained a loan from LBP in 1991 in the amount of 273,480 with interest rate of 12 % and penalty rate of 3 %. The amount of 31,552 has been re-paid. The cooperative loan balance was due on June 1993. However, payment has not been made. The balance of 241,928 pesos has increased to 527,151 in 1999 that includes interest and penalty. The reason cited for the non-payment of loan by members is the calamity and the non-payment of calamity insurance by PCIC.

The loan from LBP was re-lend to the original 27 cooperative members in 1990-1991 in the amount of 6,000 peso/ha. Only one member has paid his loan in full while five members have made partial payments. The production loans obtained from the cooperative were used to buy farm inputs such as seeds, fertilizers and chemicals. The MPCI is willing to pay their loan to LBP but is requesting the condonation of loan interest and penalty.

The MPCI also obtained loan from QUEDANCOR in the amount of 1.3 million pesos with interest rate of 14 % per annum for trading capital. Amount repaid is some 134,900 pesos.

j) Agricultural and Rural Infrastructures

Irrigation System

There is no irrigation system in the ARC.

Road and Farm to Market Road

The Fermeldy is five (5) km from National Highway and 12.5 km away from poblacion of Tumauini. Length of farm roads within the barangay is 1 km, and 1.5 km is in town proper area.

Post-Harvest

There are solar dryer and MPP as a dryer for corn in the ARC and warehouse as follows;

	Number	Dimensions	Area
Solar Dryer	8	15 x 28 m	3,360 sq.m
MPP	0	-	-

There is no mechanical dryer and warehouse.

Potable Water Supply System

There are wells as potable water resources as follows;

	House Hold	Well	Percentage
Level –1	254	60	24 %
Level –2	0	-	-
Level –3	4	4	100 %

Level – 3 in the above table means water supply system with tap in the house from pump with engine.

It was not found remarkable bacteria in the drinking water from well, according to the simplified bacteriological testing paper.

k) Operation and Maintenance

Road and Farm to Market Road

In general, Barangay roads are maintained by Barangay councils with assistance of LGU. LGU provides heavy machinery and materials, and Barangay shoulders to supply fuel for machinery, food and miriyanda to operators and so on.

Potable Water Supply System

Wells for drinking water are maintained by the users. When pump repairing is required, the cost is contributed equally by neighbors using the pump.