

*The Study on Comprehensive Disaster Prevention  
around Mayon Volcano*

**SUPPORTING REPORT (1)**

*(Part I: Master Plan)*

**X : Relocation and Resettlement**

**SUPPORTING REPORT (1) - X**  
**RELOCATION AND RESETTLEMENT**

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## SUPPORTING REPORT (1) - X RELOCATION AND RESETTLEMENT

### 1. PRESENT SITUATION

#### 1.1 Existing Resettlement Sites

There are at present six resettlement sites in the Study, namely Baligang (Ligao), Banquerohan (Legazpi), Batawon (Camalig), Buang (Tabaco), Quitago (Guinobatan) and Mi-isi (Daraga) as shown in Figure X 1.1. These resettlement sites were established after eruption of the volcano in 1993 under the joint cooperation of the LGUs, government line agencies and other donor organizations. The management of these resettlement sites is entrusted to the respective LGUs. Total number of families presently residing in these sites is estimated at 960 households as shown below (for detailed information, refer to Tables X 1.1 and X 1.2).

**Profile of the Existing Resettlement Sites**

Cities & Municipalities	Name of Resettlement Area	Area (Ha)	No. of Families to be Accommodated	No. of Families Resettled
<i>City</i>				
1. Legazpi City	Banquerohan	18.0 (Phase 1)	504	326
<i>Municipalities</i>				
2. Camalig	Batawon	9.8	480	408
3. Daraga	Salvacion	1.7	149	142
4. Guinobatan	Quitago	0.8	30	14
5. Ligao	Baligang	0.35	46	45*
6. Tabaco	Buang	1.0	22	25*
Total		31.65	1,231	960

Note : \* with expanded family

The prime considerations in the site selection are the safety of the residents from the hazards brought about by the eruption of Mayon Volcano and the financial capability of the LGUs to purchase the land for the resettlement sites. Hence, with the exception of Baligang, Buang and Salvacion, the resettlement sites are located 7-20kms from the former residences of the resettled families. Due to limited funding, the site development of the resettlement sites was done in phases subject to availability of fund. Such situation resulted in the delay in the completion of the physical infrastructure. Others have not yet been provided with the basic facilities such as water and multi-purpose building up to the present times.

Although these families were relocated, their main source of income remains to be from the cultivation of their lands that are located within the danger zones of

Mayon Volcano. In some cases, the head of the family establishes a temporary dwelling place in the farm, stays there during the week and goes home during the weekend. Others commute everyday. Those who find this arrangement inconvenient simply return to their former dwelling places and use their homes at the resettlement site as "evacuation places" in times of disasters, like in Buang in Tabaco.

On the other hand, around 50% of the resettlers of the Core shelter in Quitago were reported to have abandoned their housing units. Forty-two (42%) percent of surveyed families in the resettlement sites expressed their problems in living there owing to the following reasons: lack of basic services, such as water supply and electricity and lack of employment opportunities. The resettled families consider job creation as the most important activity that should be implemented in any resettlement program. This expectation is reflective of the basic needs of the family as well as the community.

There is also an overwhelming preference for households in the danger zones to be relocated only within the boundaries of the Albay Province. Hence, if the only alternative for resettlement is outside of the province, a resettlement program is bound to be costly not only in terms of physical requirements but also from the social and human needs. Unless the same opportunities are available in the resettlement area, the affected families will likely take the risk of going back to their previous places and face the consequences of the dangers brought about by the Mayon Volcano eruption rather than stay in the resettlement area.

## **1.2 Resettlement Schemes**

There are four planned resettlement sites which are envisioned to provide housing to 1,194 families located in the municipalities of Daraga (Anislag), Sto. Domingo (San Andres), Tabaco (San Vicente), and Malilipot (Sta. Teresa, San Isidro Iraya and/or San Isidro Ilawod).

**Profile of the Planned Resettlement Sites**

Municipalities	Name of Resettlement Area	Area (ha)	No. of Families to be Accommodated
1. Legazpi City	Banquerohan (Phase II)	27.0	460
2. Daraga	Anislag	22.0	625
3. Malilipot	Sta. Teresa, San Isidro Iraya and/or San Isidro Ilawod	30.0	not defined
4. Sto. Domingo	San Andres	17.0	569
5. Tabaco	San Vicente	56.0	not defined
Total		152.0	1,654 (not defined)

**1.3 Government Agencies Related to Resettlement and Their Major Programs**

In the Study Area, several central and local government agencies are engaged in planning and implementation of the resettlement programs in cooperation with the private sector/NGOs and international institutions. Implementing agencies or project administration are local government units (LGUs), and they are usually assisted by the Department of Social Welfare and Development (DSWD), National Housing Authority (NHA), National Disaster Coordinating Council (NDCC) and others.

Usually, the National Disaster Coordinating Council (NDCC) provides the necessary funding for the project and will commission NHA to undertake this land development and construction of residential component of the project. On the other hand the LGU is responsible for the beneficiary selection with the assistance from DSWD and for the livelihood component as well as the delivery of the necessary social services.

(1) Department of Social Welfare and Development (DSWD)

The services and programs DSWD provides to the resettlers include the following:

- a. Core shelter housing (3 x 3.5m<sup>2</sup>)
- b. Livelihood program (financial)
- c. Day care center
- d. Senior citizens services
- e. Skilled training (under 50 years old)
- f. Family life resource center
- g. Disaster management training
- h. Maintenance of Barangay Disaster Coordinating Council (BDCC)

1) Core shelter assistance project (CSAP)

The Core Shelter Assistance Project (CSAP) being implemented by DSWD is one of the interventions under the disaster mitigation and preparedness. This CSAP aims to provide structurally strong indigenous "core shelter" which can withstand 200km/hr wind velocity, earthquake of moderate intensity (6 Richter Scale) and other similar natural hazards to disaster victims whose house totally destroyed.

Target beneficiaries of the Project are required to meet the following conditions/criteria:

- a. With totally damaged houses as a result of typhoon and or its secondary hazards.
- b. Must be the owner of the damaged houses not a renter or sharer.
- c. Has not availed GI sheets assistance from SOLCENTAF (Southern Luzon and Central Task Force).
- d. Income must be within poverty threshold of the area (PHP6,000/month).
- e. Has been living in a high risk area such as along the shoreline/river bank, along the mountain slope, flood prone area, etc.
- f. Has the capacity of providing their own counterpart in building their shelters like labor and any of the following:
  - Savings
  - Salvage materials

Under this project, a financial assistance worth PHP25,000 is awarded to the beneficiary households to build a structurally strong core shelter unit as a point of entry in mobilizing community resources including beneficiaries themselves. It involves among others the formation of work teams of 5 families per group, which will pool their labor and resources for construction of their houses. The carpentry tool will be prepared by the respective work teams themselves and LGUs extend assistance for the lacking tool. The construction will be under supervision of a technical staff of LGU, but the honorarium/travelling expenses vouchers will be shouldered by LGUs.

Monthly income of a beneficiary family of six should be below the food threshold of PHP6,000, and their houses should have been totally destroyed by either man-made or natural disasters and limited resources prevent from them from reconstructing their shelter units.

## 2) Livelihood program

The Self-Employment Assistance (SEA) Program of DSWD is the only accredited assistance program of government directed towards the welfare group, which is

non-collateral, non-interest-bearing and involves a fund recovery feature. The program incorporates some of the Gramen Bank features/schemes.

SEA-Kaunlaran Program is a community-based credit assistance program utilizing people's organizations to be uniformly called "SEA Kaunlaran Associations (SKAs) as credit conduits. This program incorporates the concept of "self-management" and "capability building" with heavy emphasis on "sustainability". A fixed number, that is five, constitutes a group. A minimum of five and a maximum of six such groups shall constitute a SKA. As membership requirement, total SKA membership shall range from a minimum of 25 to a maximum of 30 persons.

The program is now known as "SEA-Kaunlaran Integrated Program" and is divided into two levels: (a) SEA-Kaunlaran Integrated Program-Level I, and (b) SEA-Kaunlaran Integrated Program-Level II.

SEA-Kaunlaran Level I has been evolved through the integration of various socioeconomic projects with livelihood components focused on the economically active poor, and implemented through a singular strategy known as "Micro-Enterprise Strategy". SEA-Kaunlaran (SEA-K) Level II is the next higher level of such capacity building and development efforts that shall gear the economically active poor's organizations for participation in the formal sector. In SEA-K Level II, the SKAs will be grouped into SEA-KABAYANs. These SEA-KABAYANs will establish a larger credit network and serve as governing body for the merged SKAs.

The amounts of loan vary by "eligibility requirements" and "program strategy" depending on the following special participants:

#### SEA-Kaunlaran Level I

- For Individuals: amount of loan ranges from a minimum of PHP1,000 to a maximum of PHP5,000
- For Groups: amount of loan ranges from PHP5,000 to a maximum of PHP25,000
- For Associations: maximum amount of PHP150,000

#### SEA-Kaunlaran Level II

- For Level II SEA-Kaunlaran Associations (SKAs) : loan amount at maximum of PHP300,000 for each member SEA-Kaunlaran Association (having 30 members)

- The SKAs shall remit all payments on the principal and 50% of the payments on the loan interest (10%) to the SEA-KABAYAN.

Up to March 30, 1999, the SEA-Kaunlaran program availed a total of 42 associations in Albay Province. The total funding amounted to about 4.3 million pesos and its repayment rate is figured at 75.8%.

## (2) National Housing Authority (NHA)

### 1) Corporate mission and its mandate

The National Housing Authority (NHA) as the sole national agency has engaged in housing production for low income families. In 1986, with the issuance of Executive Order No.10 on 26 March 1986, the NHA as well as the other agencies attached to the Ministry of Human Settlement (MHS) were placed under the administrative support of the Office of the President.

Subsequently, under Executive Order No.90 dated 17 December 1986, the NHA was placed under the policy and program supervision of the Housing and Urban Development Coordinating Council (HUDCC), the umbrella agency for shelter charged with the main function of coordinating the activities of government housing agencies.

The National Housing Authority (NHA) was tasked to implement various components of the national shelter program, namely, resettlement program, medium-rise public and private housing, cost recoverable programs and local housing.

### 2) Major programs implemented by NHA

The NHA is the sole government agency engaged in direct shelter production focusing on the provision of housing assistance to those belonging to the lowest 30th percentile and occupants of blighted/danger areas. The major projects implemented by NHA subsequent to disaster impact are the following.

#### a. Resettlement program

This Resettlement Program involves the acquisition of large tracts of raw land for site development to generate serviced lots for families displaced from sites earmarked for government infrastructure projects and those occupying danger areas. Cognizant of the affordability level of its target beneficiaries and the temporary economic dislocation inherent in relocation,



the program is non-cost recoverable and relies on full subsidy support for land acquisition and site development.

Under RA 7279, the local government units (LGUs) spearhead the implementation of the relocation and resettlement in coordination with the NHA. At the same time, NHA is tasked to identify and develop resettlement sites as well as provide technical assistance to the LGUs.

The National Housing Authority (NHA) plays an integral part in implementing a resettlement project, especially its physical development, which includes land preparation, construction of houses and social infrastructure building like road, water supply and drainage systems. NHA is used to undertake the above physical development in coordination with LGU concerned and on behalf of the National Disaster Coordinating Council (NDCC), but the project administration belongs to the LGU concerned.

Following the mandates of UDHA, the NHA extends assistance to LGUs in the development and implementation of local Resettlement Program. As resettlement projects are to be undertaken under joint venture arrangements, project cost is used to be shared by both NHA and the LGU concerned. The participation of LGUs is to provide the site for development and/or additional cash equity. NHA's assistance is in the form of funds for land development and technical assistance.

b. Programs for families affected by calamities

- Emergency housing assistance program  
This program caters to the housing needs of families rendered homeless due to natural calamities or man-made disasters. This entails the provision of temporary shelter for immediate relief of the affected families, the development of new settlements and the provision of home materials assistance for housing reconstruction.
- Temporary shelter and evacuation centers construction program  
This program entails the construction of bunkhouses with communal facilities and utilities to be used as evacuation center for displaced families.
- Housing materials assistance program  
This program involves the provision of housing materials for house repair and construction.

## **2. SETTLEMENT ISSUES**

### **2.1 General Setting**

In the Albay Provincial Physical Framework Plan (1993-2002) drafted in 1997, one of the issues and concerns that was defined relative to settlement includes the existence of communities in volcanic hazard areas in the city/municipalities of Legazpi, Tabaco, Malilipot, Sto. Domingo, Daraga, Camalig, Guinobatan and Ligao. Hence, it was stated in the plan that settlements must be discouraged in permanent danger zone of Mt. Mayon and affected families must be resettled to other locations.

In this Provincial Framework Plan, the efforts of the LGUs to resettle communities in high risk areas were acknowledged, but it also mentioned the fact that there are still affected communities/families needing assistance. In view of continuing danger in high-risk areas, it further stated that the Provincial Government of Albay and the LGUs must fortify resettlement projects and provision of livelihood opportunities and social services for the affected families must be undertaken.

Among others, the key issue to be considered in formulating resettlement plan is "livelihood" of the people to be resettled. Since it is actually difficult to acquire and distribute lands, which are enough to sustain their subsistence, employment opportunities are to be given to them through implementation of the livelihood development programs. Those programs will include the increase in crop productivity, diversification of farming crops, production of value-added products through development of their post-harvest and processing treatments, and improvement of marketing system.

To ensure and lead to the successful and sustainable operations of these programs, institutional and financial supporting programs need to be carried out before and/or in parallel with implementation of the above livelihood projects. To the applicant resettlers, the vocational training or upgrading of technical skills, which are required in specific enterprises will be provided. To those who are elder or less adaptive to the business activities, new land leasing and farming system will be initiated by introducing a program called temporarily "permit to use absentee lands".

### **2.2 Issues to be Addressed**

The Study Team estimated the number of people residing within 6km-radius zone by interviewing the related municipal officials and barangay captains.

Based on this estimate, there are 440 household and 2,332 people residing within the 6km-radius zone. These people live in 11 barangays of 3 municipalities (Camalig, Malilipot and Tabaco) and Legazpi.

Legazpi City has already implemented the Phase I of "Banquerohan Resettlement Project" in the southern part of Legazpi (located at about 18km from the City center). 504 houses were constructed but about 65% of them have been occupied. The major problem of the Project is pointed out to be due to lack of livelihood. The site still can accommodate at least 200 additional households. Although efforts have been made to provide means of livelihood to the resettlers, further assistance is needed.

Camalig Municipality also constructed Batawon Resettlement site. There is a plan to construct additional 100 house lots. Both Malilipot and Tabaco Municipality have plans to establish resettlement sites. Implementation of all resettlement projects is managed by the respective municipal and city authorities with assistance from National Housing Authority (NHA). The 440 households residing in 6km-radius zone could be accommodated in the existing or planned resettlement sites. The resettlers can settle in the existing resettlement communities except for 35 households in Camalig that might be settled in Banquerohan resettlement site.

There are six resettlement sites in Study Area. The major problem is the lack of source of livelihood in or near the resettlement sites. Consequently, most farmers settled in these sites have to work on their farming places. However in the case of Batawon, the site is located at more than 6km from their farming place. Most male farmers usually set up a shack in their farmland and stay there for a few days in a week. Their wives and children stay at the resettlement site because of housekeeping and schooling, respectively.

In particular, Banquerohan resettlement site is located very far from Legazpi City. It is a newly developed village without provision of special job opportunity program nor farming lands. The distance from Banquerohan to the resettlers' former farmland is more than 25km. It is virtually impossible for them to continue the farming on their former farmland. Banquerohan resettlement site is not popular among the resettlers. It is thus advised to provide dwellers at Batawon and Banquerohan sites with source of livelihood by generating job opportunities. For those settled in all resettlement sites, it is proposed to focus on the capacity building of the resettlers through evacuation drills and improvement of the forecasting and warning system.

### **3. RESETTELEMENT PLANNING**

There are two types of relocation/resettlement to be considered in this Study. One is related to the resettlement of the people living within the 6km radius from the crater of Mayon Volcano. The other concerns the "relocation" to be caused by implementation of the disaster prevention projects or due to acquisition of the right-of-the way and construction of the disaster prevention facilities.

#### **3.1 Basic Concept for Resettlement Planning**

In the Study Area, just after eruptions of the Volcano, several resettlement programs have been implemented with the initiative of the respective Local Government Units (LGUs) concerned. In light of the past experiences and efforts made so far by these LGUs, the resettlement plan in this Study should be based on the principle to make the most of the existing resettlement sites and their facilities.

The key issue to be considered in formulating resettlement plan is "livelihood" of the people to be resettled. The basic policy or principles for resettlement planning in the Study Area are indicated as summarized below.

##### **(1) Basic Policy or Principles**

- a. The resettlement site must be located in a safer place in terms of the land use and environmental regulations and restrictions.
- b. Enforced relocation should be avoided, even though its program turned out to be feasible.
- c. In case that relocation of people is unavoidable, it should be minimized by exploring all viable options.
- d. The eligible people to be displaced should be compensated and assisted in restoring and improving their living standard.
- e. The existing social and cultural institutions and communities of resettlers should be supported and used to the greatest extent possible.
- f. Special consideration should be taken to support the disadvantaged households to help them improve their living conditions.

##### **(2) Approaches and Requirements in Resettlement Planning**

- a. The relocation/resettlement project will be designed so as to accommodate all eligible applicants.
- b. Detailed inventory of the affected people should be prepared during the social preparation period prior to the project implementation.

- c. The eligible resettlers should be properly compensated and/or assisted so that their economic and social future would be as favorable as before.
- d. The existing resettlement plans prepared by the LGUs should be respected, but some need to be reviewed for their improvement.
- e. In principle, resettlement of the people is to be done within the respective administrative divisions (municipalities and city).
- f. The resettlement site should be equipped with the following facilities to form an integrated community:
  - housing area with backyard farming space,
  - electricity,
  - drainage,
  - water supply system (Level II or Level III),
  - access roads and circulation road (concrete paved with 8 - 4m width), sewerage system, town hall with plaza,
  - elementary school,
  - day care center,
  - church, and
  - production area including productivity center or mini-industrial estate adjacent to or near the resettlement site.
- g. The major problems in the existing resettlement sites are due to the fact that the sites provide little job opportunity. Thus, a wide range of job creation opportunities in each sector: agriculture, industry and service need be provided to the resettlers considering their adaptability and background.
- h. In view of actual pressure for agricultural land and the fact that most of resettlers are engaging in farming, a new scheme called "Farm Land Trust Management" will be introduced for farming candidates to arrange or coordinate the "land lease agreement" between absentee landlords and resettled farmers (e.g. 1.5ha of farmland for each farming candidate). The LGU will act as guarantor to assure its smooth implementation.
- i. The labour-intensive livelihood and area development projects as well as institutional & financial supporting programs are to be coupled with the resettlement projects.

### **3.2 Resettlement Plan**

The numbers of the people to be resettled both from 6km-radius zone and due to implementation of the project works are summarized in the following tables, respectively.

**Estimated Number of Residents within 6km Radius Zone (As of March 1999)**

Municipality	Name of Barangay	Estimated No. of Households in 6km Radius	Estimated No. of Residents in 6km Radius
Camalig	1. Anoling	30	159
	2. Sua	45	239
	3. Tumpa	5	26
	4. Quirangay	45	239
	5. Cabangon	10	53
	Subtotal	135	716
Legazpi	6. Bonga	6	32
	7. Buyuan	10	53
	8. Matanag	5	26
	9. Mabinit	34	180
	Subtotal	55	291
Malilipot	10. Calbayog	150	795
Tabaco	11. Magapo	100	530
Total	-	440	2,332

**No. of the People to be Resettled due to Implementation of the Project Works**

Name of Rivers and Sabo Facilities	No. of HHs to be Affected	Population	Name of Resettlement Site (Destination)
<b>Yawa River System</b>			
(1) Anoling-Budiao Sand Pocket	21	111	Anislag
(2) Pawa-Burabod Mabinit Sand Pocket	44	233	Banquerohan
Subtotal	65	344	-
<b>Quinali (A) River</b>			
(3) Quirangay Sand Pocket	4	21	Barawon
(4) Masarawag-Maninila Sand Pocket	17	90	Quitago
Subtotal	21	111	-
<b>Buang River</b>			
(5) Buang Sand Pocket	5	26	San Vicente
<b>San Vicente River</b>			
(6) San Vicente Sand Pocket	8	42	San Vicente
<b>Padang River</b>			
(7) Padang Sand Pocket	38	201	Banquerohan
Total Number	137	724	-

(1) Design Standards

The design standards for "new resettlement scheme" proposed by the JICA Study Team are the following.

1) Typical lot allocation

Considering the respective family conditions, especially the number of household members and their economic situation, it is recommended to prepare for resettlers two types of lot sizes.

Items	Lot Type I	Lot Type II
- Lot Area (m <sup>2</sup> )	120	210
- Lot Dimension (m)	10 x 12	12 x 17.5
- No. of Lots per ha	58	33

The lot area occupies 70% of the total resettlement site and the remaining area (30% of the gross area) will be reserved/used for communal facilities like main and access roads, town hall, plaza, school building, health center and others (following the standard of NHA).

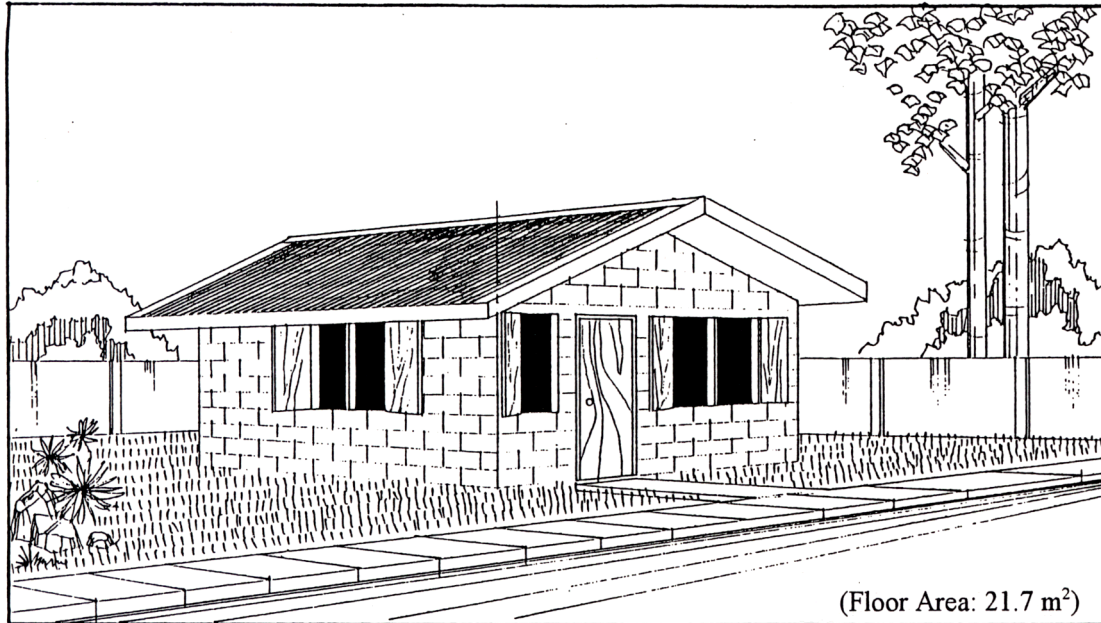
## 2) House size (or floor area)

The standard house areas proposed in the JICA Study are as follows:

Standard Floor Type	Floor Area (m <sup>2</sup> )
I	21.7m <sup>2</sup> = (4.8m x 4.2m) + (1.4m x 1.1m)
II	33.7m <sup>2</sup> = 21.7m <sup>2</sup> (Type I) + 12m <sup>2</sup> (4m x 3m)
III	42.7m <sup>2</sup> = 21.7m <sup>2</sup> (Type I) + 12m <sup>2</sup> (4m x 3m) + 9m <sup>2</sup> (3m x 3m)

The designs start with a core house of 21.7m<sup>2</sup>, with provisions for expansion. Additional bedrooms provided for the bigger models consist of 12m<sup>2</sup> room (4m x 3m). The perspective of a resettlement house (Type I) is given in the following figure. Financial assistance for construction of a core house of 21.7m<sup>2</sup> will be granted to beneficiary resettlers. The core house (Type I) will consist of multipurpose living room, kitchen, toilet and bath.

The materials and their combination of building components will be specified by the implementing agencies concerned following their design standards. Maintenance fund should be raised and contributed by the families themselves to cover expenses for repairs and upgrading of the core house.



Source: Mayon House Model 4, National Housing Authority

#### **Perspective of a Resettlement House**

### 3) Strength of the house

The house (core shelter in particular) should be structurally strong to withstand 200km per hour wind velocity, earthquake of moderate intensity (6 Richter scale) and other similar natural hazards to disaster victims whose house totally destroyed.

The features of structurally strong "core shelters" which have been constructed by DSWD are as follows:

- a. Four concrete footings/foundations
- b. Four corner posts/columns with reinforcing bars to strengthen concrete beam to support roof loads
- c. Concrete hollow blocks (CHB) walls
- d. One cross brace at trusses
- e. Wooden cleats connecting purlins and the rafters
- f. Concrete beam
- g. Use of U-bars anchorage to the following:
  - top of the four corner concrete posts/columns securely fastened around the four hip rafters;
  - tied at the four rafters and bottom chords of the two major trusses; and
  - top of the beam along the eight corner rafters.



4) Materials/components and maintenance of the house

Maintenance fund should be raised and contributed by the families themselves to cover expenses for repairs and upgrading of the core house. Regarding the expansion and betterment of the respective house accommodations, modular upgrading scheme allows for the gradual improvement in the structure according to the needs, preferences, and capacity of the families.

5) Social infrastructure and livelihood development programs

The social infrastructure in a resettlement community will include road, water supply, power supply, drainage & sewerage, educational system, and parks & open space. Approximate 60m<sup>2</sup> per household will be allocated as a space for "production area". This area will accommodate a "productivity center" or industrial estate, community business service center, training room and display area.

(2) Legal Procedure

There are two basic guidelines for right-of way acquisition: E.O.1031 issued in 1985 and Ministry Order No. 65 Series 1983. Both provide the procedures and guidelines for the expeditious acquisition and other government development projects.

Ministry Order No. 65 Series 1983, provides the revised guidelines for the acquisition and payment of right-of-way for public works and highways projects. This Ministry Order was partially amended by Department Order No. 120 Series of 1988 which provides the determination of "just compensation" for private property to be affected/acquired for government projects. The Appraisal Committee fixes the price when the owner refuses the original market value offered. Then the Department Order No. 234, Series of 1990 amended Department Order No. 120, prescribing the just compensation as the market value appearing in the tax declaration.

The procedures for acquiring the right-of -way are as follows:

- a. Coordination with the appropriate government units
- b. Delineation of the right-of-way
- c. Land valuation
- d. Processing of claims
- e. Certification of documents
- f. Processing of payments

### (3) Implementation Schedule

As for the relocation due to construction of disaster mitigation facilities, the resettlement area must be developed before relocation of the households to be affected by the right-of-way acquisition. The rehabilitation/development of the resettlement sites will be completed within two years, assuming that the acquisition of resettlement sites will take at least one year and half.

The preparatory works including social preparation will take at least four months and the development and housing construction will be completed within twelve months.

### (4) Livelihood Programs and Projects

In addition to the social infrastructure, the livelihood support is to be provided with an area for business, trading, processing and storage activities as well as skills training area. Approximate 10m<sup>2</sup> per household will be allocated for the "productivity center". This area will accommodate a community business service center, training room and display area.

Resettlement plan should be formulated and promoted in close coordination with the government agencies (both national and local) and organizations concerned including supporting institutions (international donor, private sector and NGOs).

The following are the institutional and supporting program items to be considered in the resettlement planning.

- Institutional and legal arrangements among the implementing agencies and organizations concerned
- Organizational set-up of a "Resettlement Committee" to coordinate/ensure the resettlement activities
- Social preparation including briefing to the property owners and affected households, and public hearings
- Establishment of community relations through community development workers
- Setting-up of community organizations with the affected property owners
- Survey on affected households and preparation of its inventory
- Conclusion of agreement on occupancy and observation of the other resettling conditions
- Identification of business or employment opportunities through implementation of the community livelihood development program

To fulfil various needs and requirements at different levels, the resettlement projects should be implemented as a package with the livelihood and area development projects as well as institutional & financial supporting programs. The following factors have been considered in preparation of livelihood projects and socioeconomic development programs.

- Labour-intensive or employment generation program
- Utilization of local resources (materials and expertise)
- Prospects of marketability
- Availability of the utilities (water and energy)

#### 4. CONCEIVABLE PROJECTS AND PROGRAMS

The livelihood and area development projects as well as institutional & financial supporting programs to be coupled with the resettlement projects were identified by the JICA Study Team. The following are the major conceivable projects and programs for each of the resettlement sites (both the existing and schemed ones) in the eight LGUs concerned.

##### (1) Existing Resettlement Sites

For the existing resettlement sites, their improvement and expansion projects are needed in accordance with the "design standards" described in Section 3.2 (1) (Supporting Report X). In addition, the following projects/programs were conceived to be promising for sustainable development of the respective resettlement communities:

##### 1) Legazpi city

###### Banquerohan Resettlement Site

###### *(Resettlement Site Development)*

###### a. Overall Community Development

###### b. Area Infrastructure Improvement

- Roads and bridges
- Communal irrigation project (CIP)
- Potable water supply
- Flood control structures
- Multi-purpose center
- Fishing support facilities

- Mini-hydro power plant
- Social services facilities (hospital)

*(Livelihood Development)*

c. On-farm and Marine Production Improvements

- Coco-based intercropping (with banana, corn, etc.)
- Vegetable production
- Poultry
- Fishing development

d. Industrial and Manufacturing Development

- Legazpi City Special Economic Zone (LCSEZ)
- Bicol Regional Agro-Industrial Center (BRAIC)
- City Light Industrial Park (CLIP)
- Pilinut processing
- Handicraft development
- Coco coir production
- Peanut butter making
- Coco-nectar and coco-distilled water processing

e. Tourism Promotion

- Improvement of the Karangahan falls site
- Coastal eco-tourism

f. Institutional and System Strengthening

- Farm land trust management
- Cooperative development with micro-credit
- Communal education center (vocational training programs to make master the required skills of the applicant resettlers)

2) Camalig Municipality

Tagaytay Resettlement Site

*(Resettlement Site Development)*

a. Improvement and Expansion of the Existing Resettlement Community

*(Livelihood Development)*

b. On-farm Development

- Coconut production
- Fresh vegetable production

- Cutflower production
  - Pili nuts processing
  - Poultry development
- c. Industrial and Manufacturing Development
- Integrated coco processing plant project
  - Food processing
  - Cement industry development
- d. Institutional and System Strengthening
- Farm land trust management
  - Cooperative development with micro-credit lending
- 3) Daraga Municipality
- Mi-isi (Salvacion) Resettlement Site  
*(Resettlement Site Development)*
- a. Upgrading of the Resettlement Community Facilities
- (Livelihood Development)*
- b. On-farm Development
- Cutflower production
  - Vegetable and root crops production
- c. Industrial and Manufacturing Development
- Coconut by-products development (coco coir products)
  - Handicraft center (souvenirs for tourists)
  - Abaca pulp industry
- d. Institutional and System Development
- Farm land trust management
- Anislag Resettlement Scheme  
*(Resettlement Site Development)*
- a. Resettlement Area Development
- (Livelihood Development)*
- b. On-farm Development
- Coconut by-products development (coco coir products)
  - Dairy development

- c. Industrial and Manufacturing Development
    - Pilinut processing
    - Handicraft and furniture center (including furniture, decoration and novelty)
  - d. Tourism Development
    - Cagsawa ruins park expansion
  - e. Institutional and System Strengthening
    - Farm land trust management
    - Cooperative lending
- 4) Guinobatan Municipality
- Quitago Resettlement Site  
(*Resettlement Site Development*)
- a. Improvement of the Resettlement Area (i.e. access to farmlots)
- (*Livelihood Development*)
- b. On-farm Development
    - Cutflower production
    - Coconut industry
    - Cacao and coffee production
    - Vegetable (cabbage & pole sitao) production
    - Quality fruit production (papaya & pineapple)
  - c. Industrial and Manufacturing Development
    - Agricultural product processing
  - d. Institutional and System Strengthening
    - Cooperative development with micro-credit lending
    - Farm land trust management
- 5) Ligao Municipality
- Baligang resettlement site  
(*Resettlement Site Development*)
- a. Upgrading of the Resettlement Site (i.e. road improvement for immediate evacuation and easy access to main road)

- b. Rural Infrastructure Improvement
  - Betterment of access road
  - Improvement of water supply system

*(Livelihood Development)*

- c. On-farm Development
  - Vegetable production
  - Pili production and its product processing
  - Livestock development
  - Quality seedling propagation with extension service
- d. Industrial and Manufacturing Development
  - Post-harvest and processing technology development of pili products
- e. Institutional and System Strengthening
  - Cooperative development for agricultural products and their marketing
  - Farm land trust management
  - Agribusiness and trading center development with warehouse and cooling storage facilities

6) Tabaco Municipality

San Vicente Resettlement Scheme

*(Resettlement Site Development)*

- a. Construction of the Resettlement Site

*(Livelihood Development)*

- b. On-farm Development
  - Abaca production
  - Pilinut production and processing
  - Livestock and poultry development
- c. Industry and Manufacturing Development
  - Cutlery development
  - Handicraft and processing industry
- d. Institutional and System Strengthening
  - Farm land trust management
  - Cooperative development for abaca and pili production and marketing

(2) Resettlement Schemes (including those under construction)

7) Bacacay Municipality

*(Resettlement Site Development)*

a. Construction of a Resettlement Site

*(Livelihood Development)*

b. On-farm Development

- Nipa and caragumoy production
- Seaweed production and processing

c. Industry and Manufacturing Development

- Marble industry
- Handicraft development of nipa and karagumoy

d. Institutional and System Strengthening

- Cooperative development with micro-credit scheme
- Farm land trust management

8) Malilipot Municipality

Sta. Teresa & San Isidro Resettlement Scheme

*(Resettlement Site Development)*

a. Construction of a resettlement site

*(Livelihood Development)*

b. On-farm and Agro-based Industry Development

- Caragumoy production and its handicraft
- Abaca production and its processing

c. Institutional and System Strengthening

- Farm land trust management

9) Malinao Municipality

*(Resettlement Site Development)*

a. Construction of a Resettlement Site

*(Livelihood Development)*

b. On-farm and Agro-based Industry Development

- Rice production and its processing
- Abaca industry



- Coconut production and processing
  - Pineapple production and processing
  - Abaca pulp industry
- c. Institutional and System Strengthening
- Farm land trust management

10) Sto. Domingo Municipality

San Andres Resettlement Scheme

*(Resettlement Site Development)*

a. Construction of a resettlement site

*(Livelihood Development)*

b. On-farm and Agro-based Industry Development

- Banana production
- Rootcrops production
- Coffee and cacao production
- Seaweed production and industry

c. Tourism Development

- Tourism promotion as access gate to Mayon Volcano and in coastal areas

d. Institutional and System Strengthening

- Farm land trust management

Typically labour-intensive programs by sector will be proposed as a package for each of the resettlement projects, considering an optimum combination of the above candidate programs.

## 5. **RECOMMENDATIONS**

The following are the primary matters to be considered so as to lead to the success and sustainability of the resettlement projects and programs:

- 1) In view of the potential risk of the volcano's eruption, the people still residing within 6km-radius from the crater are strongly advised to be resettled in the safer places where livelihood programs are well provided, especially those staying in the southeastern quadrant from the opened crater.
- 2) In addition to upgrading of the existing resettlement sites in terms of living environment and livelihood, the new projects are recommended to be designed

to comply with the basic concept for resettlement planning and design standards described in Sections 3.1 and 3.2.

- 3) The resettlement areas are proposed within the same city or municipality where the original houses were located, in order to minimize socio-cultural dislocation problems.
- 4) The resettlement projects should be implemented as a package with institutional strengthening and livelihood development projects and programs.
- 5) To assure the sustainability of the resettlement project, social preparation should be carried out beforehand by sparing enough time to encourage the participation of the community or local people in the projects (specially in O&M of the installed structures and facilities).
- 6) As the multi-sectoral or holistic approach is indispensable for promotion of the resettlement community development, it is suggested to organize a "Resettlement Committee" in each of LGUs concerned to coordinate/ensure the resettlement activities and interventions.
- 7) To consolidate the financial basis for project sustainability, it is recommended to introduce and establish a "Social Investment Fund (SIF)" system for disaster management at provincial level. This SIF system will be designed to cover the following sectors or BHNs in resettlement community development program : settlements, education, health, nutrition, production support, water supply and sanitation, environment, increase in productivity, etc.

**Table X 1.1 List of the Existing Resettlement Sites in the Study Area (as of June 1999)**

Name	(1) Baligang	(2) Banquerohan	(3) Batawon	(4) Buang	(5) Quiago	(6) Mi-shi
1. Location	Baligang, Ligao	Banquerohan, Legazpi City	Tagaytay, Camalig	Buang, Tabaco	Quiago, Guinobatan	Salvacion, Daraga
2. Distance from center (km)	7km	20km	12km	8km	14km	8.5km
3. Distance from former residence (km)	1km	23km	5km	3km	8km	2.5km
4. Land area (ha)	0.35ha	Phase I: 18ha (Phase II Plan: 27 ha) Phase I: 600 (Phase II Plan: 460)	9.8ha	1.0ha	0.8ha	1.7ha
5. No. of houses	45	Phase I: 90 - 298m <sup>2</sup> (Phase II: 90 - 290)	483	20	40	135
6. Home lot size (m <sup>2</sup> )	100m <sup>2</sup>	Phase I: 20m <sup>2</sup> (4m x 5m)	120m <sup>2</sup>	100m <sup>2</sup>	80m <sup>2</sup>	80~100m <sup>2</sup>
7. House size (m <sup>2</sup> )	12m <sup>2</sup> (3m x 4m)	Phase I: 38.9	20.64m <sup>2</sup>	16m <sup>2</sup>	16m <sup>2</sup>	30m <sup>2</sup>
8. Establishment (Year)	1993	Phase I: 1994	1995	1993	1988	1994
9. Total Investment Amount (Million Pesos)	0.6	Phase II: 8.0	18.2	0.3	n/a	9.0
10. Beneficiaries	Victims of Mayon Volcano eruption	Victims of Mayon Volcano eruption	Victims of Mayon Volcano eruption	Victims of Mayon Volcano eruption	Victims of Mayon Volcano eruption	Victims of Mayon Volcano eruption
11. Actual no. of houses awarded	45	504	480	22	30	135
12. Estimated no. of household living in the resettlement	46 (with extended family)	326	408	25 (with extended family)	14	142 (Population 826, Family: 186)
13. Profile of the beneficiaries	Farmers (vegetables such as beans, tomato, hot pepper; rootcrops like sweet potato, cassava, and cereals like corn, upland rice)	Farmers, laborers & employees (Coconut, Vegetables such tomato, cucumber, squash, peachay, beans and rootcrops such as cassava)	Farmers (vegetables like cucumber, cabbage, beans, pepper, tomato and eggplant)	Farmers (vegetables like cabbage, carrots, squash, eggplant, beans, root crops like sweet potato and corn)	Farmers (corn, coconut and vegetables)	Farmers (vegetables, coconut and corn)
14. Name of former Barangay	Baligang	Arumbay, Bagong Abre, Bigaa, Bonga, Boyonan, Mabunt, Matanag, Padaang	Anoling, Cabangan, Qurangay, Sua and Tumpa	Buang	Marinilla	Mi-shi
15. Project Administration	LGU-Ligao	LGU-Legazpi City	LGU-Camalig	LGU-Tabaco	LGU-Guinobatan	LGU-Daraga
16. Land Development	LGU-Ligao	LGU-Legazpi City, NDCC, NHA	LGU-Camalig	LGU-Tabaco	LGU-Guinobatan	LGU-Daraga, NHA
17. Construction of houses	LGU-Ligao, DSWD (CSAP), NHA	LGU-Legazpi City, NDCC (P20M), NHA	LGU-Camalig, NDCC, NHA (P15,000)	LGU-Tabaco, NDCC, NHA	LGU-Guinobatan, PNRC, DSWD	40 houses by DSWD, 70 by UNDP and 39 by NHA
18. NDCC Calamity Fund	None	None	None	None	None	9.0 Million Pesos
19. Water supply	Shallow wells and spring (improvement of water supply is needed)	18 deep wells	15 shallow wells & spring	Extended pipe water from the barangay	Springs and shallow wells	Deep well with elevated water tank and distribution lines for communal water system
20. Other Facilities	Day care center, barangay hall, ALECO power lines	Administration building, training hall, chapel, multi-purpose hall, recreational park, integrated family life resource center, ALECO power line	Elementary school and Barangay hall, ALECO power lines	Backyard garden, ALECO power line and recreational park	Day care center, ALECO power lines	Concrete road network with drainage system, day care center, power lines by ALECO
21. Other remarks	Road improvement is badly needed for immediate evacuation, since the resettlement is still in the danger zone.	Some resettlers acquired farm lots in nearby sites. Some temporarily farm on Phase II lots. Other livelihood means are abaca weaving, trading and so on. Few are engaged in fishing.	Construction of additional 100 units of houses is planned. Acquisition of 3ha of land adjacent to the site is also planned.	The site was formerly used as evacuation site, near the highway and elementary school.	Only 20% of the original beneficiaries live in the resettlement site. This is due to its far distance from the former farmlands which are their sole sources of livelihood.	Although the actual Barangay name is Salvacion, the site is called "Mi-shi". Assistance was given from many agencies like DTI, DOH, DSWD and NHA.
22. Issues	Farmers still cultivate on their former farmlots and live in the resettlement.	Various technical and financial assistance were given but still resettlers face livelihood problems. Illegal squatting of non beneficiaries, insufficient potable water supply, no farmlots for them and abandonment of some units by beneficiaries.	Irrigation system is available nearby. Farmers still cultivate on their former farmlots.	Farmers still cultivate on their former farmlots and live in the resettlement.	Access to the farmland should be improved.	Farmers still cultivate on their farmlots in the danger zone, but they live in the resettlement.
23. Land Acquisition	Purchased by LGU	Purchased by LGU	Purchased by LGU	Purchased by LGU	Donation	Donation
24. Type of constructed house	Core shelter type	Mayon model type II & III	Core shelter type	Core shelter type	Core shelter type	Core shelter type
25. Livelihood assistance	Municipal Social Welfare Office-Self Employment Assistance Program	National DSWD-Self Employment Assistance (SEA) "Kaulaaran" Program	DSWD-self employment assistance program, BSBI-agricultural loans	Municipal Social Welfare Office-Self Employment Assistance Program, BSBI-Agricultural Loans	None	Municipal Social Welfare Office-Self Employment Assistance Program

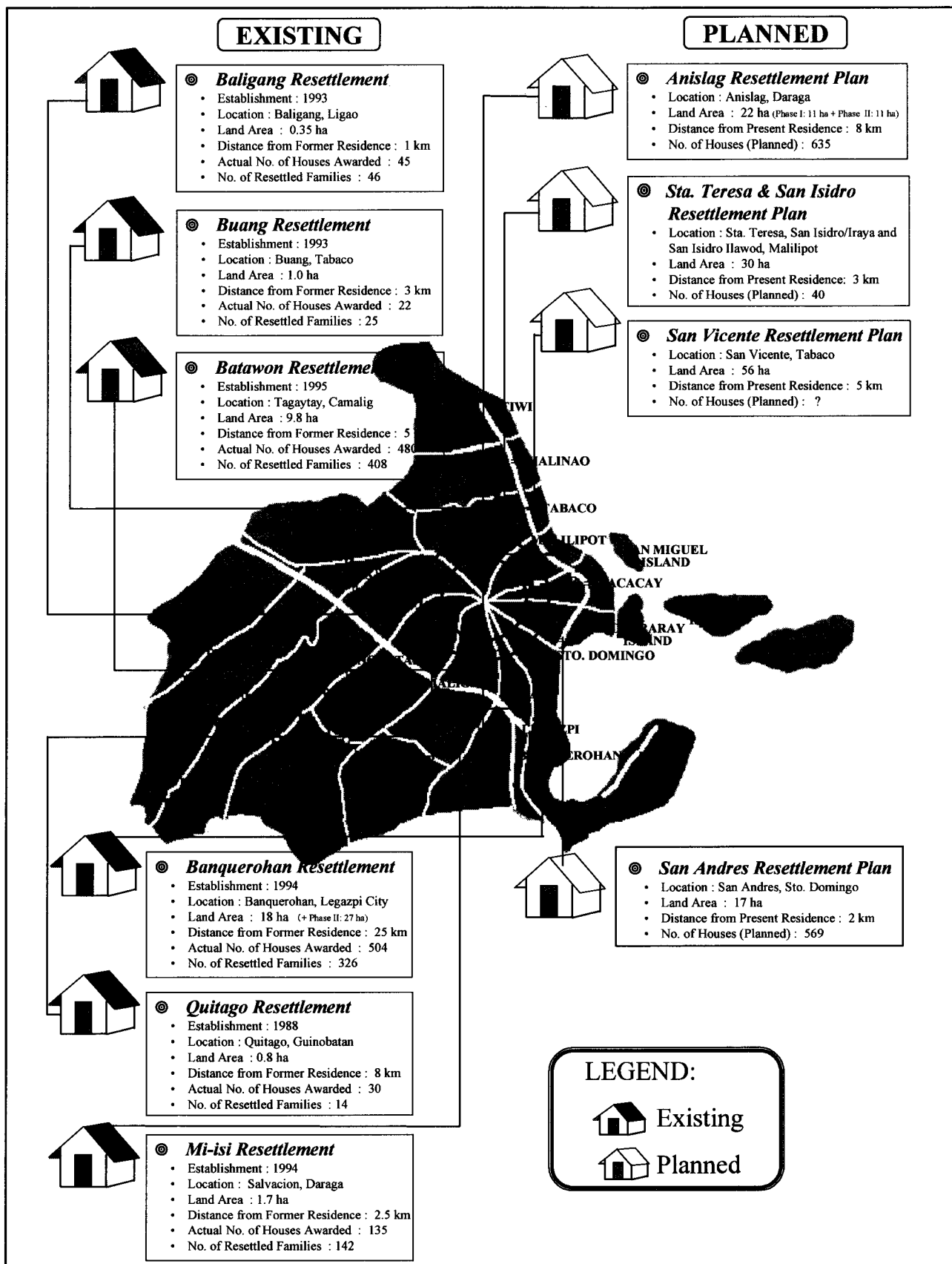
Source: Data from the city and municipal authorities concerned.

**Table X 1.2 List of the Resettlement Schemes in the Study Area (as of June 1999)**

Name	(1) Anislag	(2) San Andres	(3) San Vicente	(4) Sta. Teresa & San Isidro
1. Location	Anislag, Daraaga	San Andres, Santo Domingo	San Vicente, Tabaco	Sta. Teresa, San Isidro Iraya and/or San Isidro Ilawod, Malilipot
2. Distance from crater (km)	1.5km	10km	11km	9km
3. Distance from former residence (km)	8km	2km	5km	3km
4. Land area (ha)	22ha (Residential: 11ha, Community: 11ha)	17ha (Phase I: 2.73ha, Phase II: 14.37ha)	Planning for 56ha	Planning for 30ha
5. No. of Houses (Planned)	Planning for 635	Planning for 569 (Only 50 houses are constructed)	Planning stage	Planning for 40
6. Home lot size (m <sup>2</sup> )	100m <sup>2</sup> (10m x 10m)	120m <sup>2</sup>	Planning stage	Planning for 100
7. House size (m <sup>2</sup> )	10.5m <sup>2</sup> (3.0 x 3.5m <sup>2</sup> )	20.2m <sup>2</sup>	Planning stage	Planning for 20
8. Establishment (year)	Construction started on May 1998 and to be completed in 1999.	Site development started	Planning stage	Planning stage
9. Total Investment Amount (Million Pesos)	19.4 Millions Pesos	Phase I : 10.0 Millions Pesos for 50 houses Total project cost : 53.0 Millions Pesos	Not defined	Not defined
10. Beneficiaries	Victims of Mayon Volcano eruption and typhoon Rosing, and those living in danger areas	Victims of Mayon Volcano eruption and typhoon Rosing, those living in danger areas, and other squatter families willing to be relocated permanently.	Those living in danger areas and other squatter families to be relocated permanently.	Those living in danger areas and other squatter families to be relocated permanently.
11. No. of houses to be constructed	Planning stage	50 houses to be awarded	Planning stage	Planning stage
12. Estimated no. of households living in the resettlement	None	None	None	None
13. Profile of the beneficiaries	Farmers and laborers (coconut, paddy rice and vegetables)	Farmers, laborers and employees (paddy rice, coconut, etc.)	Farmers and urban poor (abaca, corn, root crops and vegetables)	Farmers and home industrialists (handicrafts using abaca, coconut, root crops, etc.)
14. Name of former Barangay	* Budiao (all HH), Banadero (21/300), Busay (91/300), Banag (69/400), Binitayan (128/1,000), Kimangtong and Tagas (100/1,000)	Lidong, San Isidro, Fidel Surtida and Santa Mesitordia	Magapo and San Roque	Calbayog, San Roque, Canaway and Binitayan
15. Project Administration	LGU-Daraga/ Albay Provincial Government	LGU-Sto. Domingo	LGU-Tabaco	LGU-Malilipot
16. Land development	Albay Provincial Government, NHA	LGU-Sto. Domingo, NHA	LGU-Tabaco	LGU-Malilipot
17. Construction of houses	DSWD (National)	LGU-Sto. Domingo, NHA, NDCC	Not defined	Not defined
18. NDCC Calamity Fund	9.57 Millions Pesos (not yet received)	10.0 Millions Pesos	Not defined	Not defined
19. Water supply	28 units shallow wells	Individual connection to water spring, and shallow wells with a ration of 1 well per 25 families.	Not defined	Not defined
20. Other Facilities	Concrete road, drainage system, individual septic tank, power lines by ALECO	Concrete roads and footpaths, drainage system, power lines by ALECO	Not defined	Not defined
21. Other remarks	Adjacent to the resettlement area, construction of houses for government employees is planned. Irrigation system is available nearby.	Community facilities (1.3ha), open space (6ha) and communal reforestation of 3 ha for livelihood purposes	Planning stage	Planning stage
22. Issues	Technical assistance in livelihood generation is needed by acquiring farmlands and/or generating job opportunities.	Open space is available for livelihood activities.	Technical assistance in livelihood generation, and employment creation measures required	Beneficiaries are hesitant to the plan due to the distance from their source of livelihood.
23. Land acquisition	Purchased by Albay Provincial Government	Purchased by LGU	Planning stage	Planning stage
24. Type of constructed house	Core shelter type	Mayon type model III	Planning stage	Planning stage
25. Livelihood assistance	None	None	None	None

Note : \* Ex. - Busay (91/300): 91 Households must be resettled amounting the total 300 households in Busay.

Source: Data from the city and municipal authorities concerned.



**Figure X 1.1**  
**Existing and Planned Resettlement Projects**  
**around Mayon Volcano, Albay Province**