

**PART-II : PHASE-II STUDY
(FEASIBILITY STUDY FOR TYPICAL MODEL
AREAS)**

CHAPTER VII. FEASIBILITY STUDY ON SAPPAAC AREA

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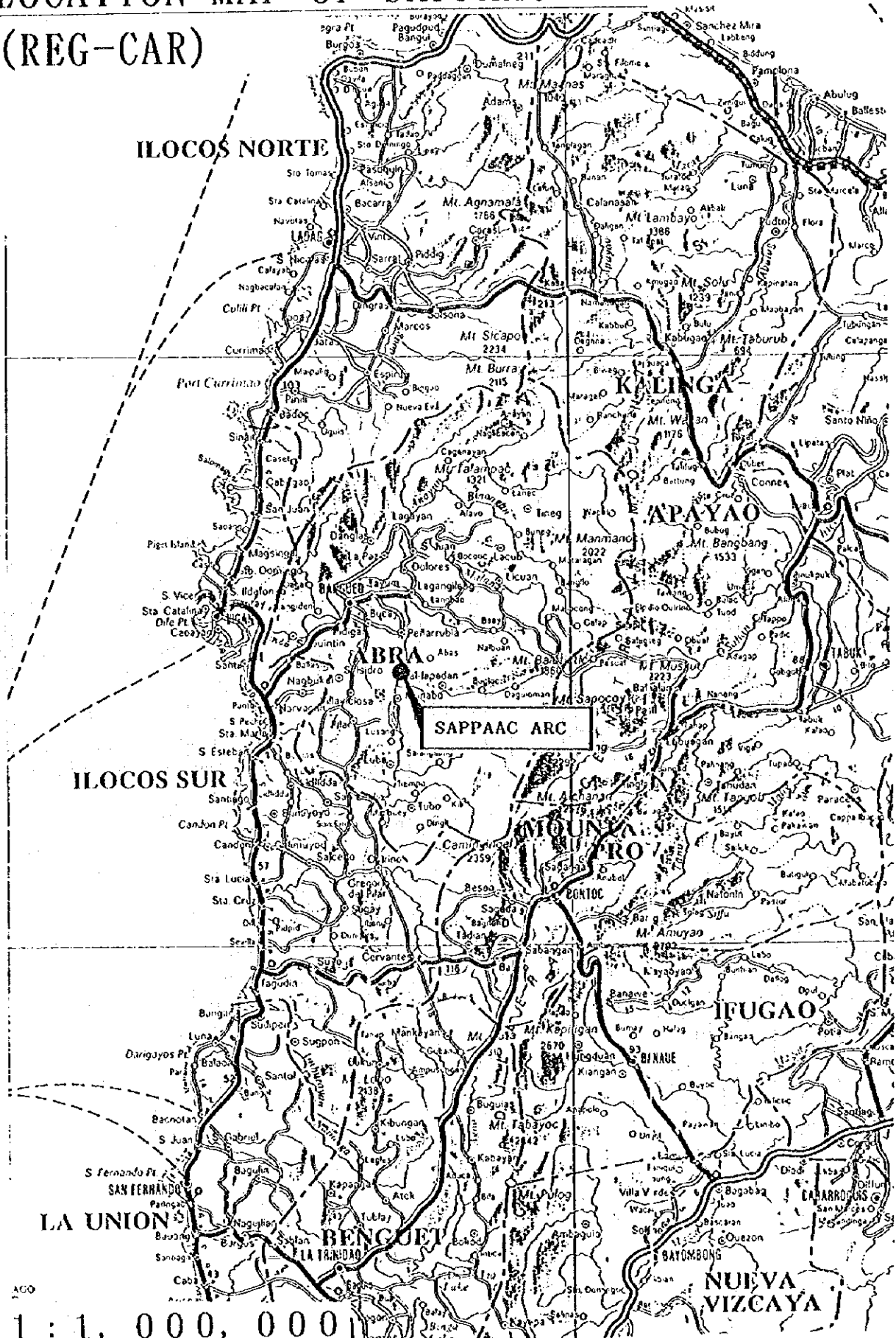
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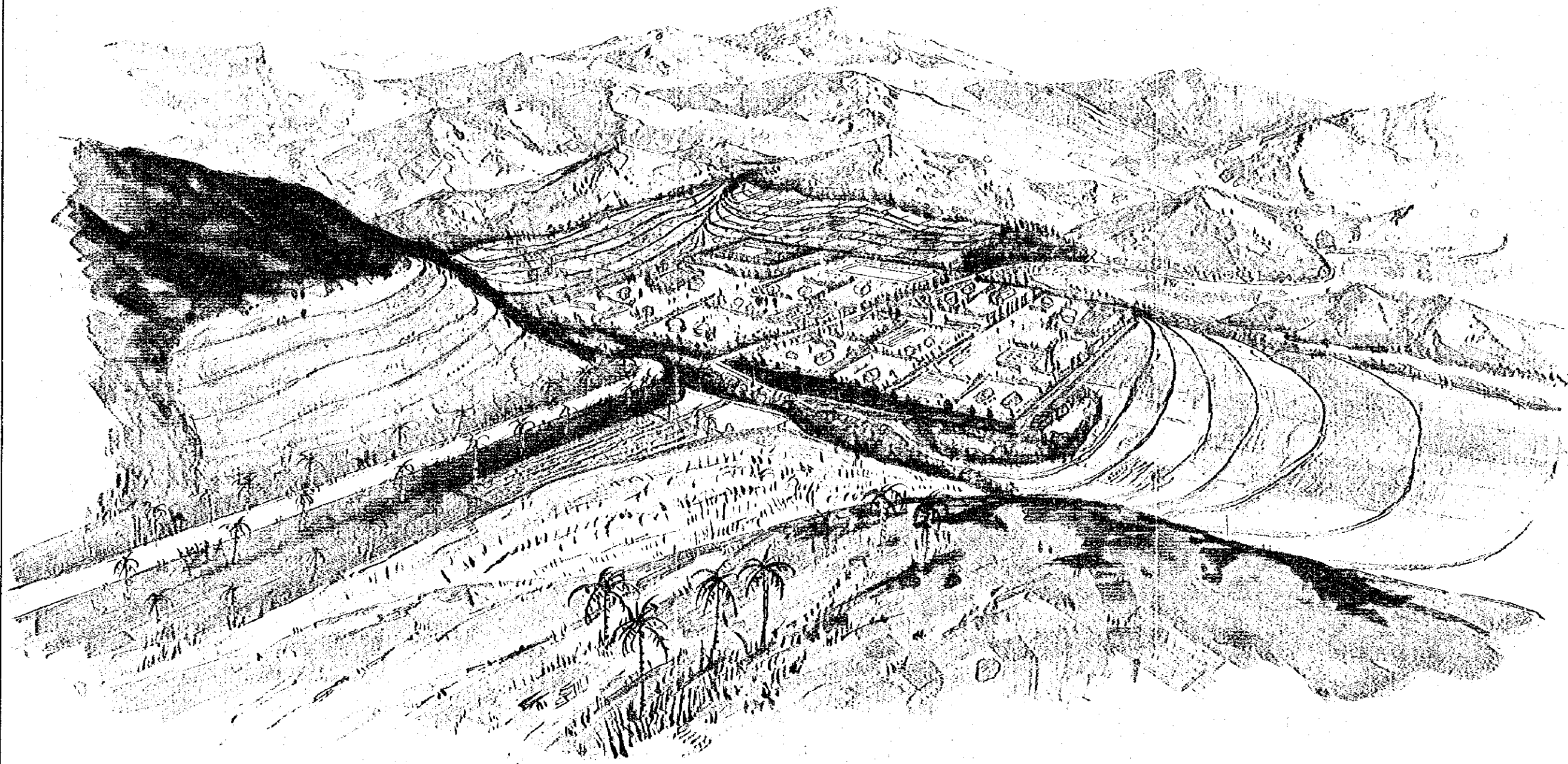
LOCATION MAP OF SAPPAAC ARC

(REG-CAR)



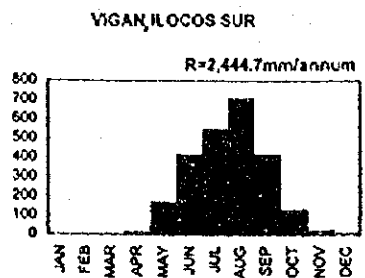
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Sappaac ARC (Reg.-CAR)

- Improvement of wet season paddy cultivation under the irrigated and reinfed.
- No crop growing during dry season, due to no available water sources.
- Effective land-use with high ratio of land percentage less than 18 percent.
- Improvement of agriculture and rural infrastructural facilities, especially improvement rural roads.
- Strengthening of farmers' organization and enhancement of institutional capability through participatory approach of farmers.



DEVELOPMENT VIEW OF SAPPAAC ARC

CHAPTER 7. FEASIBILITY STUDY ON SAPPAAC AREA

7.1 Present Situation of the Area

7.1.1 Comprehensive Agrarian Reform Program (CARP)

1) Progress of CARP

The Sappaac Area was implemented in 1995 under the Comprehensive Agrarian Reform Program (CARP). The lands distributed in the Area as of June 1996 is 71.6 ha, out of the target area of 98.3 ha. The total Project Area is 375 ha.

Present Land Distribution under CARP

Manner of Acquisition	Scope (ha)	Accomplishment (ha)	Accomplishment (%)
Operation Land Transfer (OLT)	68.9	68.9	100.0
Voluntary Land Transfer (VLT)	29.4	2.7	6.2
Total	98.3	71.6	76.7

2) CARP Organizations and Activities

To ensure a successful CARP implementation, an implementing and coordinating organization has been created at the different levels as shown below;

- The Presidential Agrarian Reform Council (PARC) is responsible for the overall policy direction, supervision of program implementation and budget approval. The Council is composed of the President of the Philippines as Chairman and the Secretary of Agrarian Reform (DAR) as Vice-Chairman. The following are members of the Council: Secretaries of the Department of Agriculture (DA), Environment and Natural Resources (DENR), Budget and Management (DBM), Interior and Local Government (DILG), Finance (DOF), Public Works and Highways (DPWH), Labor and Employment (DOLE); Director General of National Economic Development Authority (NEDA); President of Land Bank of the Philippines (LBP); National Irrigation Administration (NIA); three representatives of affected landowners; and six representatives of the ARBs,
- Provincial Agrarian Reform Coordinating Committee (PARCCOM) is created to coordinate and monitor the implementation of CARP in the provincial level. It is composed of a chairman appointed by the President, the Provincial Agrarian Reform Officers as Executive Officer, one representative from DA, DENR and LBP, one representative from existing farmers' organization (FO), agricultural cooperative and non-government

organizations (NGO, and two representatives from farmers and farmworker beneficiaries as members,

- At the barangay level, the implementing and coordinating organization is the Barangay Agrarian Reform Committee (BARC). It is usually composed of the following; representatives of farmers and farmworker beneficiaries; agricultural cooperatives, other FOs, Barangay council, NGO, landowners, DA and DENR officials and DAR agrarian reform program technologist (ARPT) assigned in the area and LBP representative,
- The implementation of CARP is not the sole responsibility of DAR, but rather it is a coordinative effort among the different government organizations (GOs), NGOs and POs,
- CARP Implementing Teams (CITs) composed of regional, provincial and municipal lead agencies have been organized to spearhead the coordination and synchronization of CARP activities as well as the resolution of operational issue at their respective level,
- DAR as the leading agency in CARP implementation has national, regional, provincial and municipal offices, which were established to synchronize the support for the program beneficiaries especially at the ARC level, and
- At the field or ARC levels, the initiators of development are the Municipal Agrarian Reform Officer (MARO) and the Agrarian Reform Program Technologist (ARPT) /Development Facilitator (DF). The ARPT/DF in partnership with NGO/PO takes the over-all lead in the development of the ARC by initiating the involvement and participation of the local people in the development of their areas. Where the BARC is functional in the area, it becomes the entry point of organizational development.

Figure B.1-1 to Figure B.1-4 indicate the organization charts of DAR regional, provincial and municipal offices.

7.1.2 Physical Conditions

1) Location, Areas and Topographic Conditions

The Sappaac Area belongs administratively to the municipality of Bangued, Province of Abra, and Cordilleras Administrative Region (CAR). The Area is located in the southern portion of the capital town of Bangued.

The access to Area is relatively easy through the provincial road of route 301 branching off the national road of route No. 6 at Lipcan. The distance from Bangued to the Area is about 20 km. Except for Sitio Parparia, the Area is

accessible to motor vehicles during dry season. During wet season, only the Sities of Pao, Sappaac Proper and Sappaac South can be reached by motor vehicles.

The total Study Area is 375 ha with an elevation ranging from 350 m to 150 m above mean sea level. Its topography is comparatively hilly and undulating with a slope from south-east to north-west in direction.

2) Meteorological and Hydrological Conditions

The climate condition around the Area is categorized by PAGASA as Type-I. It has two distinct seasons, dry and wet. The dry season is from November to April while the wet season is from May to October. Its maximum rain period is from June to September. The Area is visited by typhoons 21 times a year on an average. Their major features according to the climate data observed at Vigan station are summarized as follows:

Major Features of Meteorological and Hydrological Conditions

Month	Rainfall (mm)	Temperature			Relative Humidity (%)	Pan- Evaporation (mm)
		Mean (°C)	Max. (°C)	Min. (°C)		
Jan.	2.9	25.3	29.8	20.8	76	130.2
Feb.	2.4	25.7	30.2	21.2	76	117.6
Mar.	2.1	27.1	31.4	22.7	76	155.0
Apr.	15.4	28.5	32.8	24.3	76	129.0
May	169.7	28.9	33.0	24.8	79	124.0
Jun.	416.5	27.8	31.5	24.0	84	120.0
July	548.6	27.2	30.7	23.8	86	96.1
Aug.	708.1	26.7	30.0	23.4	87	86.8
Sept.	418.1	27.0	30.5	23.5	85	84.0
Oct.	129.1	27.2	31.2	23.3	81	89.9
Nov.	22.4	26.9	31.1	22.8	78	111.0
Dec.	9.4	26.1	30.4	21.8	77	114.7
Total/Ave.	2,444.7	27.0	31.1	23.0	80.1	1,358.3

Data Source: PAGASA

Note: Evaporation is derived from La Trinidad (Benguet) station

7.1.3 Administration, Socio and Farm Economic Conditions

1) Administration and Rural Organization

a) Administration of Project Area Under CARP

The overall supervision and policy direction of CARP are assumed by the Presidential Agrarian Reform Council (PARC). A Provincial Agrarian Reform Coordinating Committee (PARCCOM) is created to coordinate and monitor the

implementation of CARP in each province. It also provides information on the provisions of CARP, guidelines issued by the PARC and on the progress of CARP in the province. The Barangay Agrarian Reform Council (BARC) is an implementing and coordinating mechanism at the barangay level on all matters related to agrarian reform.

The PARCCOM and the BARC are the bodies involved in program coordination at the provincial and barangay levels, respectively. It is also the bodies involve in monitoring the activities of CARP implementing agencies and in pinpointing possible duplications.

There are also regional and provincial CARP Implementing Teams (CIT), composed of regional, provincial and municipal lead agencies, who spearheads the coordination and synchronization of CARP activities and resolution of operational issues at their respective levels.

The Department of Agrarian Reform is the lead implementing agency in programs related to CARP. The DAR has national, regional, provincial and municipal offices established to synchronize support for the beneficiaries of the program specifically at the field level sites, that is, the municipal community level or the agrarian reform communities (refer to Annex I).

The initiator of development at the field level lies with the DAR Municipal Agrarian Reform Officer (MARO) and the Agrarian Reform Program Technologists (ARPT)/Development Facilitator (DF). The ARPT/DF and/or in partnership with the NGO/PO takes the over-all lead in the development of the ARCs by initiating the involvement and participation of the local people in the development of their areas.

b) Political Leadership Structure

Municipal Government Unit

With the enactment of the Local Government Code in 1991, some functions of the national offices were devolved to the local government, such as health, social services and development, education, environment, public works and agriculture. The municipal government is thus task to directly provide the basic services and utilities needed at the barangay level.

The Project Area is under the jurisdiction of Bangued municipality. It is one of the 31 barangays covering the municipality. The municipal mayor is the head of the municipality. The other officials of the municipality are the vice-mayor, sangguniang bayan members and the heads of offices. There are 13 offices under the municipality of Bangued.

The profiles of the above-mentioned municipal offices are presented in Annex I. The major problems of the local offices are all similar: lack of funds and

consequently, lack of personnel, equipment and field operation facilities. Likewise, these offices consider financial assistance is needed in the implementation of proposed projects for the marginal area.

Barangay Government Unit

The barangay is the basic political unit and serves as the primary planning and implementing unit of government policies, plans, programs, projects and activities in the community. It is also an area where collective views of the people may be expressed and considered. The chief or head of the barangay is the barangay chairman. The other persons in authority are the seven sangguniang barangay members.

Since the barangay is apportioned a budget from the Internal Revenue Allotment Fund (IRA fund), it is mandated to provide basic services and facilities to the community. The other possible sources of funds for development projects in the barangay are Countryside Development Funds (CDF) of Member of Congress, budget allocations from the municipal and provincial government not included in the barangay fund.

The capacity and ability of the barangay officials to implement development changes can be gleaned by the number of projects, facilities, services provided from the barangay IRA fund and other sources.

For the Sappaac Area, the projects implemented for the period 1995-1996 were: construction of nursery, domestic water supply, day-care center rehabilitation, waiting-shed and street lights. The source of funds for all projects is the IRA fund. However, since the budget allocation is not very big, community participation with free labor and/or lower labor cost formed a part of the project implementation activity.

2) Population and Farm Household

The Sappaac ARC is composed of two barangays, namely, Sappaac and Maoay. However, for the Project Area, only Sappaac is covered. Five sitios cover the Project Area. The Sappaac Area has an estimated total population of 1,159 with a household of 189. The average family size is 5.6. The households in the area are all farmers. Of this number, 46 households are recipient of CARP. About 10 are transient farm households whose residents are located outside the marginal area site, as shown below:

Population and Farm Household

Total Household & Population in Barangay		Sitio/Purok in the Area	Area Covered	Total Farm Household	CARP ARBs Recipient of Land (No. of Household)		Other ARBs	Total Household ARBs
HH	Pop.				Permanent	Transient		
		1. Sappaac Proper	F	71	15	3	53	71
		2. Sappaac South	F	57	21	7	29	57
		3. Pita	P	9	0	0	9	9
		4. Parparia	P	6	0	0	6	6
		5. Pao	F	46	0	0	46	46
189	1,159	Total		189	36	10	143	189

F = Full

P = Partial

Other ARBs mean the small holder farmers, leaseholders, farm workers, etc.

The farmers' survey reveals a labor force population (15-64 years old) of 62 percent, a young population (0-14 years) of 28 percent and an old population (65 and above) of 10 percent indicating a dependency ratio of 62. The most number of the population belongs to the 10-14 (14%) age range. The male-female ratio is 99 males out of 100 females. About 50 percent of the household composition is children and 17 percent is relatives composed of son/daughters-in-law, parents and other relatives.

3) Land Holding and Land Tenure

The farm households of Sappaac Area ARC are mostly share tenants (68 out of 189) and owner-cultivators. Under the CARP, there are 46 farmer-beneficiaries. Of this number, 39 farmers are EP holder, five are Mother CLOA and two are individual CLOA recipients and the rest are EP holders. The average landholding of the Sappaac Area farmers is 1.53 ha. Of the total area of lands distributed under EP/individual or mother CLOA (71.6 ha), about 8.1 ha has been sold and/or abandoned by ARB recipients.

The status of land tenure is presented below:

Status of Land Tenure

(Unit: HH)

Sitio	Share Tenant	Owner Cultivator	Small Land-Holder	Landless	EP/CLOA Holder	Total
S. Proper	24	15	3	11	18	71
S. South	14	2	1	12	28	57
Pita	7	1	1	0	0	9
Parparia	5	0	0	1	0	6
Pao	18	20	3	5	0	46
Total	68	38	8	29	46	189
Distributed Area					71.6 ha	

The sources of land of the CARP beneficiaries in the Area are the Operation Land Transfer (OLT) and the Voluntary Land Transfer (VLT) with a total area of 98.3 ha. Percentage of accomplishment for the OLT is 100 percent while for the VLT is only nine percent. Overall accomplishment of land transfer for the Area is about 77 percent.

The Sappaac Area has 221 ha considered as idle lands. These idle lands that are mostly cogonal and forested are owned by absentee small landowners. The bigger portions of the idle lands are owned by a couple and Marikina Valley Woods Arts Inc. The agricultural lands owned by the couple are cultivated by Sappaac Area tenants under the share system. These lands are potential lands for leasehold under the DAR's program and may eventually be entrusted to the landless farmers of Sappaac upon negotiation as the project progresses.

The lands owned by the Marikina Valley Wood Arts, Inc. distributed under PD 27 are only about 68.9 ha. However, the cogonal and forested areas of the land were not distributed. The remaining lands may be entrusted to the landless farmers and other beneficiaries with DAR's assistance.

4) Living Conditions

The Sappaac Area marginal area is located about 20 km from the town proper of Bangued. The farmer beneficiaries travel to the town proper by jeepney with an average travel time of 30 minutes. Major facilities availed by the beneficiaries are mostly located in the barangay proper, such as, barangay health station (BHS), day-care center, complete elementary school and barangay chapel. The ARC area is supplied by electricity. For major health needs and requirements, the farmers go to the public hospital in Bangued since the BHS has no complete facilities, and medical personnel like midwife and barangay health workers are not always available.

Sources of domestic water are the deep and shallow wells. The beneficiaries have indicated the need for a water system development in the area. Irrigation facilities are not available though there is a river and spring that could be tapped for irrigation purposes. Rural roads going to the interior areas of the marginal area are not passable during the wet season.

The Abra Electric Cooperative (ABRECO) supplies electricity to the barangay. A passenger jeepney is plying regularly into the community once a day. Communication facilities such as telegraph is available at the municipality of Bangued. Postal services are available at Bangued and Penarubbia.

The major source of income of the farmer beneficiaries is farming. Major crops grown are rice during the wet season; corn, rice and sometimes tobacco during the dry season; and mango and banana for perennial crops. Other sources of income are from sale of fuelwood, gifts, allowances and remittances from relatives and friends.

Members of the family contribute to all farm and non-farm work. The family members contribute to the biggest share of work for farming activities. The average man-days of work devoted to farming is 206 per year for male members and 147 per year for female members. About 22 percent of family members is reported to have acquired income from non-farm work.

Only about 27 percent have completed elementary education, 10 percent completed secondary education and only two percent completed college education. About six percent have no formal schooling. For elementary education, the school children go to the barangay elementary school located at the center of the barangay. However, for secondary and college education, the residents go to Bangued and other nearby municipalities/provinces.

5) Farm Economy and Poverty Conditions

a) Farm Production

The Region CAR has a total land area of 1,829,400 ha. Of this total, 738,700 ha are woodland and 729,900 ha are grassland or shrubland. The land devoted to agriculture in the region comprises 10 percent or 190,235 ha. Its high-value crops include vegetables, fruits, rootcrops, legumes, and ornamental crops.

At the provincial level, Abra shares 397,600 ha or 22 percent of total land area of the region. The high-value crops produced in Abra province are mangoes, asuete, siling labuyo, lowland vegetables, coffee, cashew, tobacco, bananas and squash. Other high-value crops under trial include blackberry, snap pea, colored lettuce, colored cabbage, zucchini, mini-carrots and cherry-red tomatoes.

There are 152 farm households working on 36 ha of irrigated paddy land, 193 ha of rainfed paddy land, 50 ha each of root crops and fruit trees, 5 ha of tobacco and 15 fish ponds. The number of animals raised are 90 carabaos, 100 cattle, 50 goats, and 100 hogs.

Almost all farmers at Sappaac Area grow wet-season palay of both high-yielding and traditional varieties. The majority grow it as a single crop. The average planted area is 0.83 ha with an average yield of 1,178 kg/ha.

Nearly half of them grow dry-season corn on an average area of 0.30 ha yielding 1,467 kg/ha. Others grow tobacco and assorted vegetables. Banana and mango are the two major fruit crops grown at Sappaac Area.

b) Farm Household Income¹¹

Of the four regions where the four Areas are located, Region CAR had the highest monthly total income of 1,859 pesos in 1987. This is followed by Region II (1,786 pesos); Region X (1,607 pesos) and Region VIII (1,112 pesos). At Sappaac Area, the average farm household income in 1996 is 35,118 pesos per family per year. Of these average items, 19,299 pesos (55 percent) comes from agriculture and 15,819 pesos (45 percent) are derived from non-agricultural sources.

c) Agricultural Production Value

The value of crop production in Region CAR activated for more than half of its total farm production value (55 percent). The livestock and poultry sector contribute 42 percent to the total farm production value. The fisher sector took the fewest shares of only 2.5 percent.

While crop income at Sappaac Area constitutes nearly the same percentage of all household income as that of the regional level (48 percent vs. 55 percent), it represents almost all (87 percent) of their income from the agriculture sector. Unlike that of the regional level, only a small portion of agricultural income at Sappaac Area (13 vs. 42 percent) comes from livestock.

d) Agricultural Production Cost

A site survey conducted by the JICA Study Team during 14-19 October 1996 reveals the following:

In paddy production, the amount of own seed used varies between 52-54 kg/ha at the average cost of 822 pesos/ha. The four major fertilizers applied to paddy are urea, ammophos (16-20-0), complete (14-14-14) and foliage fertilizers.

Their quantities and costs per hectare are 100-600 kg costing 618-3,708 pesos of urea; 100-700 kg costing 630-4,410 pesos/ha of Complete and Ammophos; 0.7-1.5 lt./ha costing 84-180 pesos. Cymbush, Karate, Basudin, and Nuvacroe are the four leading pesticides applied at the costs of 390-780 pesos/ha. Hired labor for plowing, planting, weeding and harvesting are paid at the rates of 120 peso per man-animal day and 60 pesos per man-day.

For corn production, the rate of seeding is 18 kg/ha. The leading fertilizers applied are Urea (50-200 kg/ha); Complete (70-600 kg/ha); and Ammophos (50-200 kg/ha). Cymbush, Decis and Nuvacron are the major pesticides applied to corn. Laborers are hired for planting, harvesting, weeding, shelling and hauling.

¹¹ Income of Farm Household in the Philippines, 1987: BAS, DA

Insignificant amount of fertilizers and other chemicals as well as hired labors are used in the production of peanut, banana and other crops. Livestock that includes carabao, cattle, hog and poultry also entail insignificant costs.e)

e) Percentage of Farm Workers by Usual Occupation

Most farm workers (81 percent) in Region CAR work on palay production that is much higher than the national average of 57 percent. The rest, either work off-farm (nine percent), or work on corn and other crops (seven percent).

The majority of household members (63 percent) at Sappaac Area work on farm. Others work on other farms or off-farm (nine percent) and in non-farm activities (28 percent). In comparison with other areas, the farmers working on off-farm activity occupy large proportion of the workers.

f) Non-farm Income

The major sources of non-farm income earned are rents from working animals/machinery; allowances/gifts from relatives; overseas remittances; honorarium and pension; sub-leasing; tricycle and jeepney operation; trading business; firewood, chemical spraying, laundry and fishing. The average non-farm income is 15,819 pesos per household per year. This is the highest of all four Areas (4,606 pesos at Cofcaville, 2,939 pesos at Marangog and 1,315 pesos at Silae Area)

g) Household Expenditure

The average expenditure of a household at Sappaac Area is 22,136 pesos per year. This is the lowest among all four Areas (24,848 at Marangog; 34,025 at Sitae and 36,637 at Cofcaville Area). The major expenditure items are food, education, medical expense, clothing, transportation and house improvement.

h) Annual Per Capita Poverty Threshold

Considering information and data gathered, the annual per-capita poverty threshold for the rural area of Sappaac Area has been calculated at 11,585. This is the highest among all four Areas, those of Cofcaville, Marangog and Silae Areas being 8,195, 6,114 and 7,760, respectively.

However, the average annual per capita income in the Area is 6,271 pesos. This amount is lower than the per capita poverty threshold, shown in Table O.1-3.

6) Conditions of Social Capability

a) Present Condition of Social Capability

An assessment of the barangay community was undertaken during the Phase II Study to determine the conditions of social capability and preparedness of

the community before project implementation. The items considered were participation of community in the implementation of projects; maintenance and management of facilities and services; membership in any type of community organization; participation in assembly meetings, organization meetings, and traditional and non-traditional collective activities; decision process, etc.

Community Participation in Barangay Activity/Projects

Of the six projects implemented by the barangay council for the period 1995-1996, only two projects are without community participation. These are the construction of the waiting shed and the installation of street lights within the barangay. Community participation includes construction of nursery by active members of the community where free labor was provided. For the repair of the deep well, residents within the surrounding area of the facility contributed cash amount for the materials needed. Labor is provided free. However, for the clearing and levelling of the barangay road, community residents are hired to undertake such activity. The labor cost is, however, lower by about 50 peso per day as compared to the regular rate of 100 peso per day. For the day-care center rehabilitation works, the parents of the pupils are requested to provide labor (refer to Table I.2-1).

Maintenance of Barangay Facilities and Resources

The community facilities and resources of the community are the elementary school, day-care center, artesian well, barangay health center and chapel, barangay road and farm-to-market road. The elementary school is maintained by the teachers, pupils and the member of the Parents-Teachers Association. Likewise, the day-care center is maintained by the day-care officer with the assistance of the parents of pupils enrolled in the center. The health center is maintained by the midwife with the assistance of the barangay health worker. However, the center is closed most of the time and the only time that the center is open is when there are on-going health-related activities like vaccination, immunization, etc., in the community.

Though there are eight artesian wells in the community, only two are functioning. The community is waiting for the DPWH to repair damaged artesian wells. For the two functioning wells, the community residents using the artesian wells, contributed cash for materials needed for minor repairs only with labor provided by them. The barangay chapel is maintained and cleaned by the regular church-goers whenever masses or other religious activities take place. Barangay road cleaning and clearing are undertaken as needed by the community, however with pay, the funds of which come from the barangay IRA fund, but at a lower labor cost. No maintenance work or activity is being undertaken by the barangay for the farm-to-market roads (refer to Table I.2-2)

Community Participation and Involvement in Organizations

There are four identified organizations in the community; the Sappaac Area Agrarian Reform Beneficiaries Multi-Purpose Cooperative, Sappaac Area Namin Association, the Parents-Teachers Association and the Timpuyog Ti Inna. The oldest organization is the Sappaac Area Namin Association. It is a non-formal association, organized to assist members of the community in times of bereavement. About 90 percent of the community are members of this association. The Parents-Teachers Association is organized annually by the teachers of the elementary school to provide assistance in the maintenance and order of the school activities and facilities. The organization is not very active in the sense that the teachers do not rely very much on the parents for maintenance assistance. The membership of this organization is compulsory for all parents of pupils. Non-attendance in any meeting or activity called for by the PTA would mean a penalty for the parents amounting to 60 pesos. The amount is considered big by parents, hence, their compulsory involvement in school activities and meetings.

The "Timpuyog Ti Inna" which literary means mothers' organization was recently organized in the barangay. It was initiative by the wife of the municipal mayor before the celebration of the municipal fiesta. Though all women are encouraged to join, many mothers do not know or are not aware of the organization. The multi-purpose cooperative has only 43 members (about 23 percent of total household) consisting of 36 agrarian reform beneficiaries and seven non- agrarian reform beneficiaries. Generally, membership in formal organizations is very limited as in the case of the cooperatives. Though membership in the other associations is big, these associations are not functioning as a formal organization with set of rules, functions, officers (refer to Table I.2-3).

The women in the area are not actively involved in the organizations or associations, even with the presence of the "Timpuyog Ti Inna." Though interested to participate, they are constrained for lack of leader to initiate active women's organization. However, they are very curious about on-going activities in their community. Hence, during the Study Team visit, about 30 percent of mothers came and listen to what the Study Team has to say or ask.

Traditional Collective Action in the Community

There are two traditional collective activities practiced in the community; the "Namin" and the "Tagnawa or Bayanihan." The "Namin" is the practice of collecting contribution from every household member of the community. The amount collected is given to the immediate family of a deceased person. When a household member die, the news of death is immediately disseminated to the community. The person's in-charge of the "Namin" then starts collection of cash, the amount of which is 20 pesos per household. The other members of the community assist the bereaved family in the preparation of the coffin, burial grounds, preparation of area for the wake, preparation of food to be served during the wake, etc. This is one activity where the members of the community participate

collectively to assist the bereaved family. For this activity, the members of the "Namin" do not hesitate to perform their role in assisting the bereaved family. All activities done are voluntary.

The "Tagnawa or Bayanihan" is a traditional activity of carrying or transferring house from one area to another. When a house of a member of the community needs to be transferred to another location within the barangay, the community assists in the carrying of the house. All together, the men in the community carry the house into their shoulders. The owner of the house provides food for activity. This collective activity, however, is now seldom practiced in the community (refer to Table I.2-4).

Non-Traditional Collective Activity in the Community

The community usually gets together on the following occasions: barangay assembly meeting called by the barangay council which is not very regular; informal meetings called by the barangay council whenever visitors are expected in the community, as in the case of the activities related to the study and when officials from the municipality or other agencies visit the area; barangay consultation initiated by DAR regarding their conceived development plan.

Community Problem to be Solved Within the Community

The barangay officials meet every first Wednesday of the month to discuss matters related to barangay functions and activities. When need arises as to the necessity of community majority decision, the barangay officials call a barangay assembly. During the meetings, decisions are made. When disagreements are very evident, the assembly decides by vote and the majority decision is followed.

During the barangay assembly meeting, discussions and announcement on the other organization activities are made. Since the officers of the multi-purpose cooperative are also officers of the barangay, matters pertaining to the cooperative are simultaneously discussed.

Community Participation in the Development of the Area.

When the barangay officials and beneficiaries were asked in what manner can they participate in the implementation of projects, those in attendance indicated the following: i) willingness to provide voluntary labor if need be; ii) provide lower labor cost; iii) volunteer lot for barangay center, solar dryer, etc.; iv) of right-of-way for roads or irrigation canals; v) volunteer farm area for demonstration purposes. The barangay chairman signified willingness to donate a portion of his land for multi-purpose pavement or demo farm.

Special Skills in the Project Area

The community has human resources with special skills that could be tapped in the development of the area. The community has two agricultural graduates and five barangay residents with good and extensive experience in handicraft making (use of bamboo, ticog and special grass).

b) Assessment and Considerations of Present Condition of Social Capability

- The organizations in the barangay community are formal and informal venue of collective activity that can be tapped and used in the development of the area. For Sappaac Area, the barangay officials are also the officers and active members of the associations or organizations. These associations or organizations, therefore, can be the basis for labor mobilization, organization and support. However, these organizations are not yet fully organized and matured. It has one association with members without functions and activities (Timpuyog Ti Inna). The cooperative has few members (23%) and with a large amount of uncollected debts from their lending activities and consumer store (about 200,000 pesos). It has an organization with compulsory membership (PTA). Members of organization have multiple functions and roles in two or more organizations,
- The effectiveness of community participation will depend on the collective activity of the farmers. If collective activity is not regularly practiced, the community's sense of participation will also be de-limited. In the case of Sappaac Area, some projects require the participation of the community with labor participation. This process of involving the residents in barangay projects will make them aware of the need for collective action in development process. If participation is solicited from the community, they will have the feeling of sense of ownership. Their involvement, therefore, will determine the community's possible response to the implementation of proposed projects,
- The use and maintenance of barangay facilities and resources by the community will determine the kind of value formation and training that should be emphasized in the development of the area. Hence, the reliance of the community on DPWH for the repair of their artesian well; the absence of barangay center even as the barangay has been organized in the 1950s; the reliance of the barangay officers only on their IRA fund for the implementation of barangay projects/activities are signs of dependency and lacking in resourcefulness in the community leadership, and
- However, given the proper perspective and encouragement, the barangay leadership and community organizations can be effective in the implementation of project, as in the case of the water impounding dam project of the barangay implemented in 1994 by the multi-purpose

cooperative. The cooperative organization project supported by DAR and DOST involves the construction of a small water impounding dam for irrigation use and fishpond culture to provide irrigation water for rice farms during the dry season. Included in the project is the provision of hose (14 pieces with length of 200 feet) to bring water from the spring to the dam site and/or to the farm area. The land for the dam site was provided by one cooperative member, the labor for the impounding dam by the cooperative members and the money for the purchase of the hose and technology from DOST.

7.1.4 Agricultural Conditions

1) Soil and Land Use

a) Introduction

A soil survey was conducted with a total of 12 representative observation sites during the Phase II field survey. The observation sites are chosen from areas of different land forms and soil types. The soil characteristics observed are soil depth, depth of A-horizon, texture, color, presence of gravel and rock outcrops, consistency and depth of gleyed layer in the case of submerged soils. Soil samples are taken from the 0-30 cm and 30-60 cm layers. Quick test is made for pH, nitrogen content, available phosphate, potassium, magnesium, iron and salts.

b) Landform of Area Surveyed

The following four categories of landform are identified as follows:

- (i) Narrow alluvial valleys,
- (ii) Low limestone hills,
- (iii) Low hills on shale and sandstone
- (vi) Low hills on volcanic

The narrow alluvial valleys cover a small portion of the area, which is made up narrow and elongated valley. The lands are mainly used for paddy rice cultivation. Included in this category is the relatively level alluvial/colluvial area near the barangay proper of Sappaac Area. The low limestone hills are located at the mid-western portion of the Area, having slope ranging from five to 18 percent. The eastern portion of the model area mostly elevated at about 220-360 m above mean sea level is the low hills on shale and sandstone. The slope ranges from 18 to 30 percent in most area. The low hills on volcanic are located in both southern and northern portions of the Project Area, which have gentle slope and more subdued topography with the slope of not more than 18 percent.

c) Soils of the Area Surveyed

The soil characteristics is presented in Table F.2-1, and Figure F.2-11 to F.2-18, Annex F. Four soil groups are identified for each of the above mentioned landform categories as shown below:

Soil Classification

Lanform	Soil Group
- Narrow alluvial valleys	Inceptisols, Vertic Tropaquepts
- Low limestone hills	Alfisols, Lithic Tropudalf
- Low hills on shale and sandstone	Inceptisols, Typic Tropepts
- Lowhills on Basalt rocks	Ultisols, Haplustults

The soils of Vertic Tropepts are fine and sticky. Most of the soils is derived from limestone located on the upper slopes. During the dry season, the cracks are about 10 cm wide and extend down to about one meter depth. Such soils are difficult to work with and they must be tilled at a certain level of moisture content. The high clay content limits the potentials of soils for upland crops. The problems of zinc deficiency can be aggravated by the application of heavy rate of nitrogen and by use of water pumped up from the limestone.

The surface soil depths of Lithic Tropudalf are shallow, less than 50 cm. The shallow soil depth and rock outcrop coverage limit the use of the land to tree crops and forest.

The soils of Typic Tropepts have sandy clay to clay loam texture. They are deeply weathered with sticky and plastic consistency. They are slightly acid and generally with low nutrient content. Nitrogen and phosphorous are usually deficient in such soils. Also fixation of applied phosphorous could be a problem that can be corrected by staggered application.

The soils of Typic Haplustults, derived from basalt are deep to very deep clay soils with slightly acid and generally low nutrient content.

d) Present Land Use

The present land use is indicated in the following table. Four land use categories except for the residential and others are recognized.

Present Land Use

Land Category	Area		Remarks
	(ha)	(%)	
1. Cultivated land			
(1) Rice Land			
- Irrigated	-	-	
- Rainfed	88	23.5	
Sub-total	88	23.5	
(2) Upland	30	8.0	
(3) Perennial	11	2.9	
Total	129	34.4	
2. Grasses and Shrubs Land	221	58.9	Including low density forest
3. Residential and Others	25	6.7	Including roads and trails, etc.
Grand-total	375	100.0	

Source: JICA Study Team

Rice Land

Paddy rice is grown once a year. After harvesting paddy rice, upland crops such as tobacco and vegetables are grown on a very limited area by pump irrigation using groundwater.

Upland

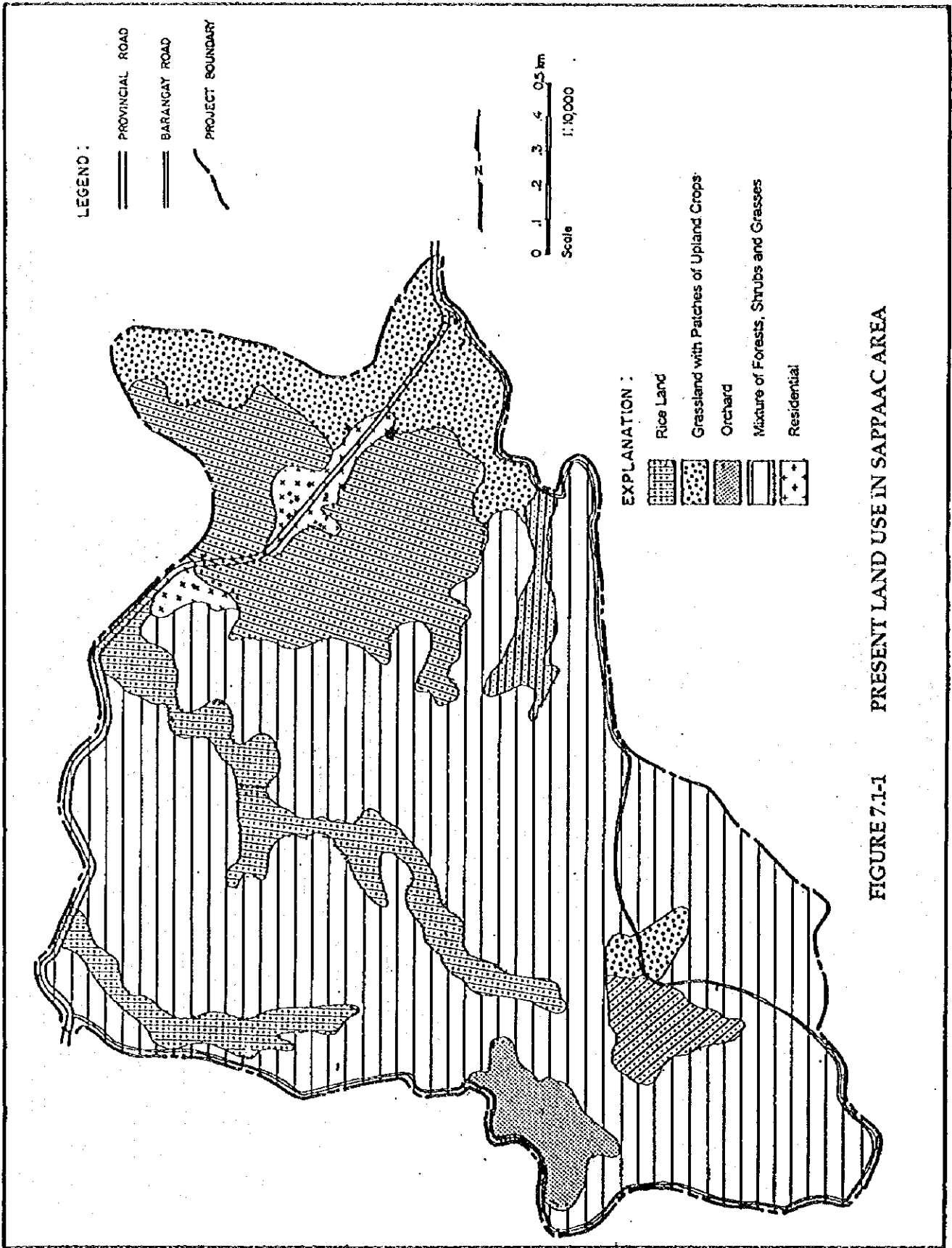
Corn and upland rice are main crops in the Area. These are grown only during wet season. Low soil fertility and the danger of soil erosion do not allow the wider introduction of upland crops in the Area.

Orchard

Sporadically, mango, banana, pomelo, and papaya are grown. Although the numbers of mango trees are limited, mango production is one of main cash income for considerable number of farmers.

Low Density Forest, Shrub and Grass Land

This category of land covers about 59 percent of the Project Area. The low density forest and shrubs are located on the undulating limestone hills and on the steep valleys' side of the low hills on shale and sandstone. The formerly cultivated lands and the abandoned slash and burn areas are colonized by grasses and shrubs. The grassy lands are often subject to annual burning which often damage newly planted trees.



2) Crop Production

The total gross cropped area per year is estimated at 151 ha as shown below:

Present Crop Production

Land/Crop	Area (ha)	Unit Yield (ton)	Production (ton)
Rice Land			
Wet Season			
- Paddy	88	1.2	106
Dry Season			
- Diversified Crops (Tobacco*1)	13	1.3	17
Sub-total	101		123
Upland			
Wet Season			
- Corn	9	1.5	14
- Root Crops (Sweet Potato*2)	21	2.0	42
Dry Season			
- Beans (Mungbean)	12	0.4	5
Sub-total	42		61
Orchard			
- Mango	5	2.6	13
- Banana	3	5.8	17
Sub-total	8		30
Total	151		214

Note: The crops in the parenthesis show the respective representative crops.

*1 Including vegetables, such as squash, cabbage, and eggplant.

*2 Including cassava.

Source: JICA Study Team

Cropping intensity is accounted at 40 percent to the total Project Area or 117 percent to the total cultivated area as follows:

<u>Cropping Intensity</u>	<u>Intensity(%)</u>
- Total Project Area(375ha=100%)	Total cropped area=151ha 40.3
- Total cultivated area(129ha=100%)	Total cropped area=151ha 117.1

Large areas are left as idle land. The large area coverage of idle land may be caused mainly by hilly and undulating terrain condition, deficiency of soil nutrients and very limited soil moisture during dry season. Although some rice lands are cultivated with tobacco and other diversified crops like vegetables through pumping irrigation from wells, the planting areas are limited for lack of water in the wells.

The major crop in Area is paddy rice. However, crop production depending on heavy rainfall is for self subsistence. Small amount of corn is also planted especially during wet season. The perennial crops in the area are mango and banana. Mango is produced commercially, while banana is for home consumption.

3) Farming Practices and Input Supply

Most of farmers adopt the traditional cultivation practices, employing draft animals for land preparation. However, a considerable number of farmers have no draft animals. These farmers rent draft animals to prepare the land. Because of the limited number of livestock, organic fertilizer is scarce. The farmers apply very small amount of fertilizers and pesticide instead of organic fertilizers.

Due to the limited capacity of the local government unit for agricultural extension, the farmers lack technological knowledge in agriculture. There are no demonstration farms in the Area. Also, no nursery exists in the Area, hence seedlings are not available. However, since 1955 some of the seeding has been supplied by the PAO and MAO.

4) Animal Husbandry and Inland Fisheries

a) Animal Husbandry

According to the agro-economic survey conducted by Study Team, 100 percent of farmers has carabao with an average of 1.9 head of carabao per family. Cattle ownership is 58 percent with an average of 1.2 head per family.

Carabao and cattle are traditionally raised as a component of over-all farming systems. The problems on carabao and cattle development are the low reproductive performance, limited head of selected bulls, high calf mortality. Also, in carabao, high incidence of "silent heat" occurs during the dry season.

Most of the farmers do not own their carabaos. The farmers share the offspring's of carabao with owners who lives outside the Area. One advantage of this set up is that they can use carabao for land preparation and for other purposes without rent. Since, the farmers do not have sufficient knowledge on carabao breeding and feeding technique, there is low reproduction of carabao in the Project Area over the years.

Most of the housewives and children's participation in goat production are small ruminant backyard production. It is fertile and frequently produces twins and triplets. More commonly, three kiddings are obtained in two years and this appears to be the pattern for most native goats in the country. The kid's mortality rate is mainly high as a result of internal parasites and pneumonia.

Pig sector is rather developed and efficient compared with other livestock sectors. In the short-term, the pig sector can be developed successfully in this Area, particularly where feed grain and root crops' surplus are available.

The Chicken production is based on household scavenging systems by native breed. However, it plays important role to get nutritional importance by native chicken and to generate income increase of local people. Their meat and eggs are generally regarded as of better flavor than those of modern exotic breeds and it has a great potential in the market. Chicken breeding in the Area is undertaken at the rate of 91 percent of farmers. Average number of chicken is 3.8.

Livestock marketing in the Project Area is not organized, and this situation usually causes more advantage for the middlemen of livestock.

b) Inland Fisheries

Small scale tilapia culture has already been started by some farmers, but mostly for home and local consumption only. No production input and management for fish have been undertaken.

5) Marketing of Agricultural Products

At the regional level, farmers in Region CAR sell several kinds of their agricultural produce to consumers both within and outside the region. With crops, they marketed 20 percent of their palay production; 58 percent of their corn production; 69 percent of their sugarcane production and 79 percent of their banana production in 1987. In addition, they also marketed 95 percent of their aquaculture fish.

At Sappaac Area, however, most farm produce is kept for home consumption. Only a little over one-third (36 percent) of the farmers markets their produce. The marketing outlets used by most of them (75 percent) are the local traders. Others market their produce directly to the consumers in the same village. A few farmers export their produce outside the region.

Most of farmers at Sappaac Area normally do trading in their Area or sell it to those who earlier provided them loans or inputs. Others sell their produce in the public markets at Bangued. There are about 10 vegetable buyers at Bangued who provide free transportation to whoever bring their produce to them. For tobacco, the traders normally buy directly from the farms. Apart from the traders', farmers also sell their paddy within the community. Those who sell their paddy production buy the cheap NFA rice to meet their consumption shortfall.

a) Farm-to-Market Roads

Like other marginal areas in the CAR region, the poor farm-to-market roads at Sappaac Area have been eroding its development. At present, Sappaac Area has

6.8 km of existing farm roads that are not passable during the wet season. It takes the farmers at Sappaac Area about 50 percent more time and expenditure on average in transporting their produce from farms to the market. The costs of transporting a 50 kg bag of farm produce from Sappaac Area to the provincial market in Bangued during rain-free season range from 7-9 pesos for villagers in Puroc 1 and 2, and up to 20 pesos for those in Puroc 3 and 4.

The distance from Sappaac Area to Bangued is about 20 km or 30 minutes by jeep and 400 km from Bangued to Manila. There is an all-weathered provincial road of 10 km passing through Sappaac Area. However, the feeder roads from farm or home lots are all dirt roads that are not passable during the wet season.

b) Marketing Products and Farm Prices Received

The farmers at Sappaac Area market a variety of their farm produces. For field and food crops, they market their palay, corn and mungbean. For fruits and vegetables, they market banana, mango, eggplant, cabbage and green pepper. A few farmers market some tobacco.

The prices of produce in October 1996 are as follows:

- 9 pesos /kg of palay
- 40-50 pesos/100 pieces of banana
- 7-12 pesos/kg or 1,000 to 6,000 pesos/tree of mango
- 15 pesos/kg of eggplant
- 10 pesos/kg of cabbage
- 5 pesos/kg of green pepper
- 50 pesos/kg of mngbean
- 50 pesos /kg of tobacco

For livestock and poultry, the average unit prices received are 5,667 pesos for cattle; 4,667 pesos for young carabao; 857 pesos for goats; 2,484 pesos for pigs; 129 pesos for chicken meat and 3 pesos for chicken eggs.

6) Research and Extension

a) Research Organizations and Their Activities

Research organizations located in Region-CAR are Baguio National Crop Research and Development Center, Cordillera Integrated Agricultural Research Center (CIARC), Ifugao Research & Outreach Station (ROS), Mt. Province ROS, Luna ROS, Rizal ROS, Tayum ROS, and State Collage of Agriculture. These organizations will support agricultural development in Sappaac Area. Materials dealing with and activities in these organizations are shown in Table H.2-1.

b) Technology Extension Agencies and Their Activities

Regional DA, PAO, MAO and ATI are the main technology extension agencies in the Area. The developed technology at the research organizations are directly or indirectly transferred from the regional DA and the research organizations to LGUs and farmers through techno-demo farms and training. In 1996, PAO Abra province had techno-demo farm for rice, vegetables and legume crops, and had farmers/MAO extension workers training on rice. In 1995, the MAO of Bangued had 0.5 ha techno-demo farm for rice production. He also conducted training on rice, vegetables and fruit tree cultivation for 800 farmers (200 farmers of each batch for one day each, four times).

MAO's extension workers are front workers of technological transfer to farmers. The number of extension workers in the MAO Bangued is seven persons. These extension workers are in charge of 2,924 farmers. The average rate of farmers per extension worker is 418 farmers varying from 235 to 695 farmers.

The extension worker assigned to Sappaac is in charge of 402 farmers that includes two other barangays. He visits the barangays at least once a week. However, poor transport is the biggest constraint for their extension activities.

Training for the staff members of LGUs and farmers have been performed by such agencies as ATI, CIARC, ROSs, PAO and MAO at their training facilities. The summary of AMDP accomplishments under taken by ATI Benguet in 1995 is shown in Table H.2-2. Training in the fields of environmental preservation, farming funds and carabao breeding has been conducted by DENR, LBP, CDA and PCC, respectively.

c) Seeds/Seedlings Supply Agencies

Supply of seeds and seedlings to farmers are an essential aspect together with the technology extension. PAO, MAO, DENR, CIARC and ROSs have provided seeds/seedlings for farmers. In 1995, the PAO of Abra produced seeds of rice and corn, and seedlings of mango and cashew in the farmers' fields. The MAO of Bangued provided vegetable seeds such as pechay, cabbage, tomato, eggplant, cauliflower and sweet pepper, were bought from private companies in Manila, and distributed to farmers, free of charge. The budget provided for the seeds amounted to 70,000 pesos per year.

7) Agricultural Credit

a) The National Credit Policy

The Philippine Government, during the past 20 years, created a number of credit programs for the rural sector at subsidized interest rates. The programs had various incentives and regulatory schemes like credit quotas, deposit retention and rediscounting privileges. The Credit Quota Scheme required banks to allocate 25

percent of their net loanable funds for agricultural and agrarian reform credits. The Deposit Retention Scheme, on the other hand, required banks to retain 75 percent of total deposits in the region where deposits were generated. Special time deposits and rediscounting facilities were also made available at the Central Bank of the Philippines, with private rural banks as credit conduits.

The intended effects of the so-called supply-led approach, however, did not happen. The supply of formal agricultural credit declined with credit subsidies being largely captured by formal lenders. The rural banks depended on the Central Bank for over half of their loanable funds. An estimate also showed high income farmers receiving 68 percent of total credit from the rural banks.

Among the causal factors of the failure cited were: i) the huge transaction costs involved in making small loans, ii) the preference for observable collateral like land, iii) the weak incentive design which led borrowers to shirk from repayment, iv) formal lenders becoming careless with screening borrowers; and v) too much dependence on the government for loanable funds.

All these have led to a market-oriented approach where the government funds are used primarily as credit guarantees with private banks providing loans.

In December 1986, with the issuance of Executive Order 113, twenty of 46 separate credit programs were consolidated into the Comprehensive Agricultural Loan Fund (CALF). Credit subsidies were withdrawn and rural credit is delivered at market-oriented interest rates by private financial institutions.

Of the three broad measures adopted in the new credit program, farmers' credit worthiness and bankability are viewed to be increased through training and education (on credit responsibility, loan acquisition skills, project preparation and management) and building of strong and viable farmers' organizations. Redistribution of land to the landless is one of the two supports given.

The third measure to reduce the risks on transaction and monitoring costs faced by banks in lending to agriculture has been served with the CALF Guarantee Scheme operated through two government guarantee institutions: the Quedan Guaranty Fund Board (QGFBB) and the Guarantee Fund for Small and Medium Enterprises (GFSME).

The guarantee scheme under CALF initiated in 1991 guarantees up to 85 percent of default with 15 percent to be absorbed by the bank. By April 30, 1991, nearly two billion pesos in loans had been guaranteed covering 108,425 individual beneficiaries, mostly rice and corn farmers with average loan size of 9,000 pesos.

Other CALF non-guarantee programs include the Integrated Rural Financing (IRF) Program; the Cooperative Rural Bank (CRB) Formation; the Livelihood Enhancement for Agricultural Development (LEAD); and the Grameen Bank Replication Project.

The Grameen Bank Replication Project that seeks to test an alternative credit delivery for the poorest of the poor (coconut farmers and coastal fishermen) has been experimented in 13 replications in 11 provinces since 1991. The project involves savings generation, training in credit management delivery and strict repayment before access to loan fund.

b) Borrowing Experience of ARBs²

During 1985-89, eighty percent of ARBs borrowed from informal sources most of who were the professional moneylenders. LBP and the Rural Banks were the two top formal lenders.

Regional classification, socio-economic class, sex and age were found to exert a weak influence on the borrowers' decisions to avail loans from formal or informal source.

The level of indebtedness of the small farmers declined from 74 percent in the 50's to only 20 percent in the 80's. Throughout 1985-89, about 40 percent of ARBs used their funds to finance their farming activities. The reason for this was not clear.

Informal lenders remain the primary sources of credit for small farmers. The continuing inaccessibility of small farmers to formal credits raises doubts on the capability of the LBP in serving the credit needs of ARBs. However, after the Bank's network increased to 114, its loans have increased substantially.

Group pressure and credit guarantee have been used as schemes to address the lack of collateral problems of small farmers. The CARP's effort to distribute land to the landless farmers only partially address the problem as the EPs/CLOAs issued to the farmers are not considered by many banks as with collateral value.

Among others, personalized relationship between the informal money lenders and the small farmers minimize the information requirement and rural hazard problems inherit in lending.

c) A Newly Proposed Program on Cooperative Development at ARCs

In the mean time, the FAO's Organizational Maturity Assessment (OMA-1) conducted in January 1995 reveals that most of the ARC cooperatives were still young and not yet eligible for LBP financing. Later, the OMA-2 conducted in January 1996 reveals further that, of the 1,932 ARC Organizations (ARCO) evaluated more that half (55 percent) are still rated as low maturity level.

² Report on a survey of the ARBs borrowing experience for policy formulation jointly conducted by the Bureau of Agricultural Statistics (BAS) and the Social Weather Stations (SWS) during June-July 1990.

To make the ARC cooperatives bankable and viable, the project "Technical Assistance for the Cooperative Development in the Agrarian Reforms Communities" was proposed in November 1995. The project is to be funded by the OECF Special Yen Credit Package. The project is to cover 96 ARCs in 34 provinces nationwide. It will be jointly implemented by DAR and LBP.

DAR's view in developing viable ARCs, is to insure that the farmers earn a sustainable living out of the lands distributed under the CARP. The two major components of the strategy are Land Tenure Improvement (LTI) and the Program for Beneficiaries Development (PBD).

d) The Landbank of the Philippines

The Landbank of the Philippines (LBP) was established 33 years ago on August 8, 1963, with the enactment of Republic Act No. 3844 or the Agricultural Land Reform Code. The original function of LBP was simply to buy private lands for distribution to small farmers. Nine years later in 1972, the entire country was placed under land reform and LBP was given the power to borrow funds up to ten times its paid-up capital for relending to farmer beneficiaries. The Bank was also given the universal banking power of engaging in commercial banking operations.

The Comprehensive Agrarian Reform Program has integrated into one comprehensive package the credit assistance, infrastructure, extension service and institutional building. This has given the Bank a clearer understanding of its social mission to accelerate rural development.

Recognizing the key role of cooperatives in increasing production and income levels of farmers/fishermen, LBP has initiated a lending program. Farmers' cooperatives or legally authorized farmers' organizations can have a regular credit line. The types of loans available to cooperatives are agricultural production, livestock and poultry, agricultural facility, agro-industrial, aqua-marine, operating capital, commodity, marketing and livelihood loans.

To avail credits from the Landbank, cooperative needs to meet either the pre-qualification requirements (for those availing of Landbank credits for the first time) or minimum requirements (for existing bank-assisted cooperatives or BACs).

Some examples of the ten pre-requisite requirements newly accessing cooperatives must meet are:

- It must be duly registered with the Cooperative Development Authority (CDA)
- It must have a membership of at least 50 small farmers/fisherme;
- All members should have attended pre-membership education seminar (PMES) and all eligible borrowers should have attended a membership education seminar (MES)
- With minimum paid-up capital of 30,000 pesos

- With a core management team composed of qualified full or part-time manager, full or part-time and duly bonded treasurer, and qualified full time book-keeper
- Must be at least break-even with its operations

For BACs, some examples of the twelve minimum requirements are:

- Having active farmers/fishermen membership of 100 for Class D to more than 300 for Class A as specified by the Bank,
- Attendance of all eligible member-borrowers in at least one MES in addition to PMES,
- Qualified core management team and additional management staff,
- Engaged in diversified progressively expanding and profitable livelihood activities,
- Debt to equity requirement of 6: 1,
- Repayment of at least 95 percent on Landbank lends.

With over 300 branches and field offices nationwide, the Bank has by far been the largest contributor to rural credit delivery in the Philippines.

e) The Coop Accreditation Program (CAP)³

The Coop Accreditation Program (CAP) was launched in mid-1994 to help transform cooperatives into viable and bankable community-based, people-oriented business enterprises capable of addressing the socio-economic needs of members and the communities where these are located, and ultimately, to promote a vibrant, healthy, and responsive cooperative sector. It is also aimed at improving the individual capabilities of cooperatives to enable them to perform effectively as financial intermediaries capable of mobilizing savings and funds, optimally leveraging these with local financial institutions and eventually transforming these resources into productive use by way of supporting the livelihood and providential needs of its members.

CAP consists of three interrelated components, namely:

- Co-op data base building and maintenance,
- Credit assistance, and
- Technical assistance (Hands-on Management Consultancy; cooperative training on basic, intermediate and advanced courses; cooperative information, research and development).

f) Borrowing Experiences of Farmers at Sappaac Area

Nearly none of the farm households at Sappaac Area ever borrowed money from any sources. Some farmers borrowed money from merchants and

³ Gilberto M. Llanto, Executive Director, ACPC. Poverty and Agrarian Reforms in Rural Philippines.

relatives/neighbors for palay production. Others borrowed from cooperatives for corn production. For household facilities, education and trading business, farmers borrowed from relatives, banks and cooperatives. Unlike most other marginal areas of the country, most farmers at Sappaac Area (82 percent) have been financing their farm production. The average size of their loans is only 16 pesos per household compared with 972 pesos at Marangog Area; 3,794 pesos at Silae Area and 4,874 pesos at Cofcaville Area.

Credit Utilization at Sappaac Area and Three Other Areas

Areas	Self-Finance (%)	Borrowers (%)		Others(%)	Average Loan (pesos)
		Formal	Non- Formal		
Sappaac Area	82	-	2	6	16
Cofcaville Area	4	38	70	0	4,874
Marangog Area	56	10	40	0	972
Silae Area	36	4	46	14	3,794

A review of their participation in people's organization and the services reveals another interesting fact. While the majority of the households (62 percent) are members of cooperatives, only very few of them (4 percent) have availed of the credit facilities of the cooperatives.

7.1.5 Irrigation Water Resources

1) Available Water Resources

Available water resources for irrigation are small creeks, shallow wells and spring water. Creek water is presently used for irrigation of paddy field located in low-lying areas during both wet and dry seasons. On the other hand, the shallow wells at ten sites are mainly used for upland crops such as tobacco, corn and vegetables in small areas during dry season. However, due to absence of rainfall during dry season and very porous foundation with limestone in some areas, water sources during dry season are scarce.

A creek with relative large amounts of discharge is observed in sitio Pita. A farmer is presently conveying water to his land using polyethylene pipe of about 500 m. Another creek with more discharge is observed at Sappaac South. The water flows from south-east to north-west direction. Creek water is used for paddy cultivation at both banks during wet season.

2) Potential Water Resources

As mentioned above, two creek waters are considered to be the potential water resources for development in Sappaac Area. Especially the latter creek water

seems to have more potential as water resources with big amount of discharge during wet season. However, its discharge during dry season is very scarce. Hence, reservoir construction will be required to expect effective utilization of water. Since the geological foundation around the creek is composed of limestone, reservoir construction is not recommendable.

7.1.6 Agricultural Infrastructure Conditions

1) Irrigation Condition

Present irrigated paddy fields during wet season are located in relative low-lying areas along major creeks. However, no irrigation facilities are provided. Water is conveyed in the farmers' field depending on topographic conditions.

Another source of water supply is the shallow wells located at ten places in the low-lying paddy field. During the dry season, water is lifted by small-scale pumps from shallow or dug wells about three to eight meters in depth. This lifted water is used for irrigation of upland crops such as tobacco, corn and vegetables in limited areas less than one to three hectares in dry season.

2) Drainage Condition

According to the field survey, severe drainage problems are not observed in the Sappaac Area because of rolling and undulating topography.

3) Farm Land Condition

Major farm lands in the Area are terraced paddy fields adjacent to the south-eastern part of the barangay proper. There areas are about 20 ha under irrigated farming, of which water sources are creek and spring waters. Farm land itself is relatively well managed. However, farm roads are not available.

4) Farm Road Condition

As mentioned above, farm roads are not provided at present except for some foot-path in the fields. Therefore, hauling of input materials and crop products are done manually or by using carabao with very simple cart. Under the situation, local people are forced under the unfavorable conditions not only farm activities, but also communication among villages in and around the area.

7.1.7 Rural and Social Infrastructure Conditions

1) Rural Roads

The access roads to Sappaac Area are one provincial road and a barangay road. The provincial road (No 301) branches off at Lipcan from the national road of No 6. It is well maintained with gravel pavement. The road forms the area boundary at the western part of Sappaac Area.

The barangay road forming the boundary of the Area has a total length of about seven kilometers. It was constructed by the local government for the purposes of rural and farming communications. However, due to absence of proper maintenance and presence of steep slope at some places, the road becomes unpassable by any type of vehicle especially during the wet season.

2) Rural Water Supply

Several deep wells equipped with hand pumps have been provided in the by the District Office of DPWH. However, some of these wells are presently not functioning due to draw-down of groundwater and lack of spare parts.

At sitio of Pao, located at the northern edge of the Area, a level-II water supply system with limited amount of water is provided using spring water diverted from sitio Pita. Under such conditions, provision of rural water supply facilities will be needed for the Area.

3) Rural Electrification

The households in the sitios of Pao, Sappaac Area proper, and Sappaac Area-south, located along the provincial road, have electricity. Only sitio Pita located in the more interior area has not yet been electrified.

4) Other Rural and Social Facilities

The Sappaac Area has very limited rural and social facilities. It is the only area without barangay center. Barangay meetings and discussions are usually held at the house of the barangay Chairman. The facilities available are a complete elementary school, a day-care service center, barangay health center, and chapel.

The barangay has a complete elementary school located at the center of the barangay. The school consists of three old and dilapidated buildings with nine rooms, six for classroom purposes, one from each for canteen, home economics (HE) and stock room. The school has also a new building that is used as school office. The school classrooms are old and dilapidated and need repair and/or replacement. The cited needs of the school are building rehabilitation, school stage and playground, toilet for the use of the children and teachers, water source (artesian well is available but not functioning), HE room with facilities. High

school and college education are availed at Bangued, Abra province and in Vigan, Ilocos Sur province. The day-care center also needs to be rehabilitated.

The health center has very minimal facilities, only one chair and table supplied by the midwife. No other medical equipment and supplies are available. Medicines are not available. A midwife is available in the Project Area. However, the midwife is also serving three other satellite barangays. The services provided by the health center are limited to delivery calls and immunization programs. The health center is closed most of the time and is not being used. By this reason, the farmers avail themselves of the services of the local doctor, the "arbularyo." For serious illness or other health related services, the residents avail of the facilities in the poblacion/municipality. However, due to the lack of efficient and regular transportation, there is a problem of bringing sick persons to the town proper, especially in cases of emergency.

7.1.8 Farmers' Organization and Their Activities

1) Farmers' Cooperatives

a) Sappaac Area Agrarian Reform Beneficiaries Multi-Purpose Cooperative

The farmers' cooperative in the Area is the "Sappaac Area Agrarian Reform Beneficiaries Multi-Purpose" established in 1992. The number of cooperative members is 43 or 23 percent of the total farm households (189 households) in the barangay. The number of ARB members is 39 or 100 percent of the total ARBs in the Area. The cumulative amount of capital build-up is 60,000 pesos.

Activities of the Cooperative

Main activities of the cooperative so far done or on going are (i) impounding dam project, (ii) lending money and (iii) consumer store management. For the impounding dam project, the cooperative provided labor without payment. The DOST provided the materials for the construction of the small impounding dam that becomes the source of water for crops during the dry season. Water is diverted with the use of hose (14 hoses at 200 ft.) without pump. The cooperative wants to increase the number and length of hose.

The cooperative had lending activities at the early stage of establishment. The maximum total amounts lent out is P2,000/member. However, due to non-payment of the debts by members, the lending program has been stopped.

The cooperative is managing two consumer stores. The gross incomes amount is around P2,400 and P900 per month each. About 15 percent of the net income is paid to each of the store keepers. At present, the store management is the only income source of the cooperative.

Information for the Development of Cooperative Activities

The cooperative has no activity for group purchase of production materials and group sale of agricultural products because of insufficient capital. Production technologies are introduced through MAO extension worker who visits once a week and farmers' training. Training so far received are pre-membership and education seminar, entrepreneurship training, training on barangay nursery, food processing on mango and banana chips and skills training on fertilizer making, soap making and mushroom culture. The present matter desired by the members are own building for office and warehouse for cooperative, and irrigation hoses to lead water from the impounding dam. Support services most required for their farming activities are barangay road, production technology, food processing technology (mango, banana chips) and financing for farming.

2) Other Community Associations/ Organizations

Besides the multi-purpose cooperative, there are three other identified organizations in the Area as shown in Table I.2-3. The Sappaac Area Namin Association is an informal organization to assist members of community in times of death. The other two organizations are the women's group (inactive) and the PTA, the concern of which is related to school-related activities. The organizations activity caters to a particular need of the community and is made active only when the need arises. These associations can be reactivated and can be an important basis for mobilization and support in community activity or project.

3) Women in Development

Woman's participation in the community activities and organizations are very minimal due to the absence of a working women's organization. Participations of women in the barangay community are as follows; one woman barangay council member (or kagawad); four woman's officers in the multi-purpose cooperative (bookkeeper, 2 storekeepers, auditor); and 10 women members of the cooperative.

Woman's activities are concentrated on household work, family care, child rearing and assistance in farming activities. There are no other livelihood activities which women can avail of in the area. When inquired as to the availability of specific skills of any woman resident, the women interviewed gave negative responses. The only other activity that they can work on in the community is backyard gardening. But even this activity is not being done because of the lack of planting materials for vegetables and others.

Though there is a women's group in the barangay community, it is not active as it was organized only in time for the municipal fiesta celebration. The woman's group interviewed during the study period were interested to form a functional working women's group. However, there is no woman resident who is

bold enough to initiate woman's activity. The woman's group is relying on the wife of the barangay chairman to initiate activity for women's group.

The needs identified by women in the community are livelihood projects and seeds for planting materials.

4) Non-Government Organizations (NGO)

There is no NGO particularly working with the farmer beneficiaries in the Project Area.

There are, however, at least three NGOs working with DAR on the development of ARCs within the province. Their programs and services are community development, organizing, capability building seminars, cooperative development, monitoring of government projects, etc. Two of the identified NGOs are interested to work in the Project Area. Refer to Table I.2-5 on the profile, programs, services, plans and programs of the NGOs within the Project Area.

7.1.9 Post-Harvest and Rural-Agro Industry

1) Post-Harvest and Rural Agro-Industry Conditions

In Sappaac Area, rice, corn, vegetables, legume, rootcrops, banana, and mango is planted in an area of eighty-eight, nine, thirteen, twelve, twenty-one, three and five hectares, respectively (refer to Table K.2-5). Almost all farming works are performed manually. Specifically, manual harvesting is widespread. Crops are dried-up with sunshine on the harvested field because of the lack of drying facilities in the Area. Numerous work forces are needed for planting and harvesting works. Hence, some farming families hire labors from their relatives or neighbors to reduce long and heavy works. (refer to the Table K.2-1)

Rice is the major crop in the Area. Its yield and production are 1.2 ton/ha and 105.6 ton/year, respectively. There are two available privately owned compact rice mill facilities in the Area. As the yield and production of crops are low, agro-industry and processing facilities and even agricultural machinery are not available in the Area.

As the marketing places are far from the area, crops are sold to the local traders at the farm gate without processing. The municipal poblacion and provincial capital have some marketing places. However, the distance between the Study Area and the nearer poblacion is 20 km. The road is rough and undulating, hence, it is difficult for farmers to sell their crops to the market by themselves (refer to Table K.2-2 and K.2-3).

Survey for willingness and skill of rural industry/handicraft shows that approximately half of persons are willing to undertake agro-industry and

processing activities. However, only very few numbers of persons possess the necessary skill (refer to Table K.2-4). During the Study period, it was discovered that the Department of Trade and Industry (DTI) had conducted farmer's training program in the Area for bamboo furniture making. It is proposed that continuous training be provided to farmers in the Area.

Though major crops are rice and corn, no special agro-industry and processing facilities are available. However, there are some manufacturers and distributors for agricultural machinery in the provincial capital and large cities along the coast.

7.1.10 Rural Environment and Public Health

1) Soil Erosion

The Typic Haplustults on low volcanic hills and Typic Tropepts on low shale and sandstone hills have steep slopes and are moderate to highly erodible (Table P.2-1).

Clearing of the low density forest trees and shrubs for fuelwood and annual crop production without soil conservation and occurrence of grassland fire during summer aggravate soil erosion problems during the rainy season. The rolling to hilly areas is about 70 percent and the rainfall erosivity is high (Table P.2-1). The estimated soil erosion using the modified Universal Soil Loss Equation for slopes more than eight percent is high, particularly for the grassland with upland crops and the orchards (Table P.2-2). The very steep area with forest shrubs and grasses has very high estimated soil loss but the area is limited.

About 25 percent of the farmer respondents in the Area indicated that soil erosion and landslides together with typhoon were the environmental hazards that occurred in their farms in the last five years (Table P.2-3). Shallow soil on the cultivated land resulted from high soil erosion overtime (Table P.2-1). The shallow soil on the hilly to steep slope areas are covered with grasses. The surface soil erosion also contributed to the occurrence of stony to gravely soil surface of the cultivated areas with steep sloping slopes. The 6.8 km circumferential barangay road is also severely eroded. It has big gullies that are dangerous and not passable to non-four wheel drive vehicle.

2) Water Quality

The occurrence of gastro-enteritis has been associated with the drinking water (Table P.2-4). Field test for coliform bacteria in drinking water was conducted in October 29, 1996. Finding shows that some of the artesian wells and one Level-II water supply system in sitio Parparia have alarming levels of coliform bacteria (Table P.2-5). This suggests that these artesian wells are polluted by animal and human wastes that contain coliform bacteria. Boiling of drinking water

is therefore recommended for those with high bacterial counts. About 30 percent of the households in ARC needs to have toilets to minimize if not eliminate the sources of Coliform in the drinking water. According to the survey, 43 percent of ARBs has no toilet.

3) Flora and Fauna

The Sappaac Area has large patches of remnant forest. Some of these forest trees are white lauan (*Shorea contorta*), anabiong (*Trima orientales*), tibig (*Ficus-nota*), himbabao (*Broussoneti Luzoniensis*), molave (*Vitex pasiflora*), bankal (*Nucleus orientales*), antipolo (*Atrocarpus blancoi*), akleng parang (*Albizia procera*), Benguet pine (*Pinus insularis*), dapdap (*Erythrina orinetales*), bamboo (*Bambusa spp.*), datiles (*Muntingia calabura*), kakawate (*Gliricidia sepium*), and alibangbang (*Bauhinia malabarica*). The abandoned patch of Benguet pine was planted by Cellophil Resource Corporation. Fuelwood harvesting that causes the shrinking of patches of secondary forest is one of the livelihood in the community. Hagonoy (*Chromolaena odorata*) are common in the open area.

The farmer-respondents prefer gmelina, mahogany, and narra for forest tree plantation (Table 7-6). Some farmers are willing to produce bamboo poles and shoots, but they need training to upgrade their skills (Table P.2-7). The fruit trees preferred are cashew (*Anacardium occidentales*), tamarind (*Tamarindus indica*), duhat (*Syzygium cumini*), pomelo, sineguilas (*Spondiac purpuera*), anonas, native guava, mango, guyabano, jackfruit, avocado, santol, and star apple. Other crops grown in the Area are shown in Table P.2-8. Few trees of industrial crops like kapok, cacao and coffee together with katuray (*Sesbania grandiflora*), and passion fruits are also grown by the farmers in the home gardens. The grassland is dominated by cogon and amorseco. Farmers use this area for pasture. However, this is subjected to grassland fire during summer.

There is no wild life in the Area. Table P.2-9 shows the animal raised by the farmers. Farmers raised tilapia in their water impounding dam.

4) Public Health

Third degree malnutrition is predominant among children in Sappaac Area (Table P.2-10). During lean months, May-October, poor farmers harvest wild yam (kurot) and process for food. This root crop is high in hydrocyanic acid. They prepare lugao and rice with cora grit.

Immunization of children for tuberculosis, diptheria, pertussis, tetanus, polio, measles, and hepatitis are done every month (Table P.2-11). Diseases of the skin and respiratory and digestive systems are the common causes of morbidity among children both in Sappaac Area. Intestinal worms are prevalent among children. Diarrhea commonly occurs in May-July. Medical doctor from the

Municipal Health Office comes to the barangay when there is supply of free medicine for distribution. There is no herbal medicine garden in the community. Traditional medicine is used for snake and dog bites.

There is health center but lack of facilities and primary instruments for paramedic treatment. There is no supply of medicine in the clinic. The estimated annual medical expense of the farm household is very small (Table P.2-14). The causes of mortality among the adults are diseases of the respiratory and the circulatory systems (Table P.2-15). Pre-maturity and severe pneumonia are the major causes of death among the children. The midwife assigned to the Barangay Health Center is also assigned to the other barangays: Calot, Maoay, Calot/Tablac. Department of Social Welfare and Development at the municipality of Bangued is conducting Parent Effectiveness Service Training for the mothers that includes nutrition and population education. The use of pills, sterilization or vasectomy, and DEPO/DMPA are the preferred family planning practices (Table P.2-16).

7.1.11. Present Problems, Constraints and Development Potentials

1) Present Problem and Constraints

a) Agriculture

- The average farm size is relatively small at 1.98 ha per farm household, including 1.30 ha of idle/uncultivated land, where the net cultivated area is 0.68 ha,
- The cropping intensity to the total land is as low as 40.3 percent or 117.1 percent to the total cultivated land,
- As a major source of staple food, paddy rice is grown once a year with very low yield under rainfed condition. In the rice land, pH ranges from neutral to slightly alkali. Some farmers in the Area reported rice growth problem indicative of zinc deficiency,
- Nitrogen and phosphorus deficiencies are severe in the upland. The application of nitrogen and phosphorous with organic matters are essential for higher productivity. The lack of capital to buy adequate nitrogen and phosphate fertilizers and limited supplies of materials for organic fertilizer are major problems to increase crop production in the upland, and
- 59 percent of the Project Area are left as idle/uncultivated land, where low density forest and shrubs are located. Most of the land is undulating and rolling with steep slope. About one third of the Area is covered by shallow soils with rock outcrops, where land use is limited to tree crop and forest. Soil erosion is the most pressing problem in the idle/uncultivated land.

b) Agricultural and Rural Infrastructure

- There is a scarce water source, lack of irrigation facilities, absence of farm road, and poor condition of barangay road as farm-to-market road, and
- The health services are mostly availed in the poblacion and in the nearby barangays: medical equipment and facilities, and medicines are inadequate. The most pressing problem for the medical personnel, specially the midwives, is bad accessibility to the area. For the beneficiaries, the problem is inaccessibility to the health services due to the absence of regular transportation facilities.

c) Agro-Economics

- The farmers at Sappaac Area are dependent only on few cash crops like banana and mango as their major source of farm income. They are, therefore, susceptible to economic loss caused by natural hazards and variations in the marketing and prices of their produce. Integration of production and income from other sources both farm and non-farm are needed,
- Unfavorable farm road conditions, while posing problems in other social activities, are the largest problems and constraints to the agro-economic development of Sappaac Area. Improved farm and feeder roads in the Area will not only facilitate and increase production but also help boost marketing of agricultural production that is the major source of income in the Area,
- The marginal conditions of the Area have left the average farmers at Sappaac Area with insufficient resources to invest enough in their agricultural production. All sorts of development being planned for Sappaac Area may miss the project objectives if sufficient credits are not made available to supplement the small capital of the ARBs,
- The newly established cooperative at Sappaac Area is still very weak and needs to be strengthened to assume the role of credit and marketing facilitators for all economic activities in the Area, and
- The potential of Sappaac Area and its people to venture into productive non-farm activities are at present limited. Provisions of information on new non-farm opportunities are needed.

d) Animal Husbandry and Fisheries

- The problems in carabao and cattle development are low reproductive performance, limited head of selected bulls, high calf mortality. Also, in carabao, high incidence of "silent heat" occurs during dry season,

- Most of the farmers do not own their carabaos. The farmers just share the offspring's of carabao with the owner who lives outside the Project Area. Also, farmers do not possess enough knowledge on carabao breeding and feeding technique, resulting in low reproduction in the Area,
- Most of housewives and children raise goats at their backyards. The kid mortality rate is high due to infestation with internal parasites and pneumonia. Although there are potentials to develop the production of native chicken, very limited numbers of native chicken are raised at the backyard, and
- Small-scale tilapia culture has been practiced by the farmers. However, these are mostly for home consumption because of the very limited available water during dry season.

e) Farmers Organization and Agricultural Extension

- The existing organization, specifically the cooperative, have very limited membership and business activities, and with large amount of uncollected debts from their consumer store and lending activities. The cooperative members and officers lack the necessary training, capital and skills to manage a business enterprise,
- Most of women want to engage in organizations to be able to get opportunities for self-employment activities or small business. However, their efforts are obstructed by domestic works, problems of obtaining credit and land tenure and lack of education and skills, and
- The LGU and other support agencies have similar problems, such as, lack of funds, personnel, equipment and field operation facilities.

f) Post-Harvest and Agro-Industry

- Available markets are limited and far from the area. Also, the roads are rugged and inconvenient. Hence, prices of agricultural products become low,
- Appropriate training and support cannot be obtained from the government and agencies concerned,
- Low income and low budget for investment are available for the farmer. Loan from the banks requires much application sheet. High bank interest and mortgage necessity prevent the farmers from borrowing,

- High cost input and low input application retard productivity. Hence, low production volumes repress the investment for agro-industry and processing,
- As the farm gate prices are determined by the buyers without any proper quality check, farmers are not enthusiastic about quality control, and
- There is large selling prices' fluctuation between harvest time and off season. Prices during harvesting season are quite low.

g) Environment and Rural Life

- The environmental constraints and problems to the sustainable development of the Sappaac Area are: (i) soil resource degradation in the forms of high soil erosion, (ii) soil fertility depletion and flooding of the low-lying areas during high rainstorms, (iii) typhoon hazard, (iv) pollution of the drinking water, (v) drying up of some wells during dry season, (vi) occurrence of water-borne diseases, (vii) malnutrition of the children, (viii) not environment-friendly designed and constructed barangay road, (ix) occurrence of lean months, (x) lack of primary health care, (xi) improper disposal of human waste, and (xii) depletion of the forest resources on the steeply sloping land, and expansion of the grassland areas. These constraints, needs or problems are interacting with one another through the flow of information, mass, energy, and species on the landscape of the ARC.

2) Development Potentials

a) Agriculture

- Although development of water resources for irrigation is limited, the supplemental irrigation to paddy rice during wet season and irrigation for high value crops other than paddy rice shall be promoted to secure staple food and to generate income respectively. For the areas affected by zinc deficiency, a zinc deficiency mitigation shall be applied through further study,
- The application of nitrogen and phosphorous together with organic matters will make it possible to raise productivity in the upland. The supply of organic fertilizer source shall be substantially increased by planting green manure crops, hedgerows, and tree crops. The plan to increase number of livestock and poultry will also contribute to land productivity, and
- The idea of the Sloping Agriculture Land Technology (SALT) could be adopted for the undulating to hilly area. Planting of hedgerows between plots of upland crops could be done. Tree crop farming is seen as the best possible development strategy in these areas.

b) Agricultural Infrastructure

- Unused creek/spring water sources at sitio of Pita can be used for irrigation and fish culture by providing small water impounding dam.

c) Agro-Economics

- While emphasizing their farm production on only a few crops, the farmers at Sappaac Area have at the same time been engaged in a number of other crops and livestock production. With sufficient extension and credit services made available to them, this potential in the economic production of more crops and livestock could be made productive for them,
- The existing barangay administration along with the Bayanihan system will facilitate any process of collective undertakings among the ARBs. This maybe as input purchase, credit provision or marketing, and
- The village population at Sappaac Area has a high proportion elementary school education. This is great potential for them to benefit more fully and readily from any form of social and economic development to be initiated among them. This is not present among the rural people in many other developing countries.

d) Animal Husbandry and Fishery

- Through female pregnant carabao dispersal and establishment of carabao mini-breeding station at barangay level, the upgraded carabao can be multiplied not only to have adequate number of draft animals but also to produce carabao milk. Kakawate and flemengia, that will be used for protection materials for soil erosion will be used as feed for animals, and
- Introductions of mini-incubators (kerosene type) will enable the production of adequate number of native chicks for the production of eggs and meat.

e) Agricultural Extension and Organization

- The Project Area has existing organizations that can be re-organized strengthened, tapped and mobilized to support and implement projects. These organizations have willing members who have been actively assisting the DAR and the Study Team during all phases of the Study period,
- The LGU is supportive of the Project and is willing to provide necessary counterpart contributions for manpower, budget, and others,

There is a NGO working in the Project Area. Other NGOs working within the municipality are also willing to collaborate with DAR in the development of the beneficiaries, and

- The beneficiaries in the community have expressed willingness to support the Project by providing the following: (i) free labor if necessary and/or labor cost lower than the minimum as counterpart contribution, (ii) right-of-way for proposed roads or irrigation canals, or (iii) provide or volunteer farm area for demonstration purposes.

f) Post-Harvest and Agro-Industry

- Potential of agro-industry is dependent on the good quality and volume of materials, for example, agricultural yield, production volume and its quality. As rice and corn will be the major crops in this Project Area and their productions are expected to be increased, potential of agro-industry and processing for these crops may be high. The expected agro-industry and processing are quality control equipment, and
- As the area and its vicinity may be good bamboo production places, there is a potential for bamboo handicraft and bamboo shoots processing. However, it is necessary to increase skill of making good quality handicraft for better marketing. Therefore, continuous support from the government and concerning agencies will be expected.

g) Environment and Rural Life

- To develop a self reliant, productive and sustainable ARC, the immediate basic needs of the community should first be addressed, while at the same time attending to opportunities that would benefit them in the medium to long term. Soil conservation-based farming systems together with agroforestry and private forest plantation will insure that the groundwater recharge will supply the needed domestic water and water required in the small impounding dam,
- Campaign for construction of toilet for each household, keeping animals away from the artesian wells and springs and water treatment at least by boiling will protect the community from water borne-diseases. Public health and population education and production of herbal medicine must be a continuing program for members of the community, and

Confinement of the pigs, goats, cattle, and/or carabao will make the recycling of the animal manure effective. Marketing of the processed native farm products like fruit wine, fruit jelly, honey, and the like are an incentive for farm resource conservation. Enhancing the attitude of children towards the rehabilitation, conservation and protection of community resources requires complementary curricular materials for the elementary level.

7.2 Development Plan

7.2.1 Objectives and Components of the Project

1) Objectives of the Project

The objectives for the development of marginal area in terms of short-term and medium/long-term objectives are presented below:

Short-Term Objectives

- To settle the farmer beneficiaries in the Area with sustainable assistance and support,
- To preserve the environmental conditions of the Area by determining proper land-use and preventing soil erosion,
- To generate productive lands by providing small-scale irrigation and drainage facilities, and farm-to-market roads,
- To strengthen productive activities by developing agricultural support and institution, such as, the provision of necessary post-harvest facilities, training, extension services, cooperative organization, peoples' social capability building, etc., and
- To improve the environmental and health conditions of the Area by providing rural water supply, electricity supply for non-energized areas, access road improvement, school building construction and expansion, primary health care service's improvement and multi-purpose center provision.

Medium/Long-Term Objectives

- To alleviate poverty and improve welfare conditions of ARBs by giving them opportunities to increase their income by improving and/or providing the necessary agricultural infrastructures and services, and
- To increase the annual income of the households to the target level of year 2000 in the Medium-Term Philippine Development Plan (MTPDP).

2) Components of the Project

The project components of the Sappaac Area are planned as follows:

- Construction and improvement of access roads,
 - Improvement of barangay roads located in the boundary of the Study Area,
- Formulation of agricultural development plan such as land-use, crop selection, sloping agriculture under scarce water source conditions, and development of animal husbandry
 - Provision of nursery and training and on-farm development farm,
 - Livestock (carabao) dispersal, provision of animal breeding center and poultry incubator.
- Development of agricultural and rural infrastructures,
 - Development of small-scale irrigation systems by means of impounding dam, drainage systems and farm roads.
 - Development of rural roads, rural water supply, social infrastructures such as school, day-care center, barangay hall, health center, etc.,
- Development of post-harvest and agro-industry facilities,
 - Provision of agricultural machine, post-harvest and agro-industry facilities
- Establishment/strengthening of farmers' organization and promotion of agricultural supporting services,
 - Establishment and strengthening of farmers' organization,
 - Promotion of agricultural supporting services,
- Environmental considerations,
 - Establishment of soil conservation, protection of agroforestry, rehabilitation and protection of watershed,
 - Environmental monitoring and evaluation
- Social capability development and institutional strengthening.
 - Undertaking of barangay, local government units (LGUs) and other local agency consultation,
 - Formation of technical working groups (LTWG),
 - Social preparation of the communities
 - Strengthening of institutions DAR and other local agencies,