



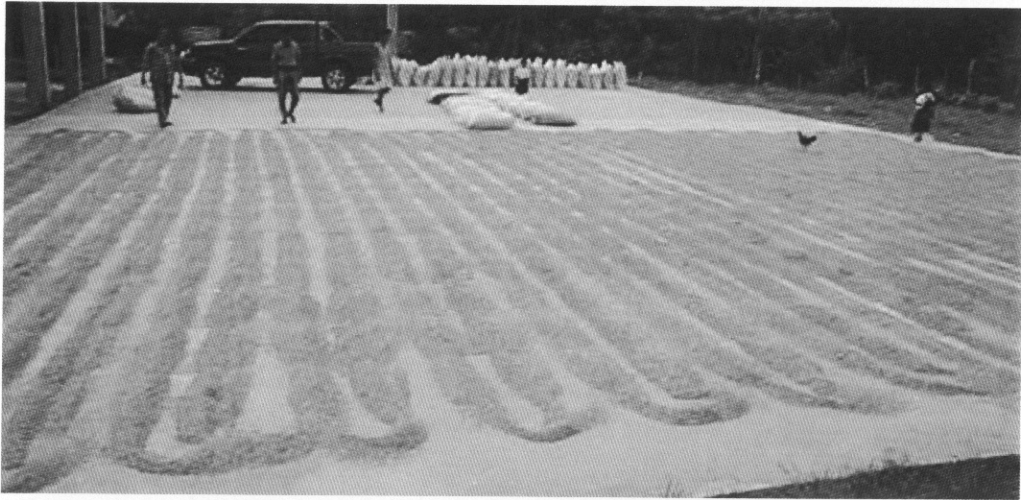
Irrigated paddy field before land preparation works. Farmers plant paddy nighttime without consideration of rainfall due to presence of irrigation water.



Paddy seedbed in the flat area. HYV variety is commonly used in irrigated areas. 5- Paddy cropping for 2 years is possible with sufficient irrigation water. Intercropping of mungbean between paddy cultivation during the wet and dry seasons will contribute to the increase in soil fertility and income of farm household.



Sloped upland field. Main crop planted is corn. Areas planted to corn with low benefit will be converted to other high value crops lands. Banana is one of the high value crops. However, transportation of banana becomes a problem during the rain season due to poor road conditions. Banana chips and vinegar from banana are by-products currently being processed by some farmer's organizations but in limited quantities.



Solar dryer for paddy. Few farmers use this facility. A middleman engaged in grains buy and sell use this facility for drying paddy bought from farmers at much lower price due to presence of moisture content of more than 14%.



In the Isabela Settlement, pineapple is planted instead of com. Farmers prefer the fruit because it can withstand long transportation due to its long shell life.



Calamansi is one alternative crop planted in the ARC areas. However, the same harvesting time lowers the price of calamansi. There is a need to introduce high quality variety in the area.

Summary

1 Master Plan Study

1. Problems and Constraints of ARC

The summary presents major problems and constraints of the existing Agrarian Reform Communities (ARCs) in the Study Area.

(Natural Conditions of the Study Area)

- 1.1 The Study Area consists of 23 ARCs/Clusters in the Isabela province (hereinafter referred to as “the Study Area”) that the Department of Agrarian Reform (DAR) identified on May 1999. Since the Isabela Settlement has a vast acreage, the three (3) clusters in the Settlement Area were each treated independently as one ARC. The Study Area has a total area of about 28,500 ha. The Study Area is classified into three (3) areas from the topographical point of view such as, plain area, hilly area and mixture area (composed of plain and hilly areas). 12 ARCs were classified as plain area, six (6) ARCs as mixture area and the remaining five (5) ARCs/Clusters as hilly area.
- 1.2 The Study Area has two (2) seasons, which have climatic features of no clear pronounced dry season from January to April with much-rainfall periods from May to December. This is one constraint of rainfed farming because climatic conditions vary from year to year. At the later period of the rainy season, less sunshine hour of 3.7 hr/day on the average occurs. The many rainy days of 13.7 in a month on the average affect drying of farm produce during the period from September to December, which is the harvest season for palay and corn.
- 1.3 The soil in the target ARCs vary from sandy loam to clay. Sandy loam is found at the river terraces while clayey soil is found in the hilly areas. The soil is not generally fertile, but good for cultivation if well managed. The soils at the slope area are exposed to erosion affecting soil fertility. The soil is slightly acidic at around pH5.9 or 6.0. However, these soils do not affect the farming practices.

(Present Conditions of Agriculture)

- 1.4 In areas with irrigation system located in the plain and at the bottom valleys of the hills, palay is grown twice a year. Corn is grown at the slope of the hills or at the flat fields of the river terraces. Vegetables and fruit trees are grown at the backyard for home consumption. Banana is grown in the hilly areas in Isabela Settlement and Progreso ARC. Carabao, cattle, pig, goat, and chickens, etc. are raised at the backyard for domestic use in small scale.

- 1.5 From the topographic and irrigation systems point of view, the farming type of the Study Area is classified into three (3) categories such as (a) two cropping of palay on almost flat land with irrigation system, (b) mixture of flat & hilly areas and the River terraces, where corn is mainly grown twice a year, and (c) almost sloped hilly area that is far from the market, where corn is mainly grown and banana is planted. An Agrarian Reform Beneficiary (ARB) owns one (1) to three (3) ha of a farm land, 2.1 ha on the average. However, ARBs in Isabela Settlement received a wider area of 4.3 ha on the average.
- 1.6 The total palay produced in the Study Area in 1997 is 42,240 MT equivalent to 8.5% of the total palay production of 497,352 MT in the whole Isabela province in the same year. The average palay yield is about 97 cavans/ha in the wet season and 106 cavans/ha in the dry season in almost flat areas with existing irrigation system. The post harvest loss of 5% is recorded due to insufficient drying places. This is one cause of low agricultural productivity.
- 1.7 Corn produced in the Study Area in 1997 is 57,568 MT while the whole Isabela province produced 728,565 MT in the same year. The share of crop produce from the Study Area is about 7.9 % of the provincial corn produce. Corn yield is decreasing in the sloped land. The corn yield is 78 cavans/ha in the wet season and 73 cavans/ha in the dry season in the mixture area category. In the almost hilly category, the average yield is 70 cavans/ha in the wet season and 72 cavans/ha in the dry season. A solar dryer is used for drying corn. The post harvest loss is estimated at 5%. Many farmers in the Study Area signified their interest to have a solar drying facility.
- 1.8 Most typical cropping patterns in the Study Area are two times mono-cropping of palay and/or corn. The farmers believe that palay cropping is more important than corn cropping because of higher profitability of palay. Other than palay and corn mono-cropping, other cropping patterns practiced in the Study Area are corn and tobacco, and/or corn, mung bean and tobacco, and/or cropping of palay and corn, however on a limited area. The farmers have less knowledge/information on other cash crops. Hence, farm household income is still low.

(Present Condition of Livelihood Project)

- 1.9 The livelihood projects that the women's organization in the rural area operates, manages, and covers various businesses such as dressmaking, goat raising, food processing, fresh fish production, Christmas ball making, etc. The government agencies concerned provided nurseries and technical support. NGOs working for livelihood projects in the Study Area are BIDANI, Philphos and Plan International. However, many of these organizations cover only several ARCs, and in some instances are inactive. More details are described in the latter section of this report.

(Present Conditions of Rural Credit)

- 1.10 Most of farmers in the Study Area have limited capital and thus borrow money with high

interest of about seven (7) % per month and/or about 30 % per crop season from private lenders. The high interest rate is one of the reasons of high production cost. Since the existing cooperatives, which obtain loans with lower interest from LBP, can not repay their loans, they can not re-borrow. The farmers therefore resort to obtaining loan from private lenders.

(Problems on Farming)

1.11 Palay plants are seriously affected by Rice Tungro Virus (RTV) disease in some ARCs. In serious cases, farmers can not harvest palay due to RTV. Snails heavily eat paddy young seedlings where direct seeding is usually practiced. Corn stem borers often damage corn. The techniques to protect these diseases were already established at the Agricultural Research Center. However, this has not been disseminated to the LGU's staff concerned and/or farmers. Continuous corn planting degrades soil fertility, reduces yield, and induces soil erosion at the slope of hills.

(Present Conditions of Agricultural and Rural Infrastructures)

1.12 National Irrigation System (NIS) and Communal Irrigation System (CIS) exist in the Study Area. The NIS serves eleven (11) ARCs with a coverage area of about 3,440 ha. The CIS covers a paddy field of 186.0 ha. The irrigation rate to the whole ARC area is low, only 24 % of the total cultivated area in the Study Area, because of delay of irrigation development investment and lack and/or limited water resource for irrigation. On the other hand, in the mixture and hilly areas, the constraints are (a) less or no water resource and (b) higher investment cost to introduce an irrigation facility due to far location of water source. The existing ARCs near the water sources such as creek and River have some potentials for irrigation development.

1.13 In some ARCs classified into the plain area category, the gravel roads are passable during the dry season. However, due to insufficient and/or lack of heavy equipment and staff, the road surfaces are not in good condition affecting smooth traffic. In the hilly area, there are many portions with steep slope on a longitudinal profile preventing smooth traffic due to unsuitable design and construction work. In some ARCs/Clusters, vehicles are impassable for a period of three (3) to four (4) months in a year. In these ARCs/Clusters, even a bull cart can not pass these portions of the road. For transporting farm outputs, the farmers usually use log and/or bamboo sled pulled by Carabao or cattle with the maximum capacity of about 50 kg and/or a bamboo raft on the creek. The farmers cannot transport their agricultural produces at their desired time due to lack of transportation. Farmers are thus forced to sell them at low prices in the local market. Even if the produced are transported outside the local market, the transportation cost paid is higher. The farmer's net income is thus further reduced. Delay of transportation affects the quality of agricultural produces, especially vegetables and banana, etc. Moreover, farmers cannot introduce new crops such as flowers and Tilapia fish cultures.

1.14 DAR prepared the right-of-way of the cadastal roads when lands were distributed to the

farmers. However, due to insufficient budget of DAR for ARC road development, road construction is delayed. The farmers cannot therefore haul their produces from their farm to the market.

(Post Harvest Facilities)

1.15 Post harvest facilities consist of drying facilities (solar and mechanical dryers) and a warehouse. During the harvest season from September to November, the climatic condition is cloudy and rainy. Due to insufficient solar dryers, the produce is not dried after harvest at the season. Under these conditions, the farmers lost about 20,000 pesos/ha on palay on the average cultivation because of low quality with much moisture content. The farmers dry palay and corn on a paved road because of few drying spaces. This farming activity causes the lowering of the quality of palay and corn because of the presence of broken rice after milling and many alien substances such as small stones in rice. Though some cooperatives have a mechanical dryer, these are not operational because the cooperatives are not functioning well. The total space of the solar dryers in the Study Area is equivalent to only 12 % to the required space of the solar dryers at present. There are three (3) warehouses in the Study Area. However, one warehouse is not operational because of the inactive status of the cooperative, which owns the warehouse. Due to lack of a warehouse, the farmers have to sell their produces at lower prices. This is one of the reasons why farm price is low at 6.0 pesos/kg.

(Evaluation of Organizational Strength for Existing MPCIs and Lack of Incentives)

1.16 There are 31 Multi Purpose Cooperatives (MPCIs) and 45 women's organizations (supportive organization) in the Study Area. Also, there are eleven (11) Irrigators Associations (IAs) established in the irrigation service areas. The activities of the cooperatives are mostly focused on credit lending to the members. These cooperatives were mostly organized to obtain credit from government institutions. However, many cooperatives become inactive after obtaining loan from credit institutions. Social preparation of farmer's organization is limited and inadequate due to the limited capability and number of Development Facilitators (DFs) to assist and supervise the cooperatives. Furthermore, quantity and quality of support activities provided to cooperative members are also limited.

1.17 Out of 22 MPCIs evaluated by Diagnosis of Cooperate Culture analysis (DCC), six (6) are on the position of "Vibrant" dimension, seven (7) are on "Kintaro", six (6) are on "Anarchy", and the remaining three (3) are on "Patay". The organizational movement indicates that eight (8) are on "Upturn", five (5) are on "Constant", six (6) are on "Downturn", and three (3) are on "Patay". The nine (9) MPCIs with low strategic vitality, have no organization power to operate and maintain the project. Especially, MPCIs classified as "Patay" need to be re-organized.

1.18 According to the results of DCC, the followings are observed: (a) The farmers do not consider their organization on long-term expectation. (b) There exists sect inside the

organization. (c) There is influence of political interventions. (d) ARBs feel more "Constrained" than non-ARBs. (e) If they have some framework to charge the loan, the organization vitality will be strong. (f) The members of cooperatives do not sufficiently understand the objectives of their organizations

1.19 Poor and/or lack of rules/regulatory aspect cause the above problems. The following are lacking and poor in the existing organizations. (a) Formulation of a regulation that will consider the organization as a business body. (b) Members do not follow the rule, i.e. definitive agreement and no personnel management. (c) Insufficient suitable training program to meet demands at all levels. (d) Lack of supporting system to maintain the sustainability of the above aspects.

1.20 DCC also evaluated the leadership of the organizations. The leadership analysis was conducted on four (4) typical MPCIs, which are considered as Vibrant, Kintaro, Anarchy and Patay dimensions in the DCC category. (a) The result connotes that it is not always true that superior organization has a capable leader. However, on the contrary, it is true that the capable leader has superior organization. (b) It is generally true that the president who is selected by the Board of Directors (BODs) but not so much from the members can establish a superior cooperative with good operational figure and fame. (c) On the other hand, there are some vitalized cooperatives of which the president does not have strong leadership. It is observed in this case that there is the existence of "behind-the-scenes king maker" in the organization who overwhelms the influence of the president in question. It is noted that the essential factors for the leadership are "Power of Influence", followed by "Presentation of Goal" in the MPCIs Study Area. In this sense, the cooperatives with the President's Power of Influence have a higher score of "Strategic Vitality".

1.21 There are 30 IAs in the Study Area, 18 IAs of, which are active. The main cause of inactive IAs is attributed to the presence of damaged facilities caused by calamities. The organizational vitality in NIS is generally higher compared with CIS, because of National Irrigation Administration's (NIA's) support to NIS. DCC indicates that the vitality of individuals that has irrigation water is lower. However, from the organizational point of view, the vitality is higher in cooperatives with irrigation facilities. The high organizational vitality maybe due to the effort not of the irrigation beneficiaries but from "killing spirit" of non-beneficiaries. That is, if more training on rules/regulatory aspect is provided in the re-establishment of the organization, it's organization vitality will tend to increase.

(Weak Selling System and Market Network of Cooperative with Low Business Value)

1.22 The group purchasing of farm inputs and selling of farm outputs is not very common in the Study Area. These market conditions are disadvantageous to the farmers. Group marketing and selling is a function of the cooperative.

1.23 It is estimated that about 80,000 MT of rice are marketed outside the Province. The Study

Area contributes approximately 25 % of the total export volume. The rice of the Isabela province is a basic commodity for the private traders. The National Food Authority (NFA) is mandated to purchase palay, however, only less than 5 % of the total production in the area is actually purchased from farmers. However, farmers normally do not sell palay to NFA. The cooperatives are given incentives when they sell palay to NFA. However, only very few cooperatives sell to NFA due to weak organization management. It is very difficult for the cooperatives to establish marketing system due to inefficient management and lack of marketing knowledge. Consequently, farmers who have less information on market are at a disadvantage, hence always sell at lower prices.

(Unbalance Farmer's Nutrition)

1.24 The major annual income source (about 140,000 pesos of the average farm household) is farming of palay and corn, supplemented by about 60,000 pesos' income from various sources such a farm labor, Tilapia breeding, fruits, etc. Except one ARC, the farmers are rice eaters. Statistically, the residents of the Study Area intake above average meat and far-much-lesser consumption of roots and tubers. Their lack or limited intake of vegetables has the possibility to induce increase of related diseases in the future.

(Farm Income)

1.25 According to the results of farm economy analysis, the rich ARBs have surplus income, the average ARB has no surplus, and the poor ARBs can not repay loan. It is estimated that the rich ARBs earn more than 500,000 pesos a year. The average ARBs earn about 200,000 pesos a year but have to repay about 10 to 20 % production loan. On the other hand, the poor ARBs with less than 30,000 pesos cash incomes have a loan of the same amount. The percentage ratio of rich, average, and poor ARBs in the Study Area is estimated at 5, 70 and 25 %, respectively.

(Inconvenience on Existing Credit System depend upon Private Lender)

1.26 The ratio of the production cost against the total expenditure (about 200,000 pesos in a year) of the average ARB household is about 25 %, which is equivalent to 850 pesos/month. Most of this amount is a loan from the private lenders, which includes the interest of about seven (7) % per month. The farmers depend on the private lenders for their credit needs due to proximity and accessibility of the lenders, minimal documentation requirements, credit can be obtained within hour and due to no specific time or day required for obtaining loan. Therefore, it is important to expand existing loan supply and to prepare many kinds of loan scheme for poor farmers.

(Complex Documentation on Loan Application and Weak Loan Monitoring and Collection Strategy)

1.27 The accumulative loans of the 31 MPCIs have reached about 50 million pesos, out of which 32 million pesos or 65 % are from LBP. Increase of unpaid loan made LBP stricter in the appraisal of loan applications. LBP prepared strict accreditation criteria, which defines the eligibility of cooperative. Due to this, processing of loan documentation

becomes tedious. Loan transaction requires more time that hinders the timely delivery of credit. Many loans that are unpaid are assessed to be impossible to collect, but they are still regarded as payable loans. Nevertheless LBP does not have the necessary strategy or arrangement to collect the loans. Monitoring of loans becomes active only when it becomes due. However, before loan overdue, there is no monitoring activity of the usage of the loan or the farmer's activity or circumstances.

(Lack of Supporting Capability of DARPO)

1.28 The following activities showed the lack of supporting capabilities of the DARPO:

- Accumulation of debt of the MPCIs due to the lack of assessment of their financial capability
- Lack of follow-up activities for the accumulated huge debt of the MPCIs thus lead to the foreclosure of assets of the cooperatives by the Task Force Collection, DAR Central Office,
- Lack of experience and knowledge in community development such as awareness raising or capacity building.
- Lack of capability and mobility of DFs specifically in the facilitation and coordination of CARP activities of related agencies at the Barangay level.
- Lack of monitoring and evaluation, hence problems are not being recognized and solutions cannot be discussed.

(Lack of Specific ARC Development Strategies and Plans)

1.29 About ten (10) years have passed since the commencement of the CARP, but the supporting services are continuously implemented without any specific ARC development strategies. The current policy shows only a part of the development concept, but the specific strategy planning is missing. Among the same or different ARCs, economic gap of the rich and the poor exists. However, the development plan is not prepared accurately based on the needs of the people. The lack of specific development strategies or plans is preventing implementation of adequate supporting services or coordination of related agencies.

(Political Intervention)

1.30 There was once decision to exempt debts under the "Samahan Nayon" program and political campaign exempting farmers from paying irrigation fees. These political inventions gave negative effects on the implementation of the CARP projects. It is common that beneficiaries of the supporting services are chosen by political pressure, which lead to the unfair distribution of benefits.

(Lack of Coordination among Related Agencies)

1.31 - Not any single organization is responsible for the overall budget control of the CARP at the provincial level: The DARPO is the lead agency and the PARCCOM is the monitoring agency of the CARP; however, both agencies have no information and control regarding the overall flow of the CARP related budget.

- Limited participation of the LGU: Since the CARP is a national program, the LGU is not incorporated in the program. The CARP is on its transition from land reform to beneficiary development; however, the DARCO remains in control to all activities.
- Inconsistency of Agrarian Reform Community Development Plan (ARCDP) and Barangay Development Plan (BDP): Although they are both plans for a single Barangay, ARCDP is prepared for the DAR and BDP is prepared for LGU. The year planned, the agencies planning, and sometimes even the persons in charge of the plans in the Barangay differ, and inconsistency between the plans is observed in many cases.
- Ineffectiveness of training programs: Many related agencies are implementing training for the capability building of the beneficiaries. Yet most training lack coordination since each agency is implementing in its own way. It is inefficient, and the effects of the training are not as high as expected.
- Ineffectiveness of Barangay Agrarian Reform Community (BARC): BARC is established to facilitate and coordinate CARP land disputes at the Barangay level, and DFs are expected to work with the BARC. The reality is, however, BARC is hardly established or remain inactive. BARC is not functioning as expected and the Barangay officials have basically to be in charge of it.
- Inactive Municipal CARP Implementing Team (MCIT): Originally the MCIT is established as the coordinating agency of the CARP at the municipal level. Yet this is also not established or is inactive. This shows that agencies related to the CARP are not properly coordinated at the municipal level. The MCIT is composed of the officials from various agencies, but the leadership of MARO as a chairman is not necessarily strong. Thus, it is difficult for him/her to keep the members' high commitment to the CARP. Replacement of MARO between municipalities is frequent, which is also preventing continuous coordination.

(Missing Cooperation among Related Agencies upon Project)

- 1.32 - The organizations inside the community, such as MPCCI and IA, and organizations outside the community like NIA have problems in coordination and communication. Introduction of irrigation facilities therefore not necessarily raises expected effects, due to the delay of the supply of irrigation water and the delay of land preparation by the farmers.
- The responsibility for the selection of rice variety to be planted, the application of fertilizer, and water management laid on the hands of DA, and now LGU due to decentralization. DAR or CDA must be responsible for the capability building of farmers organizations, which should make organizations, enable to farm collectively. In the present state, however, the agencies are not working in cooperation, and farmer organizations are not well working as a unit. Consistency in farming practice is not kept.

(Lack of Extension Activities)

1.33 Farmers are aware of low farm productivity resulting to their low income. Yet when new technologies are introduced to the community, the technology is not extended among farmers easily. Generally, most of the farmers are not willing to accept “new skills” they have not experienced. One of the reasons is the problem of the extension process since the agencies did not well explain the farmers “what will happen”. Another problem is that the technologies were not suitable to the farmers.

(Lack of Support for Improvement of Farmers’ Consciousness)

- 1.34 - Social preparation training have been provided to ARCs for a long time, but its impact is low.
- Farmers’ moral is low - When the government provides financial support to farmers, they perceive it as “a grant or dole-out.” As a result, debt is accumulated in the MPCIs because the farmers do not pay back.
 - The farmers have the tendency not to respond and think about the solutions of the problems, because they are heavily dependent on governmental support. When asked the problems of development, they often reply “no money”.

(Backgrounds of Identified Problems)

1.35 The problems identified by the Study Team were further analyzed to understand the background of identified problems. The backgrounds were distinguished as either inner or outer causes, and classified into the following three (3) groups according to their nature.

- (a) Infrastructure background (e.g. Lack of or poor facilities)
- (b) Socio-cultural background related to farmers themselves, community and culture and custom of the locality
- (c) Organizational and institutional backgrounds related to external supporting agencies and systems, or the way the support is provided

1.36 The root causes of these backgrounds were further analyzed and identified. These are; (a) lack of farmers’ understanding and knowledge, (b) the way farmers think, (c) farmers’ individual action, (d) lack of human resources, (e) custom of the area, and (f) trapped into the debt from the private lenders. Of these root causes, (b), (c) and (e) are the problems eventually connected to farmers’ “consciousness.” The issue f) has complex background in both inner and outer causes, but this Master Plan intends to approach this issue as an inner cause, which requires the measures of consciousness building of the farmers. Then, the question of “what kinds of ‘consciousness’ is creating the problems?” was examined, focusing more on socio-cultural uniqueness of the farmers in the area. As a result, those considered most influential were; (a) individualism or individual’s value, (b) love of money or gain, (c) over-reciprocity, (d) debt from private lenders, and (e) “wait and see” attitude. The results of the analysis were reflected in the formulation of the development concepts and the preparation of the development plans.

(Substantial Issues)

1.37 From the series of analysis made, the essential issues related to the development of the Study Area are concluded as the distortion of status quo resulting from lack of harmony of "Fair", "Care", and "Share". The following explain the reason:

- "Individualism" deems to affect directly the behavior of oneself and then gradually influences other persons in the same society. Consequently, this distorted individualism that benefits only oneself forms "Unfair Social System".
- "Materialism" seems to affect directly the behavior of other persons in the same society, and then unfavorable relationship with other person gradually influences the whole community. As the result, this distorted materialism forms "Mal distribution of wealth".
- "Excess Reciprocity" is considered to affect directly the behavior of the whole community and then gradually influences that of oneself. Consequently, the "Stultified Rules" prevails as the social regulations and weak persons are forgotten.

(Summary of Problems and Most Important Issue)

1.38 The most important issue among the problems identified is the fact that the incomes of ARBs, the CARP beneficiaries, remain low despite the achievement of land distribution. This was confirmed through field surveys including workshops when the Master Plan and feasibility studies were conducted. After the linkages of all the identified problems were analyzed, the following direct causes for low income of ARBs were identified:

- 1) Low farm productivity
- 2) High cost of production
- 3) Low price of farm products
- 4) High interest rate of the private lenders
- 5) Unstable household economy
- 6) Insufficient supporting system for ARBs

1.39 The solutions to the six (6) direct causes are listed as follows:

| <u>Objectives</u> | <u>Main Means</u> |
|---|--|
| 1) Improvement of farm productivity | Extension of appropriate agricultural technologies, provision of irrigation facilities, provision of post-harvest facilities |
| 2) Reduction of cost of production | Strengthening of farmers' organizations, provision of farm-to-market roads |
| 3) Improvement of selling prices | Strengthening of farmers' organizations, provision of farm-to-market roads, provision of post-harvest facilities |
| 4) Improvement of access to financing and reduction of interest rates | Strengthening of farmers' organizations, expansion of rural credit |
| 5) Improvement of stability of household economy | Strengthening of farmers' organizations, extension of income generating opportunities related to agriculture |
| 6) Improvement of the supporting systems | Capability building of the related agencies |

1.40 Based on the above objectives-means relationships, the following eight (8) approaches are proposed in the Master Plan. The “improvement of the supporting systems” includes the capability building of the related agencies as well as social preparation as the measures against the backgrounds of the problems. According to the current situations, problems and needs of the beneficiaries, the development plans for each ARC will be proposed as follows.

- | | |
|---------------------------------------|---|
| 1) Agriculture Development: | to extent appropriate agricultural technologies |
| 2) Farmers’ Organization Development: | to strengthen farmers’ organizations |
| 3) Irrigation Development: | to supply irrigation water |
| 4) Post-Harvest Development: | to improve the rate of production recovery |
| 5) Road Development: | to lower the hauling cost of farm products |
| 6) Rural Credit: | to lower the interest rate of available credit |
| 7) Livelihood Development: | to have alternative income generating activities |
| 8) Management Capability Building: | to enhance the capacities of the ARBs as well as the related institutions |

2. ARC Development Plan

(Major Issues and Objectives of Development)

2.1 The ARC Development shall aim for “the increase of ARB’s income” and must directly addressed the above six (6) problems. Each ARC has different problems with various degrees of seriousness. Therefore, development plans drawn out vary individually based on the development concepts and basic approaches.

(Development Concept)

2.2 The farmers’ community, in general, maintain some sense of virtue which consist of "*Fair*", "*Care*", and "*Share*". This virtue will be maximized when individualism, materialism, and rural custom are harmonized. If farmers have the sense of fair, care, and share, farmers can manage the common resource in a cooperative fashion and sustainability could be expected.

2.3 The rural society of the Philippines has a distorted power intermittently, which acts oppositely to the sense of virtue and lessens it. First distortion originated from “materialism”, second one is attributed to “individualism”, and third one is caused by “rural customs”. Accordingly, by adding proper direction of power (that is project), it enables to enlarge the area of virtue. The power, which maximizes the sense of virtue, is Fair, Share, and Care.

- 2.4 Based on the above-mentioned analysis, development concept is set as; Sustainable Development with Optimum Portfolio of "Fair", "Care", and "Share" for the Beneficiaries. In order to secure the sustainability, this project will focus on the sense of farmers' virtue.

Basic Approaches of Development

(Approach to Increase ARB's Income)

- 2.5 Of the eight (8) approaches, Agriculture Development and Farmers' Organization Development will be the core of the ARC Development Plan. Agricultural and rural infrastructures such as irrigation facilities, post-harvest facilities and farm-to-market roads will be planned and provided to support the extension of appropriate agricultural technologies, and eventually to increase agricultural productivity. The post-harvest facilities will also improve the selling prices of farm products. The farm-to-market roads will contribute to reduce the production cost and improve the selling prices of farm products. The extension of the appropriate agricultural technologies and the provision of irrigation, post-harvest and farm-to-market road facilities are called "Agricultural Development Scheme." Strengthening of farmers' organizations, the main recipients of the external supporting services, is crucial for maximizing the outputs from the development projects, since they are responsible for the operation and maintenance of the facilities and the application of extended technologies at the Barangay level. This is also important for raising the sustainability of the projects. This approach is called "Farmers' Organization Development Scheme." Meanwhile, the "extension of rural credit", "expansion of income generating activities", and "management capability building plan" are called "Development Support Scheme."

(Area-based ARC Classification)

- 2.6 Although the final goal is "to raise income", means to achieve the goal must differ by ARC depending on their area specifics and conditions. This Master Plan divides the ARCs into three (3) areas; the prime agricultural area, marginal area, and developing area. The applications of the development plans in each area will vary according to the characteristics and needs of the areas. Specifically, access to the political and economic centers of the area, agriculture productivity, and progress of development are focused. The basic development strategies for each area are as follows:

a) Prime Agriculture Area

The prime agricultural area is the rice-growing area and should already have the potential of attaining high agricultural productivity. The area is located where the scale of agriculture could easily be expanded. Development focus will be placed more on soft-side, including agricultural extension services and institutional development.

b) Marginal Area

The area is remote from production and market as well as political centers, and most of

the farmers rely on subsistence-level agriculture. The development focus will be more on increasing agricultural production to satisfy subsistence continuously, and create means to earn cash other than from farming.

c) Developing Area

The area is located between the prime agricultural and marginal areas. Rice production will be promoted whenever possible and crop diversification from corn to commercial products will be planned in other areas. The development strategies will incorporate a balanced infrastructure and capacity building aiming at the improvement of agricultural production.

(Social Preparation)

2.7 Raising the consciousness of the beneficiaries and the officials of the related agencies will firstly be addressed in the implementation of the development plan. Raising consciousness is an awareness raising and education through the provision of social preparation training. Other development plans will be implemented step-by-step after it is achieved. As “consciousness” lies as the backgrounds of the outbreaks of many problems, improving such consciousness is a must to attain the expected outcomes of the supporting services.

(Agriculture Development Plan)

2.8 Agriculture development plan aims to increase agricultural productivity. For increasing agricultural productivity two (2) countermeasures are proposed: expansion of cropping acreage and increase of crop yields. However, since all ARCs are already developed as an agricultural land, this method will be limited. Consequently, the agricultural development plan aims to increase yield of crops through improved farming technique and strengthening of extension works.

2.9 The farmers still desire the production of palay due to stable price. In the paddy planted area, the objective is to increase yield. The corn areas that will be irrigated would be converted into irrigated paddy to expand the paddy area. Existing paddy areas will remain the same considering that the country is experiencing rice deficiency. Through improvement of variety and extension of protection techniques from RTV disease, etc., the yield of palay is expected to increase from the existing yield of 97 to 106 cavan/ha to 110 to 120 cavan/ha. Moreover, mungbean would be added to the present crop rotation after the dry season palay cropping, the planting season of which shall be advanced one month from November instead of December. This cropping system will also contribute to increase soil fertility and farm income. Planting mungbean is targeted at about one third (1/3) of the paddy fields in the ARCs in the prime agricultural area. The water distribution system should be changed to meet this cropping pattern. This plan would be proposed in the short term development stage.

2.10 Corn will be diversified into more high valued crops such as vegetables, fruit trees, flowers, forest trees, etc. based on the LGU’s promotion plan. The target is set at 20% of the present corn area. Crop diversification is expected to contribute to increase of farmer’s income. Technical training at the field would be proposed to the beneficial farmers who

will diversify corn to other cash crops. It is also necessary to supply farmers with good quality and cheap planting materials to promote crop diversification. A community plant nursery shall be set up to produce planting materials of fruit trees, flowers and forest trees. The most important thing is to collect good quality mother trees identified by DA. The nurseries are planned in eight (8) ARCs/Clusters. Plant nursery needs special skills of propagation. For promotion of this plan, the Municipal Agriculturist (MA) and Technical Assistant (TA) would provide guidance to the farmers. The nurseries would be proposed in the short term, but the supply of nurseries will be after five (5) years in the medium term development stage. The crop diversification plan on vegetables would be started in the short term development stage.

- 2.11 The objective areas are ARCs in the hilly and mixture area. It is therefore necessary to consider farming technology at the slope lands to minimize soil erosion. Therefore, technology on contour planting, natural vegetative strips and alley cropping would be promoted at the slopped lands. The plan would be promoted in parallel with crop diversification plan. The extension workers assisted by the Bureau of Soil and Water Management (BSWM) would provide guidance to the farmers. It is important to encourage the farmers to protect their farms from soil erosion, though the technology will not produce immediate returns. The provision of training and the encouragement to accept and adopt the technology shall be proposed in the short term while the achievement of the plan will be in the medium term development stage.
- 2.12 To effectively utilize the uncultivated lands in the ARC areas, the livestock promotion plan would be proposed to provide additional income. The plan would be proposed in the ARCs in the marginal area, where larger acreage had been distributed to the farmers. Considering the loan capacity of farmers, ten (10) heads of cows and pigs would be proposed at the initial stage with the maximum of 100 heads in one ARC/Cluster. On the medium and long term development stages, the scale will be enlarged depending on the net benefit caused by the plan. The provincial veterinary office would be in charge of providing educating, training and technical support to farmers on breeding, decease protection, vaccination, etc. The cattle forage will be natural grass at the unused land, cultivated fodder as green corn etc. and corn grains, while pig feed will be the unsold parts of vegetables and fruits, low quality farm products, leftover and corn grains.
- 2.13 The many techniques and information that the national research centers have accumulated shall be disseminated to the farmers through extension works. Technical information linkage shall be strengthened between the research centers and extension workers through periodic meetings and technical reports. The periodic meetings would be useful in upgrading the techniques of the extension workers on new farming techniques and new varieties that were developed by the centers. Moreover, the function of information collecting system of existing problems at the fields would be established and expected through the meetings. The program would be proposed in the short-term development stage.

2.14 Small scale food processing would be planned for generating job opportunities in the rural area and for securing the market of the agricultural produce in the objectives ARCs. However, the program requires food processing machines, equipment and facilities. The MPCIs and a planned 'Isabela Trading Company (ITC)' shall operate the food-processing factory. As agricultural cooperatives are not yet fully matured and the ITC is not yet established, the food-processing plan shall be realized at the later stage of development.

(Post Harvest Development Plan)

2.15 To improve the quality of farm produce (price up of 2.0 peso/kg of palay) and to minimize harvest loss (about 5 %) the post harvest facility development plan would be proposed. The plan directly contributes to increase farmer's income. The solar and mechanical dryers that are most effective in the wet season would be proposed for drying grains. The proposed space of the facilities would be determined considering the existing space. The drying method will follow the present procedure. The proposed ratio of solar and mechanical dryers would be 95 and 5 %, respectively, of the total production of about 1.05 million MT. Before implementation of this plan, the farmers' organization shall be strengthened so that they will be able to operate, manage and maintain the drying facilities. The solar dryers should be managed and operated by the Barangay and the mechanical dryer by MPCCI. The total area of the solar drying facilities proposed in the short term development stage is 36,930 sq.m, for the medium term development stage, 156,045 sq.m, and for the long term stage, 351,682 sq.m. This plan will contribute to solve the problems of low prices of farm product and low income.

2.16 The warehouse is proposed to give opportunity to farmers to sell farm produce at advantageous prices (more than 9.0 pesos/kg). The storage capacity of the proposed warehouses would be determined based on 20 % of the total production. The warehouse shall be constructed beside the solar dryer and/or the mechanical dryer. Prior to the provision of the warehouse, the farmers' organization should be strengthened. The facilities would be constructed according to the degree of strengthening of the organization. The proposed numbers of the warehouse are none in the short-term, four (4) places in medium term and 19 places in the long-term.

(Development Strategy of Farmers' Organization and its Process)

2.17 The Master Plan will place the target on ideal evolution form of the farmers' organization. The short-term development stage will stress "Organizational set-up and social learning", the medium-term development will target "Growing stage to area-wide organization", and the long-term development will gear toward "Growth stage to independent federation". For conscientious and organizational set-up of weak organizations, NGOs should be involved in three (3) major aspects, namely infrastructure, organization, and rules aspects. NGOs should provide Social Preparation (SP) in order to strengthen the movement for organization. It is recommended to serve a small project for an entry-point. NGOs should put importance in establishing rules for an efficient management as well as conduct of training for a firm organizational setup. Private banking sector, government institutions and international assistance will be involved in the project from the medium term

development stage and higher priority should be given in the infrastructure (resources) aspect.

(Strengthening of Rule/Regulatory Aspect)

2.18 Establishment of Support Team for Wide-area Coverage of Social Preparation: To strengthen the quantitative and qualitative aspect of Social Preparations (SP) for the low level organizations. To do so, it is recommended that "Support Team" be established to assist effectively the NGOs. DARPO should provide the necessary funding.

2.19 Improvement of Personnel Administration System: For the advanced cooperatives in the Study Area, this project will be applied to clarify the rule for training systems for the members as well as to make sure the incentives are availed by the cooperative officers. It is proposed that the program be applied to four (4) ARCs in each stage.

(Strengthen Organizational Aspect)

2.20 Series of Training: Advanced training will be provided to progressive cooperatives such as training on management and entrepreneurial skills. These training will contribute to efficient management of the post harvest facility (reduction of 5 % loss of post harvest), maintenance of road (increase 1.0 peso/kg of farm gate price) and irrigation facilities (target collection rate of 100 %). It is also proposed to provide training for team building, and foster leadership to developing cooperatives. Simultaneously, the training for DFs and NGOs should be provided.

(Strengthen Infrastructure/Resource Aspect)

2.21 Introduction of Validation Project: To establish the foundation of development processes in the entire area, the introduction of a validation project is recommended at the short-term and medium term development stages. For the implementation of this project, it is recommended that DARCO requests technical assistance from international agency. To strengthen the resource aspect, a livelihood project would be necessary. Also, of importance is the development of the rural credit with expansion of the existing micro-finance. Furthermore, the establishment of the Good Payers Cooperatives (GPC) will be considered.

2.22 Advice on Technical Matter by Business Consultant: It is proposed that the DAR invite experts from international agencies on a specialist dispatch program. Main role of the consultant is to cope with technical aspects of cooperative business that are deemed difficult task for DF and NGO. At the short-term development, experts on Validation Project or Farmers Organization Management (FOM) shall be proposed to support this component project. The DAR Provincial Office (DARPO) together with Cooperative Development Authority (CDA) shall investigate the viability of the dispatch of expert. The realization of the plan is expected to support the credit program that is proposed to the organization, strengthen the management and operation of post harvest facilities and the facility to expand the market. The result of the development process shall be replicated and expanded in other areas.

(Irrigation Development Plan)

2.23 To obtain stable and improved agricultural productivity, the irrigation development plan would be proposed at some ARCs where farmers desire the development plan and they have willingness to introduce the irrigation project. A stable irrigation water supply will contribute to the introduction the crop diversification plan and will increase farmer's income (gross incremental income of 29,400 pesos). However, the ARCs should have the potentials of irrigation. The irrigation development plan is proposed in nine (9) ARCs. The total irrigation area is about 2,186 ha. The irrigation facilities proposed are reservoir, pump stations and rehabilitation of canals. The development would be proposed in the short-term development stage to get immediate impact. However, before provision of the irrigation development, the beneficiaries have to organize the IA.

(Farm to Market Road Development Plan)

2.24 To improve the farming environment throughout the year and to achieve a smooth transportation of farm inputs, outputs and daily goods, the farm-to-market road (FTMR) development plan is proposed. The plan consists of rehabilitation of FTMR of about 247.7 km (existing gravel roads) and new construction of 23.9 km. The total proposed length is 271.6 km. The road development composed of FTMR of 24.1 km with a width of 5.0 m gravel road and the production road of 247.7 km with a 3.5 m total width. The road development is expected to reduce the transportation cost by 2.5 % or more and to protect and/or minimize the damages to vegetables and fruits. It will contribute to increase in the farmer's income. Moreover, it is expected that the proposed roads will function as lifeline for the rural inhabitants during emergency cases.

2.25 The LGUs with technical assistance from the Provincial Government will have to maintain the roads. The villagers should shoulder part of the necessary cost for maintenance. The necessary equipment and tools would be included in this plan.

(Rural Credit Plan)

2.26 The rural credit plan aims to; (a) decrease interest rate of rural credit dealt by informal private lenders, (b) correct values/attitude of farmers towards payoff and no-intention-to-pay cooperative loan, (c) increase capability to sell product at higher price, and (d) minimize intervention of informal private lenders through improvement of access to rural credit.

(Project with Quick Benefit Accrual on Rural Credit Plan)

2.27 Micro-Finance Program: This program will be applied to make available easy and accessible credits to those who have none or limited collateral. The program is composed of two (2) sub-components, 1) program for rural women, and 2) program for group responsibility. The project will be a part of the verification project in the short-term development stage and increase the "window" for rural poor. The project will be expanded at the regional level on the medium term development stage together with the expansion of GPC-ITC project. The income from the livelihood project using MF will contribute to

expand the job opportunities such as animal breeding and fruit production by women and farmer's group.

2.28 Establishment of Joint Loan Appraisal Meeting: The project aims to provide a role to DF for monitoring of loan. It is proposed that DF should be involved from the loan planning stage and give proper advice to both donor and borrower on disbursement schedule, loan restructuring, and risks. DAR and LBP should hold a Loan Appraisal Meeting on a monthly basis, and DFs should accommodate their concerns. The project can start immediately. In exchange that the project secures the loan monitoring for the cooperatives, simplification of application document should simultaneously be adapted.

2.29 Farmer Ownership Model (FOM) Project: The project is formed abstracting some good points from World Bank's FOM scheme. The World Bank is implementing this project in more than ten (10) developing counties, and achieving remarkable results. A limited company will be established at the first stage of the project, and then, the net asset value of the company will be securitized equally with the total working capital of the project defined by the business plan. The project team together with the cooperative procures this budget through loans and grants. Preferably, it should be fulfilled by CBU. Nevertheless, the procurement cost of capital is allowed on the business plan. The funds are utilized by the cooperative for purchase of the shares in the limited company. The cooperatives will finally obtain an ownership of the company through pursuing the business plan. The project is proposed to be implement in four (4) ARCs in the short-term and medium-term development stages. The project will bring about cooperative's high consciousness on business and skills for market linkage. Through the increase of incentives, the project will increase production volume and upgrade quality. Selling price of farm produce will also increase by 15 % (WB's results).

(Project with Benefit Accrual in Medium Term on Rural Credit Plan)

2.30 Good Payers Cooperative (GPC): DAR together with the LBP will implement the project. The good payers from the cooperatives with bad loan repayment status together with good paying cooperatives will set up GPC. The GPC will act as special conduit of the ITC and as the window of dialogue with beneficiaries for the projects with broader boundaries. ITC is explained in detail in the next paragraph.

2.31 DARPO together with LBP will conduct this task and establish three (3) to four (4) GPCs allowing for accessibility of each member/cooperative. One GPC will cover three (3) to five (5) ARCs. The cooperative members will forward the product based on the business plan formed by ITC. It is proposed that the project should start just after the completion of the Verification Project in the short-term development stage. At the beginning of medium-term development stage, GPC should have ordinary functions as cooperative. GPC will have full functions when ITC is established in the medium term development stage.

(Project with Benefit Accrual in Long Term on Rural Credit Plan)

2.32 Isabela Trading Company (ITC): This is the final target of development. The project will

start at the later period of the medium term development stage. The project aims to establish proper and fair rural banking system. By establishing semi-government-trading company called ITC, the project will establish a competitive market mechanism. It is expected that the interest rate will decrease moderately at the end. It is proposed that the mother body of ITC, which is NFA, should be post-privatized. By doing so, the project will be able to focus on the problem on post-harvest and marketing of the cooperatives without investing additional facilities. The project will also provide considerable incentives to GPC.

- 2.33 The major business lines of the ITC will be three (3), namely: (a) lending credit to GPC, (b) providing loan to private companies such as farm input manufacturers and farm output dealers, and (c) operating integrated project such as post harvest facilities and palay trading. The project will expect a part of assistance from international agencies in terms of technical and financial matters. However, similar business manner with a private sector is expected though having a higher portion of own capital.

(Livelihood Development Plan)

- 2.34 The livelihood program aims at providing additional income and nutrition improvement of farmer's family. They will be carried out in a small scale and promoted mainly by NGOs, but supported technically by the relevant government agencies. The plan consists of the livestock development, the backyard gardening development, the Tilapia breeding development, the mushroom culture development, and the simple agro-processing development. The Rural Improvement Club and/or the Green Ladies Club will operate and manage these projects. NGO will initiate implementation of the project. DA and the extension workers will provide the technical support and nurseries. The contents and scale of the project vary by ARC. The plan would be started at the beginning stage of this development period of the Master Plan. According to the availability of staff, the plan will be developed in other ARCs. The plan will be continued until the end of the medium term development.

(Management Capability Building Plan)

- 2.35 The objective of this Plan is to increase the management capability of the agencies' staff as well as the farmer beneficiaries for the effective and efficient implementation of the proposed development plans. The target agencies are DARPO including DFs, line agencies, LGUs, and NGO. The target farmer beneficiaries are mainly the farmers playing important roles in the operation and maintenance of the projects, such as Barangay officials.
- 2.36 The training programs included in this Plan are; (a) Development Planning, (b) Planning Workshop cum Training, (c) Monitoring and Evaluation, (d) Training to Trainers, and (e) Project Management (Social Preparation). The training will be conducted by the existing training institutions such as CAVALCO, ISU, ATI, etc. Agencies' staff will also participate in the social preparation training to learn about the consciousness of the farmers to be improved and measures against them.

- 2.37 Before implementing the training programs, DARPO will conduct a training needs survey of concerned agencies and farmers. The results of the survey will be included in the annual training plan after making necessary adjustment. DARPO will also conduct an evaluation survey on training institutions after each program is done so that the training programs will continuously be upgraded.
- 2.38 All the training programs will be included in the short-term development stage and implemented within two (2) years after the commencement of project implementation. Since the impact of the training will appear after some time, an impact survey will be conducted annually to assess their effectiveness and review if they need to be modified or improved. The impact survey at the end of the second year will particularly review and determine if the training programs can be concluded.
- 2.39 The implementation of this plan will consequently lead to the building of the management capabilities of the stakeholders for the development plans. Social preparation training will also contribute to raise their capabilities for operation and maintenance of facilities and for application of technologies needed for the implementation of agriculture, post-harvest and farm-to-market road development plans.

Implementation and O&M Structures

(Principles)

- 2.40 The implementation and O&M structures for the proposed development plans are proposed with the following principles:
- a) Like the current CARP implementation, DARPO will be the lead agency for the implementation and O&M of the development projects. DARCO and DARRO will supervise DARPO.
 - b) The Project Management Office (PMO) will be established in DARPO at the same level as the Beneficiary Development and Coordination Division (BDCD), responsible for the current Program Beneficiary Development (PBD) of the CARP. PMO will play key role in the implementation and O&M of the projects.
 - c) PMO will consist of the administrative office and eight Project Implementation Units (PIUs). PIUs will directly be responsible for the implementation of the related projects or provide necessary assistance while the administrative office will facilitate information exchange and coordinate activities among PIUs.
 - d) PMO will have consultants from outside for necessary technical supports to the staff of DARPO.
 - e) The farmer beneficiaries will actively participate into the implementation with the help of DFs and other staff of the agencies including LGUs.
- 2.41 PMO will closely coordinate with the Municipal Agrarian Reform Management Board

(MAMB) and the Provincial Agrarian Reform Management Board (PAMB) to make this plan and the local development plans consistent. PMO will also be responsible for the facilitation of the participation of LGUs in this plan.

- 2.42 MAMB will be the coordination and monitoring body at the municipal level, to be reorganized from the current Municipal CARP Implementing Team (MCIT). The chairman of MAMB will be the mayor, while the vice chairman will be the MARO. Other members of the MAMB are the DF, staff of related agencies, and representatives of the farmers. PAMB will be established in the province, to manage the issues beyond the capacity of MAMB. The PAMB will be organized with the governor as the chairman, the Provincial Agrarian Reform Officer (PARO) II as the vice-chairman, and other members.
- 2.43 The management capability and suitability of MAROs are one of the key factors for MAMB to function well, and for the ARC development to be facilitated smoothly. Another factor is DFs, who are the front-liners of the CARP contacting the farmers directly and daily. They are required to have knowledge and expertise on community development. DAR is proposed to have the system of recruiting capable MAROs and DFs and positioning them in the most appropriate places.

(Cost Estimate)

- 2.44 The necessary project cost is estimated based on the unit costs as of June 2000. About 8% of the total construction cost for the administration fee, 10 % for the physical contingency, 9.4 % for price contingency of local currency portion, 2.0 % for price contingency of foreign currency portion are added. The total project cost is estimated at 4,805.91 million pesos consisting of 1,952.42 million pesos (equivalent to 40.6%) as local currency portion and 2,853.48 million pesos (50.4 %) as foreign currency portion. The breakdown of the project cost by development stage are 3,467.60 million pesos at the short term, 899.7 million pesos in the medium term and 528.33 million pesos in the long term development stages.
- 2.45 The operation and maintenance (O&M) costs by each period are estimated at 4.16 million pesos (equivalent to 832,000 pesos per annum) for short term development stage, 19.92 million pesos (equivalent to 3.98 million pesos per annum) for the medium term development stage, and 44.08 million pesos (equivalent to 4.41 million pesos per annum) for the long term development stage.

(Implementation and O&M Structures for Development Plans)

- 2.46 In principle, all the plans will require that the Barangay Council discuss development ideas on the year first, with the help of DF and other agencies' staff. The results of the discussion will be incorporated into the Barangay Development Plan (BDP), which will be sent to the respective municipality to be included in the Municipal Development Plan (MDP). BDP will then be sent to the DARPO for endorsement.

Implementation Schedule

(Conditions for Commencement of Implementation)

2.47 The development plans proposed for each ARC are integrated and inter linked with each other. The progress or output of plans determines when to commence a project of another plan. The construction of the facilities or provision of extension services will be commenced with due consideration of the capabilities of the beneficiaries responsible for the use, operation and maintenance of the facilities and services to be provided. The capability building will be achieved through social preparation (SP). During the SP, capability building for the agencies' staff will also be carried out so that the supporting system of the government will be strengthened.

2.48 To establish the implementation schedule in each ARC, the proposed development plans are classified into the following three (3) groups, according to the target beneficiaries and the organizations responsible for the operation and maintenance.

(1) Group 1

The target beneficiaries of this development plan are individual farmers. The Barangay officials will act as the coordinators for securing the opinions or decisions on the implementation of the projects in the ARC. The Barangay officials will also be responsible for the operation and maintenance of some of the facilities assigned to the Barangay. The target for the social preparation (SP) training will therefore be the Barangay officials. For them to be able to receive and manage the facilities/services, one year SP is considered necessary. Development plans categorized in this group are as follows:

- Agriculture Development Plan (all components except the production of hybrid rice and food processing component)
- Post-harvest Development Plan (solar dryer component only)
- Farm-to-Market Road Development Plan
- Rural Credit Plan (Micro finance component only)

(2) Group 2

The conditions are the same as Group 1. However, Group 2 does not require intensive social preparation and therefore the project will be implemented from the first year. The following development plan falls into this group.

- Livelihood Development Plan (all components except simple food processing development)

(3) Group 3

Since this plan includes relatively large-scale facility construction or activities, the operation and maintenance must be conducted by capable farmer's organizations. The beneficiaries are the members of these organizations. The commencement of the project will be regulated according to the maturity of the organization. Therefore, the target for the

SP training is the officers of the organizations. The training is part of the Farmers' Organization Development Plan. The following development plans fall in this group:

- Agriculture Development Plan (production of hybrid rice and food processing component only)
- Post-harvest Development Plan (Warehouse component only)
- Irrigation Development Plan
- Rural Credit Plan (GPC component only)
- Livelihood Development Plan (simple food processing component only)

3. Project Justification and Evaluation

(Impact of Plan to Farm Household Economy)

3.1 The impact of the plan to the farm household economy is calculated using the model of the typical ARB farm household. After 25 years, the impact of the income will be from 200,000 pesos at the present to 332,000 pesos in the future (equivalent to 66% increment). On expenditure, saving of 31% will be expected. Furthermore, the poor ARBs that occupy about 25% of all ARBs will get more benefit from this plan. That is to say, about 2.6 times of the present income will be expected and 2% of expenditure will be saved by this plan. Therefore, the target of the Master Plan, that is increase in farm income by 20% will be achieved by applying this overall plan to the objective ARCs.

(Project Evaluation)

3.2 The implementation not only of agriculture but also farm-to-market-roads and post harvest facilities will bring about benefits like job opportunity to the beneficiaries. The ARCs/Clusters were evaluated individually. Result show that the financial internal rate of return (FIRR) of 22 ARCs/Clusters out of 23 ARCs/Clusters was over 15%. Sensitivity analysis was also done using the Switching Value method. The SVP shows high rate. Consequently, the Master Plan was found to be financially feasible.

3.3 The implementation of this plan will bring about "increase of farm income" and will contribute to the following: 1) reduces loan and increase saving, 2) increase of income from other agricultural related industries, and 3) increase of job opportunity, etc. Moreover, the development plan will bring about 1) stable food security in the province, 2) activation of feed industry, and 3) increase of income from industries related to farm inputs, etc.

3.4 Labor opportunity of about 900,000 man day will be generated with the implementation of the short term development package. (A part of this benefit was calculated for increase of farm income) Moreover, intangible benefits are expected such as, 1) strengthened organization power and forward integration of farmers organizations through active

communication by road construction, 2) decrease of specified patients by improvement of nutrition, 3) restraint of LTI through implementation of the support services for poor ARBs, 4) up-grade of education level of children of ARBs, and 5) improvement of rural life environment by road improvement passable through a year, with the implementation of the Plan. On the other hand, the disadvantages that may be brought about by the project are 1) deterioration of security due to inflow of the urban cultures, 2) increase of political participation, 3) migration of rural youths to the urban areas.

(Result of Initial Environment Examination-IEE)

3.5 All plans proposed in this Master Plan would not in any way damage the natural environment. According to the results of IEE, there is no item that will seriously be affected by the project, therefore the Environmental Impact Assessment (EIA) will not be required.

4. Selection of the Model ARCs

(Criteria for ARC Classification)

4.1 The following criteria are considered to classify ARCs into the prime agricultural, marginal and developing areas:

- a) Average yield of major crop (rice or corn) in the target Barangay
- b) Existence of economic infrastructures, i.e. irrigation facilities (NIS or CIS) in the target Barangay
- c) Time required reaching the center of the target Barangay from the adjacent main or paved road, which is measured by distance of the existing access road divided by the average vehicle speed, determined by the quality of the access road

(Clustering Classified ARCs)

4.2 The ARCs classified with the above criteria are further clustered from the point of agriculture development as follows:

- a) The approaches for agriculture development should be different depending on the agricultural potentials of each area. This will be determined based mainly on the geographical conditions of the areas, and ARCs are further clustered into the following three (3) geographical groups: 1) almost flat, 2) mixture of flat and hilly (MFH) and 3) almost hilly areas.
- b) Agricultural development will also be different according to the potentiality of irrigation development in the area, and whether irrigation facilities are already provided or not. The status of irrigation development at present and in future is therefore considered.

(Selection of Model ARCs)

4.3 The ARCs for the Feasibility Study are selected from each cluster to be a development model of the cluster, which the ARC belongs. The following are considered:

- a) In principle, the ownership of the land, distributed to farmers through the agrarian reform process, should be kept by the same farmers; that is, transfer of land ownership should not happen. The support services should be directed to the farmers maintaining their farms faithfully, and the indicator of "LTI (Land Tenure Improvement) - Still Maintaining Ownership" rate is used to assess this situation of each ARC.
- b) The existing farmer organizations, as the recipients of the supporting services, should be capable and committed to pursue the development objectives of the communities. This can be assessed based on the degree of strategic vitality of each organization obtained by the Diagnosis of Corporate Culture (DCC).
- c) The ARCs with larger number of the population as well as ARBs will have higher priority to be selected.

4.4 Eventually, 21 ARCs were clustered into five (5) groups. The following ARCs were selected from each cluster as the model ARCs:

- a) **Quiling** – Prime Agriculture Area, flat, irrigation facilities were already provided (Group A)
- b) **Lapogan** – Developing Area, flat, potentiality of irrigation development is high but facilities are not yet fully provided (Group B)
- c) **Minagbag** – Developing Area, mixture of flat and hilly, potentiality of irrigation development is high but facilities are not yet fully provided (Group C)
- d) **San Manuel** – Developing Area, mixture of flat and hilly, potentiality of irrigation development is low (Group D)
- e) **La Suerte** (in Isabela Settlement) – Marginal Area, almost hilly, potentiality of irrigation development is low (Group E)

Part 2 Feasibility Study

Chapter 1 Quiling ARC

(Present Conditions and Problems)

- 1.1.1 The Quiling ARC having a flat geographical feature in the Prime Agriculture Area is established in 1993. The ARC is located at the western part of the Isabela Province and has the are of 240 ha, population of 1,079 in 1996, and 188 households. The LTI is 100 %.
- 1.1.2 The ARC produces about 28,400 cavans of play from 151 ha of irrigated paddy field by MRIIS for two cropping and about 10,020 cavans of corn from 60 ha of cornfields. Yields of palay and corn are very low at present due to Tungro virus and jumbo snails (for paddy cultivation) and insect (for corn). However, due to disparity of cropping calendar and water distribution schedule, some areas do not practice proper farming. Post-harvest facilities available are multi purpose solar drier and multi purpose pavement. The available capacities of the post harvest facilities do not meet total agricultural production. Farmer loss a gross income of 2.0 pesos/kg of grain produced under this problem. Due to insufficient road, more production farmers incur additional cost to haul the harvest (about 20 pesos/cavan). This also result to poor quality of products due to no optimum timing to transport farming tools to the fields.
- 1.1.3 The Quiling MPCCI was established in 1993. The MPCCI had poor activities in the past. However, from 1997 new members revitalized the MPCCI. At present, the total number of MPCCI members is counted at more than 80 with CBU of more than 43,000 pesos due to presence of diligent members. However, this MPCCI still has some problems because the members do not fully understand the regulations of the MPCCI, and follow a wait and see attitude. Moreover, the MPCCI do not provide sufficient training to its members. Therefore, the MPCCI remains in the domain of Kintario in DCC.
- 1.1.4 The farmers with an average area of 2.1 ha, sell most of farm produce to the private middleman. The selling prices of palay and corn are almost same as in other areas in the province. The farm inputs cost occupies about 40 % of the production cost. The average income of farm household is about 84,000 pesos consisting of 93 % of farm income and 7 % from other income sources. Most of farmers borrow about 8,000 pesos from private lenders and have to pay the high interest of 30 % per cropping and/or 7 % a month. Due to this situation, the farmer's family budget is unstable.
- 1.1.5 The Barangay Agrarian Reform Committee (BARC) was established in 1987 and has been active only in mediating and conciliating land dispute problems. No other activities have been carried out by the BARC. The Barangay Development Plan (BDP) and the ARC Development Plan (ARCDP) were prepared in 1997 initially by the Barangay officials with the help of the DF. This means that the same group prepares two different development plans, one for the LGU and another for the DAR, which

could be integrated into one plan. Only several governmental officers visit the ARC. At the municipal level, the Municipal CARP Implementing Team (MCIT) was newly organized in 1998 when the present MARO took office.

- 1.1.6 The direct causes of low income identified are (a) low quality of products, (b) low production, (c) low price of the products and (d) high hauling cost.

(Development Plan)

- 1.2.1 The major agriculture development plans of the ARC in the Prime Agriculture Area are paddy growing and crop diversification plans. Under the plans, the planted acreage of the paddy remains as is. As the countermeasure to protect the fields from rice Tungro Virus disease, the agricultural extension workers and the Crop Protection Research Center (CPRC) will technically provide guidance to the farmers. To increase yield of palay, Hybrid Rice will be introduced by phase. At the end of the long development term, the planted area of Hybrid Rice will be expanded by 25 % of the total paddy planted area. The proposed target yield is 120 cavans/ha. Consequently, the total production of palay would reach to 36,240 cavans. Moreover, to increase soil fertility, mung bean would be introduced in an area of 30 % of the total paddy area.
- 1.2.2 Under the crop diversification plan, 20 % of the cornfield will be converted to vegetable area such as, eggplant, string beans, etc. The technical supports of the Integrated Pest Management (IPM) and the Integrated Nutrition Management (INM) would be extended by the agricultural extension workers and the Cagayan Valley Integrated Agricultural Research Center (CVIARC) in the proposed demonstration farm. The main objective of this plan is to supply more vegetables to meet local consumption, which is in shortage at present.
- 1.2.3 To increase farm income through higher prices and marketable quantity and quality, the post harvest facility development plan that includes solar dryers, warehouses with a solar dryer and a mechanical dryer would be proposed. To improve the quality of farm produces, multi purpose pavement of 11,472 sq.m as solar dryer would be proposed. For controlling and handling the marketable quantity of 20 % of the total grain produce (4,632 cavans), a warehouse with 140 sq.m with a solar dryer of 2,647 sq.m and mechanical dryer with a capacity of 30 cavans/day would be proposed.
- 1.2.4 The farm-to-market road (FTMR) development plan would be proposed to reduce the hauling cost of the agricultural produces and to improve quality through the timely transportation of farming tools and instruments to the field. The scale of the proposed roads would be determined considering future traffic volume, and minimized O&M costs. The total road width of 3.5 m gravel road would be proposed as production road. The total length proposed is 3.44 km.

(Farmer's Organization Strengthening Plan)

- 1.2.5 The Farmer's Organization Strengthening Plan would be proposed to upgrade the domain of the farmer's group from "Kintaro" to "Vibrant". The plan would propose

the full provision of rule and regulation of the organization. To change the farmers' wait and see attitudes, it is proposed to conduct a farmer's visit of other good cooperatives in nearby areas at the beginning stage. When 70 % of loan will be repaid and CBU will reach 200,000 pesos, new project such as rice marketing would be proposed. The Module-4, which is described in this Master Plan, would be applied. For the long-term development stage, CBU of more than 1.0 million pesos will be targeted.

(Development Support Scheme)

- 1.2.6 The Rural Credit Plan to supply the farming fund would target more than 200,000 pesos of CBU at the short term development stage and 1.0 million pesos at the long-term development stage. The micro-finance (MF) through Cursillo of the Isabela diocese and NGO would be provided to poor farmers to strengthen the poor funding situation. For the women in the rural area, the MF would be provided for the establishment of simple agricultural processing project. When the CBU reaches more than 500,000 pesos, the farmers will be able to join the proposed good payers cooperative (GPC) and the funding source will be expanded as the medium term development. Under the plan, the farmers will be initially trained for one (1) year. Once, the farmer's have acquired the right values, MF will be given to them.
- 1.2.7 To save on family expenditure, to improve the nutrition of the families and to increase the farm household income, the Livelihood Development Plan would be proposed. The plan consists of four programs such as, the animal disposal plan, backyard garden, and fresh fish culture and mushroom culture. The NGO will support these plans at the initial stage of development. After the project becomes stable, the Barangay will manage these projects. The women in the rural area will maintain and manage the backyard garden and the mushroom culture plans through the guidance of the agricultural extension workers. At the first year, the nursery will be given in grant, after which the women group will take over. During this time, the women's group would have developed and prepared their own nursery requirements. Under the fresh fish culture having topographical constraints, the agricultural extension workers will examine the suitable place for the plan. The Small Fish Reservoir Plan under DA will be applied to construct the reservoir. The branch office of the Cagayan Valley Fresh Water Resources Research Center will supply the fingerlings for the initial three (3) years.
- 1.2.8 The objective of the Management Capability Building Plan is to increase the management capability of the agencies' staff as well as the farmer beneficiaries. The target agencies' staff is the DARPO's staff including DFs, government officials of line agencies and LGUs, NGO staff and so on. All the training programs will be included in the short-term development plans and implemented within two (2) years after the commencement of the project implementation. The impact survey at the end of the second year will particularly review and determine if the training programs would have to be continued. The program contains (a) Development Planing, (b) Planning Workshop cum Training, (c) Monitoring and Evaluation, (d) Training to Trainers and (e)

Project Management (Social Preparation).

(Implementation Plan and Management, O&M Plan)

1.2.9 The development plans of the Management Capability Building Plan, Farmer's Organization Strengthening Plan and Rural Credit Plan would first be implemented for improving the farmer's values, knowledge and techniques, and for strengthening of funding capacity for the purpose of sustainable development. After improving the farmer's values, the agricultural development scheme consisting of the post-harvest facilities development plan, the agricultural development plan and the farm-to-market road development plan, would be implemented.

1.2.10 The existing irrigation facilities that are managed by IA and MARIIS management office will remain as is. IA certified by NIA can collect water charge using the existing management system. The Barangay would manage the proposed solar dryer and should collect the rental fee from users. The rental fees from the dryer should be deposited in a special account for the solar dryer, and be spent for maintenance of the facility only. The warehouse with solar dryer and mechanical dryer would be managed by MPCl. The warehouse would be introduced in the area when MPCl will have cumulated a CBU of more than 200,000 pesos. Since these facilities require the farmers' management capability for sustainable management, the facilities would be introduced after achievement of the management capability building program. Barangay and LGU would manage and maintain the proposed production roads. The Barangay residents should shoulder part of the necessary cost for maintenance according to the existing rule. The production roads would be introduced after obtaining the capability to operate and maintain these facilities.

(Project Cost and O&M Cost)

1.2.11 The necessary project cost is estimated at 91.80 million pesos based on the prices of June 2000. The local and foreign currency portions are 40.10 million (43.6 %) and 51.70 million pesos (56.4 %), respectively.

1.2.12 The necessary annual O&M cost is estimated at 4,800 pesos at the short term, 81,200 pesos at the medium term and 85,200 pesos in the long-term development stages.

(Project Evaluation)

1.2.13 The major income will come from rice and corn. The occupancy of the benefit from animal breeding, vegetables and fish culture is small. However, net production values (NPV) are positive. NPV of fruits is negative for the initial four (4) to five (5) years, after which it becomes positive. Fish culture of tilapia shows negative NPV at the beginning year and positive NPV thereafter.

1.2.14 FIRR shows 24 % at the low case and 35 % in high case, which exceed the Philippines opportunity cost of 15 %. The project is justified as financially feasible for implementation. EIRR of 23 % calculated based on the NEDA/ICC standard shows that the project is economically feasible.

1.2.15 The Net Loanable Allowance of the Roxas municipality is over the project cost. This means that the executing body has a sound financial status.

(Initial Environmental Examination)

1.2.16 Since the Study Area is located within the agricultural land and the proposed component is small in scale, the environmental impact is limited. The surmised impacted items to environment are (a) economic gap during the development period and (b) change of farmers' costume, etc. However, these situations can be solved.

Chapter 2 Lapogan ARC

(Present Conditions and Problems)

2.1.1 The Lapogan ARC with a flat geographical feature categorized as Developing Area is established in 1993. The ARC is located at the northern part of the Isabela Province and has an area of 993 ha, population of 2,251 in 1996, and 398 households. There are small private pumps for irrigation located on the flat area. The ARC is 100 % LTI free.

2.1.2 The ARC produces about 69,000 cavans of corn from two cropping from an area of 460 ha. Paddy is minor crop as compared to corn. The 95 ha rainfed (75 ha) and irrigated paddy field produced about 6,950 cavans of palay annually. Other crops like vegetables are planted at backyard. The Cagayan River with sufficient water for irrigation flows along the ARC, however, there is no irrigation facility in the ARC. The farmer's long dream is to use the river water for irrigation purpose. Once the farmers could secure water from the River, they would want to convert their corn areas to paddy field. The post harvest facilities available in the area are 12 solar dryers and one (1) multi-purpose dryer. However, the capacities of the post harvest facilities are smaller for processing the total agricultural produces. Due to shortage of drying facility, the farmers loss a gross income of 2.0 pesos/kg of grain.

2.1.3 The Lapogan MPCCI was established with the assistance of DA in 1989. The MPCCI had poor activities in the past. However, from 1998, the new BOD's revitalized the MPCCI. At present, the total number of MPCCI members is counted at more than 175 with loan amount of less than 300,000 pesos. The revitalization of the MPCCI was stimulated by the following reasons; (a) initiation of general meeting, (b) introduction of new rule for repayment, (c) payment of CBU in kind, (d) disclosure, etc. However, this MPCCI still has some problems that (a) the members do not fully understand the regulations of the MPCCI, (b) lack of training and skills and (c) collection system of idea/opinions of members is not systematized

2.1.4 The farmers with an average area of 2.2 ha, sell most of farm produce to the private middleman. The selling prices of palay and corn are almost the same (5.0 to 7.0

pesos/kg) as in other areas in the province. The farm inputs cost occupies about 40 % of the production cost. The average income of farm household is about 76,000 pesos consisting of 93 % of farm income and seven (7) % from other income sources. Most of farmers borrow about 8,000 pesos from private lenders and have to pay the high interest of 30 % per cropping and/or seven (7) % a month. Due to this situation, the farmer's family budget is unstable.

- 2.1.5 The BARC established in 1992 has been active only in mediating and conciliating land dispute problems. No other activities have been carried out by the BARC. The ARC Development Plan (ARCDP) prepared by the Barangay officials with the help of the DF, was not followed up because of inner dispute in the Barangay. Only several governmental officers visit the ARC. At the municipal level, the MCIT is not organized. The Municipal Development Council (MDC) is the functional organization in the area. But since the MDC covers a wider prospective of development, there is minimal focus on the ARC development.
- 2.1.6 The direct causes of low income identified are (a) less opportunity other than agriculture, (b) low production, (c) low price of the products and (d) high hauling cost.

(Development Plan)

- 2.2.1 The agriculture development plan of the ARC aims to increase productivity and to hike the prices of agricultural products. After introducing the irrigation system in the ARC, the cornfield of 325 ha will be converted into paddy field. The cornfield areas will be decreased to about 182 ha. Hybrid Rice would be introduced at the medium term development stage. For the long-term development stage, another 82 ha shall be planted with Hybrid Rice. The annual palay production will reach up to about 78,000 cavans with irrigation system. Also, mung bean would be proposed in 100 ha of paddy areas to increase soil fertility on the long-term development stage. The agricultural extension workers and Philrice will be tapped to provide technical assistance on Hybrid Rice development. IPM and INM will be introduced to increase yield and quality of corn. The cornfield in the sloped land will be converted shall be planted with fruit trees like Mango, Banana, etc.
- 2.2.2 For the irrigation development plan to succeed there is a need to organize IA that will operate and maintain the facilities. The organization of IA shall be assisted by NIA prior to construction stage. The plan consists of a pump station with a diameter of 400 mm x 110 kw x 3 sets to take water of 669.5 lit/sec from the Cagayan River. The irrigation canal paved by concrete extends to 8.47 km with appurtenant structures such as a diversion work, road crossings, drainage crossings, etc. The rotational irrigation system would be introduced and all members of IA will approve the water distribution schedule.
- 2.2.3 To increase farm income through higher prices and marketable quantity and quality,

post harvest facility development plan that includes solar dryers, warehouses with solar dryers and mechanical dryers would be proposed. To improve the quality of farm produces, multi purpose pavement of 27,477 sq.m as a solar dryer would be proposed. For controlling and handling the marketable quantity of 20 % of the total grain produce (9,560 cavans), a warehouse with 305 sq.m with solar dryer of 6,341 sq.m and mechanical dryer with a capacity of 80 cavans/day would be proposed.

- 2.2.4 The farm-to-market road (FTMR) development plan would be proposed to reduce the hauling cost of the agricultural produces and to improve quality through the timely transportation of farming tools and instruments to the field. The scale of the proposed roads was determined considering future traffic volume, and minimized O&M costs. A total road width of 3.5 m (2.5 m gravel width) would be proposed as production road. The total length proposed is 8.85 km.

(Farmer's Organization Strengthening Plan)

- 2.2.5 The Farmer's Organization Strengthening Plan would be proposed to upgrade the domain of the farmer's group from "Kintaro" to "Vibrant". The plan would propose the full provision of specific rules and regulations of the organization. When 70 % of the loan will be repaid and CBU will reach 200,000 pesos, new project such as rice marketing would be proposed. The Module-4, which is described in this Master Plan, would be applied. For the long-term development stage, CBU of more than 1.0 million pesos will be targeted. To achieve this target, BOD staff training, training on accounting and bookkeeping, training on credit management, etc. would be proposed as support plan.

(Development Support Scheme)

- 2.2.6 The Rural Credit Plan will supply farming fund to ARBs and the priority would be the support to repay the loan of 300,000 pesos, and a target of more than 200,000 pesos of CBU within the short-term development stage, and 1.0 million peso CBU within the long-term development stage. Micro-Finance (MF) through Cursillo of the Isabela diocese and NGO would be provided to poor farmers as a priority to strengthen the poor funding situation. For the women in the rural area, MF would be arranged for the establishment of simple agricultural processing projects. MF will be transferred to Cagayan Valley Agricultural Confederation of Cooperative (CAVALCO).
- 2.2.7 To save on family expenditure, to improve the nutrition of the families and to increase the farm household income, the Livelihood Development Plan would be proposed. The plan consists of four programs such as, the animal disposal plan, the backyard garden, the fresh fish culture and the mushroom culture. NGO will support these plans at the initial stage of development. After the project becomes stable, the Barangay will manage these projects. The women in the rural area will maintain and manage the backyard garden and the mushroom culture plans through the guidance of the agricultural extension workers. At the first year, the nursery will be given in grant,

after which the women group will take over. During this time, the women's group would have developed and prepared their own nursery requirements. Under the fresh fish culture having topographical constraints, the agricultural extension workers will examine the suitable place for the plan. The Small Fish Reservoir Plan under DA will be applied to construct the reservoir. The branch office of the Cagayan Valley Fresh Water Resources Research Center will supply the fingerlings for the initial three (3) years.

2.2.8 The objective of the Management Capability Building Plan is to increase the management capability of the agencies' staff as well as the farmer beneficiaries. The target agencies' staff is the DARPO's staff including DFs, government officials of line agencies and LGUs, NGO staff and so on. All the training programs will be included in the short-term development plans and implemented within two (2) years after the commencement of the project implementation. The impact survey at the end of the second year will particularly review and determine if the training programs would have to be continued. The program contains (a) Development Planning, (b) Planning Workshop cum Training, (c) Monitoring and Evaluation, (d) Training to Trainers and (e) Project Management (Social Preparation).

(Implementation Plan and Management, O&M Plan)

2.2.9 The development plans of the Management Capability Building Plan, Farmer's Organization Strengthening Plan and Rural Credit Plan would be implemented first for improving the farmer's values, knowledge and techniques, and for strengthening of funding capacity for the purpose of sustainable development. After improving the farmer's values, the agricultural development scheme consisting of the post-harvest facilities development plan including the warehouse, the agricultural development plan and the farm-to-market road development plan, would be introduced in the area where MPCFI will have cumulated CBU of more than 200,000 pesos. Since these facilities require the farmers' management capability of farmers for sustainable management, the facilities would be introduced after achievement of the management capability building program. The warehouse with solar dryer and a mechanical dryer would be managed by the MPCFI.

2.2.10 IA certified by NIA can collect water charges using the existing management system. The Barangay would manage the proposed solar dryer and should collect rental fee from users. Such rental fees of the dryer should be deposited in the special account for the solar dryer, and be spent for maintenance of the facility only. Barangay and LGU would manage and maintain the proposed production roads. The Barangay residents should shoulder part of the necessary cost for maintenance according to the existing rule. The production roads would be introduced after obtaining the capability to operate and maintain these facilities.

(Project Cost and O&M Cost)

2.2.11 The necessary project cost is estimated at 196.11 million pesos based on the prices of June 2000. The local and foreign currency portions are 80.71 million (41.2 %) and 115.40 million pesos (58.8 %), respectively.

2.2.12 The necessary annual O&M cost is estimated at 81,400 pesos at the short term, 286,000 pesos at the medium term and 299,900 pesos in the long-term development stages.

(Project Evaluation)

2.2.13 The major income will come from rice and corn. The occupancy of the benefit from animal breeding, vegetables and fish culture is small. However, net production values (NPV) are positive. The NPV of fruits is negative for the initial four (4) to five (5) years, after which it becomes positive. Fish culture of Tilapia shows negative NPV at the beginning year and positive NPV thereafter.

2.2.14 FIRR shows 23 % at the low case and 36 % in high case, which exceed the Philippine opportunity cost of 15 %. The project is justified as financially feasible for implementation. EIRR of 17 % calculated based on the NEDA/ICC standard shows that the project is economically feasible.

2.2.15 The Net Loanable Allowance of the Tumauni municipality is over the project cost of only one (1) year. To solve this situation, the municipality needs some special budgetary assistance. This means that the executing body has a sound financial status.

(Initial Environmental Examination)

2.2.16 Since the Study Area is located within the agricultural land and the proposed component is small in scale, the environmental impact is limited. The surmised impacted items to environment are (a) economic gap during the development period and (b) change of farmers' values, etc. However, these situations are expected to solve accordingly at each development stage.

Chapter 3 Minagbag ARC

(Present Conditions and Problems)

3.1.1 The Minagbag ARC having a mixed geographical feature of flat and hilly and categorized as the Developing Area, is established in 1993. The ARC is located at the northern part of the Isabela Province and has the are of 3,952 ha, population of 2,259 in 1996, and 465 households. The LTI is 90 %. Major crops are palay and corn.

3.1.2 The ARC has a farmland area of 909 ha with about 390 ha of paddy field of which 77 ha is rainfed produces an annual production of 71,715 cavans of palay at two (2) cropping. The corn area of 400 ha annually produces 60,400 cavans through two (2)

cropping. The yields of palay and corn are lower due to damages by rice Tungro virus and insects. The farmers manage most part of farming fund through loan with high interest from private lenders. Vegetables are planted at the backyard only. There are 22 multi purpose solar dryers and one (1) multi purpose pavement, but the facilities can not process all agricultural produces in the ARC. The farmers lost 2.0 pesos/kg of gross income because of shortage of dryer. There is no mechanical dryer. Due to insufficient road, more farmers incur additional cost due to hauling. This also results to poor quality of produces due to bad timing of transportation of farm tools to the fields.

- 3.1.3 There are two (2) MPCIs in the ARC, namely Minagbag and Epiphany. The former has 182 members and the latter 456. MPCIs are extremely in contrast, i.e. the former has 10 million pesos of loan, while the latter has 20 million pesos of assets and annually earns 1.0 million pesos of benefit. The Minagbag MPCI was established in 1988 and the Epiphany MPCI branched off from the Minagbag MPCI in 1990 due to ethnic problem. The latter is the good MPCI because of (a) systematic and sectoral management and preparation of new rule, (b) clear rule and regulation, (c) many incentives. On the other hand, Minagbag MPCI was active for a period of four (4) to five (5) years at the initial stage. However, MPCI slowly died down due to (a) change in government policy, (b) illegal use of CBU by BOD, etc. The former good cooperative still has some problems such as lack of know-how to expand its territory, etc.
- 3.1.4 The farmers with an average area of 2.0 ha, sell most of farm produces to the private middleman. The Epiphany MPCI sells about 50 % of palay which are produced in the neighboring Barangay Abut. The selling prices of palay and corn are 7.5 to 9.5 pesos/kg, which are a little bit higher than other areas in the province. The farm inputs cost occupies about 40 % of the production cost. The average income of farm household is about 91,230 pesos consisting of 92 % of farm income and eight (8) % from other income sources. Farmer's income of the former and latter cooperatives differs by about ten (10) %. Members of the inactive Minagbag MPCI, have less other income sources due to less government support.
- 3.1.5 The Barangay Agrarian Reform Committee (BARC) established in 1987 has not been active for the last past five (5) years. The BARC acknowledged that activities other than mediating and conciliating land dispute problems are unnecessary. The Barangay Development Plan (BDP) and the ARC Development Plan (ARCDP) were prepared in 1999 and 1997 initially by the Barangay officials, respectively, were not followed up. Only few governmental officers visit the ARC. At the municipal level, the Municipal CARP Implementing Team (MCIT) that had been organized in 1993 and re-organized in 1998 is not active because members have low commitment.
- 3.1.6 The direct causes of low income identified are (a) less opportunity of other income sources, (b) low production, (c) low price of the products and (d) high production cost.

(Development Plan)

- 3.2.1 The major agriculture development plans of the ARC in the Prime Agriculture Area are paddy growing and crop diversification plans. Under the plans, the planted acreage of the paddy will increase by 45 ha due to the introduction of the proposed small-scale irrigation project and will reach to 512 ha in total. In the 130 ha of a paddy field, mung bean will be introduced to increase soil fertility. In the 110 ha of a paddy field, Hybrid Rice will be introduced by the end of the long term development stage. As countermeasure to protect the fields from rice Tungro Virus disease, the agricultural extension workers and CPRC will technically provide guidance to the farmers. To increase yield of palay, Hybrid Rice will be introduced by phase. Under the crop diversification plan, 88 of the cornfield and 163 ha of wasteland will be proposed to be planted with fruit trees such as Banana, Mango, etc. Early growing trees like Gmelina with higher cost will also be proposed. After farmers obtain management capability, the community plant nursery set up under the guidance by CAIRC and PENRO, will supply the necessary nurseries. In cornfields of 32 ha, IPM and INM will be executed as a technical support to farmers.
- 3.2.2 For the irrigation development plan IA assisted by NIA will be organized prior to implementation. The plan to irrigate 45 ha shall consists of a pump station with a diameter of 200 mm x 7 ps x 2 sets to take water of 92.7 lit/sec at the maximum from the Parapad creek. The irrigation canal paved by concrete will be about 1.66 km with appurtenant structures such as a diversion work, road crossings, drainage crossings, etc. The rotational irrigation system would be introduced and all members of IA will approve the water distribution schedule.
- 3.2.3 To increase farm income through higher prices and marketable quantity and quality, the post harvest facility development plan that includes solar dryers, warehouse with solar dryers and mechanical dryers would be proposed. To improve the quality of farm produces, multi purpose pavement of 43,381 sq.m as solar dryer would be proposed. For controlling and handling the marketable quantity of 20 % of the total grain produce, warehouse with 240 sq.m with solar dryer of 10,011 sq.m and mechanical dryer with capacity of 120 cavans/day would be proposed.
- 3.2.4 The farm-to-market road (FTMR) development plan would be proposed to reduce the hauling cost of the agricultural produces and to improve quality through the timely transportation of farming tools and instruments to the field. The scale of the proposed roads was determined considering future traffic volume, and minimized O&M costs. The total road width of 3.5 m (2.5 m gravel width) would be proposed as production road. The total length proposed is 8.17 km.

(Farmer's Organization Strengthening Plan)

- 3.2.5 The Farmer's Organization Strengthening Plan would propose that members of the

Minagbag MPCCI join the Epiphany MPCCI till they have repaid fully their loan amount. After completion of loan payment, the members of the Minagbag MPCCI have the option to continue and/or discontinue membership with the Epiphany MPCCI. For the Epiphany MPCCI, the plan is to upgrade its domain from “Anarchy” to “Vibrant”. For this purpose, a training center will be proposed for MPCCI. When 70 % of loan will be repaid and CBU will reach 200,000 pesos, new project such as rice marketing would be proposed. After seven (7) years of this development plan, the construction works of warehouse with appurtenant facilities will be started. After ten (10) years, by-lateral trade will be expanded. For this target, (a) BOD staff training to lift management capability, (b) training on accounting and bookkeeping, etc. will be provided. Moreover, the Epiphany MPCCI will provide technical assistance to the Minagbag MPCCI.

(Development Support Scheme)

- 3.2.6 The Rural Credit Plan would target to supply the farming fund of ARBs. Under this plan, the Minagbag MPCCI have to repay 10 % of loan of MPCCI at first stage. During the repayment period, MF will be given to ARBs. For the women in the rural area, MF would be arranged for the establishment of simple agricultural processing project. After they have gained many experiences, the executing body of MF will be transferred to CAVALCO. While, for the Epiphany MPCCI, suitable experts will be tapped to guide MPCCI to be up-graded to the core of GPC.
- 3.2.7 To save on family expenditure, to improve the nutrition of the families and to increase the farm household income, the Livelihood Development Plan would be proposed. The plan consists of four programs such as, the animal disposal plan, backyard garden, fresh fish culture, and mushroom culture. NGO will support these plans at the initial stage of development. After the project becomes stable, Barangay will manage these projects. The women in the rural area will maintain and manage the backyard garden and the mushroom culture plans through the guidance of the agricultural extension workers. At the first year, the nursery will be given in grant, after which the women group will take over. During this time, the women’s group would have developed and prepared their own nursery requirements. Under the fresh fish culture having topographical constraints, the agricultural extension workers will examine the suitable place for the plan. The Small Fish Reservoir Plan under DA will be applied to construct the reservoir. The branch office of the Cagayan Valley Fresh Water Resources Research Center will supply the fingerlings for the initial three (3) years.
- 3.2.8 The objective of the Management Capability Building Plan is to increase the management capability of the agencies’ staff as well as the farmer beneficiaries. The target agencies’ staff is the DARPO’s staff including DFs, government officials of line agencies and LGUs, NGO staff and so on. All the training programs will be included in the short-term development plans and implemented within two (2) years after the commencement of the project implementation. The impact survey at the end of the

second year will particularly review and determine if the training programs would have to be continued. The program contains (a) Development Planning, (b) Planning Workshop cum Training, (c) Monitoring and Evaluation, (d) Training to Trainers and (e) Project Management (Social Preparation).

(Implementation Plan and Management, O&M Plan)

3.2.9 The development plans of the Management Capability Building Plan, Farmer's Organization Strengthening Plan and Rural Credit Plan would first be implemented for improving the farmer's values, knowledge and techniques, and for strengthening of funding capacity for the purpose of sustainable development. After improving the farmer's values, the agricultural development scheme consisting of the post-harvest facilities development plan, the agricultural development plan and the farm-to-market road development plan, would be implemented.

3.2.10 IA will manage the irrigation facilities. IA certified by NIA can collect water charge using the existing management system. The Barangay would manage the proposed solar dryer and should collect the rental fee from users. Rental fees from the dryer should be deposited in a special account for solar dryer, and be spent only for maintenance of the facility. The warehouse with solar dryer and mechanical dryer would be managed by MPCI. Barangay and LGU would manage and maintain the proposed production roads. The Barangay residents should shoulder part of the necessary cost for maintenance of production roads according to the existing rule.

(Project Cost and O&M Cost)

3.2.11 The necessary project cost is estimated at 297.51 million pesos based on the prices of June 2000. The local and foreign currency portions are 123.34 million (41.5 %) and 174.17 million pesos (58.5 %), respectively.

3.2.12 The necessary annual O&M cost is estimated at 54,400 pesos at the short term, 280,080 pesos at the medium term and 351,640 pesos in the long-term development stages.

(Project Evaluation)

3.2.13 The major income will come from rice and corn. The occupancy of the benefit from animal breeding, vegetables and fish culture is small. However, net production values (NPV) are positive. NPV of fruits is negative for the initial four (4) to five (5) years, after which it becomes positive. Fish culture of Tilapia shows negative NPV at the beginning year and positive NPV thereafter.

3.2.14 FIRR shows 24 % at the low case and more than 50 % in the high case, which exceed the Philippine opportunity cost of 15 %. The project is justified as financially feasible for implementation. EIRR of 15 % calculated based on the NEDA/ICC standard shows that the project is economically feasible.

3.2.15 The Net Loanable Allowance of the Roxas municipality is over the project cost. This means that the executing body has a sound financial status.

(Initial Environmental Examination)

3.2.16 Since the Study Area is located within the agricultural land and the proposed component is small in scale, the environmental impact is limited. The surmised impacted items to environment are (a) economic gap during the development period and (b) change of farmers' attitudes, values, etc. However, these situations can be solved.

Chapter 4 San Manuel ARC

(Present Conditions and Problems)

4.1.1 The San Manuel ARC with a mixed geographical feature of flat and hilly, categorized as Developing Area, was established in 1993. The ARC is located at the southern part of the Isabela Province and has no potential for irrigation development due to few water resources. The ARC has a land area of 1,519 ha, population of 1,164 in 1996, and 235 households. The LTI is 82 %. Major crops are palay and corn.

4.1.2 The ARC has a corn area of 400 ha out of 749 ha of the farmland produces 33,600 cavans annually through two (2) cropping. Corn cultivation on the slope land is eroding soil surface. About 22,590 cavans of palay is produced annually on 300 ha area by rainfed cultivation with a low yield of 35 cavans/ha. Vegetables are planted at the backyard. There are some fresh fishponds under the small reservoir scheme of DA. Most of farmers borrow money for farming from private lenders. A multi purpose solar dryer and multi purpose pavement is located in the ARC. However, the available capacities of the post harvest facilities do not meet the total agricultural production requirements. Farmer loss a gross income of 2.0 pesos/kg of grain under this problem. Due to insufficient road, more production farmers incur additional cost due to hauling. This also result to poor quality of products due to wrong timing of transporting farming tools to the fields.

4.1.3 The San Manuel MPCCI was established in 1990. However, because MPCCI has no leader, MPCCI has been stagnant for several years. However, from 1997, the new BOD revitalized the MPCCI. At present, the total number of MPCCI members is counted at more than 140. CBU contribution is collected in kind at present, with a rate of 1.0 cavan/ha of corn and palay. In 1998, an NGO assisted in the social preparation of the MPCCI. MPCCI acquired a loan amount of 900,000 pesos from LBP and 1.7 million pesos from CAP-PBD-DAR. The latter amount was used to buy a 4-W tractor that is now being rented out. The rental charge is being used as repayment for the loan. About 200,000 pesos have already been repaid. About 15 % of farmer's loan have already been paid back. Members had revitalized the MPCCI to (a) to set up and keep the

rule and regulation, (b) for BOD to undertake cooperative efforts, and (c) improve leadership. However, MPCCI is beset by problems such as (a) lack of advanced technique, (b) needs improvement of rules and regulations, and (c) limited business and livelihood opportunities.

- 4.1.4 The farmers with an average area of 3.2 ha, sell most of farm produce to the private middleman. The selling price of palay and corn are 8.5 pesos/kg 4.5 pesos/kg, respectively and considered as higher and lower, respectively, than that of other areas in the province. The farm inputs cost occupies 46 % of the production cost. The average income of farm household is about 45,900 pesos consisting of about 90 % of farm income and the remaining from other income sources. Most of farmers borrow about 8,000 pesos from private lenders and have to pay the high interest of 30 % per cropping. Due to this situation, the farmer's family budget is unstable.
- 4.1.5 The Barangay Agrarian Reform Committee (BARC) was established in 1993 and has been active only in mediating and conciliating land dispute problems. Since 1998, the BARC has no general meeting and no other activities have been carried out. The BDP was prepared in 1995 initially by the Barangay officials, the MPCCI, BARC and women's organization with the help of the DF. However, no follow up activity was done. Only few governmental officers visit the ARC. At the municipal level, the Municipal CARP Implementing Team (MCIT) was newly organized in 1993 when the present MARO took office. However, few support services have been provided to the ARC.
- 4.1.6 The direct causes of low income identified are (a) high production cost, (b) low production, (c) low price of products and (d) less job opportunity other than farming.

(Development Plan)

- 4.2.1 The major agriculture development plan of the ARC proposed is to improve low agricultural productivity. Under the plan, a demonstration farm would be proposed to increase corn yield and to demonstrate the new technique of IPM and INM on corn cultivation. The agricultural extension workers and the Crop Protection Research Center (CPRC) will provide technical guidance to the farmers to gain more yield and improve quality of corn. To earn more farm income, crop diversification plan with banana, and pineapple cultivation would be proposed to about 100 ha of cornfields. A community plant nursery will be proposed that will provide the nursery requirements of the farmers at optimum price. The Barangay would manage the plant nursery. For protection of soil erosion, the Provincial Soil and Water Management Department will provide farm technology on slope farming to farmers who are cultivating corn at the sloped fields.
- 4.2.2 To increase farm income through higher prices and marketable quantity and quality, the post harvest facility development plan that includes solar dryers, warehouses with solar

dryers and mechanical dryers would be proposed. To improve the quality of farm produces, multi purpose pavement of 24,311 sq.m as solar dryer would be proposed. For controlling and handling the marketable quantity of 20 % of the total grain produce (11,080 cavans), a warehouse with 300 sq.m having a solar dryer of 5,610 sq.m and a mechanical dryer with a capacity of 30 cavan/day would be proposed.

- 4.2.3 The farm-to-market road (FTMR) development plan would be proposed to reduce the hauling cost of the agricultural produces and to improve quality through the timely transportation of farming tools and instruments to the field. The scale of the proposed road was determined considering future traffic volume, and minimized O&M costs. The total road width of 3.5 m (2.5 m gravel width) would be proposed as production road. The total length proposed is 8.80 km.

(Farmer's Organization Strengthening Plan)

- 4.2.4 The Farmer's Organization Strengthening Plan would be proposed to upgrade the domain of the farmer's group from to "Vibrant" to "Area-Wide Cooperative". The plan would propose the provision of a full rule and regulation of the organization in Ilocano dialect. When CBU will reach 500,000 pesos, new project such as rice marketing would be proposed. When 70 % of loan will be repaid, an agro-processing business will be started and barter trade of the agricultural goods with other cooperatives through network will be possible. The Module-5, which is described in this Master Plan, would be applied. For medium development stage, the target is a cumulative CBU of more than 1.0 million pesos. For this target, the support services that will be provided are (a) training of BOD to improve management capability, and (b) training on accounting and bookkeeping, etc.

(Development Support Scheme)

- 4.2.5 Under the Rural Credit Plan, the first priority should be given to repayment of loan of 2.4 million pesos. A new loan will not be provided unless 70 % of existing loan is repaid during the short-term development period. The other target during this stage is the accumulation of CBU of 500,000 pesos. The long-term development target is the accumulation of CBU of more than 1.0 million pesos. The plan would also give priority to poor farmers by providing micro-finance (MF) through the Cursillo of the Isabela diocese and NGO to strengthen the poor funding situation. For the women in the rural area, MF would be established for simple agricultural processing project. For accumulating more experiences, the executing body of MF will be transferred to CAVALCO. In the medium term development when CBU reaches more than 500,000 pesos, the farmers will be able to join the proposed good payers cooperative (GPC) and the funding source will be expanded.
- 4.2.6 To save on family expenditure, to improve the nutrition of the families and to increase the farm household income, the livelihood development plan would be proposed. The plan consists of four (4) programs such as, the animal disposal plan, backyard gardening, fresh fish culture and mushroom culture. NGO will support these plans at

the initial stage of development. After the project becomes stable, the Barangay will manage these projects. The women in the rural area will maintain and manage the backyard gardening and mushroom culture plans through the guidance of the agricultural extension workers. At the first year, the nursery will be given in grant, after which the women group will take over. During this time, the women's group would have developed and prepared their own nursery requirements. Under the fresh fish culture having topographical constraints, the agricultural extension workers will examine the suitable place for the plan. The small fish reservoir plan under DA will be applied to construct the reservoir. The branch office of the Cagayan Valley Fresh Water Resources Research Center will supply the fingerlings for the initial three (3) years.

- 4.2.7 The objective of the Management Capability Building Plan is to increase the management capability of the agencies' staff as well as the farmer beneficiaries. The target agencies' staffs are the DARPO's staffs including DFs, government officials of line agencies and LGUs, NGO staffs and so on. All the training programs will be included in the short-term development plans and implemented within two (2) years after the commencement of the project. The impact survey at the end of the second year will particularly review and determine if the training programs would have to be continued. The program contains (a) Development Planning, (b) Planning Workshop cum Training, (c) Monitoring and Evaluation, (d) Training to Trainers and (e) Project Management (Social Preparation).

(Implementation Plan and Management, O&M Plan)

- 4.2.8 The development plans of the management capability building plan, farmer's organization strengthening plan and rural credit plan would first be implemented for improving the farmer's values, knowledge and techniques, and for strengthening of funding capacity for the purpose of sustainable development. After improving the farmer's values, the agricultural development scheme consisting of the post-harvest facilities development plan, the agricultural development plan and the farm-to-market road development plan, would be implemented. Construction of warehouse will be implemented after achieving a cumulative CBU of 200,000 pesos.
- 4.2.9 The Barangay would manage the proposed solar dryer and should collect rental fee from the users. The rental fees from the dryer should be deposited in a special account for the solar dryer, and be spent for maintenance of the facility only. On management of the solar dryer, the user's schedule should be established at the general meeting of MPCI. The warehouse with the appurtenant tools and facilities would be managed by MPCI. Barangay and LGU would manage and maintain the proposed production roads. The Barangay residents should shoulder part of the necessary cost for maintenance according to the existing rule.

(Project Cost and O&M Cost)

4.2.10 The necessary project cost is estimated at 220.73 million pesos based on the prices of June 2000. The local and foreign currency portions are 88.61 million (40.1 %) and 132.12 million pesos (59.9 %), respectively.

4.2.11 The necessary annual O&M cost is estimated at 14,000 pesos at the short term, 99,200 pesos at the medium term and 113,400 pesos in the long term development stages.

(Project Evaluation)

4.2.12 The major income will come from rice and corn. The occupancy of the benefit from animal breeding, vegetables and fish culture is small. However, net production values (NPV) are positive. The NPV of fruits as representatives of banana and calamansi, is negative for the initial four (4) to five (5) years, after which it becomes positive. Fish culture of Tilapia shows negative NPV at the beginning year and positive NPV thereafter.

4.2.13 FIRR shows less than 15 %, which does not exceed the Philippine opportunity cost of 15 %. EIRR of 15 % calculated based on the NEDA/ICC standard shows that the project is economically feasible for implementation.

4.2.14 The Net Loanable Allowance of the Roxas municipality is over the project cost. This means that the executing body has a sound financial status.

(Initial Environmental Examination)

4.2.15 Since the Study Area is located within the agricultural land and the proposed component is small in scale, the environmental impact is limited. The surmised impacted items to environment are (a) economic gap during the development period and (b) change of farmers' values, attitudes, etc. However, these situations can be solved.

Chapter 5 La Suerte Cluster, Isabela Settlement

(Present Conditions and Problems)

5.1.1 The La Suerte Cluster in the Isabela Settlement having a rolling geographical feature in the Remote Area was established in 1993. The Cluster is located at the southern part of the Isabela Province and has an area of 1,935 ha, population of 3,864 in 1996, and 642 households. The Cluster has no potential for irrigation development. The LTI is 100 %. The major crop is corn.

5.1.2 The Cluster produces about 128,772 cavans (average yield of 73 cavans/ha) of corn from 882 ha of a cornfield out of 1,092 ha of the total farmland, in two cropping. About 193 ha of paddy field using springs and located at low lying area in the rolling land, produce 24,163 cavans (average yield of 62.5 cavans/ha) by two (2) cropping for

home consumption. The Cluster has a problem of low productivity due to limited support services caused by poor road system. It is possible to harvest banana throughout the year, but producers can not transport them at the optimum time due to poor road system. Farmers in the Cluster recently increase the planting area of mango, pineapple, Gmelina, etc. Farmers grow vegetables at the backyard only. Carabao is very important animal for transporting and tilling. Poor post-harvest facilities causes low quality and low selling price of farm produces. Since the corn cultivation at the slope land triggers soil erosion, some countermeasure to control erosion is required. There is no water resource in the Cluster. The area has eight (8) solar dryers and five (5) multi purpose pavements. The post harvest facilities do not meet the total agricultural production of the area. Farmers loss a gross income of 2.0 pesos/kg of grain produced under this problem. The area has neither warehouse nor mechanical dryer. There are some concrete paved roads in the residential area for multi purpose use, but with very limited length. Other roads in the Cluster are not paved.

- 5.1.3 There are two (2) MPCIs in the Cluster. One is La Suerte MPCI established in 1993, having 140 members and 76,000 pesos CBU. This MPCI was reorganized in 1996. The farmer's capacity to obtain loan was improved by past experience of loan. On the other hand, the San Marcelo MPCI was established in 1998, has 75 members and is not yet registered with CDA. In other three (3) Barangays no MPCI is organized. The problems of the existing MPCIs are delay of organization, lack of building, insufficient training, unfair distribution of loan and lack of rule to non-paying members.
- 5.1.4 The farmers with an average area of 4.3 ha, sell most of farm produce to only one private middleman. The selling price of corn is 6.0 pesos/kg is almost the same as the other areas in the province. The farm inputs cost occupies about 42 % of the production cost. The average income of farm household is about 68,700 pesos consisting of about 90 % of farm income and remaining from other income sources. In case the production cost reached 74,500 pesos, the income is negative due to low production.
- 5.1.5 The Barangay Agrarian Reform Committee (BARC) was established in 1987 and has been active at the initial period only after which no more activities have been carried out. The Barangay Development Plan (BDP) was prepared in 1999 by the Barangay officials with the help of the DF. The he ARC Development Plan (ARCDP) was prepared in 1992 by the Barangay officials with the help of DF. After setting up of ARCDP, no follow up activity was carried out. Only a few governmental officers visit the Cluster. The Municipal CARP Implementing Team (MCIT) has not been organized yet.
- 5.1.6 The direct causes of low income identified are (a) high prices of farm inputs, (b) low price of products, (c) low agricultural productivity, (d) high production cost, and (e) low quality of products.

(Development Plan)

5.2.1 The agriculture development plan of the Cluster is to increase corn production as a core of the crop diversification plan. To increase corn production and improve quality, the agricultural extension workers and the Crop Protection Research Center (CPRC) will provide technical guidance on IPM and INM to the farmers. To increase farm income, corn will be converted to fruits such as banana in the 182 ha of cornfield under the plan. The proposed community plant nursery that will be managed by the Barangay will supply the necessary planting materials required. For protection of soil erosion, the Provincial Soil and Water Management Department will provide farm technology on sloping agriculture to farmers who are cultivating corn at the sloped fields. The provincial veterinary department will initiate the introduction of animal disposal plan for effective land use of the waste lands in the Cluster with the help of the Cagayan Valley Upland Research Outreach Station (CVUROS) and the agricultural extension workers.

5.2.2 To increase farm income through higher prices and marketable quantity and quality, the post harvest facility development plan that includes solar dryers, and warehouses with solar dryers and mechanical dryers would be proposed. To improve the quality of farm produces, multi purpose pavement of 25,286 sq.m as solar dryer would be proposed. For controlling and handling the marketable quantity of 20 % of the total grain produce (12,888 cavans), a warehouse with 100 sq.m having a solar dryer of 5,835 sq.m and a mechanical dryer with a capacity of 30 cavans/day would be proposed.

5.2.3 The farm-to-market road (FTMR) development plan would be proposed to reduce the hauling cost of the agricultural produces and to improve quality through the timely transportation of farming tools and instruments to the field. The scales of the proposed roads were determined considering future traffic volume, and minimized O&M costs. The total road width of 7.0 m and 3.5 m (5.0 m and 2.5 m gravel width) would be proposed as production road. The total proposed lengths of FTMR and the production roads are 4.38 km and 8.37 km, respectively.

(Farmer's Organization Strengthening Plan)

5.2.4 The Farmer's Organization Strengthening Plan consists of two (2) priority plans, such as firstly organizing MPCIs in all Barangay and up-grading of the La Suerte MPCCI from "Vibrant" to "Area-Wide Cooperative". The plan contains execution of pre-Membership Seminar (PMS), establishment of rule and regulation of repayment, construction of MPCCI building as an office, and introduction of new business of rice marketing when the cumulative CBU reached to 500,000 pesos. Moreover, barter trade of the agricultural goods with other cooperatives through the network will be possible. The Module-5, which is described in this Master Plan, would be applied.

(Development Support Scheme)

- 5.2.5 The consensus for the rural credit plan to supply farming fund is to repay existing loan amount within the short-term development stage. Also, after the setting-up of the new rule and regulation on the repayment of loan, additional loan will be provided to MPCl. The new loan should not provided until about 70 % of the existing loan will have been repaid. MPCl would target more than 200,000 pesos of CBU at the short-term development stage, and 1.0 million pesos CBU at the long-term development stage. Micro-finance (MF) shall be provided to poor farmers through the Cursillo of the Isabela diocese and NGO to strengthen the poor funding situation. For the women in the rural area, MF would be provided to establish simple agricultural processing project. After accumulating experiences of MF, the executing body will be change to CAVALCO. For the medium term development, when CBU reaches more than 500,000 pesos, the farmers will be able to join the proposed good payers cooperative (GPC) and the funding source will be expanded.
- 5.2.6 To save on family expenditure, to improve the nutrition of the families and to increase the farm household income, the livelihood development plan would be proposed. The plan consists of four programs such as backyard gardening, fresh fish culture and mushroom culture, and simple agro-processing project. The women in the rural area will maintain and manage the backyard gardening and mushroom culture plans through the guidance of the agricultural extension workers. At the first year, the nursery will be given in grant, after which the women group will take over. During this time, the women's group would have developed and prepared their own nursery requirements. Under the fresh fish culture having topographical constraints, the agricultural extension workers will examine the suitable place for the plan. The small fish reservoir plan under DA will be applied to construct the reservoir. The branch office of the Cagayan Valley Fresh Water Resources Research Center will supply the fingerlings for the initial three (3) years. Simple agro-processing projects such as dry fruits and vinegar processing from banana and pineapple are proposed.
- 5.2.7 The objective of the management capability building plan is to increase the management capability of the agencies' staff as well as the farmer beneficiaries. The target agencies' staff is DARPO's staff including DFs, government officials of line agencies and LGUs, NGO staff and so on. All the training programs will be included in the short-term development plans and implemented within two (2) years after the commencement of the project implementation. The impact survey at the end of the second year will particularly review and determine if the training programs would have to be continued. The program contains (a) Development Planing, (b) Planning Workshop cum Training, (c) Monitoring and Evaluation, (d) Training to Trainers and (e) Project Management (Social Preparation).

(Implementation Plan and Management, O&M Plan)

- 5.2.8 The development plans of the management capability building plan, farmer's organization strengthening plan and rural credit plan would be firstly implemented for improving the farmer's values, knowledge and techniques, and for strengthening of

funding capacity for the purpose of sustainable development. After improving the farmer's values, the agricultural development scheme consisting of the post-harvest facilities development plan, the agricultural development plan and the farm-to-market road development plan, would be implemented. The warehouse would be introduced in the area when MPCFI will have cumulated CBU of more than 200,000 pesos. Since these facilities require the farmers' management capability of farmers for sustainable management, the facilities would be introduced after achievement of the management capability building program. Barangay and LGU would manage and maintain the proposed production roads after they get the capability of management. The implementation will be started at the second year of the development plan.

- 5.2.9 The Barangay would manage the proposed solar dryer and would collect rental fee from users. The rental fees from the dryer should be deposited in a special account for solar dryer, and be spent for maintenance of the facility only. The warehouse with solar dryers and a mechanical dryer would be managed by MPCFI. FTMR will be managed by LGU and the production roads would be introduced after obtaining the capability to operate and maintain these facilities. The Barangay residents should shoulder part of the necessary cost for maintenance according to the existing rule.

(Project Cost and O&M Cost)

- 5.2.10 The necessary project cost is estimated at 241.57 million pesos based on the prices of June 2000. The local and foreign currency portions are 108.34 million (44.8 %) and 133.23 million pesos (55.2 %), respectively.

- 5.2.11 The necessary annual O&M cost is estimated at 14,000 pesos at the short term, 126,000 pesos at the medium term and 147,000 pesos in the long-term development stages.

(Project Evaluation)

- 5.2.12 The major income will come from rice and corn. The occupancy of the benefit from animal breeding, vegetables and fish culture is small. However, net production values (NPV) are positive. NPV of fruits is negative for the initial four (4) to six (6) years, after which it becomes positive. Fish culture of Tilapia shows negative NPV at the beginning year and positive NPV thereafter.

- 5.2.13 FIRR shows more than 50 % for both the low case and high case, which exceed the Philippine opportunity cost of 15 %. The project is justified as financially feasible for implementation. EIRR of 41 % calculated based on the NEDA/ICC standard shows that the project is economically feasible.

- 5.2.14 The Net Loanable Allowance of the Roxas municipality is over the project cost. This means that the executing body has a sound financial status.

(Initial Environmental Examination)

- 5.2.15 Since the Study Area is located within the agricultural land and the proposed

component is small in scale, the environmental impact is limited. The surmised impacted items to environment are (a) economic gap during the development period and (b) change of farmers' costume, etc. However, these situations can be solved.

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ABBREVIATIONS & GLOSSARY

| | |
|---------------|--|
| ADB | : Asian Development Bank |
| ALDA | : ARC Level of Development Assessment |
| AMRIS | : Angat Magat River Integrated Irrigation System |
| ARB | : Agricultural Reform Beneficiary |
| ARC | : Agrarian Reform Community |
| ARCDP | : Agrarian Reform Communities Development Project |
| ARISP | : Agrarian Reform Infrastructure Support Project |
| ASG | : Auto Saving Group |
| ATI | : Agricultural Training Institute |
| Barangay | : Political subdivision of a municipality comprising sitio |
| Brgy. | : Barangay |
| BARC | : Barangay Agrarian Reform Committee |
| BC | : Barangay Council |
| BDC | : Barangay Development Council |
| BDCD | : Beneficiaries Development and Coordination Division |
| BDP | : Barangay Development Plan |
| BIDANI | : Bangay Integrated Development Approach for Nutrition Improvement |
| BOD | : Board of Directors |
| Carabao | : The animal that most farmer use for plowing and other farming works. It is about the size of an ox and is similar to the water buffalo in other countries. |
| CARL | : Comprehensive Agrarian Reform Law |
| CARP | : Comprehensive Agrarian Reform Program |
| CAVALCO | : Cagayan Valley Agricultural Confederation of Cooperative |
| Cavan | : Common unit of volume for crops equivalent to 50 kg of grains (seed: 40 kg) |
| CBU | : Capital Build-Up |
| CDA | : Cooperative Development Authority |
| CENRO | : Community Environment and Natural Resources Office |
| CIS | : Communal Irrigation System |
| CIT | : CARP Implementing Team |
| COOP | : Cooperative |
| CPMT | : Community Project Management Team |
| CRIS | : Chico River Irrigation System |
| CVIARC | : Cagayan Valley Integrated Agricultural Research Center |
| CVUROS | : Cagayan Valley Upland Research Outreach Station |
| DA | : Department of Agriculture |
| DA-RFU | : Development of Agriculture - Regional Field Unit |

| | |
|-----------|---|
| DAR | : Department of Agrarian Reform |
| DARCO | : Department of Agrarian Reform Central Office |
| DARMO | : Department of Agrarian Reform Municipal Office |
| DARPO | : Department of Agrarian Reform Provincial Office |
| DARRO | : Department of Agrarian Reform Regional Office |
| DBP | : Development Bank of Philippines |
| DCC | : Diagnosis of Cooperate Culture |
| DENR | : Department of Environment and Natural Resources |
| DF | : Development Facilitator |
| DOF | : Department of Finance |
| DOLE | : Development of Labor and Employment |
| DOST | : Department of Science and Technology |
| DPWH | : Department of Public Works and Highways |
| DTI | : Department of Trade and Industry |
| ECC | : Environmental Compliance Certificate |
| ECP | : Environmentally Critical Project |
| EIS | : Environmental Impact Statement |
| FICO Bank | : First Isabela Cooperative Bank |
| F/S | : Feasibility Study |
| FSD | : Farming Systems Development |
| FTMR | : Farm to Market Road |
| GDP | : Gross Domestic Product |
| GPC | : Good Payers Cooperative |
| I/A | : Implementing Arrangement |
| IA | : Irrigators' Association |
| IDO | : Institutional Development & Operation & Maintenance |
| IEE | : Initial Environmental Examination |
| IGLO | : Isabela Green Lady's Organization |
| INM | : Integrated Nutrition Management |
| IRA | : Internal Revenue Allotment |
| IRM | : Internal Revenue Allotment |
| ISU | : Isabela State University |
| ITC | : Isabela Trading Company |
| JICA | : Japan International Cooperation Agency |
| LA | : Line Agency |
| LBP | : Land Bank of the Philippines |
| LGU | : Local Government Unit |
| LTI | : Land Tenure Improvement |
| MAMB | : Municipal Agrarian Reform Management Board |
| MA | : Municipal Agriculturist |
| MAO | : Municipal Agriculture Office |

| | |
|---------------|---|
| MARIS | : Magat River Integrated Irrigation System |
| MARO | : Municipal Agrarian Reform Office |
| * MARO | : Municipal Agrarian Reform Officer |
| MC | : Memorandum Circular |
| M.C. Building | : Management Capability Building |
| MCIT | : Municipal CARP Implementing Team |
| MDC | : Municipal Development Council |
| MDP | : Municipal Development Plan |
| MDPO | : Municipal Development Plan Office |
| MF | : Micro-Finance |
| M/P | : Master Plan |
| MPCI | : Multi Purpose Cooperative Inc. |
| MPDO | : Municipal Planning and Development Officer |
| MPP | : Multi Purpose Pavement |
| NATCCO | : National Confederation of Cooperatives |
| NEDA | : National Economic and Development Authority |
| NFA | : National Food Authority |
| NGO | : Non Government Organization |
| NIA | : National Irrigation Administration |
| NIS | : National Irrigation System |
| NLSF | : National Livelihood Support Fund |
| O&M | : Operation and Maintenance |
| OECF | : Overseas Economic Cooperation Fund |
| OJT | : On the Job Training |
| OPE | : Office of Provincial Engineering |
| Palay | : Paddy, unhusked rice, sometimes called rough rice |
| PAMB | : Provincial Agrarian Reform Management Board |
| PAO | : Provincial Agriculture Office |
| PARO | : Provincial Agrarian Reform Officer |
| PBD | : Program Beneficiary Division |
| PCIC | : Philippine Crop Insurance Corporation |
| PCO | : Provincial Cooperative Office |
| PDD | : Project Development Department |
| PDP | : Provincial Development Plan |
| PENRO | : Provincial Environment and Natural Resources Office |
| PG | : Provincial Government |
| PHF | : Post Harvest Facilities |
| PhilRice | : Philippine Rice Research Institute Hybrid Center |
| PIO | : Provincial Irrigation office |
| PIU | : Project Implementation Unit |
| PMO | : Project Management Office |

| | |
|-----------|---|
| PMS | : Pre-Membership Seminar |
| PO | : Project Office |
| Poblacion | : Political center of a town |
| PRO | : Press Relation Officer |
| Province | : Political subdivision of the country comprising municipality(s) and city(s) |
| Purok | : |
| RCPC | : Regional Crop Protection Center |
| RIC | : Rural Improvement Club |
| RO | : Regional Office |
| ROW | : Right of Way |
| RTV | : Rice Tungro Virus Disease |
| SAKARA | : Samahang Kababaihan Ng San Ramon |
| SFR | : Small Farmer Reservoirs |
| Sgt. | : Sergeant at Arms |
| SP | : Social Preparation |
| SRA | : Social Reform Agenda |
| SRIS | : Small Reservoir Irrigation System |
| TA | : Technical Assistant |

Conversion Table

| | | | |
|----------|--------------------------|------|---|
| mm | : millimeter | K | : potassium |
| cm | : centimeter | Peso | : Philippine peso |
| m | : meter | | = 2.5238 Japanese Yen (as of June 2000) |
| km | : kilometer | US\$ | : US Dollar |
| | | | = 42 peso (as of June 2000) |
| sq.m | : square meter | | = 106 Japanese Yen |
| sq.km | : square kilometer | | |
| ha | : hectare | | |
| l, lit. | : liter | | |
| cu.m | : cubic meter | | |
| MCM | : million cubic meter | | |
| lit/sec | : liters per second | | |
| cu.m/sec | : cubic meter per second | | |
| ppm | : parts per million | | |
| pH | : potential of hydrogen | | |
| EC | : electric conductivity | | |
| g | : gram | | |
| kg | : kilogram | | |
| t, ton | : metric ton | | |
| sec. | : second | | |
| min. | : minute | | |
| hr. | : hour | | |
| ave. | : average | | |
| min. | : minimum | | |
| max. | : maximum | | |
| % | : percent | | |
| No. | : number | | |
| °C | : degree centigrade | | |
| ET | : evapo-transpiration | | |
| N | : nitrogen | | |
| P | : phosphate | | |

Part 1
Master Plan Study

Chapter1

Preface

Chapter 1 Preface

1.1 Background of the Study

In the past, most of agricultural lands are owned by few land owners and privileged classes. All the previous Government Administration aimed that this discrepancy be minimized through the distribution of agricultural lands to the landless. The implementation of Presidential Decree No. 27 known as the “Emancipation of Tenants from the Bondage of the Soil” was a remarkable beginning of this change. It gave the farmers the opportunity to own the land they till and become instant small landowners. Though the farmers have a piece of land that they may call their own, some of them were not able to manage it properly and sustain the ownership.

The formulation and implementation of Republic Act (RA) 6657, known as the Comprehensive Agrarian Reform Law (CARL) paved the way for the provision of Support Services under the Comprehensive Agrarian Reform Program (CARP). The Agrarian Reform Beneficiaries (ARBs) were given assistance such as: infrastructures (farm to market roads, irrigation, post harvest facilities, solar dryers, multi-purpose pavement); economic and livelihood support through credit, marketing tie-ups and related training; support for institutional development; and others. The expected impacts of those services were not felt so much by the ARBs because it was distributed sporadically without considering the location of the intended recipients of the Program.

Since 1995, DAR selected some area as Agrarian Reform Communities (ARCs), where the Agrarian Reform Beneficiaries (ARBs) receive support services after complying with some basic requirements. It is possible that CARP implementation will be achieved with the concentration of support services to the ARC. This system aims to support ARBs where lands have been distributed by providing various support services in cooperation with the different agencies of Local Government Units (LGUs) and Non Government Organizations (NGOs) under CARP.

The DAR designates Development Facilitator (DF) in each ARC and has offices and permanent staff in every Municipality, Province and Region. The staffs are assigned to solve problems on land distribution and assist in the establishment of the ARC development plan. However, not all ARC development plans reflect the real needs of ARBs in the ARC. Consequently, the support services activities provided did not harvest many fruits.

Under these situations, the DAR understands that it is necessary to establish

and implement an integrated rural development plan in response to the people's needs including ARBs. As a model of this development strategy, the 21 ARCs in the Isabela Province were selected. Hence, the Philippine Government requested the Japanese Government to formulate the suitable Master Plan, which aims to effectively use various resources in the ARC. In response to this request, the Japanese Government dispatched the preparatory Study Team on May 1999. Both Governments signed the Implementing Arrangement (I/A) for the Study on May 19, 1999. Based on the I/A, the Japan International Cooperation Agency (JICA) sent the Study Team from October 14 to December 22, 1999 to investigate the Study Area. The Study Team conducted the Home Office Work in Japan and formulated the Master Plan for those 21 ARCs on March 2000. In the course of the Master Plan, five (5) ARCs were selected as model ARC. The Study Team conducted the field investigation for the feasibility study of these five (5) ARCs from May 7 to July 1, 2000 followed by Home Office Work in Japan. This report compiles the results of the Study of Master Plan and the Feasibility Study.

1.2 Objectives of the Study

The objectives of the Study, which was agreed upon by both Governments, are:

- (1) To formulate a Master Plan (M/P) 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) To conduct a Feasibility Study (F/S) on the priority project(s) or areas/ARCs selected in the Master Plan; and,
- (3) To carry out technology transfer to the Philippine counterpart personnel through on-the-job training in the course of the Study.

1.3 The Study Area

The Study Area covers the 21 ARCs in the Province of Isabela, which was identified on May 1999. (Refer to the attached General Map)

1.4 Composition of the Report

This Report is composed in the following manner, the flow of which also explains how the Study has been conducted:

The Report has two volumes, main report and appendix. The main report is divided into two parts, Part I Master Plan and Part II Feasibility Study. The Part I deals 21 ARCs while the Part II concentrates on 5 ARCs which the Study Team has selected as the model areas. The appendix contains the detailed data and explanations of the main

report.

The Part I is divided into the following 9 chapters:

Chapter 2: To understand the agrarian reform, the socio-economic backgrounds at the national, regional and provincial levels and the basic features of the CARP have been studied and summarized.

Chapter 3: The current situations and problems of the different sectors in the 21 ARCs are described. The root causes of those problems have been analyzed from various points of view, for the inclusion of the countermeasures for those root causes into the master plan. It has been found through the analysis that certain problems are rooted from particular consciousness of the farmers in the area which has further been studied from the sociological point of view, and the results are described as “the essential issues for development”. In addition, the vitality of the existing farmers organizations has been analyzed and described in what way their vitality was formulated and changed.

Chapter 4: The directions of development and their potentials are indicated as the solutions for the problems described in Chapter 3. All the problems are logically linked according to the cause-effect relationships and divided into some groups using the problem tree. The most important issue and its direct causes, which should be considered in the master plan, have been identified. Eight development approaches are then proposed for the solution of them. In addition, the scenario to vitalize the farmers organizations are formulated based on the current strengths of them.

Chapter 5: The purpose, concept and basic approaches of development are shown as the principles of development to be adopted in the formulation of the development plan for each ARC. The purpose of development is the solution of the most important issue of development, while the concept is related to the essential issue of development mentioned in Chapter 4. The basic approaches of development indicate how the eight development approaches shall be applied in relation to the possible means to increase the income, the characteristics of the areas where ARCs are located, and the times required for the development of social preparation.

Chapter 6: The eight development approaches shown in Chapter 4 are applied according to the development principles shown in Chapter 5. 21 ARCs are classified into five groups based on the characteristics of the areas, and the development strategies and targets of each group are indicated. The development plan for each ARC is then formulated. The implementation and O&M structures, schedules, project costs are also shown. The project design matrix is attached to indicate the project purpose, overall goal, activities, externalities, etc.

Chapter 7: The proposed development plans are justified from technical, financial, social and environmental points of view.

Chapter 8: The model five ARCs are selected as the targets of the feasibility study.

Chapter 9: The conclusions of the master plan study and the recommendations for the

next step are described.

The Part II is composed of 6 chapters. The results of the feasibility study for five ARCs are described from Chapter 1 to 5, and the conclusions and recommendations are in Chapter 6.

Chapter2

Background of the ARCs

Chapter 2 Background of the ARCs

2.1 Socio-Economic Background

2.1.1 National Level

According to the 1995 Population Census, the population of the Philippines is about 68,617 thousands as of September 1995 with the annual population growth rate of 2.32 %. The land of about 300 thousand sq.km consists of about 10,298 thousand has of agricultural land, about 8,947 thousand has of grassland/shrubland, 8,992 thousand has of forestland, and 4,713 thousand of other land uses. Of the agricultural land, palay and corn are planted on about 4,713 thousand ha, coconuts, banana and tropical fruits on 5,126 thousand ha (equivalent to about 50 %), and pasture on 377 thousands ha. Since the annual population growth rate is projected to be the same in the near future, the food problem is expected to continue.

The agriculture, forestry and fisheries' sectors are still very important sector in the Philippines. The sector is placed third position and occupies 21 % of the total Gross Domestic Product (GDP) in 1997. GDP of the Philippines were considered as low in 1991 and 1992, however, GDP reached to 893 billion pesos (1994 price) in 1997.

The total number of household increased from 10.53 million in 1988 to 11.98 million in 1991. During this period, average annual household income also increased from 40,408 pesos to 65,186 pesos. The increase ratio was 161 %. The annual saving amount was also increased from 7,887 to 13,195 pesos. However, the price escalation rate was almost same at about 160 %.

In terms of quantity and value of production, the cereal group, which occupied most of the arable land had an average production and average value of production of 15.1 million MT and 111,043 million pesos, respectively. The 20 major crops, which used less land, had the most production of 41.87 million MT and the highest production value of 516,258 million pesos. Those of other crops were 9.43 million MT and 40,980 million pesos, respectively.

For the entire country, there were 42,328 cooperatives in 1998. The majority of them were multi-purpose cooperatives, 37,225 or 88 % of the total, comprising 25,422 multi-purpose agricultural cooperatives, and 11,803 multi-purpose non-agricultural cooperatives. The remaining was shared among ten (10) other types of cooperatives. As of March 1998, the total number of confirmed operational cooperatives were 4,516 or only 10.7 % of the registered ones.

2.1.2 Regional Level

The population of Region II was 2.536 million in 1995. The population growth rate during the period from 1990 to 1995 was 1.51 % per annum. The number of households was 437,907 or four (4) % of all households in the country. The number expanded to 489,375 households in 1991 constituting the same four (4) % of the national level. In 1998, an average farm household in Region II earned 21,436 pesos yearly. Of this income, 66 % was from farm production; seven (7) % from off-farm employment; 20 % from non-farm sector and the remaining seven (7) % from other sources.

The RGDP at constant price of Region II in 1999 was recorded as 17,967 million pesos at the growth rate of 5.8 %. Those in the year 2000 are estimated at 19,008 million pesos and 6.1 % respectively.

As to its Gross Value Added in 1999, that of the agriculture sector was registered at 9,119 million pesos with a growth rate of 4.0 %, while those of the industry and service sectors were 2,211 million peso (3.2 %) and 6,638 million peso (4.5 %) respectively.

In 1999, number of households in Region II was 509,574. In this same year, the average family income in Region II was 41,504 peso (in 1988 constant prices). Its poverty incidence was 27 %. These are expected to increase to 45,327 peso and 17 % respectively in the year 2004.

Of the total land area in the country, Region II shares about nine (9) %. In terms of agricultural land area, Region II shares 6.89 % or 709,964 ha of the total 10,298,384 ha. The rice area in Region II covers 440,237 ha or 62 % of the total cropped area. They are irrigated, non-irrigated and upland rice. Corn, the second largest crop grown in the region, takes 190,445 ha or 27 % of all agricultural land.

In 1999, the palay production of Region II registered an annual growth of 54 % with a total production of 1,708,809 MT. Irrigated palay accounted for 90.9 % of the total palay production. Production jumped to about 13.9 % for both types of palay. In this same year, corn production of Region II increased by 80.3 % totaling 1,029,863 MT. Favorable weather was responsible for this increase in corn production. In this same year, the combined commercial crop production of the Region reached 176,548 MT, of which permanent crops accounted for 67 %. Banana production increased by 4.68 %. On the contrary, the Region's production of major cash crops like ampalaya, eggplant, mongo, peanut and tomato declined due to reduction in area planted and poor productivity.

As to livestock production, its total inventory went down by 3.06 % in 1999. The bulk of swine and goat production was from backyard production.

In 1999, the Food Sufficiency Level (FLS) for rice, beef, carabao beef and fruits, which are 175, 173, 147 and 284 % respectively, indicate that they are produced enough for local consumption, while having excess for exporting to other regions. Those of fish, poultry meat, pork and vegetable with the FSLs of 20.9, 34.4, 65.9 and 93.6 %, respectively, however, are short of their domestic demand and have to be imported from other regions.

While the FLS shown above indicates a large surplus of rice production in Region II, this is not enough to cover the deficiency in other regions, which has cost the Country its foreign exchange on rice imports by 637.84 million peso in 1998.

2.1.3 Provincial Level

The Isabela province having 10,665.6 sq.km is the second largest province in the Philippines. The province is bounded on the North by Cagayan province, on the South by Nueva Vizcaya, Quirino and Aurora provinces, on the East by the Pacific Ocean and on the West by Kalinga, Apayao, and Ifugao provinces. The province has a rectangular shape having the center with 122 degree of the east longitude and 17 degrees of the north latitude. The capital of the province is Ilagan. The province administratively consists of one (1) chartered city and 36 municipalities.

Almost at the center, the Cagayan River considered the longest in the Philippines flows from south to north and divides the provincial area into two (2) parts. On the east bank side is the Maharlika Highway and on the west bank side is located the by-pass road of the highway recently constructed that connects Tuguegarao and Santiago cities. The Sierra Madre mountain ranges with peak mountain of about 1,800 m lays at the eastern edge of the province, which blocks the traffic to the east coast from the center of the province. In the mountain range there is the national park where many rare faunas and flora abound. The gentle slope land originates from where the mountain range is located. On the west bank side, the vast fertile plain land is developed. The plain land is one of the biggest grain supply bases in the Philippines. The Study Area is located in both banks of the Cagayan River.

The province belongs to the subtropical zone. The mean temperature from December to February is lowest. The rainy season usually starts in June and ends in January. However, the duration and time of the rainy season vary year by year. Agriculture under rainfed condition is unstable. There is no clear dry season. Two

(2) cropping system is carried out in a year. The annual mean temperature of 27 °C and annual mean humidity of 88 % is observed.

About 54 % of the provincial land is forest land. The remaining 46 % or about 487,000 ha are classified as alienable and disposable lands, where farmlands, residence and others are located. About 381,617 ha are farmlands that consist of about 248,460 ha of paddy fields and 133,157 ha of corn lands. The areas of other crops are very limited.

In the 1995 census, the total reported population of the province is 1,160,721. The annual growth rate of population is only 1.5 % for the five (5) year's period from 1991 to 1995 and this figure is too low compared with the national rate. The population density is 126.5 person/sq.km with most of population living on the west side of the province. A high literacy rate of 91.2 % is reported. In 1996, labor population is about 561 thousand and employment is 546 thousands (about 97 %). Of which, about 424 thousand people are employed in the rural area. The labor in agriculture is about 309 thousands (about 73 %).

The palay produce in 1996 was 840,586 MT from the farmland of 214,014 ha. The average yield is 4.08 MT/ha at the irrigation field and 2.47 MT/ha at the rainfed. The corn (yellow and white varieties) produced in 1996 is 330,998 MT from an area of 146,259 ha. The average yield of 2.26 MT/ha was reported.

The total road length constructed was 4,000.9 km. About 421.0 km (about 11 %) of roads constructed are classified as national roads, 580.2 km (14 %) as provincial roads, 430.5 km (about 11 %) as municipal roads and 2,569.1 km as Barangay roads. The road density is 0.38 km/sq.km. Most of the national and provincial roads are paved by concrete. These roads have no problems for smooth traffics throughout the year. To reduce the operation and maintenance cost of the roads, the roads are mainly paved by concrete. However, many portions of the Maharlika road are under rehabilitation at present. The Barangay roads are generally paved by gravel. However, due to lack or insufficiency of side ditches and lack of maintenance of the Barangay roads, the roads become muddy road surface and gully erosion on the road surface, which interrupt smooth traffic during the rainy season. A part of the Barangay roads is usually paved by concrete and used as a solar drying place.

About 5 % of the provincial population enjoy potable water supply system using Level III. Only 3.2 % people use the Level II system using communal faucets

while about 54.7 % get potable water from ground water under Level I. The remaining 37 % get water from springs, rivers and creeks located near their houses.

About 390 of 502 Barangays are energized, with energy ratio of 77.7 %. The remaining 22.3 % are expected to be energized by FY 2000.

The National Irrigation System (NIA) supplies irrigation water to the farmland of 77,358 ha under National Irrigation System (NIS). The NIA Regional office (RO) is managing four (4) NIS with a total area of about 14,342 ha. The NIA constructed 36 communal Irrigation System (CIS) which provides irrigation water to an area of 4,951 ha. Of these systems, five (5) Small Water Impounding Projects were constructed. However, three (3) of these systems are now non-operational.

There is an airport in Cauayan with one daily flight schedule from Manila. Other flights to the east coast (Tuguegarao) are available. However, the flight connecting to Manila has been temporarily canceled during the time of the study due to an accident. The flight time to Manila is only one (1) hour. In contrast, the land travel time is about ten (10) hours.

In Isabela, the National Food Authority (NFA) has 21 buying stations out of 37 municipalities. It has ten (10) major and 21 minor public markets with 370 outlets. In 1998, NFA Isabela could only procure 14.71 % (17,135 MT) of its target (116,000 MT) for rice; 89 % (9,776 of 11,000 MT) of corn; and 68 % (5,185 of 7,700 MT) of sugar. The reason behind the low procurement of rice in 1998 was its already high market price. NFA does not plan to buy all the rice produced in the country. It only intervenes in the market for price stabilization purpose. The remaining production is channeled through the private traders. In 1999 the targets are 739,000 MT of rice, 14,000 MT of corn and 7,000 MT of sugar. Among all other rice-producing region of the country, Isabela is the third largest rice-producing province (with a production of about 17 million bags of 50 kg a year). In practice, NFA buy Palay from its member at the market price of 9 peso/kg. This together with 0.25 peso for the Cooperatives Development Trust Fund (CDTF), 0.10 peso for delivery, 0.15 peso for seed drying, and 0.50 peso of other costs, the total cost of buying palay becomes 10.00 peso/kg. The price has been used since October 1998. The changes in the price of palay would need the approval of NFA council comprising of representatives from DA, DTI, LB, NEDA and the Central Bank.

Despite plenty of available fishery resource, fish production in Isabela is still much short of its consumption. In 1998, the total fish production was 959 MT compared with 43,501 MT consumed.

Its total vegetable production was 23,615 MT in 1997 to 98. With nearly double this amount being consumed (47,126 MT), its supply deficit was 23,511 MT.

Its major fruits are banana, mango and citrus. In 1998, the total planted areas of these fruit trees were 12,602, 2,283 and 902 ha respectively. Their respective productions were 315,059, 51,640 and 1,642 MT.

The production figures above indicate that the Food Deficiency Levels in the Province of Isabela also follows closely those of Region II in terms of deficiency in the production of fish, pork and vegetables.

2.2 Comprehensive Agrarian Reform Program-CARP

2.2.1 Government Policy on CARP

With the enactment of the Republic Act (RA) 6657, known as the Comprehensive Agrarian Reform Program (CARP) which is mandated to distribute all lands regardless of crops planted within a period of ten (10) years (1988-1998); said RA was not finished as scheduled primarily due to the government's limited budget, land owner's resistance to agrarian reform, technical and peace and order problems and in capacities and poor coordination among CARP Implementing Agencies (IA).

With the enactment of RA 8532, the law providing the extension of CARP for another ten (10) years and allocated another 50 billion pesos for its completion up to 2008 has helped to address these problems. With this, workable strategies have to be developed and implemented by the DAR as well as by other CARP Implementing Agencies.

When President Estrada assumed leadership in the country in June 1998, the implementation of CARP was half-complete. As of June 2000, 66 % or 5.33 million ha of the 8.06 million ha covered by CARP had been distributed to almost 1.66 million Agrarian Reform Beneficiaries (ARBs) and support mechanisms through the establishment of Agrarian Reform Communities (ARCs) supported by donor communities had been in place. As of the same period, 1,060 ARCs have been established, all have been provided with technical assistance support and 627 of these have been assisted with capital assistance projects (foreign-assisted). In terms of mobilization of funds for the development of these ARCs, as of the same period, DAR has mobilized a total of 26.35 billion pesos for the implementation of sixteen (16) Foreign-Assisted Projects (FAPs). Moreover, another four (4) FAPs worth more than six (6) billion pesos will be implemented in 2001 and thus, will cater another 93 ARCs.

The present administration has enhanced the CARP to more effectively address its twin goal of eradicating poverty and improved agricultural productivity. By the end of 2004, the government is aimed to finish the remaining balance of 2.73 million hectares, of which, the DAR and the DENR has to distribute 1.26 and 1.47 million ha, respectively. For the DAR, the implementation of the previously inaccessible private agricultural lands has to be facilitated and enhanced at the same time shall provide the needed support services to the established ARCs. It is expected that a total of 2,014 ARCs will be launched up to year 2004 and 75% of the 3.9 million target ARBs shall have been provided with support services. To ensure delivery of support services to other ARCs, the DAR has to continuously mobilize resources locally and internationally through holding of donor conferences, project identification with Missions and preparation and packaging of project proposals for submission to local and foreign funding institutions.

Moreover, the DAR has adopted innovative solutions to the age-old problems plaguing the countryside, breaking through the problem of inequitable land ownership to widen the socio-economic base of national growth and development. It has also broadened its mission to help empower small farmers economically by aggressively promoting public and private investments in the agrarian sector. Finally, in breaking new ground, the DAR is preparing for a post-CARP scenario through adoption of the framework on sustainable rural development gearing up to assume the role of a catalyst for community empowerment and rural transformation.

2.2.2 General Features of the CARP

Under the Comprehensive Agrarian Reform Program (CARP), the DAR is responsible for two (2) major programs; Land Tenure Improvement (LTI) and Program Beneficiaries Development (PBD). The PBD promotes the welfare of program beneficiaries through the coordinated delivery of support services and has two (2) major components; Social Infrastructure Building and Strengthening (SIBS) and Economic Enterprise Development and Physical Infrastructure Support Services (EDPIS).

The Memorandum Circular No.13 “Strategic Direction of Support Services” prescribes that SIBS requires the education and training of the ARBs, and the formation and strengthening of ARB organizations, agrarian cooperatives and agrarian movement building. The goal of SIBS is people's empowerment so that the ARBs and their organizations can sustainably plan and manage their development. ECOPISS needs the establishment of supporting mechanism to make farm activities profitable. The objectives are to provide basic social and support services such as credit, technology and basic infrastructure, and to improve productivity as well as household income. The core strategies in SIBS and ECOPISS components are as follows:

(1) SIBS

a) Institutional Development Support

Self-help, self-propelling and self-governing shall be the underlying principles that will govern farmer organizations to ensure their long-term viability. Therefore, the focus is to develop the human capital of the farmers so that they will be able to effectively use the other program components of the CARP. It consists of the following:

- Community organizing
Adopt the institutional development framework that includes four phases; social preparation or pre-organization, organizational building, capability building, enterprise development and alliance building.
- Peoples' organization and cooperative development
Encourage and promote the building of people's organizations, agrarian cooperatives and of the agrarian movement.

b) ARB Education and Training Support

To complement the Institutional Development component, a set of training courses have been prepared to provide a wide-range of lessons and skills enhancement, from basic orientation on the CARP to technology transfer, community organizing, leadership formation and development, conflict resolution and mediation systems installation, resource linkaging and alliance building.

(2) EDPIS

a) Enterprise Development Support

The ARB organization must take initiatives to plan, implement and sustain development activities from livelihood income generating projects to viable agri-based rural enterprises for their community. The components are as follows:

- Savings mobilization
initial capital build-up of ARB organizations so as to finance their projects as well as services to the community
- Social entrepreneurship and enterprise development
provide entrepreneurial skills to the ARBs and ARB groups from small to large scale commercial operations
- Investment and marketing assistance
identify investment potentials and encourage investors to direct their interests in agri-business opportunities in CARP areas. The program also promotes diversified production systems with diversified and high value crops and improved farming systems

- Credit assistance
install a credit scheme that include a system for “non-bankable” farmers both for food and subsistence needs and for production assistance
- Productivity system development/farming system development
increase farm productivity through the building of the farmer's capacity and skills. The farmers should learn how to apply new technologies.

b) Physical Infrastructure Support

The infrastructure services include roads, post harvest and storage facilities, irrigation facilities, mini-dams and public utilities. Focus is on labor-based construction technology to provide additional income opportunities to the rural sector.

2.2.3 Public Systems for Support Services

(1) Organization of DAR

The DAR central office (DARCO) administers the operation of the CARP for the improvement of the land tenure system and the provision of the support services to ARBs. The DAR Provincial and Municipal Offices (DARPO and DARMO, respectively) are the implementers as well as the coordinators of the CARP activities under the supervision of the DAR Regional Office (DARRO). The DARPO is headed by the Provincial Agrarian Reform Officer (PARO) II and divided into four divisions. Under the DARPO, the DARMO is located in each municipality. (For organizational structures and roles of those offices and deployment of the field staff, refer to Appendix H).

At the provincial level, the Beneficiaries Development Coordination Division (BDCD) in the DARPO is responsible for the operation of the support service. Currently, there are four sections under the BDCD: 1) Institutional Development – Education, 2) Institutional Development – Information, 3) Physical Infrastructure Support, and 4) Economic and Livelihood Support. The Chief Agrarian Reform Program Officer (CARPO) administers 12 staff allocated to the four (4) sections. Two (2) staff are assigned for the monitoring and evaluation section.

At the municipal level, the DARMO is responsible to ensure the provision of the support services for beneficiaries. The Office is headed by the Municipal Agrarian Reform Officer (MARO) and supported by a couple of staff including Development Facilitators (DFs). The DFs are deployed on a full-time basis as the frontliners to be engaged in both LTI and PBD programs in ARCs. In principal, a DF is assisting at least 300 ARBs in an ARC.

(2) Organizations Involved

With the DARPO as the lending organization, the following organizations are involved in the PBD program implementation in Isabela. They are expected to be committed to the program and to align their respective programs and projects with the CARP under the coordination of the DARPO (refer to Appendix H).

- Land Bank of the Philippines (LBP)
- Department of Agriculture (DA)
- Department of Environment and Natural Resources (DENR)
- Department of Public Works and Highways (DPWH)
- National Irrigation Administration (NIA)
- Department of Trade and Industry (DTI)
- Department of Science and Technology (DOST)
- Department of Finance (DOF) represented by the Assessors' Office
- Department of Justice (DOJ) represented by Land Registration Authority
- Department of National Defense (DND)
- Department of Labor and Employment (DOLE)

The CARP as a national program is not devolved to LGUs. Relatedly, the Department of Interior and Local Government under whose jurisdiction the LGU falls, is not a CARP implementing agency. At the field level, however, the provincial and municipal DA staff, who used to be responsible for the agricultural extension services of the CARP, have devolved to the LGUs. In principle, LGUs are responsible for the development programs in their area, which should make their involvement to the CARP essential. Three non-governmental organizations (NGOs) such as CAVALCO, BIDANI, and Plan International, although their operations are not very large scaled, are active in the study areas. (For details of the activities of concerned organizations, refer to Appendix G).

(3) Coordination

For coordination and monitoring of activities under the CARP, the Provincial Agrarian Reform Coordinating Committee (PARCCOM) is organized. PARCCOM provides information on the implementation of the CARP, guidelines issued by the Presidential Agrarian Reform Council (PARC) – the highest policy-making and coordinating body in the country, and the progress of CARP in the province. The Barangay Agrarian Reform Committee (BARC) is established at the community level to identify possible interventions for the provision of specific support services based on ARBs' needs. The BARC shall coordinate the delivery of support services to ARBs and assist qualified ARBs to obtain credit from lending institutions.

The CARP Implementing Teams (CITs) are created at the provincial (PCIT) and municipal levels (MCIT) to integrate and accelerate the CARP's support services implementation by the DAR, the LAs and NGOs. The CITs shall report regularly the programs and progress of activities to the PARCCOM. (For details of coordinating mechanism, refer to Appendix H).

(4) Budget Allocation of CARP

The Agrarian Reform Fund (ARF), the fund to implement CARP, is allocated to those agencies mentioned above, among which DAR and Land Bank of the Philippines (LBP) have the biggest shares of the budget. Although the Department of Agriculture (DA) and local government units (LGUs) are also indispensable for the provision of various support services to the farmers, they operate with different budget arrangement; either from DA Central Office or from their local budgets. (Refer to Appendix G)

2.2.4 Progress on CARP

(1) Progress on LTI

During the 6-year term of the Aquino Administration, about 1.76 million ha of farmlands were distributed to landless farmers. Thereafter, President Ramos continued this CARP policy and during his administration of about six (6) years, the farmlands of about 2.34 million ha were distributed to the beneficiaries. As of December 1999, the accomplishment of land tenure improvement (LTI) reached to about 65.6 %, about 2.82 million ha, with 1.8 million beneficiaries enjoying their farmlands. The achievement of LTI in Region II reached at about 273,000 ha that were distributed to about 144,500 beneficiaries as of December 1999. The accomplishment rate is 85.5 % to the target acreage of the CARP of 319,000 ha. In 1997, Region II was at the top third among 15 regions of the nation in terms of LTI accomplishment. As of December 1999, the Isabela province distributed about 21,900 ha with the accomplishment rate of 77.7 % to the target acreage of 28,200 ha of farmlands. The beneficiaries were counted at 11,892 farmers.

(2) Identified ARCs

The DAR identified 1,091 ARCs over the Philippines as of June, 2000, and has the plan to expand up to 2,000 ARCs in the future and to support the ARBs in the ARCs.

(3) Achievements of PBD

As of the end of June 1999 since the commencement of the Program, the achievements of the PBD in 21 ARCs are summarized in [Table 2-2-1](#).

(4) ARC Level of Development Assessment (ALDA)

The DAR has currently adopted the ARC Level of Development Assessment (ALDA) to determine the growth of the ARCs and the extent by which inputs are translated into outputs. The ALDA assesses the status of the ARC development in the six Key Result Areas; 1) LTI, 2) Organizational Maturity (OMA), 3) Economic and Physical Infrastructure Support (ECOPISS),

4) Farm Productivity and Income (FPI), 5) Basic Social Services (BSS) and 6) Gender and Development (GAD). (For further details of ALDA, refer to Appendix G)

The ALDA uses 60 indicators and the results are analyzed with the help of the computer software “STATISTICA”. Considering the results, the ARCs are classified into three; Level 1 (low level of development), Level 2 (development level is medium) and Level 3 (high level of development). The ALDA has started in 1996, and the result of 1998 shows that there are 13 ARCs for Level 1 and 8 ARCs for Level 2. No ARC is assessed as Level 3.

2.2.5 Future Plans

The DARPO has prepared the Medium Term Agrarian Reform Development Plan for the Isabela province to use as the framework of program implementation for the period from 1999 to 2004. Regarding the PBD, the following programs and targets are set:

(1) Social Infrastructure and Local Capacity Building

Farmers' organizations will be strengthened through training, membership mobilization, savings generation and CBU formation. In the Study Area, the target will be 21 farmers' organizations and cooperatives. The training will be conducted to benefit about 75 % of the ARBs. The relevant training courses will be provided to the cooperatives on management skills, technical skills and capability building. It is expected that a 5 % annual increase in saving and CBU be realized in five (5) years in the whole province. The farmers' organizations will also be assisted to work in partnership with other institutions and establish affiliation with higher level organizations.

(2) Economic and Rural Assistance Program (ERAP)

This Program is for agricultural production and basic need sufficiency to increase production and incomes. The projects and targets are as follows:

- Sustainable agriculture
To put up a pilot farm where indigenous technologies, organic farming, tree farming around watershed areas, and appropriate soil management practices will be promoted. It is expected that productivity will increase by 5 % annually and average increase in income by 5 % every year in the whole province.
- Credit assistance
About 3.0 million pesos will be extended annually in the whole province through affordable credit.
- Marketing assistance
A marketing tie-up of farm produces with potential buyers will be promoted. Local and big markets will be encouraged to absorb farm products on a wholesale basis for a favorable bulk price.

- Investment assistance
There will be 13 firms to be invited to do agri-business in the province to provide assistance to enable farmers to adopt a demand-led production system linked to the markets.
- Enterprise development
Yearly, there will be three (3) economic projects to be managed by an organization. These projects shall be household-focused to maximize labor inputs and decrease the cost of production and maintenance.

(3) Technology Services and Infrastructure Support Program

- Irrigation
At least 13,200 ha will be irrigated in six (6) years both in ARCs and SRDCs in the province. This includes the establishment of lateral canals, Small Water Impounding Project (SWIP) and Small Farm Reservoir (SFR).
- Pre and post harvest facilities
The facilities such as farm machinery, threshers, flash dryers, multi-purpose pavements, warehouses and marketing centers will be distributed. Agencies like the Quedancor, DA and LBP will be tapped to provide funding and technical assistance.
- Farm to market roads and bridges
In six (6) years, 380 km of roads will be constructed and rehabilitated in ARCs and SRDCs. The funds will be sourced out from foreign windows, seeking the possibility of the strong tie-up with LGUs. For bridges, 140 projects will be implemented to cover 300 linear meters in six (6) years in the whole province.

2.3 Preceding Projects related to the Study

2.3.1 Agrarian Reform Community Development Project (ARCDP)

DAR is implementing the Agrarian Reform Community Development Project (ARCDP) in ten (10) provinces, including the Isabela province, **with financial assistance** from the World Bank since April 8, 1997. The project with a total cost of US\$ 105.7 million, roughly about 3.3 billion pesos will be **implemented** within six (6) years. The loan **amount is about** US\$ 50 million while the Philippines Government counterpart **is** US\$ 55.7 million.

For the selection of project areas, 20 provinces were first ranked based on their land distribution accomplishment (minimum of 70 % of the total provincial scope and at least 20,000 ha of land already distributed) as of October 1995. They were further ranked based on the LGU commitment to participate (support by Board Resolution) and their financial capability to participate in the project given the Local Government Code's (LGC) provision that their annual

Table 2-2-1 Achievement of Program Beneficiaries Development

| | | |
|-----|--|------------|
| 1. | Number of ARCs | 21 |
| | Number of Municipalities Covered | 19 |
| | Number of Barangays Covered | 40 |
| 2. | Social Preparation | |
| | Number of ARC Profiles Completed/Validated | 21 |
| | Number of ARB Profiles Completed/Validated | 2,811 |
| 3. | Training's | |
| | Total Number of Classes Conducted | 24 |
| | Total Number of Participants | 841 |
| | Total Number of Days | 165 |
| 4. | Capability Building | |
| | Number of ARCs with Approved 5-year Development Plans | 21 |
| | Number of ARCs with System Installed (e.g. M&E, Accounting, Internal Control, Purchasing, Marketing, etc.) | 4 |
| 5. | Economic Support Services | |
| 5.1 | Credit and Loan Accessed | |
| | Number of Organizations (with credit/loan accessed) | 13 |
| | Total Amount Released (P) | 18,719,410 |
| | Number of Members Benefited | 1,772 |
| 5.2 | Market Services | |
| | Number of ARCs (marketing tie-up with agri-business firms/companies) | 1 |
| 6. | Rural Based Agro-industries | |
| 6.1 | Number of Milling Industries | 0 |
| 6.2 | Number of Processing Industries | |
| | Food | 1 |
| 6.3 | Manufacturing Industry (e.g. ceramics, garments, bags, etc.) | |
| | Number of ARCs Covered | 4 |
| 7. | Level of Development of ARCs | |
| | Number of ARCs in Level 1 | 13 |
| | Number of ARCs in Level 2 | 8 |
| | Number of ARCs in Level 3 | 0 |

Note: Physical infrastructure and basic social services are not included in the Table.

(Source: DARPO)

debt service should not exceed 20 % of their annual Internal Revenue Allotment (IRA). The Bank initially selected ten (10) provinces based on the following criteria:

- a) Land distribution is almost complete
- b) The ARCs fall within the Key Production Area program
- c) The LGUs are capable and willing to participate in the project
- d) The farmers' organizations in ARC have reached an acceptable level of maturity, and
- e) Relevant support agencies are present in the locality.

The **objective** of the project **is** to assist in strengthening the farmer organizations in ARCs to plan and undertake development activities **that will** raise farmers' income and provide opportunities for sustainable growth. The project is designed to fund viable economic activities in ARCs that have been or will be identified by them. The project cost is shared between beneficiaries and government. The local government will share project expenditures with national government **according to an** agreed formula.

The project consists of the **following project components**:

- a) Community Development and Technical Assistance

Qualified ARCs would receive assistance on community and enterprise development upon their participation in the Project. In each of the ARCs, the project will provide skills training and advanced training in community development and cooperative management to beneficiaries either by contracting the services of a NGO/Support Institution or through the Development Facilitator (DF). The PEDAs will work with cooperatives, DAR staff and the ARCs.

- b) Rural Infrastructures

The project will help provide facilities important to farm productivity and income improvement. In particular, the project will construct or rehabilitate irrigation systems to service farmlands, roads and bridges. In addition, it will provide potable water and multi-purpose centers in some ARCs. DAR and the LGUs will jointly supervise the construction of facilities under the project, except for the irrigation systems, by which the technical aspect shall be handled by the government agency concerned. The irrigation component would be handled by NIA, including setting up of farmer beneficiaries into organization, the Irrigators' Association (IA).

- c) Agriculture and Enterprise Development

This component directly concerns with raising agricultural productivity and household incomes. This component will involve technical assistance in such areas as livelihood project planning, financial and technical resource accessing, provision of making of rational product and selling decisions, delivery of farm extension services, promotion of joint venture and/or marketing between the

ARCs and private companies, and development of partnerships between people's organizations and support institutions whose services or facilities are critical to livelihood promotion and development.

The project would cover about 100 ARCs in the ten (10) provinces over a period of six (6) years. In the Isabela province, 12 ARCs, out of 33 ARCs (as of present) were selected under this program. (refer to Figure 2-3-1)

2.3.2 Agrarian Reform Infrastructure Support Project (ARISP)

The Project is being executed by the Japanese Government Financial Assistance of JBIC (formerly OECF). The Loan Agreement for the ARISP–Phase I was concluded in August 30, 1995 and the Project has been executed from June 28, 1996 and will be concluded in June 28, 2002. The project cost amounted to 2,040.7 million pesos including the loan amount of 1,489.5 million pesos. The Philippine Government will shoulder about 551.2 million pesos. The agency responsible for its implementation is the DAR.

The project targets 96 ARCs over the country. The Project aims to raise and improve the socio-economic conditions of the ARC beneficiaries through the provision of basic social and physical infrastructures to improve farm production and farmers' productivity through the provision of irrigation facilities, farm-to-market roads and post harvest facilities.

The irrigation facility provides stable irrigation water for assisting the farming activities. The FTMR will contribute to improve the transportation system of farm outputs. The post harvest facility will improve the agricultural productivity of farmers.

The following components were implemented by the end of 1997.

| <u>Component</u> | <u>Completed/under Implementation</u> | <u>under Planing/Preparation</u> |
|---------------------------------|---|--------------------------------------|
| Irrigation Development | 45 places | 3 places |
| Farm-to-Market Road Development | 26 | 22 |
| Post Harvest Facility Component | 22 | 26 |

2.3.3 Philippine Rural Institutional Strengthening Program (PRISP)

Another project that was implemented in the province is the Philippine Rural Institutional Strengthening Program, a joint venture **project** of the European Union and the Department of Agriculture. The project started in 1995 where selected DFs and MAROs who are working in the ARCs were given training on Project Identification, Preparation and Appraisal (PIPA). Later, it concentrated in Municipalities whose officials are supportive and

cooperative to the endeavor. It **enabled** the Local Government Units of the identified municipalities to formulate a Comprehensive Barangay Development Plan and how to prepare Project Proposals with the participation of the Barangay people. It also helped the proponents market their proposals by conducting an Investors' Forum participated in by both, Local and Foreign counterparts that marked the end of the project. The municipalities assisted were Cabagan, Delfin Albano and Quezon.

2.4 Environmental Conditions

(1) Environmental Conditions

DENR carries out environmental protection and conservation works in the Philippines. This department has branch offices, the Provincial Environment and Natural Resources Office (PENRO) at the provincial level, and several Community Environment **and** Natural Resources Offices (CENROs) at the district level. In the Isabela province, PENRO is located **in** Ilagan **while the** six (6) CENROs **are located in** Cauayan, Cabagan, Palanan, Roxas, San Isidro and Naguilian.

In the Isabela province, most of wildlife animals are found in limited areas of the Sierra Madre mountain range including Northern Sierra Madre Natural Park. **Based on the data** of PENRO, the **no rare flora and fauna species are reported** in the plain areas where the ARCs are located. **The province has existing natural park and natural resources conservation areas. However, these areas do not cover the objective ARC areas of the Study.** Even in the rivers, **presence of rare species of fish is** not reported. There are many "Tilapia" in the rivers and ponds that were introduced as a supplementary food of protein for the local people.

The ARCs in the area of the study are located in the Cropland/Agricultural areas based on the land use maps of PENRO and CENROs. The map shows many land use categories such as Croplands/Agricultural areas, Protection and Production forests, etc. The ARCs do not occupy any protected forest areas. There are no ruins, historical spot and ethnic group in the **identified Study Area**. Only one house, which **is said to be a building that has been** constructed in the Spanish era, exists in the Ilagan town proper.

(2) Environmental Assessment

In the Study, the Team would carry out the Initial Environmental Examination (IEE), while the Philippine Government shall carry out the EIS, if it falls under the following category, which is deemed necessary.

- Environmentally Critical Projects (ECPs)

- The projects for development is within the Environmentally Critical Areas (ECAs), which does not require Environmental Compliance Certificate (ECC) nor IEE