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TECHNICAL RESOURCES PROJECT

**STUDY ON THE IDENTIFICATION and
PROVISION of BASIC TRANSPORT
INFRASTRUCTURE and SERVICES**

**Second
Draft Final Report
on
Workshop Proceedings**

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CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

1.1 Background of the Study

It has been the declared policy and strategy of the Government that basic transport infrastructure will be identified and provided to ensure the integration of depressed communities into the mainstream of economic development. Moreover, the Government has also committed itself to employ an integrated social development strategy aimed at human development for the vast majority of Filipinos through the provision of focused basic services to the more disadvantaged sectors of society and to especially increase their income above the poverty threshold to enable them to meet their minimum basic needs.

In the Infrastructure Program of the Government, quite a number of transport projects like roads, ports and airports involving billions of pesos are targeted for implementation over the 1993-1998 plan period. However, their expected contribution towards attaining human development and poverty alleviation goals may just be coincidental and they may not address accessibility to basic services and the mobility requirements of majority of our people especially the most needy sectors of society.

In view of these and in cognizance of the conditions of inaccessibility in rural and remote areas and to reinforce the role of infrastructure in addressing the population's basic needs particularly of the poor, the Inter-Agency Technical Committee on Transport Planning (IATCTP) in support of this policy, recommended the conduct of a study that will outline a strategy for the form and manner of interventions of the national government in its identification and provision of basic transport infrastructure and services that will address basic human needs.

In this regard, the National Economic and Development Authority (NEDA) through its Infrastructure Staff as the executing agency of the IATCTP, secured funding for said study from the United States Agency for International Development (USAID) under the Technical Resources Project (TRP).

1.2 Objective of the Study

The objective of the Study is to establish a planning framework that will guide in the identification, prioritization, and selection of basic transport infrastructure and services and to recommend strategies, mechanisms, sources of financing and institutional arrangement for their implementation.

In line with this objective, the Study will come up with a Manual for Planning and Implementation of Basic Transport Infrastructure and Services (BTIS) Projects for use by Local Government Units (LGUs) and beneficiary communities. This Manual will contain the detailed procedures in the identification, prioritization, selection, preparation, financing and implementation of BTIS projects including the necessary measures that may be required for the institutionalization of the provision of basic transport infrastructure and services.

1.3 The Structure of the Report

After this Introduction, the Study Approach and Methodology which describes the general framework employed in the study, is presented in Chapter 2.

Chapter 3 presents the Criteria in Determining Basic Transport Infrastructure and Services (BTIS) which are based on human needs and accessibility to basic services.

Chapter 4 describes in details the basic transport infrastructure and services planning and implementation frameworks including the recommended institutional arrangements and the proposed legislative agenda for BTIS institutionalization.

Chapter 5, presents the draft **Manuals on the Planning, Identification and Implementation, Financing, and Institutional Arrangements of Basic Transport Infrastructure and Services** including the proceedings of the Consultative Workshops conducted for these manuals.

Finally, in Chapter 6, the **Conclusion and Recommendations** are presented.

CHAPTER 2

STUDY APPROACH AND METHODOLOGY

2.0 STUDY APPROACH AND METHODOLOGY

2.1 *General Framework*

Based on the Terms of Reference and the Consultant's understanding on what the study is expected to achieve, the activities of the study have been divided into five (5) main phases namely : (a) Define Basic Transport Infrastructure and Services (BTIS); (b) Review Existing Methodologies; (c) Recommend a Planning and Implementation Framework; (d) Finalize the Framework, and (e) Report Preparation and Manualization. These five (5) main phases are shown in Figure 2.1.

For purposes of this study, the following "definition of terms" has been adopted in order to have a common understanding on what these terms mean whenever they are used in the reports, write ups and discussions :

- a) *Transport Infrastructure* - refers to the static element of transport, i.e. roads, ports, etc.
- b) *Transport Service* - refers to the dynamic elements, i.e., the conveyances and their operations.
- c) *Transport Facility* - a general term which may mean either a transport infrastructure or a transport service or both.
- d) *Transport Project* - refers to a specific activity or undertaking which will provide either an infrastructure or service facility, or both.
- e) *Project Planning* - refers to the process of identification, prioritization, selection, preparation and financing of projects.
- f) *Project Implementation* - refers to the process of putting into place a project including the corresponding institutional mechanism.

The areas of concern of this study are the remote and rural communities with low accessibility to basic human needs. The 1993-1998 Medium Term Philippine Development Plan enhances the concept of basic transport infrastructure and services as it mentions about providing basic services to the more disadvantaged sectors.

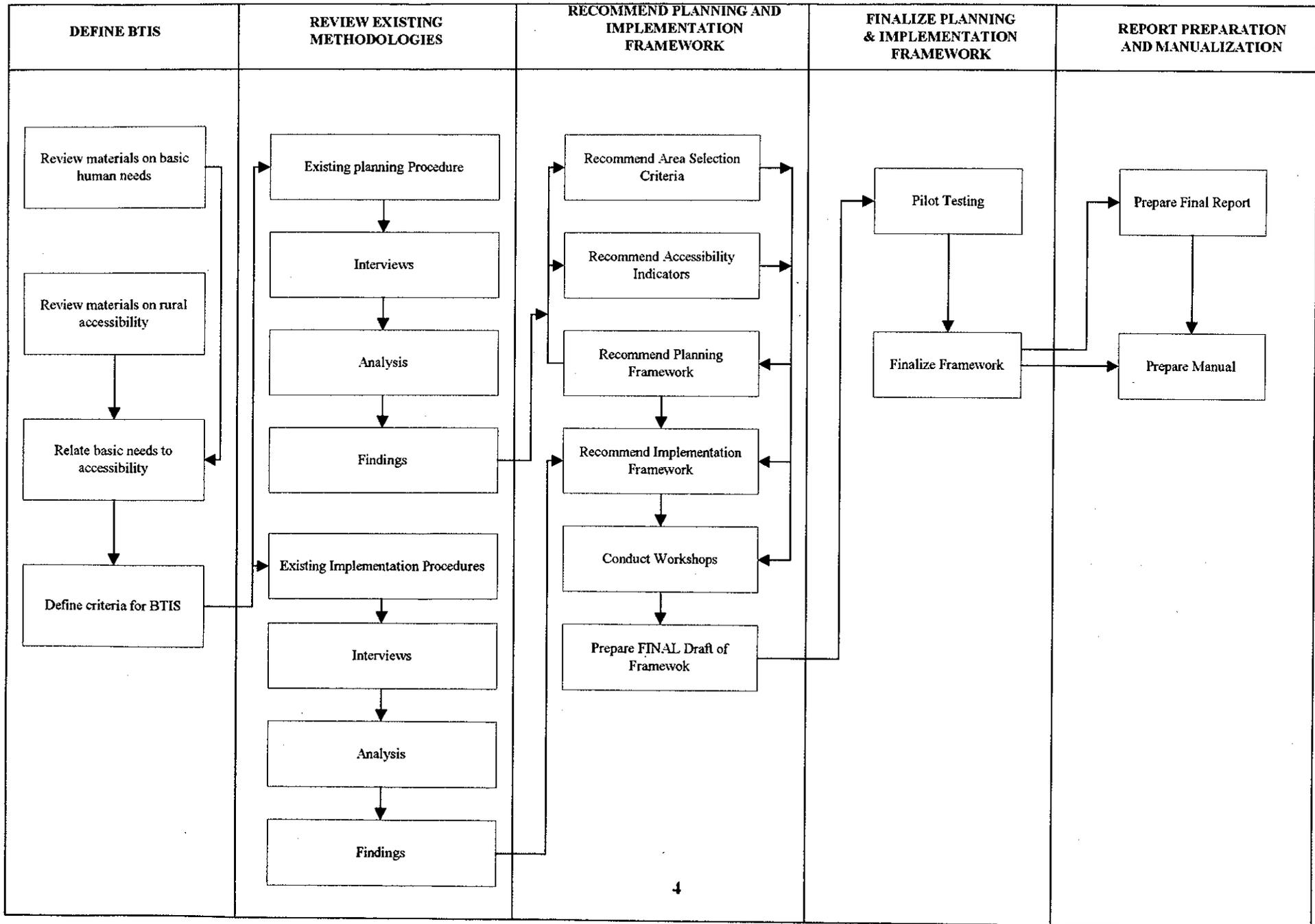
The general framework of the approach / methodology to be employed in this study is shown in Figure 2.1. The approach starts with the definition of a basic transport infrastructure and service (BTIS) . It has to be based on basic human needs in rural areas and the corresponding accessibility requirements to such needs. Succeeding activities include a review of existing methodologies and procedures particularly in the planning and implementation of rural projects, a recommendation on both the planning and implementation framework of basic transport projects, pilot testing of said framework to finalize it and the manualization of the required planning and implementation framework.

2.2 *Description of Methodology*

2.2.1 *Definition of "Basic Transport Infrastructure and Services"*

One main concern of this study is to define what "basic transport infrastructure and services" (BTIS) is. It is easy to identify transport infrastructure facilities and services in all levels of human settlements in the country, but this study focused on areas where people barely have access or have no access at all to basic human needs. These areas obviously are rural in nature. Existing methods of apportioning financial resources of the national government or even local governments for purposes of putting up transport facilities, automatically eliminate these areas in the prioritization process because they do not

Figure 2.1 General Approach/Methodology



usually pass the standard feasibility indicators. But since these areas are also inhabited by people, they are entitled to some form of transport facility.

The study has made use of existing materials from previous and on going studies concerning firstly, the identification and categorization of "basic human needs." A review of these materials together with an analysis of the social dimensions of basic human need have helped the study team in coming up with the required definition. In fact, the identified basic human needs in the Minimum Basic Needs (MBN) scheme has been considered for this study, in line with the Philippine Government's social reform agenda. Secondly, there have been previous studies also on rural accessibility analysis. This study has reviewed the Integrated Rural Accessibility Planning (IRAP) procedure and has adopted in general terms the data requirements for accessibility evaluation. The study has also reviewed the mobility needs of people in the rural areas and the constraints which they perceive as preventing these needs from being met more effectively. Subsequently, relating basic human needs, with rural accessibility has enabled the study to come up with a procedure of identifying BTIS projects which also involves the basic planning stages of project identification, prioritization, selection and programming.

The term "basic" also considered the following factors :

- a) *availability of a facility in an area* - if there is no other alternative mode than what is available (e.g. trail, sled), such facility is basic.
- b) *technology used* - basic infrastructure and services may refer to transport technologies that are indigenous to the locality, low cost, and labor intensive.
- c) *access to " basic services "* - basic infrastructure and services provide access to the basic needs of rural communities.
- d) *cost* - basic infrastructure and services is low cost and is the mode taken or favored (if they have a choice) by the poorest of the poor.

2.2.2 *Review of Existing Methodologies*

A survey was made on selected municipalities to determine the present procedures employed in the planning i.e., identification, prioritization, selection and preparation of transport projects in the rural areas, as well as the implementation of said projects. The information gathered in this survey were considered in the preparation of the planning implementation framework with the objective of improving the existing system so that it will be more relevant to actual needs.

2.2.3 *Recommend Planning and Implementation Framework*

The information gathered from the review of previous studies and findings made on existing methodologies as applied to basic transport projects, were reviewed by the study team to come up with a recommended planning and implementation framework. Among the contents of the recommended framework are :

- a) criteria for area selection;
- b) criteria for assessing accessibility levels and gaps in relation to the defined basic human needs;
- c) the planning process itself, which includes:
 - * procedure for project identification
 - * criteria for project prioritization, selection and programming
 - * guidelines for project preparation and financing availments

d) the implementation process, to include :

- * recommendation for institutional arrangements;
- * guidelines for project execution with emphasis on the use of indigenous resources and labor-based technology.

The above recommendations have been subjected to further review through consultative workshops participated in by local planners, engineers, budget officers and other involved entities for the purpose of testing the applicability and appropriateness of the manuals. Feedbacks from the workshops will be consolidated and evaluated and appropriate modifications will be made as may be necessary.

2.2.4 Finalize Planning and Implementation Framework

The recommended framework will be pilot-tested. A pilot area will be chosen and actual planning of BTIS projects will be undertaken in the selected area using the criteria and the procedure developed by the study. The purpose of the pilot-testing is to find out whether the planning framework as recommended can effectively produce the expected outputs. If there are still loopholes in the process, then necessary adjustments and modifications will be made. After said modification, the study will come up with the final version of the required framework.

2.2.5 Prepare Manual and Final Report

With the planning and implementation framework finalized, the study will prepare the final report. One important component of this report is a Manual for Planning, Financing and Institutional Arrangements, and Implementation of BTIS Projects. This manual will contain an explanation of the procedure in the identification, prioritization, selection, preparation, financing and institutional arrangement, and implementation of BTIS projects including the necessary policy measures (i.e., legislations, executive orders and other administrative issuances) that may be required to institutionalize and facilitate the provision of basic transport infrastructure and services.

3.0 CRITERIA IN DETERMINING BASIC TRANSPORT AND INFRASTRUCTURE AND SERVICES (BTIS)

3.1 *Social Dimensions on Basic Human Needs*

3.1.1 *The Concept of Basic Needs*

The concept of basic needs has been looked upon favorably by many practitioners of development planning as a means to make development efforts more relevant to the needs of the people. However, a number of issues relating to the operationalization of the concept have emerged. Basic needs change through time; as lower order needs are satisfied, higher order ones come next. The norms for identifying needs, therefore cannot be static.

Needs derived objectively or normatively are referred to as objective needs. These needs are defined in terms of certain standards which are actually specifications of what is needed by a given population at a given point in time. Thus, a minimum daily intake of 2,380 calories per head can be set as a standard for nutrition (UNDP-FAO). Similarly, housing standards may be set in terms of square meters of floor space per person. Subjective needs are those which are expressed and articulated by the needy themselves and reflect the state of their physical and mental makeup. As such, subjectively derived needs do not only change but could also sometimes be unrealistic. A person who gets one square meal a day only aspires to get two square meals. He fails to see beyond his food requirements.

Methodologically, the only realistic way of defining minimum basic needs or MBN is that which fuses the objective and subjective criteria into one. Basic needs could therefore be conceptualized as a construct of objective needs weighted by people's preferences (Mathiason, 1977).

Taking the abovementioned factors into account, we can arrive at the following classification of MBN :

1. Needs which pertain to the three basic necessities of life and have to be provided to each individual / family - food, clothing, and shelter. These also include drinking water, fuel, etc.
2. Needs which enhance the general welfare of the people and improve the individual's capacity to produce more for his own welfare and which have to be provided only to groups and not to individuals, such as medical care, education, transportation and communication, power, marketing, political, social institutions, etc.
3. Needs which improve access to the means of production and economic opportunities, such as natural resources (land, water, vegetation, etc.), capital (including technology), employment opportunities, and income. Such needs can be satisfied by structural reforms in society along with economic growth for social justice.
4. Needs which give a sense of security and freedom for decision-making, such as human right, political participation, social security, social defense, and rule of law. Such needs are met through a national policy and are applicable to all citizens, but more so to the poorer sections of the society.

3.1.2 *Identifying the Basic Needs*

The apparent inadequacy of gross national product (GNP) or per capita income as a general indicator of development has set the stage for the exploration of other relevant measures. As early as 1961, a United Nations Committee of Experts has recommended twelve components for the social indicator approach, namely:

1. Health, including demographic conditions;
2. Food and nutrition;
3. Education, including literacy;
4. Condition of work;
5. Employment situation;
6. Aggregate consumption and savings;
7. Transportation;
8. Housing including household facilities;
9. Clothing;
10. Recreation and entertainment;
11. Social security; and
12. Human freedom.

In 1975, researchers from the Development Academy of the Philippines (DAP) came up with an exhaustive list of social indicators similar to that of the UN. In general, the results of the study did not significantly differ from the UN paper. The said indicators are summarized below.

1. Health and Nutrition
 - a) Infant mortality rate
 - b) Expectation of life at birth
 - c) Days disabled due to illness per capita per year in disability days
 - d) Available supply of calories per capita per day
 - e) Available supply of proteins per capita per day
2. Learning
 - b) School enrollment ratio per level of schooling (primary, secondary, tertiary)
 - c) Value of human capital stock created by schooling (experimental)
3. Income and Consumption
 - c) Net Beneficial Product per capita (experimental)
 - d) Proportion and number of families below the food poverty threshold (experimental)
 - e) Ratio of mean income of richest quintile of poorest quintile
 - f) Rate of inflation of consumer prices
4. Unemployment
 - d) Unemployment rate of the totally unemployed, by occupation and by educational attainment
 - e) Real wage rate index, skilled versus unskilled workers, by occupation
5. Nonhuman Productive Resources
 - a) Reproducible capital stock
 - b) Arable land
 - c) Forested land
 - d) Mineral reserves

6. Housing, Utilities and the Environment
 - a) Proportion of occupied dwelling units adequately served with water; proportion of population served by electricity at home
 - b) Index of housing adequacy (experimental)
 - c) Proportion index for Greater Manila (experimental)
 - d) Pollution concentration level, by type of pollutant
 - e) Proportion of river-lengths polluted by river, by degree of pollution

7. Public Safety and Justice
 - a) Crime incidence rate, by type of crime
 - b) Backlog of judicial cases
 - c) Number admitted to penal institutions

8. Political Values
 - a) Ratio of votes cast to registered voters
 - b) Index of political mobility (experimental)
 - c) Index of political participation (experimental)
 - d) Index of political efficacy (experimental)

9. Social Mobility
 - a) Index of gross occupational mobility (experimental)
 - b) Index of perceived social mobility (experimental)

The shift towards social development permeated at all levels of planning in the country. An operationalization of this concern, came in the form of eleven basic needs espoused by the Ministry of Human Settlements during the Martial Law era (1977-1985). These eleven basic needs were : food, shelter, clothing and cottage industries, water, power, livelihood, education and technology, medical services, sports and recreation, mobility, and ecological balance.

The latest version was reechoed in 1992 by the Presidential Commission to Fight Poverty with their Minimum Basic Needs (MBN) approach (see Table 3.0)

3.1.3 Criteria for Measuring Minimum Basic Needs

What to Measure

For objective needs, the measurement problem is less than for subjective needs. Objective types of need must be defined by the planners, based on observation of the region and study of its problems. Usually, needs can be said to fall into three broad categories : levels of living, factors of population, and services.

Levels of living refer basically to the physical condition of a person. Usually these are measured by the presence or absence of certain goods and amenities. In some cases, an index is used according to whether an individual has a nice house, potable water, certain types of dwelling units, and sanitary services.

Table 3.0

Summary of the MBN Requirements

BASIC NEEDS		REQUIREMENTS
SURVIVAL A. Food and Nutrition B. Health	1	Newborns with birthweight of at least 2.5 kgs
	2	No severely and moderately underweight children under 5 years old
	3	Pregnant and lactating mothers provided with iron and iodine supplements
	4	Infants breastfed for at least 4 months
	5	Deliveries attended by trained personnel
	6	0-1 year-olds fully immunized
	7	Pregnant women given at least 2 doses of tetanus toxoid
	8	Not more than 1 diarrhea episode per child below 5 years old
	9	No deaths in the family due to presentable diseases within the year
	10	Couples with access to family planning
	11	Couples practicing family planning in the least 6 months
	12	Solo parent availing of health services
C. Water and Sanitation D. Clothing	13	Access to potable water (faucet/deep well within 250m.)
	14	Access to sanitary toilets (water-sealed, antipolo, flushed)
	15	Family members with basic clothing (at least 3 sets of internal and external clothing)
SECURITY E. Shelter	16	House owned, rented or shared
	17	Housing durable for at least 5 years
F. Peace and Order/Public Safety	18	No family member victimized by crime against person (i.e., rape, murder, physical injury)
	19	No family member victimized by crime against property (i.e., theft, burglary, etc.)
	20	No family member displaced by natural disaster
	21	No family member victimized by armed conflict
	22	Head of the family employed
G. Income and Employment	23	Other family members 15 years old above employed
	24	Families with income above subsistence threshold level
	25	Children aged 3-6 attending day care/pre-school
ENABLING H. Basic Education and Literacy	26	Children 6-12 years old in elementary school
	27	Children 13-16 years old in high school
	28	Family members 10 years old and above able to read and write and do simple calculation
I. People's Participation	29	Family members involved in at least 1 people's organization / association, community development
	30	Family members able to vote at elections
J. Family Care/Psychological Needs	31	Children 18 years old and below not engaged in hazardous occupation
	32	No incidence of domestic violence
	33	No child below 7 years left unattended

Nutrition is also an important need that has to be satisfied. It is based both on the quantity of food intake and dietary balance. It is felt that people with a balanced diet would generally have sufficient quantity of food and that measuring the degree to which the average diet is balanced would give an adequate indication of the general level of nutrition.

For physical health, needs are measured through the study of the prevalence of infant mortality and the frequency of illness. It is assumed that low levels of health in a family is associated with a higher than average infant mortality.

While needs are often seen as exclusively social in nature, there are economic needs that have to be satisfied as well. These range from a need for employment to needs for factors of productive inputs and infrastructure. The principal measure of need in this respect is probably net income, which reflects the overall return realized from productive effort.

Measurement of service needs is relatively straightforward. What is analyzed first is availability (Does the service exist in the area?), then access (Can the beneficiaries use the facility?), and finally use (Do the beneficiaries actually use the service?). In practice, the indicators tend to be based on the availability of the service (such as number of doctors per 1,000 population) rather than on service use, which is a more appropriate measure; but in some cases, a more complex measure based on a combination of availability, access and use is utilized.

In one Latin American country, level of need for medical services is measured by determining whether a health center is within one-hour walking distance, whether it is constantly staffed, and whether many families use the center, by asking a sample of individuals. However, in order to assure that a high level of use of the health center does not, in fact, reflect an unfavorable health situation, the measure of use was modified to include the percentage of use for preventive instead of curative treatments. Need was deemed to be higher where there was (1) no health center, (2) a center existed but is not constantly staffed, or (3) center users formed a low percentage of the population, and (4) use was mainly for curative rather than for preventive treatments.

Qualitative objective indicators are less commonly used. There is, however, a common sense approach which can be followed, as long as data are aggregated by community. For each institution, such as health centers, schools, credit cooperatives, and the like which affect a basic minimum need area, it is possible to make a qualitative rating based on a number of dimensions:

- a) What proportion of the intended beneficiary population for the institution actually use the institution?
- b) What proportion of the staff positions are filled? What proportion of staff meet minimum national standards?
- c) How close does the physical plant approximate the national optimum?
- d) Where national norms exist, to what extent do beneficiaries achieve national norms after using the institution (for such activities as educational attainment, health, or creditworthiness.)?

Indicators can be constructed for each institution that is of interest to the planner. Measurement of subjective needs or preference is also less common.

In surveys, to avoid intrusive questions which suggest answers, a researcher may explore the respondents' ability to think about fundamental conditions. This method has been used in a number of studies in Latin America and in the Philippines. The procedure is to first ask, "What are the principal problems facing this community?" This identifies the universe of problems perceived by a respondent at that given time. And, since needs can be expressed as "problems," these represent his most perceived needs. If more than one problem is named, the next question that follows is, "Of these, which is the most important?" This identifies the most salient need, as perceived by the respondent. Then, a series of questions about this problem is asked, including "What do you think is the cause of this problem?"

Using this set of questions for each community, it is possible to identify the group of needs (expressed as problems) felt by a substantial portion of people living in the community.

Where to Measure

The individual is, ultimately, the focus of development. It is thus sensible to collect data from individuals and aggregate the responses as averages. Vital registration statistics, censuses, and national sample surveys are usually conducted and analyzed on this basis.

To measure minimum basic needs, the community variable is important for a number of reasons. First, in determining existing levels for need categories such as education, health, and other aspects where remedies are provided through government services, it is possible to estimate the quality of the service at the community level. Second, data on voluntary organizations and leadership can include information on group references.

For the planner concerned with the acceptability of a plan, the references expressed by organized groups and leaders may be more important than the sum of the averages of individuals. This is because in expressed group preferences, the effect of local political power is already taken into account, whereas the average of individual preferences may not represent this.

Using the type of questions on problems faced to measure subjective needs, it is possible to ascertain those needs by community leaders, as well as those formally recognized by organizations. Obtaining this information requires interviewing community leaders and, if possible, request the information through meeting with the organization.

It is quite possible that there will be a discrepancy between preferences expressed by organized groups and those expressed by individuals. If so, this, in itself, is an important indication of possible political conflict within the communities. This can assist the planner in determining precisely which needs are basic. Indeed, where a discrepancy exists, there is a possibility of a change in preferences, either individual preferences change those of organized groups or are molded through the process of participation.

How to Measure

Information which can provide a profile of the communities in a given province or region consist of four types of data which can be used to identify minimum basic needs :

- a) data on the average magnitude and rough distribution (quartiles, for example) by community of objective needs measured at the individual level. For example, one could

assert, that the mean yearly net family income in the lowest quarter of the communities was equivalent to Pxxx, the mean in the highest quarter was Pzzz, and in the median community it was Pyyy. Or, alternatively, the percentage of families who never visit a health center in the median community is 10% with a range from 90% in the lowest community to 0% in the highest community.

- b) data on the magnitude and rough distribution according to communities of objective needs measured at the community level. For example, data are obtained which indicate that the number of kilometers of paved road in the median community is X, ranging from Y in the lowest to Z in the highest;
- c) data on the average needs perceived by residents in communities based on individual-level interviews. For example, one could develop statements such as in X% of the communities the main problem perceived individually is potable water.
- d) data on the needs perceived collectively (as expressed by leaders and organizations) by the communities in the region. For example, it would be possible to assert that "improved feeder roads" is considered to be a major problem in X% of the communities.

The four data sets can be further analyzed in order to establish 1) the set of minimum basic needs, 2) spatial distribution of minimum needs, and 3) the relationship among needs as seen objectively and subjectively.

The most fundamental needs are the needs as perceived in most of the communities by individuals and also the needs as perceived by organizations of available resources.

Two intermediate categories can also be identified. First, those needs which are identified as critical by external observers but which are not perceived either by individuals or by organizations but are noticeable by both. This constitutes a set of needs for which perception can be created within the province or region, since it is already present passively. A second set of needs is that which is not perceived to be objectively necessary but is perceived by both individuals and their organizations to be important. This constitutes a type of need that probably has to be met regardless of its economic importance. Cases in which popular perceptions lead to programs of investment in churches or mosques in order to alleviate a perceived nonmaterial, higher-level need are examples of this.

3.2 *Accessibility to Minimum Basic Services*

In defining a basic transport infrastructure and services facility, an assessment of the existing accessibility from household communities to areas where minimum basic services are located, is needed. The process of defining a BTIS facility as presented in this report includes the basic planning stages of project identification and prioritization. The term accessibility here refers to the level of availability of a transport facility (both infrastructure and services) in relation to the demand for the facility. Owing to the existence of the Integrated Rural Accessibility Planning (IRAP) methodology, the process is intended to supplement it and will focus more on BTIS projects. It will make use of basic data that are and can be generated thru the IRAP process.

This procedure is applicable to any locality level. To illustrate, if the locality to be evaluated is the barangay, the analysis will involve accessibility of every sitio in the barangay to the corresponding basic services. Similarly, if the locality is a municipality, the analysis will consider the accessibility of each barangay and if the locality is a province, the analysis will look into the accessibility of each municipality. It is noted however, that as the locality under study becomes bigger, the level of details becomes wider and generalized in scope.

To assess the existing accessibility situation, data on the locations of basic services, of household communities, of links between local communities and basic services and others are needed. This will involve a comprehensive data gathering activity, the plotting of the data on a map, and the quantification of accessibility parameters. The data requirements are closely similar to the IRAP process. However, since the MBN scheme is being considered here, additional data might be required. Using the items given in Table 3.1, an initial accessibility assessment will make use of a matrix which will indicate the availability of a given basic service in a given locality. An illustration is shown in Table 3.2.

In the matrix shown in Table 3.2, each cell corresponds to a given service in a given barangay. The study area here is a municipality and the local communities considered are the barangays in the municipality. If a given basic service is available in a given barangay an x mark is placed in the corresponding cell. Blank cells indicate the non-availability of a given basic service. It is in these blank cells where further analysis is necessary. The next step would now involve the identification of the existing accessibility of the barangay to a given basic service where the corresponding cell is blank. This will need a comprehensive data base. The items that will be included in this data base will conform to the factors to be considered in evaluating accessibility and/or mobility requirements. Like any basic transport study, the analysis will deal on transport demand. In a conventional transport study, transport demand is determined by estimating trip generation/attraction, and trip distribution. Applying the theory to this exercise, the following factors can be considered :

- a) *Trip Generation* is represented by the local communities or groups of households which seek the basic services. The number or volume of these basic service users is represented by the population or volume of households served.
- b) *Trip Attraction* is represented by the basic services where people will go to.
- c) *Trip Distribution* is represented by the frequency of travel made by the people to the areas where the basic services are available and the impedance factor in moving from the origin (the household location) to the destination (location of the basic service). There are three types of impedance factors, namely, distance, transport cost and travel time. Due to the varying conditions of the transport links from households to basic services areas, distance and transport cost would not be appropriate impedance measures. To illustrate, distance between two points could be short. However, if the condition of the link is very rough, as in a rugged terrain, and where no road path whatsoever is present, people will opt to use a longer path where a more decent road path is available because it will be faster and more convenient to do so. Transport cost would be difficult to quantify. For example, walking, which is a very common "mode" of transport in the rural areas, is very difficult to quantify in terms of "transport cost." But it is relatively easier to quantify in terms of time spent in walking. So if one compares walking with riding a tricycle as alternative modes of transport, it is easier and more convenient to base the comparison on the respective travel times rather than transport cost. It is for these points that travel time would be the most appropriate impedance measure.

The data that will be gathered corresponding to the factors to be considered in evaluating accessibility and determining project priorities are given below. For each basic service and each corresponding barangay which does not have in its locality the said basic service, the following are needed :

- * *location of service center* or the nearest area where a basic service is currently available
- * *priority index* which indicates the level of necessity of said service to the local community. This will be based on the hierarchy of needs based on the MBN approach.

**Table 1 - Minimum Basic Needs (MBN) :
Barangay Function**

Basic Needs Category	Basic Services Needed
A. Survival	<ol style="list-style-type: none"> 1. <i>Multi-purpose / Big Sari-sari store</i> 2. <i>Market / Talipapa</i> 3. <i>Barangay Health Center / Station</i> 4. <i>Water Supply / Artesian Well / Deepwell / Spring</i> 5. <i>Drug store/Botica</i>
B. Security	<ol style="list-style-type: none"> 6. <i>Police Outpost / Sub-Station</i> 7. <i>Barangay Hall / Barangay Tanod Outpost</i> 8. <i>Livelihood Center</i> 9. <i>Multipurpose Cooperative</i>
C. Enabling	<ol style="list-style-type: none"> 10. <i>Day Care Center</i> 11. <i>Elementary School</i> 12. <i>High School</i> 13. <i>Other NGO's</i> 14. <i>Church / Place of worship</i>

Table 3.2 - Example of a Basic Service Availability Matrix

Municipality : _____								
Barangay	Basic Service Availability							
	Market	Health Center	Water Supply	Police Station	Source of Livelihood	Elem School	High School	Community Center
A		x				x		x
B	x	x	x	x	x	x	x	x
C					x			x
D	x		x			x		
E		x			x			x
F		x				x		
G		x	x		x			x

- * links traversed which will indicate the series of transport links or the present path taken in going to the service center. These will be useful in estimating travel time.
- * total distance which gives the distance in kilometers of the path taken. This will be useful in estimating travel time.
- * travel time which gives the time spent in minutes in travelling from a group of household units to a basic service center. (Note : travel time should include waiting time).
- * trip frequency which gives an indication on the average number of person-trips per household made each day from a group of household units to a basic service center.
- * population served which gives the number of people served by the basic service facility.

The above data can be generated thru a household survey in each locality. The processed data will then be plotted on a map which will show the relative locations of the local communities (e.g. barangays), the location of basic service centers, the road and other transport links with indicated link distances.

3.3 *Criteria in Prioritizing Links to Basic Services*

To determine the accessibility levels and the basic transport facilities required in a given study area, the criteria to be considered are enumerated below. The term facility as used here refers to both the infrastructure and service components of transportation. The criteria are as follows :

- a) Basic Service Priority Index - this gives the relative importance of a given basic service to the local community. This follows the hierarchy used in the MBN approach, starting with the survival needs as the most basic, followed by security needs, then enabling needs.
- b) Number of Persons Served - this considers the volume of users of the basic services with the assumption that the bigger the volume, the more important is the link between the people and a given basic service.
- c) Travel Time - this gives a measure on the resistance factor in travelling from the household units to a given basic service. The longer the travel time, the more important is the linkage requirement between the households and a given basic service.
- d) Trip Frequency - this gives an indication on the intensity of the trips made to a given basic service area. The larger the frequency, the more important is the linkage requirement between the households and a given basic service.

The above criteria as a whole will measure the relative importance of each linkage between a set of local communities and a set of basic service areas. The linkages that will come out high in the ranking are the least accessible but the most needed in terms of mobility. The needed transport facility improvements along these linkages shall now be identified as the basic transport facilities required. The procedure in using the above criteria is summarized below. A more detailed explanation is given in Chapter 4 of this report.

- a) Identify existing accessibility to basic services
 - * prepare a basic service availability table;
 - * identify local communities (e.g. barangays) which do not have these services in their area based on above table; these localities need transport facilities to go to the nearest available basic service;

- * using the map where transport links and locations of local communities and basic service areas are plotted, identify linkages between each local community location and each basic service area location;
 - * prepare a table showing the respective paths (or linkages) from each local community requiring transport facilities to each basic service (Note: a path will consist of a series of links from an origin to a destination node)
- b) Identify all the paths and prepare a table indicating the transport demand characteristics of each path;
 - c) Using the data included in the transport demand characteristics table, prepare another table that will give the corresponding rating of each criterion (i.e. basic service priority level, number of persons served, travel time and trip frequency), using a rating system. Refer to Chapter 4 for the details of this.
 - d) Estimate the average rating of each path and rank the paths. The more important or priority paths are those whose average ratings are high (e.g. those close to or more than 10.0).
 - e) For the most important or priority paths, identify the links that need improvement; these are the basic transport facilities needed for the area.

A rating system is shown in Chapter 4 of this report. It is designed so that a path with an average rating of close to or more than 10.0 would indicate a high accessibility deficiency and therefore a top priority in terms of transport facility improvement and that said path could be identified as a basic transport facility. It should however be noted that a path is composed of a series of links. It is possible that a link or links in the path is already in good condition. It will no longer be considered for further improvement. To further identify the basic transport facility for improvement, it will have to be the link or links in the identified priority path whose conditions are below what is basically needed in order to minimize travel time.

The rating system will also indicate the relative priorities of each path and will make possible the programming of transport facility improvement within the short, medium and long terms.

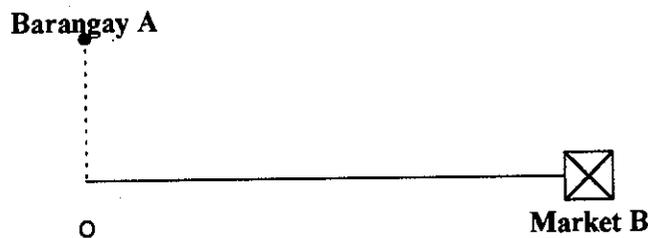
3.4 Basic Transport Facilities

It has been shown in the previous sections that analyzing the accessibility linkages between household communities and areas where minimum basic services are located will determine the linkage deficiencies. Since these linkages will address basic human services, the transport facilities that will provide the needed access along them can therefore be called basic transport facilities. For clarification and for purposes of this report, the following terms are so defined:

- * linkage is the path used by people in travelling from their households to a given basic service location.
- * facility refers to a transport infrastructure or a transport service or both that provides mobility to people from an origin to a destination.
- * link is a section of a transport infrastructure (e.g. road) or a transport service route connecting two points called nodes.

- * node is a point assumed to be the center of activities in a given area or a point of intersection of transport links. Example of nodes are barangay centers, basic service center, road junction, port area.

In line with the above definitions, a linkage or path is composed of a link or a series of links. It is possible that in a path, not all links require the needed basic improvements. To illustrate, consider the following case :



The linkage or the path from Barangay A (a household community) to Market B (a basic service center) is composed of the links Barangay A to O and O to Market B. The nodes are Barangay A, intersection O and Market B. The link from Barangay A to O is a trail and the road link from O to Market B is a good gravel road where jeepneys are operating. The linkage deficiency is the trail from A to O. To improve the accessibility of people from A to Market B, the needed improvement is to upgrade the trail to a basic road infrastructure, such as a good gravel road. For this case, the basic transport facility for Barangay A is the needed gravel road up to intersection O which will promote the opening of a transport service, either a tricycle or a jeepney service.

Using the procedure recommended in this report, all possible basic transport facilities in a given municipality where all barangays are considered in the analysis, will be identified. These will be prioritized using a set of criteria (as described in this report) that gives more weight to the level of demand and the more deficient links.

3.5 *Initial Test of the Proposed BTIS Approach*

In line with the concept described earlier and using the rating system given in Chapter 4, an initial test case was made. A municipality in Pampanga was chosen, firstly because of its proximity to the project office and secondly because of its unique characteristic. The province of Pampanga is relatively more developed than many provinces in the country. However, there are municipalities and barangays within the province which are less developed than the other municipalities. One of these municipalities is Sasmuan, which is about 15 kilometers from the capital town of San Fernando. The rural areas of Sasmuan are no different from the rural areas in many Philippine provinces. However, unlike many of these rural areas which are dependent on road transport for their mobility requirements, many barangays in Sasmuan are dependent on inland water, i.e. river transport for their mobility needs.

Sasmuan has a total population of 21,148 and a total land area of 42.2 square kilometers. There are 12 barangays, many of which are situated along a river network. Most of the basic services are located in the Poblacion and the nearby Municipality of Guagua and people travel to and from these areas normally by bancas. The few barangays which are connected by land to the poblacion make use of the usual road transport modes such as jeepneys and tricycles.

In the Sasmuan test case, the following basic services were considered :

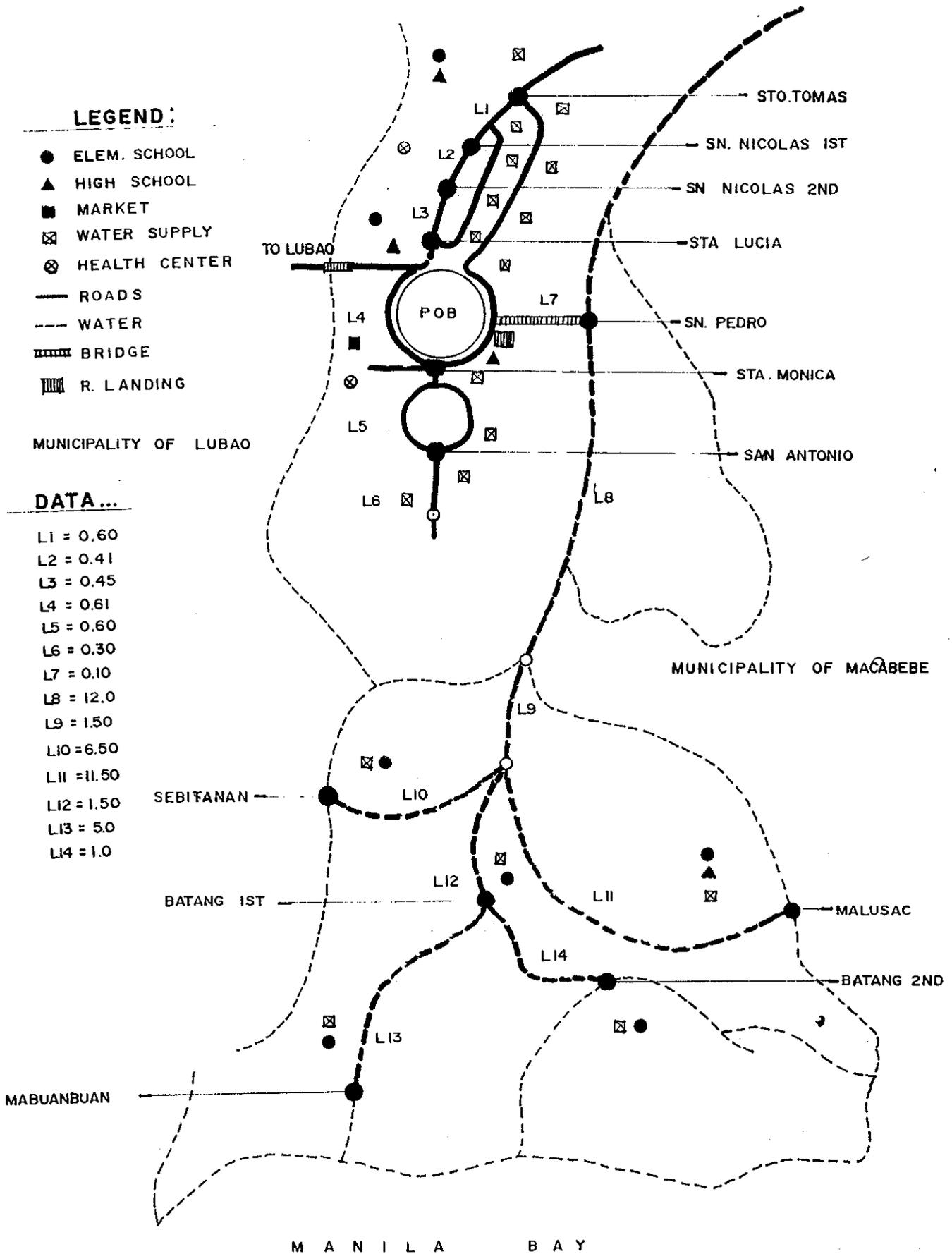
- * Market
- * Water Supply
- * Elementary School
- * Health Facility
- * Fuelwood
- * High School
- * Livelihood

Actual data gathering was made by the team thru interviews with local people, barangay officials and the municipal development planning officer. After the basic data were collected, these were plotted on a map. This is shown in Figure 3.1. A basic service availability matrix was also prepared and it is shown in Table 3.3. The map in Figure 3.1 also shows the links being presently used for the local people's mobility activities. The project identification and prioritization processes are illustrated in Table 3.4 to 3.7.

Using the ranking system in Chapter 4, the priority links have been identified. These are shown in Table 3.8.

Figure 3.1 - MUNICIPAL MAP OF SASMUAN

MUNICIPALITY OF GUAGUA



**Table 3.3 Basic Services Availability Matrix
Municipality : Sasmuan**

Basic Service Barangay	Water Supply	Elementary School	High School	Market	Fuelwood	Health Facility	Livelihood
1. Sto. Tomas	x	x	x				
2. San Nicolas 1st	x					x	
3. San Nicolas 2nd	x						
4. Sta. Lucia (Poblacion)	x	x	x	x	x	x	x ^x
5. Sta. Monica	x						
6. San. Antonio	x						
7. San Pedro	x	x	x				
8. Malusac	x	x					
9. Sebitanan	x	x					
10. Mabuanbuan	x	x					
11. Batang 1st	x	x					
12. Batang 2nd	x	x					

* Majority of the people's sources of livelihood is fishing at the Manila Bay Area, and the fish are sold at the Public Market at Sta. Lucia.

Table 3.4 - Accessibility Table

ORIGIN	DESTINATION	PATH (LINKS Traversed)	DIST. (km.)	EXISTING TRAVEL CHARACTERISTIC		LINKS IMPROVEMENT NEEDED
				TRAVEL TIME (Min)	MODE USED	
STO. TOMAS	MK	L ₁ -L ₂ -L ₃ -L ₄	2.07	10.35	JEEP S = 12 KPH	Roads are already existing and all are in cement concrete however, when rainy season comes this roads where affected by floods therefore the improvement needed is to upgrade (i.e. elevate road surface) links and maintain proper drainage
	F	L ₁ -L ₂ -L ₃ -L ₄	2.07	10.35	- do -	
	HC	L ₁ -L ₂	1.01	5.05	- do -	
	LLH	L ₁ -L ₂ -L ₃ -L ₄	2.07	10.35	- do -	
SN. NICOLAS 1 ST	ES	L ₂ -L ₁	1.01	5.05	- do -	
	HS	L ₂ -L ₁	1.01	5.05	- do -	
	MK	L ₂ -L ₃ -L ₄	1.47	7.35	- do -	
	F	L ₂ -L ₃ -L ₄	1.47	7.35	- do -	
	LLH	L ₂ -L ₃ -L ₄	1.47	7.35	- do -	
SN. NICOLAS 2 ND	ES	L ₃ -L ₂ -L ₁	1.46	7.30	- do -	
	HS	L ₃ -L ₂ -L ₁	1.46	7.30	- do -	
	MK	L ₃ -L ₄	1.06	5.30	- do -	
	F	L ₃ -L ₄	1.06	5.30	- do -	
	HC	L ₃ -L ₂	0.86	4.30	- do -	
	LLH	L ₃ -L ₄	1.06	5.30	- do -	
STA. LUCIA						
STA. MONICA	ES	L ₅ -L ₄	1.21	6.05	JEEP S = 12 KPH	
	HS	L ₅ -L ₄	1.21	0.05	- do -	
	MK	L ₅	0.60	3.0	- do -	
	F	L ₅	0.60	3.0	- do -	
	HC	L ₅	0.60	3.0	- do -	
	LLH	L ₅	0.60	3.0	- do -	
SAN ANTONIO	ES	L ₆ -L ₅	0.90	4.50	- do -	
	HS	L ₆ -L ₅	0.90	4.50	- do -	
	MK	L ₆ -L ₅	0.90	4.50	- do -	
	F	L ₆ -L ₅	0.90	4.50	- do -	
	HC	L ₆ -L ₅	0.90	4.50	- do -	
	LLH	L ₆ -L ₅	0.90	4.50	- do -	
SAN. PEDRO	HS	L ₇	0.10	1.5	WALKING S = 4KPH	Improve/Provide Permanent Bridge at L ₇
	MK	L ₇	0.10	1.5	- do -	- do -
	F	L ₇	0.10	1.5	- do -	- do -
	HC	L ₇	0.10	1.5	- do -	- do -
	LLH	L ₇	0.10	1.5	- do -	- do -
MALUSAC	HS	L ₁₁ -L ₉ -L ₈	25	60	MOTORIZED BANCAS S = 25 KPH	Dredging to maintain navigability or depending widening heavy sitted river channel that were severely affected by Mt. Pinatubo Eruption
	MK	L ₁₁ -L ₉ -L ₈	25	60	- do -	
	F	L ₁₁ -L ₉ -L ₈	25	60	- do -	
	HC	L ₁₁ -L ₉ -L ₈	25	60	- do -	
	LLH	L ₁₁ -L ₉ -L ₈	25	42.2	- do -	
SEBITANAN	HS	L ₁₀ -L ₁₁	18	48	- do -	- do -
	MK	L ₁₀ -L ₉ -L ₈	20	48	- do -	- do -
	F	L ₁₀ -L ₉ -L ₈	20	48	- do -	- do -
	HC	L ₁₀ -L ₉ -L ₈	20	48	- do -	- do -
	LLH	L ₁₀ -L ₉ -L ₈	20	43.2	- do -	- do -

(Cont.) Table 3.4 - Accessibility Table

MABUANBUAN	HS	L ₁₃ - L ₁₂ - L ₁₁	18	48	- do -	- do -
	MK	L ₁₃ - L ₁₂ - L ₉ - L ₈	20	48	- do -	- do -
	F	L ₁₃ - L ₁₂ - L ₉ - L ₈	20	48	- do -	- do -
	HC	L ₁₃ - L ₁₂ - L ₉ - L ₈	20	48	- do -	- do -
	LLH	L ₁₃ - L ₁₂ - L ₉ - L ₈	20	48	- do -	- do -
BATANG 1 ST	HS	L ₁₂ - L ₁₁	13	31.2	- do -	- do -
	MK	L ₁₂ - L ₉ - L ₈	15	36	- do -	- do -
	F	L ₁₂ - L ₉ - L ₈	15	36	- do -	- do -
	HC	L ₁₂ - L ₉ - L ₈	15	36	- do -	- do -
	LLH	L ₁₂ - L ₉ - L ₈	15	36	- do -	- do -
BATANG 2 ND	HS	L ₁₄ - L ₁₂ - L ₁₁	14	33.6	- do -	- do -
	MK	L ₁₄ - L ₁₂ - L ₉ - L ₈	16	38.4	- do -	- do -
	F	L ₁₄ - L ₁₂ - L ₉ - L ₈	16	38.4	- do -	- do -
	HC	L ₁₄ - L ₁₂ - L ₉ - L ₈	16	38.4	- do -	- do -
	LLH	L ₁₄ - L ₁₂ - L ₉ - L ₈	16	38.4	- do -	- do -

Table 3.5 - Demand Characteristic Per Path

PATH NO.	LINKS TRAVERSED	BARANGAY SERVED	BASIC SERVICE	BASIC SERVICE PRIORITY	NO. OF PERSON SERVED	TRAVEL TIME (mini)	TRIP FREQ (Trip/hb/day)
1	L ₁ -L ₂ -L ₃ -L ₄	STO. TOMAS	MK	1	3101	10.35	.40=0.80 .40
		-do-	F	1		-do-	
		-do-	LLH	2		-do-	
2	L ₁ -L ₂	-do-	HC	1	3101	5.05	.10
		SAN NICOLAS 1st	ES	3	1434	-do-	.60=1.0
		-do-	HS	3	956	-do-	.30
3	L ₂ -L ₃ -L ₄	-do-	MK	1	2402	7.35	.40=0.80 .40
		-do-	F	1		-do-	
		-do-	LLH	2		-do-	
4	L ₃ -L ₂ -L ₁	SAN. NICOLAS 2nd	ES	3	1296	7.35	.60
		-do-	HS	3	864	-do-	.30 = 0.90
5	L ₃ -L ₄	-do-	MK	1	2293	5.30	.40=0.80 .40
		-do-	F	1		-do-	
		-do-	LLH	2		-do-	
6	L ₃ -L ₂	-do-	HC	1	2293	4.30	.10=.10
7	L ₃ -L ₄	STA. MONICA	ES	3	1965	6.05	.60
		-do-	HS	3	1310	-do-	.30 = 0.90
8	L ₅	-do-	MK	1	3311	3.0	.40=0.90 .10 .40
		-do-	F	1		-do-	
		-do-	HC	1		-do-	
		-do-	LLH	2		-do-	
9	L ₆ -L ₅	SAN. ANTONIO	ES	3	1477	4.50	.60
		-do-	HS	3		-do-	.30
		-do-	MK	1		-do-	
		-do-	F	1		-do-	.40=1.80
		-do-	HC	1		-do-	.10
		-do-	LLH	2		-do-	.40
10	L ₇	SN. PEDRO	HS	3	2783	1.50	.30
		-do-	MK	1		-do-	
		-do-	F	1		-do-	.40=1.20
		-do-	HC	1		-do-	.10
		-do-	LLH	2		-do-	.10
11	L ₁₁ -L ₉ -L ₈	MALUSAC	MK	1	1631	.60	.40=0.90 .10 .40
		-do-	F	1		-do-	
		-do-	HC	1		-do-	
		-do-	LLH	2		-do-	
12	L ₁₀ -L ₁₁	SEBITANAN	HS	3	324	43.2	.30=.30
13	L ₁₀ -L ₉ -L ₈	-do-	MK	1	787	.48	.40=0.90 .10 .40
		-do-	F	1		-do-	
		-do-	HC	1		-do-	
		-do-	LLH	2		-do-	
14	L ₁₃ -L ₁₂ -L ₁	MABUANBUAN	HS	3	87	43.2	.30=.30
15	L ₁₃ -L ₁₂ -L ₉ -L ₈	-do-	MK	1	425	.48	.40=0.90 .10 .40
		-do-	F	1		-do-	
		-do-	HC	1		-do-	
		-do-	LLH	2		-do-	
16	L ₁₂ -L ₁₁	BATANG 1st	HS	3	188	13	.30=.30
17	L ₁₂ -L ₉ -L ₈	-do-	MK	1	411	.15	.40=0.90 .10 .40
		-do-	F	1		-do-	
		-do-	HC	1		-do-	
		-do-	LLH	2		-do-	
18	L ₁₄ -L ₁₂ -L ₁₁	BATANG 2nd	HS	3	504	33.6	.30=.30
19	L ₁₄ -L ₁₂ -L ₉ -L ₈	-do-	MK	1	1263	38.6	.40=0.90 .10 .40
		-do-	F	1		-do-	
		-do-	HC	1		-do-	
		-do-	LLH	2		-do-	

Table 3.6 - Rating of Paths :

Path No.	Basic Service Priority	No. of Person Served	Travel Time	Trip Frequency	Average Rating
1	26	10	3	2	10.25
2	14	10	3	3	7.50
3	26	8	3	2	9.75
4	4	7	2	3	4.0
5	26	8	3	2	9.75
6	10	8	1	2	5.25
7	4	10	2	3	4.75
8	36	10	4	3	13.25
9	40	5	6	4	13.75
10	38	9	5	3	13.75
11	36	6	16	3	15.25
12	2	2	3	2	2.25
13	36	3	12	3	13.50
14	2	1	3	2	2.0
15	36	2	12	3	13.25
16	2	2	2	2	2.0
17	36	2	11	3	13.0
18	2	3	3	2	2.50
19	36	5	21	3	16.25

Table 3.7 - Path Ranking & Prioritization

Rank No.	Path No.	Ave. Rating	Priority Category
1	19	16.25	First Priority
2	11	15.25	- do -
3	9	13.75	- do -
	10	13.75	- do -
4	13	13.50	- do -
5	8	13.25	- do -
	15	13.25	- do -
6	17	13.00	- do -
7	1	10.25	- do -
8	3	9.75	Second Priority
	5	9.75	- do -
9	2	7.50	- do -
10	6	5.25	Third Priority
11	7	4.75	- do -
12	4	4.00	- do -
13	18	2.50	- do -
14	12	2.25	- do -
15	14	2.00	- do -
	16	2.00	- do -

Criteria :

- 10.0 & above - First Priority*
- 6.5 to 9.99 - Second Priority*
- Below 6.5 - Third Priority*

Table 3.8 - BTIS Project Programming

Priority Category	Existing Condition	Improvement Needed Infra / Service	Implementation Period
1.0 First Priority			
a) Path 19 : 1 ₁₄	Waterway of Brgy. Batang 2nd with shallow water bed due to siltation.	Dredging or deepening & widening heavy silted river channel. Provide R. Landing at Batang 2nd Provide Credit Facility to Local cooperative to purchase pumpboat.	Recommended for Improvement of Path within 1 to 2 years - do -
1 ₁₂	Waterway of Brgy. Batang 1st with shallow water bed due to siltation .	Dredging or deepening & widening heavy silted river channel. Provide R. Landing at Batang 1st. Provide Credit Facility to Local cooperative to purchase pumpboat.	- do -
1 ₉	Access waterway going in and out from various barangay with shallow waterbed due to siltation.	Dredging or deepening & widening heavy silted river channel.	- do -
1 ₈	- do -	Dredging or deepening & widening heavy silted river channel.	- do -
b) Path 11 : 1 ₁₁	Waterway of Brgy. Malusac with shallow water bed due to siltation	Dredging or deepening & widening heavy silted river channel. Provide R. Landing at Malusac Provide Credit Facility to Local cooperative to purchase pumpboat.	- do -
1 ₉	same as above	same as above	- do -
1 ₈	same as above	same as above	- do -
c) Path 9 : 1 ₇	H. Bridge from Poblacion to San. Pedro	Improve Provide Permanent Bridge at San Pedro	- do -
d) Path 10 : 1 ₆	Concrete roads of Brgy. San Antonio which is not passable during rainy season due to flooding	Upgrade (e.i. elevate road surface) Increase the frequency of jeepney & tricycle	- do -

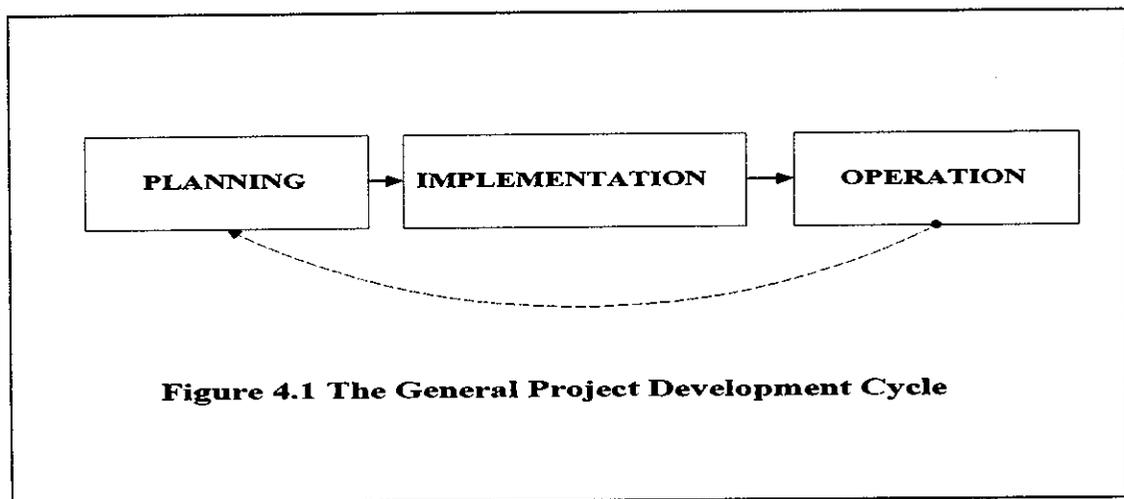
	1 ₅	Concrete roads of Brgy. Sta Monica which is not passable during rainy season due to flooding.	Upgrade (e.i. elevate road surface) Increase the frequency of jeepney & tricycle.	- do -
e) Path 13 :	1 ₁₀	Waterway of Brgy. Sebitanan with shallow water bed due to siltation	Dredging or deepening & widening heavy silted river channel. Provide R. Landing at Sebitanan Provide Credit Facility to Local cooperative to purchase pumpboat.	- do -
	1 ₉	same as above	same as above	- do -
	1 ₈	same as above	same as above	- do -
f) Path 8 :	1 ₅	same as above	same as above	- do -
g) Path 15 :	1 ₁₃	Waterway of Brgy. Mabuanbuan with shallow water bed due to siltation	Dredging or deepening & widening heavy silted river channel. Provide R. Landing at Mabuanbuan Provide Credit Facility to Local cooperative to purchase pumpboat.	- do -
	1 ₁₂	same as above	same as above	- do -
	1 ₉	same as above	same as above	- do -
	1 ₈	same as above	same as above	- do -
h) Path 17 :	1 ₁₂	same as above	same as above	- do -
	1 ₉	same as above	same as above	- do -
	1 ₈	same as above	same as above	- do -
i) Path 1 :	1 ₁	Concrete roads of Brgy. Sto. Tomas which is not passable during rainy season due to flooding	Upgrade (e.i. elevate road surface) Increase the frequency of jeepney & tricycle	- do -
	1 ₂	Concrete roads of Brgy. San. Nicolas 1st which is not passable during rainy season due to flooding	Upgrade (e.i. elevate road surface) Increase the frequency of jeepney & tricycle	- do -
	1 ₃	Concrete roads of Brgy. San. Nicolas 2nd which is not passable during rainy season due to flooding	Upgrade (e.i. elevate road surface) Increase the frequency of jeepney & tricycle	- do -
	1 ₄	Concrete roads of Brgy. Sta. Lucia which is not passable during rainy season due to flooding	Upgrade (e.i. elevate road surface) Increase the frequency of jeepney & tricycle	- do -

2.0 Second Priority :		same as above	same as above	Recommended for improvement 3-4 years later
j) Path 3 :	l_2	same as above	same as above	
	l_3	same as above	same as above	
	l_4	same as above	same as above	
k) Path 5 :	l_3	same as above	same as above	- do -
	l_4	same as above	same as above	- do -
l) Path 2 :	l_1	same as above	same as above	- do -
	l_2	same as above	same as above	- do -
3.0 Third Priority				
m) Path 6 :	l_3	same as above	same as above	Recommended for Improvement 5 years later and beyond.
	l_2	same as above	same as above	- do -
n) Path 7 :	l_5	same as above	same as above	- do -
	l_4	same as above	same as above	- do -
o) Path 4 :	l_3	same as above	same as above	- do -
	l_2	same as above	same as above	- do -
	l_1	same as above	same as above	- do -
p) Path 18 :	l_{14}	same as above	same as above	- do -
	l_{12}	same as above	same as above	- do -
	l_{11}	same as above	same as above	- do -
q) Path 12 :	l_{10}	same as above	same as above	- do -
	l_{11}	same as above	same as above	- do -
r) Path 14 :	l_{13}	same as above	same as above	- do -
	l_{12}	same as above	same as above	- do -
	l_{11}	same as above	same as above	- do -
s) Path 16 :	l_{12}	same as above	same as above	- do -
	l_{11}	same as above	same as above	- do -

4.0 THE BTIS FRAMEWORK

4.1 The General Structure of the BTIS Process

Like any type of project, the BTIS project development process involves three major phases. These are: (a) Project Planning, (b) Project Implementation and (c) Project Operation. This process is actually a cycle as shown in Figure 4.1. This cycle is brought about by a feedback system from existing operations to the planning phase which subsequently amends/modifies plans and implementation activities progressively.



Each phase is briefly described as follows:

- (a) *Project Planning* - this involves the process of identifying BTIS projects, their selection, prioritization, programming, inclusion of priority projects in the local development plan, packaging of projects for funding purposes and searching for project funding.
- (b) *Project Implementation* - this consists of both the preparatory activities prior to implementation and the actual implementation of projects which can either be construction of infrastructure facilities or procurement of equipment that will serve as transport carrier services.
- (c) *Project Operation* - this is the stage wherein a completed infrastructure facility is being utilized for the purpose with which it was conceived and/or carrier services are being operated to serve transport demand. During the project operation phase, there should be a sustained maintenance program so that the facilities being put up can function effectively thus continuously serving the mobility needs of the local community. It is also important to establish a monitoring system so that deficiencies and problems in mobility operations can be identified and corresponding solutions considered thus repeating the development cycle, starting with the planning phase.

4.2 Existing Local Planning and Implementation Procedure

Development planning is a strategy for providing direction in the execution of development programs and projects and ensuring citizen's participation in decision making. It involves prioritization of needs and problems to be addressed and the identification of development opportunities that will contribute to the realization of a better quality of life.

The 1987 Philippine Constitution provides the legal basis for all development efforts. This is further strengthened by the Local Government Code of 1991. Section 106 of the Code mandates that each LGU shall have a comprehensive multi-sectoral development plan to be initiated by its development council and approved by its sanggunian.

But even without these specific mandates, development planning can be useful for LGUs in their efforts to maximize the use of their limited resources, provide direction and coordination and support for local development programs, priorities and initiatives.

4.2.1 The Local Planning Process

Local development planning, as contained in the Implementing Rules and Regulations of the Local Government Code of 1991, is a shared responsibility of central government and the LGUs. At the central level, the two agencies of the government involved in the planning process are the Department of Interior and Local Government (DILG) and the National Economic and Development Authority (NEDA). These two agencies are tasked to formulate the operational guidelines for the local development planning process. The Department of Budget and Management (DBM) role comes in the form of furnishing the Local Development Councils (LDC) on the financial resources and budgetary allocations applicable to their respective jurisdictions.

The planning process commences with the issuance by NEDA of the Planning, Programming and Expenditure Guidelines to the Regional Development Councils (RDC). Based on these guidelines, the RDCs issue their own Regional Planning, Programming and Expenditure Guidelines to the Provincial and City Development Councils. Upon receipt of the Regional Guidelines, the LGUs now initiate activities for the preparation of their respective local development plans.

The Local Development Council (LDC) is the planning body at the local level. At the lowest political unit, the barangay, the LDC is the Barangay Development Council (BDC); in the municipality, the Municipal Development Council (MDC); in the city, the City Development Council (CDC), and in the Province, the Provincial Development Council (PDC).

The LDC assists the Sanggunian (Panlalawigan, Bayan, Barangay, as the case may be) in setting the direction of and in coordinating local development efforts. More specifically, the functions of LDCs are: 1) to review and prioritize development proposals, 2) to integrate plans of sectoral committees and lower LGUs, 3) to formulate long-term, medium term and annual development plans and policies; and 4) to coordinate, monitor and evaluate the implementation of programs and projects.

The local planning and development office (LPDO), which is headed by a local planning and development coordinator (PDC), serves as the secretariat of the LDC. The Secretariat collects, tabulates and analyses data; conducts studies in support of planning and implementation; prepares minutes and notices of meetings; and submits reports as requested or required by the LDC.

Other functions of the local PDO are : 1) the preparation of integrated development plans and policies for LDC consideration; 2) integrate sectoral plans and studies; 3) to monitor and evaluate implementation; 4) to study income and spending patterns of LGU and recommend fiscal plans and policies; 5) to promote participation in development planning; and 6) to help LGUs identify issues for public hearings and discussion.

Planning at the local level generally involves the identification and prioritization of local needs and problems, identification of development opportunities, and the specification of strategies to be followed in addressing the identified problems and/or objectives. The planning consists of two basic steps, namely: a pre-planning phase and a planning proper phase.

A. The Pre-Planning Phase

In the pre-planning phase, a socio-economic and physical profile (SEPP) of the LGU is prepared. The profile consists of data on the natural and human resources of the LGU, the historical background, physical features, public services provided, and existing land. The data are presented and analyzed by sector e.g. transportation, agriculture, to permit easy access to information in the formulation of the development plan.

In preparing the SEPP of the LGU, the steps below may be followed :

- 1) Organize and mobilize the team : the team will be responsible for collecting, processing, analyzing and interpreting sets of data that shall be included in the profile;
- 2) Examine the existing documents of the LGU : the team should review the existing documents available and determine their validity and reliability;
- 3) Prepare data generation instruments : these shall include aspects such as the biophysical environment, the economic setting and the socio-cultural characteristics of the LGU;
- 4) Data generation : involves the collection of primary and secondary data from existing files and reports of government agencies, from interviews and direct observation;
- 5) Data processing, analysis and interpretation : involve the processing of data and the formulation of drawing from the data gathered that will guide the planners in the analysis of the existing situation and the identification of problems and needs;
- 6) Preparation of maps : the maps may either be a) a location map which indicates the location of the municipality with respect to the province and barangay; b) a base map which shows the boundaries of the LGU, waterways and major roads; c) topographic map which indicates the mountain ranges, slopes, plains and water bodies in the LGU; d) general land use map which shows the agricultural, industrial, commercial, forest, pasture, idle lands and other uses; and e) urban land use map which shows spatial allocation of built-up areas such as residential, commercial, parks and open spaces; and
- 7) Finalize and package the document as the socio-economic profile of the LGU.

B. The Planning Proper

In the planning proper, the following procedure is normally followed :

1. Situation analysis - this activity is undertaken to ensure that the plans are based on an accurate picture of the existing conditions in the community. Some of the steps to be used in the analysis:

- a) Examine the potentials of the area which could contribute to the solution of development problems;
 - b) Identify supportive forces which can be mobilized;
 - c) Provide information using baseline data from the updated socio-economic and physical profile;
 - d) Determine land use implications on socio-economic trend based on the land maps prepared;
 - e) Determine the role of the LGU to the province and the importance of this role to the neighboring municipalities; and
 - f) Analyze the institutional capability of the LGU as to the delivery of service, revenue generation and collection record and effectively in project implementation and monitoring.
2. Formulation of vision/mission statement - which describes the future state an LGU is committed to achieve and the areas of concern it must address based on its mandate and available resources. For instance, if an LGU aspires to become a trading center or a center for education in the province, its areas of concern must be geared towards the attainment of the vision.

A mission statement, on the other hand, describes concretely the activities and projects of the LGU. It contains the major areas of concern of the LGU such as poverty alleviation, environmental management or infrastructure development.

3. Determination of the goals and objectives - which should unify and integrate the different areas that are of public interest. These goals must in turn be translated into more concrete and achievable objectives.

Some of the steps involved in goal/objective determination are : a) identification of problems and needs; b) consultation with community leaders, interest groups and residents; and c) the definition of the over-all purpose of the development plan contained in specific statement and objectives.

4. Formulation of strategy - the strategy shall suggest what resources to utilize, when to start the implementation of a project, and which organization or office is responsible.

Some of the relevant factors that should be considered in strategy formulation are : a) the financial capability of the LGU; b) private sector participation; c) environmental protection and preservation of natural resources d) welfare of the under-privileged or disadvantaged minorities; e) strengthening social services; and f) the political climate.

5. Sectoral Planning - the desegregation into sectoral plans and programs which will serve as the overall guideline in the quantification of targets for each planning sector, e.g. land use, infrastructure, agri-industrial.

The sectoral plans may be classified into : a) land development or the land use sector; b) economy and development financing or the fiscal sector; c) agri-industrial sector; d) human development sector; e) infrastructure development sector; and f) development administration sector.

As soon as the local development plan of the LGU has been formulated, the last step is its approval and adoption. The plan is subjected to a public hearing and consultation and the refined plan is submitted to the Sanggunian for approval and adoption. Public hearing shall be conducted by the LDPO to clarify certain issues and to elicit comments, opinions and suggestions.

The Local Development Investment Program (LDIP) is a multi-year listing of programs and projects containing cost estimates and resources of funding. It is a major implementing instrument of the Plan, where its major component, the Annual Investment Program, contains the list of programs and projects implementable within the year.

It translates the goals, objectives, targets and strategies into specific package of programs and projects. However, only when programs, projects and activities are contained in the Annual Investment Plan and are allocated funds in the budget can it be assured of implementation.

4.2.2 The Local Project Implementation Process

As soon as the Local Development Plan has been approved and adopted by the Sanggunian and the necessary budget allocation for programs and programs and projects has been made, the Plan implementation process commences. It becomes the duty of the Municipal Planning and Development Coordinator as mandated to monitor and evaluate the implementation of the different programs, projects and activities in the LGU in accordance with the approved development plan.

From the approved Local Development Plan, projects become component parts of programs as approved in the Plan. The implementation of the Plan at the project level includes the following :

- 1) Project Planning - the process of planning at the project level includes : a) the conduct of a feasibility study which analyzes the financial and market demands of the project and the cost effectiveness as against externalities; b) the preparation of the project proposal which is the formulation of the activities to be undertaken; c) the project appraisal or the decision-making stage as to whether to implement the project or not; and d) the project approval which is the final stage in the project planning.
- 2) Project Implementation - this is the stage where objectives, targets, inputs and needed resources are identified. The Project is then implemented according to the approved Plan and monitoring is conducted to determine whether the implementation of the project corresponds to the approved design.
- 3) Project Evaluation - in this stage, factors such as output, effects and impact are taken in to account and evaluated according to the goals of the development plan and the strategy developed for the attainment of the program objectives.

4.2.3 The Local Planning and Implementation Process : Summary of Findings from a Survey of Selected Municipalities.

The questionnaire sent out to selected municipalities (see Appendix B) sought to determine how planning was (is) actually done at the local level, in this case, in six (6) municipalities – five (5) in Ifugao (Alfonso Lista, Banaue, Mayoyao, Hingyon, and Lagawe) and one (1) in Pampanga (Sasmuan).

As a background, the province of Ifugao is one of the poorest or most depressed provinces in the Philippines. It is heavily dependent upon external sources (the internal revenue allotment, or IRA, of which more below). As such, the situation and problems faced by its municipalities and barangays with respect to transport and infrastructure and services may be considered to be representative of those faced by other rural areas. The Province of Pampanga on the other hand is economically more developed and more highly urbanized than Ifugao; the inclusion of one of its municipalities, Sasmuan, is an attempt to validate or confirm the generality of the findings for the economically more depressed area. As it turns out in the case study, the responses and findings in Sasmuan confirm or reinforce those

from Ifugao. The findings of the said survey were tabulated and shown in Appendix C and summarized below:

A. On the identification of projects

In the identification of projects by the local planning office (variously identified as the MPDC and MPDO), the sectors most often considered/consulted are the local community, municipal and barangay officials, provincial officials, other (national) government agencies, NGOs and civic groups, congressmen, and, in one instance, even senators. Going by the responses to this specific question on planning, there is an identification that there a formal attempt to consult local officials and interested individuals is being done.

B. On the prioritization and ranking of projects

For the prioritization and ranking of projects, urgency (of the need for the project) as perceived by the local community was the most frequently mentioned factor that was considered. This is consistent with the response that the local community is the sector most often considered in identifying projects. Next comes urgency as perceived by the local barangay, municipal and provincial officials as well as by the national government agencies.

The project's economic benefits (including number of people benefited and the project's income-generating capacity), practicability and cost (the less the cost entailed the better), environmental impact, political interference (read: preference of politicians) are also considered in the ranking and prioritization of projects.

C. On the implementation of projects

Although various sectors are consulted and many factors are considered in the identification, ranking and prioritization of projects, when it comes to implementation, it is the municipal mayor who makes the decision. The mayor is also a force to be reckoned with in the decision whether to include a project in the local development plan, although formally the municipal development councils are responsible for making such decision. The most common mode employed in the construction of transport infrastructure and services is through contracts awarded to local contractors through public bidding. In two of the six municipalities studied, construction was (is) also done through administration, and in one case through the Department of Public Works and Highways. On the problems of implementation, local projects all suffer from lack of funds or delay in fund release, with some mentioning non-inclusion in the national government budget as another (and related) problem. Local financial institutions are not of much help on this predicament as they are perceived as not very keen on granting loans for projects on local transport infrastructure and services.

Responsibility for the provision and maintenance of infrastructure projects rests with the Provincial, City or Municipal Engineer's Office for locally-funded projects, and with the Department of Public Works and Highways through its District Engineering Office for projects with national government funding. Included in the latter are the infrastructure facilities devolved for agricultural, health, social welfare and tourism services, as well as the school building program of the national government (DECS in particular).

4.3 *The BTIS Planning Framework*

Planning for the infrastructure sector is primarily intended to support economic and socially productive activities and to solve essential development problems in the LGU. However, planning, specifically, for the provision of BTIS shall include consideration for the minimum basic needs of the people in the LGU. Hence, the development and implementation of infrastructure projects in the LGU must focus on the provision of access and mobility to basic services such as food, health, shelter, water and sanitation, employment and literacy.

In general, planning consists of the following activities :

- a) Project Identification
- b) Project Prioritization
- c) Project Programming
- d) Project Packaging
- e) Project Financing

These are shown in the chart in Figure 4.2. What makes this system different from the usual planning process is the project identification process which is based on accessibility gaps to basic human services. Likewise, in the project prioritization process, a set of criteria is introduced which measures the degree of mobility needs and travel impedance, unlike the standard process which consider economic and financial feasibility indicators.

In adopting the planning system being proposed here, the local planner can identify "basic transport infrastructure and services" (BTIS) projects as he goes thru the identification, prioritization and programming activities.

4.3.1 *Project Identification*

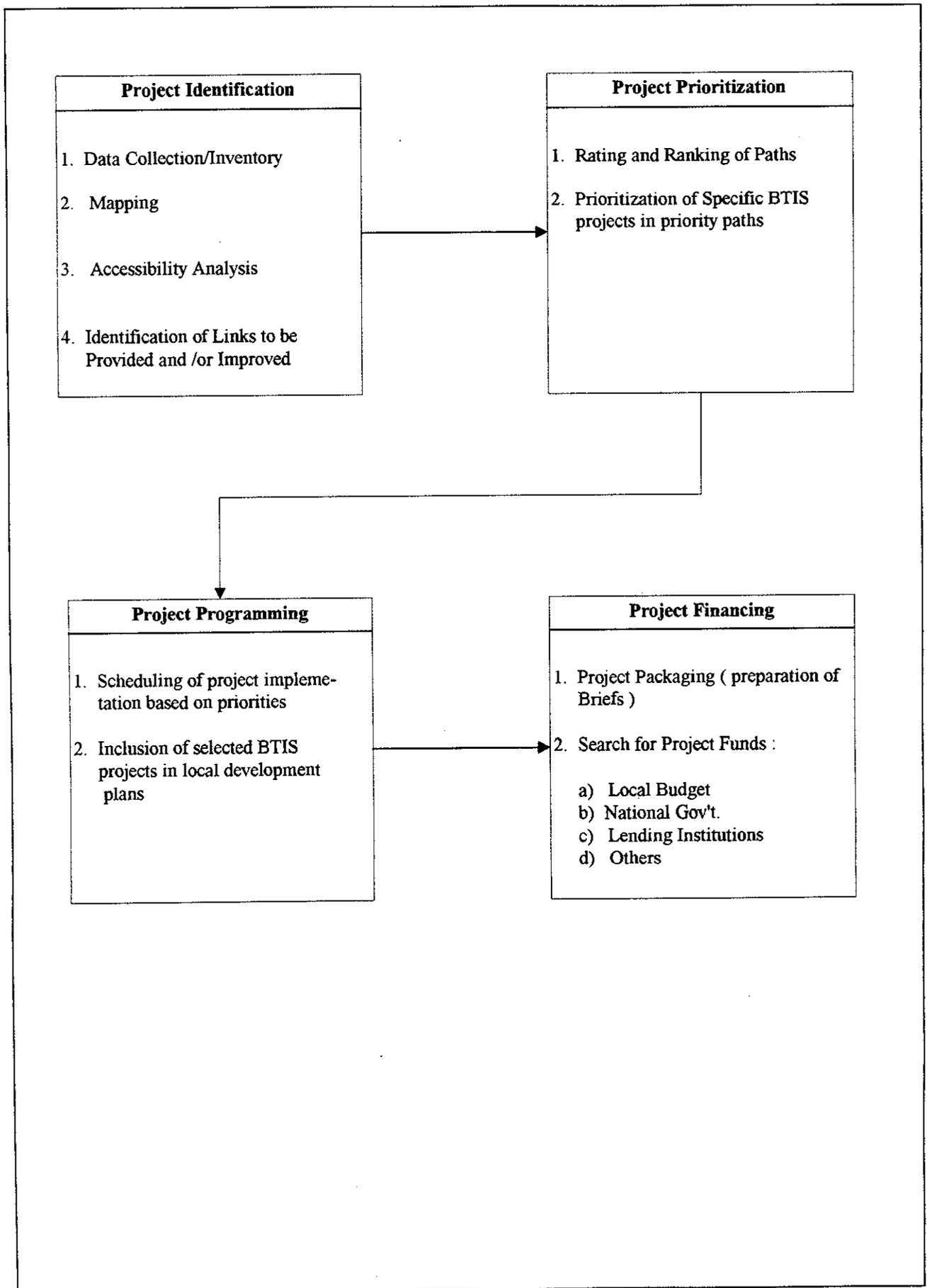
A. Data Collection

Consistent with the IRAP methodology, the initial step deals with the assessment of existing accessibility situation in a community. A community may refer to the sitio, barangay, municipal or provincial level.

Initial Selection of Provinces / Municipalities - The following selection criteria should be used for an initial selection of target communities in the absence of a predetermined area of coverage:

- * **Topography** - communities in more difficult terrain - whether mountainous, swampy and archipelago.
- * **Isolation** - isolated communities that are inaccessible from the main urban centers.
- * **Poverty Level** - communities with relatively low regional income.
- * **Presence of Donor Funded Projects** - If donor-funded projects are proposed for a province or municipality, this affords the possibility of ensuring that research investments can be completed by effective action to improve access.
- * **Human Development Index (HDI)** - The regional HDI is a summary measure of human development. It has three main components : health or life expectancy; adult literacy rate and enrollment rate of combined primary, secondary and tertiary levels; standard of living

Figure 4.2 - The BTIS Planning Process



or gross domestic product per capita. The closer the HDI is to 1.0, the better; the closer to 0, the worse in the performance. Regions with HDIs below 0.5 have low human development.

- * *Human Priority Expenditures Per Capita* - The HPE per capita is defined as the average local government expenditures during 1995-1996 on social services divided over total
- * population. Social services expenditures encompass spending on primary health care, elementary and secondary education, low cost water supply, sanitation, nutrition support and family planning. Province with less than five pesos (P5.00) HPE per capita reflect more access problems.

Special IRAP forms have been designed to be used for the data survey activities at the different spatial levels.

The BTIS guidelines intend to supplement the IRAP methodology and will focus more on identifying and prioritizing projects which will address the accessibility and mobility requirements of a community.

The collection of data requires hiring people as enumerators through the Municipal Planning and Development Office (MPDO) and / or the Municipal Census Office (MCO). Preference will be given to residents with adequate field work experience.

Special attention will be given to the briefing and orientation of enumerators prior to field activities. This will provide the adequate understanding of the survey sampling design; general instructions regarding the accomplishments, editing and coding of the survey instruments; interviewing techniques and pre-testing of questionnaires. Methodology for data processing and analysis will be done in coordination with the local planning and development personnel.

Data for provincial level can be collected from socio-economic profiles, reports, documents and discussions with provincial key informants particularly those from different line agencies of the government.

Barangay level data can be collected through different methods: enumerators visit target barangays and consult barangay officials and key informants; a survey of sample households; conduct of focused group discussions for community survey; and intensive ocular inspection of the community.

The following describes the data gathering activities the local planner will undertake to identify projects that will address existing mobility problems. This procedure is applicable to a given service area. A service area is one that is subjected to the planning exercise which can be desegregated into smaller sub-areas. A service area can therefore be:

- (a) a barangay which is composed of sitios
- (b) a municipality or city which is composed of barangays
- (c) a province which is composed of cities and municipalities.

The smaller the service area, the more small transport projects can be identified. In a bigger service area such as a province, the possible BTIS projects that can be identified involve those along the major links from one municipality to another municipality. Barangay to barangay links might not be included in the process. The types of identifiable BTIS projects will therefore depend on what level of local service area is being considered. For purposes of this report, let us consider a municipality as the service area.

B. Procedure in Identifying Projects

(a) Gather data needed for accessibility analysis. These are :

- (i) For *each barangay* in the municipality (including the poblacion), obtain data on :
 - * population and number of households
 - * number of residing elementary school children
 - * number of residing high school students

- (ii) For *each barangay* (including poblacion) identify all available basic services located within each jurisdiction. These include :
 - * multipurpose store
 - * market / talipapa
 - * health center / station
 - * artesian well / deep well / spring
 - * drugstore
 - * police outpost / sub-station
 - * barangay hall / barangay tanod outpost
 - * livelihood center / cooperative
 - * day care center
 - * elementary school
 - * high school
 - * work place

The above information can be gathered using the Sample Household Survey Form (attached).

(iii) Existing transport facilities serving the municipality :

Infrastructure :

- * road links (length in kms, type, condition & width of pavements)
- * trails / footpaths (length in kms.)
- * foot bridges (length in kms.)
- * ports or river landings
- * others

Services :

- * tricycles (number of units and area of operation)
- * jeepneys (routes, no. of units, frequencies)
- * minibuses & buses (routes, no. of units, frequencies)
- * pedicabs (number of units, area of operation)
- * animal-drawn (no. of units, area of operation)
- * bancas (no. of units, area of operation)
- * others

(iv) travel time components per mode of service : to include, waiting time, runningtime, walking time, etc.

Sample Household Survey Form

Identification Block -

Barangay _____
 Name of Respondent _____
 Marital Status _____
 No. of children in household:
 Aged 0-2 _____
 3-6 _____
 7-13 _____
 14 and over _____

Municipality _____
 Sex _____ Age _____
 Occupation _____
 Place of Work _____
 Total No. of Household members _____
 No. of Working Members _____
 Total Family Income (P/mo.) _____
 No. of Residing Elem. Sch. Children _____
 No. of Residing High School Student _____

On Accessibility (Data for the whole household)

Type of Service	Avail - able in Barangay Y/N	If Not available in Barangay (Where availed of)	Travel Mode	Frequency of Trip (person trips/day)	Total Travel Time (in min)	Total Distance (in km.)	Remarks
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

Legend :

Type of Service

- | | |
|----------------------------------|--------|
| 1) Multi-purpose store | (MPS) |
| 2) Market / Talipapa | (M) |
| 3) Health Center / Station | (HC) |
| 4) Water Supply / Well / Spring | (WS) |
| 5) Drugstore / Botica | (D/B) |
| 6) Police Outpost | (PO) |
| 7) Barangay Hall / Tanod Outpost | (BH) |
| 8) Livelihood Center | (LC) |
| 9) Multipurpose Cooperative | (MC) |
| 10) Day Care Center | (DC) |
| 11) Elementary School | (ES) |
| 12) High School | (HS) |
| 13) Other NGO | (NGO) |
| 14) Church / Place of worship | (C/PW) |

Mode of Travel

- | | |
|--------------------|------|
| 1) Walking | (W) |
| 2) Tricycle | (T) |
| 3) Jeepney | (J) |
| 4) Cart/Sled | (C) |
| 5) Weapons Carrier | (WC) |
| 6) Boat | (B) |
| 7) Other (Specify) | |

Travel time - this includes average waiting time

Where Availed of :

- 1) Poblacion
- 2) Nearby barangay (name of barangay)
- 3) Nearby barangay but in other town (name of barangay)

Frequency of trip

Example :
 2 / day
 1 / week

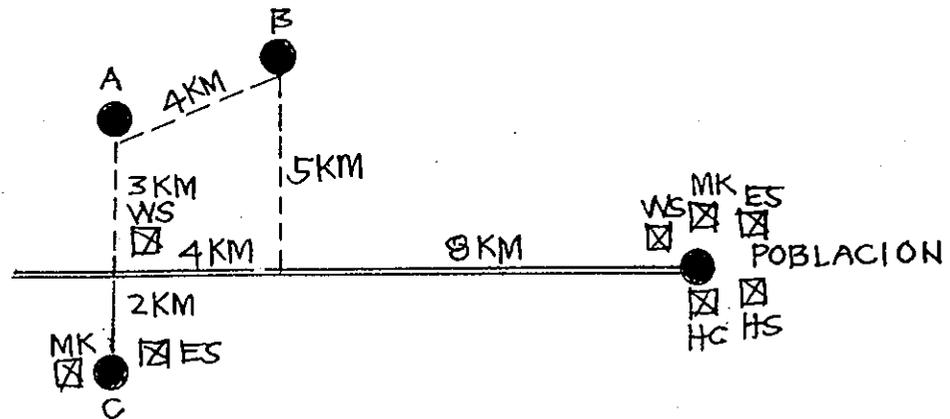
Refer to Figure 4.3 for a Sample Case to illustrate the above.

- (b) Prepare a basic services availability matrix. Use the format shown in Figure 4.4. In preparing the matrix, place an x in the cell corresponding to a barangay and a basic service if the latter is available in the barangay. If not available, leave the cell blank.
- (c) Determine the existing accessibility requirements for every pair of barangay and basic service. This will refer only to those pairs of barangay and basic service with a blank cell in the basic service availability matrix.
- (i) Prepare an accessibility map of the municipality. An accessibility map is the graphical representation of access characteristics in a given community. It can provide local planners and decision makers with a graphical perspective of the location of resources, service facilities and population centers. It should contain the following.
- * Municipal and barangay boundaries
 - * Location and name of barangays
 - * Major drainage channels, rivers, lakes and seas
 - * Names of adjacent municipalities or provinces
 - * Existing road network and other transport links (i.e. trails, foot paths, river links, ports, river landings, etc.)
 - * Basic services such as school, health centers, market, etc.
 - * Population centers
- (ii) Prepare a link-and-node map based on the above map. A *node* is a point representing the location of a barangay (usually at the barangay center), the location of a basic service, an intersection of road links, location of a river landing or port. After indicating the nodes, indicate the links connecting one node with another node. A *link* can be a road connection, a river or waterway link, a trail or footpath. In the link-and-node map, indicate the link distance (in km.) along each link. See Figure 4.5.
- (iii) Prepare an Accessibility Table showing the paths presently used by people in travelling from their barangays to the nearest available basic service. Again, this table should only include those pairs of barangay and basic service with a blank cell in the basic services availability matrix. The Accessibility Table is similar to an Origin-Destination Table where the set of Origins (O) is composed of barangays and the set of Destinations (D) is composed of the basic services. In other words, the Accessibility Table will show the path between each OD pair which has a blank cell. This is because a blank cell indicates that people in the concerned barangay have to travel to an area outside the barangay in order to avail of the needed basic service. Refer to Figure 4.6 for an illustration on how to prepare an Accessibility Table. The Accessibility Table also shows the improvements needed in the links along each path. This is actually a long list of all possible transport projects, which is the main concern in the project identification phase of planning.

4.3.2 Project Prioritization

The second phase of planning is the selection of projects to be included in the local development plan. Since there are many projects identified in the long list, the selection process involves a system of prioritization in order to determine the more important projects which need immediate attention.

Figure 4.3 - Illustrative Example



Legend :

----- Gravel Road
 _____ Earth Road
 - - - - - Trail

MK ----- Market
 WS ----- Water Supply
 ES ----- Elementary School
 HS ----- High School
 HC ----- Health Center

Available Data :

Barangay	No. of Households	Population	No. of Resident Elementary School Children	No. of Resident High School Students
Poblacion	600	3600	1200	500
A	220	1100	120	30
B	280	1540	100	60
C	350	1750	150	80

Trip Frequencies (trips/hh/day)

To	From				
	WS	HC	ES	HS	MK
Poblacion	-	0.10	1.00	1.00	1.00
A	2.0	0.10	0.60	0.30	0.40
B	2.0	0.10	0.40	0.50	0.50
C	2.0	0.10	0.80	0.60	0.60

Existing Transport Service Characteristics :

(a) Jeepneys operate along the gravel road :

- * Ave. Waiting Time = 30 min.
- * Ave. Running Speed = 25 kph

(b) Tricycles operate along the earth and gravel roads :

- * Ave. Waiting Time = 20 min.
- * Ave. Running Speed = 15 kph

(c) Ave. Walking Speed = 4 kph

Figure 4.4 - Example of a Basic Services Availability Matrix

Basic Services Availability Matrix

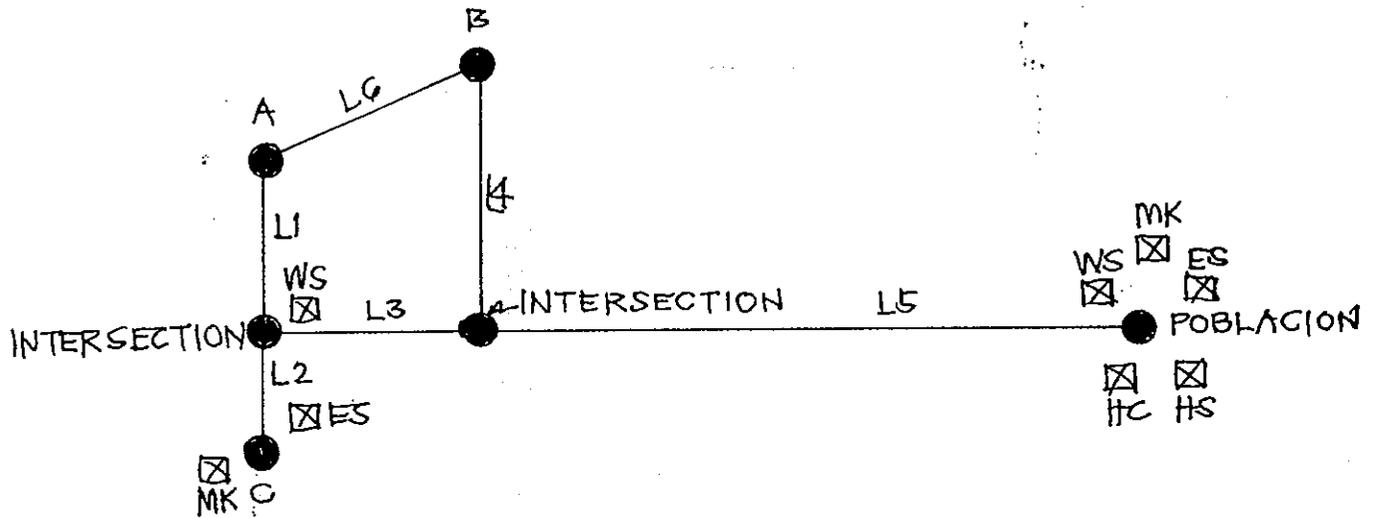
Barangay	Basic Service				
	MK	WS	ES	HS	HC
Poblacion	X	X	X	X	X
A					
B					
C	X		X		

Note : Refer to Figure 4.3 for the data assumptions.

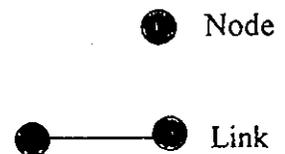
Above table shows that :

- (a) Barangays A and B, with all cells blank, need access to all basic services.
- (b) Barangay C needs access only to WS, HS and HC.
- (c) Poblacion has all basic services available. No accessibility requirements are needed.

Figure 4.5 - Example of a Link and Node Map
(Based on the Sample Case in Figure 4.3)



Legend :



Summary of Links Characteristics :

Links Code	Distance (km.)	Type of Link
l_1	3.0	Trail
l_2	2.0	Earth Road
l_3	4.0	Gravel Road
l_4	5.0	Trail
l_5	8.0	Gravel Road
l_6	4.0	Trail

The prioritization system makes use of certain criteria. In most of the planning exercises being undertaken at present, these criteria include economic and financial feasibility, among others. However, many projects intended to serve rural areas do not usually pass these criteria because they depend primarily on volume of traffic, be it vehicular, passenger or commodity. Traffic volumes in rural areas are usually low so that the standard economic evaluation procedure will not yield favorable results as far as justifying the intended projects is concerned. In view of this and the fact that basic transport projects usually refer to rural areas, another set of prioritization criteria is hereby recommended.

The criteria for rating and ranking each path as explained in Chapter 3, are as follows :

1. Basic Service Priority Index
2. Number of Persons Served
3. Travel Time
4. Trip Frequency

The steps in project prioritization using the above criteria are as follows :

(a) Prepare a table showing the demand characteristics per path identified in the Accessibility Table. Note that a path can serve one or more barangay-basic service pairs. The Table will indicate the following information per path :

- * barangays served
- * basic service served corresponding to each barangay
- * priority index for each service served
- * number of persons served
- * travel time in minutes
- * trip frequency in terms of number of trips per household per day for each basic service

An example of a Demand Characteristics Table is shown in Figure 4.7.

(b) Each path in the Demands Characteristics Table will now be rated according to the following rating system.

(i) Basic Service Priority

<u>Priority Index</u>	<u>Rating</u>
1	10.0
2	6.0
3	2.0

The basic priority index is based on the MBN Categories, i.e. Survival, Security and Enabling. A priority index of 1 is assigned to Survival needs, 2 to Security needs and 3 to Enabling needs.

Each basic service is rated according to the above rating system. The overall rating is the total of the rating of each basic service. This is to reflect the quantity as well as the quality of basic services the path is serving. The more basic services are served, the gre-

Figure 4.6 - Example of an Accessibility Table
(Based on the examples shown in Figures 4.3, 4.4 and 4.5)

O	D ^{1j}	Path (Links Presently Traversed)	Path Distance (km.)	Existing Travel Characteristics Along Path		Link Improvements Needed
				Travel Time ^{2j}	Modes Used	
A	MK	$l_1 + l_2$	5.0	75	Walking	l_1 from trail to gravel l_2 from trail to gravel
A	WS	l_1	3.0	45	Walking	l_1 from trail to gravel
A	ES	$l_1 + l_2$	5.0	75	Walking	l_1 from trail to gravel l_2 from earth to gravel
A	HS	$l_1 + l_3 + l_5$	15.0	104	Walking and Jeepney	l_1 from trail to gravel Increase jeepney frequency
A	HC	$l_1 + l_3 + l_5$	15.0	104	Walking and Jeepney	- do -
B	MK	$l_4 + l_5$	13.0	124	Walking and Jeepney	l_4 from trail to gravel Increase jeepney frequency
B	WS	$l_6 + l_1$	7.0	105	Walking	l_6 from trail to gravel l_1 from trail to gravel
B	ES	$l_4 + l_5$	13.0	124	Walking and Jeepney	l_4 from trail to gravel Increase jeepney frequency
B	HS	$l_4 + l_5$	13.0	124	Walking and Jeepney	- do -
B	HC	$l_4 + l_5$	13.0	124	Walking and Jeepney	- do -
C	WS	l_2	2.0	30	Walking	l_2 from earth to gravel
C	HS	$l_2 + l_3 + l_5$	14.0	87	Tricycle and Jeepney	l_2 from earth to gravel Increase jeepney frequency
C	HC	$l_2 + l_3 + l_5$	14.0	87	Tricycle and Jeepney	- do -

^{1j} Nearest available basic service from the concerned barangay.

^{2j} Estimated based on transport service characteristics given in Figure 4.3.

ater is the overall rating for this category. Using the sample figures given in Figure 4.7, take, for example Path No. 4. It serves a market (MK), an elementary school (ES), a high school (HS) and a health center (HC). Using the priority indices (i.e. MK=1, ES=3, HS=3 and HC=1) and the rating system (i.e. Index 1=10.0, Index 2=6.0 and Index 3=2.0), the total rating for Path No.4 is $10.0 + 2.0 + 2.0 + 10.0$ or 24.0. On the other hand, Path No.2 which serves one basic service only, i.e. water supply (WS), gets a total rating of 10.0

(ii) Number of Persons Served

The rating system is :

<u>No. of Persons Served</u>	<u>Rating</u>
Above 3. 000	10.0
2636 to 3000	9.0
2272 to 2635	8.0
1909 to 2271	7.0
1546 to 1908	6.0
1183 to 1545	5.0
820 to 1182	4.0
457 to 819	3.0
100 to 456	2.0
Below 100	1.0

If a path serves one barangay with one or more basic services which are applicable to the whole community (i.g. water supply, health center, markets), the total population of the barangay will be considered as the number of persons served. If a path serves one or more barangays with one or more basic services which are applicable to the whole community the total population of the concerned barangays will be considered. For schools, the number of resident school children will be considered and added to the population. For example, Path No.1 serves barangay A to Market and to Elementary School. If the population of barangay A is 1,100 and the number of resident elementary school children is 120, the total number of persons served is 1,220. On the other hand, suppose Path 1 were to serve barangay A to Market and barangay B to health center, the total number of persons served would be the population of A plus the population of B.

(iii) Travel Time

The rating system is :

<u>Travel Time (minutes)</u>	<u>Rating</u>
Above 120	10.0
115 to 120	9.0
103 to 114	8.0
91 to 102	7.0
79 to 90	6.0
67 to 78	5.0
55 to 66	4.0
43 to 54	3.0
30 to 42	2.0
Below 30	1.0

Travel time refers to a particular path. Regardless of how many basic services are served by the path, the one that is rated here is the path itself.

(ii) Trip Frequency

The rating system is :

<u>Trip Frequency (trips/hh/day)</u>	<u>Rating</u>
Above 2.0	10.0
1.79 to 2.00	9.0
1.55 to 1.78	8.0
1.31 to 1.54	7.0
1.07 to 1.30	6.0
0.83 to 1.06	5.0
0.59 to 0.82	4.0
0.35 to 0.58	3.0
0.10 to 0.34	2.0
Below 0.10	1.0

This criterion refers to the users of the path. Each basic service has its trip frequency. For a path serving two or more basic services, the total trip frequency is determined by summing the individual frequencies.

- (c) Using the data given in the Demand Characteristics per Path table (refer to Figure 4.7), and the above rating system, the rating for each path is shown in Figure 4.8. Based on the average ratings, the paths can now be ranked and prioritized. An example on the ranking and prioritization of paths is shown in Figure 4.9.

Figure 4.7 - Illustration on the Demand Characteristics per Path

Demand Characteristics per Path

Path No.	Links Traversed	Barangays Served	Basic Service	Basic Service Priority Index	No. of Persons Served	Travel Time (minutes)	Trip Freq. (trips/hh/day)
1	l ₁ +l ₂	A	MK	1	1,100	75.0	0.40
		A	ES	3	120		0.60
2	l ₁	A	WS	1	1,100	45.0	2.00
3	l ₁ +l ₃ +l ₅	A	HS	3	30	104.0	0.30
		A	HC	1	1,100		0.10
4	l ₄ +l ₅	B	MK	1	1,540	124.0	0.50
		B	ES	3	100		0.40
		B	HS	3	60		0.50
		B	HC	1	(see above)		0.10
5	l ₆ +l ₁	B	WS	1	1,540	105.0	2.00
6	l ₂	C	WS	1	1,750	30.0	2.00
7	l ₂ +l ₃ +l ₅	C	HS	3	80	87.0	0.60
		C	HC	1	1,750		0.10

Figure 4.8 - Illustration on the Rating of Each Path

Rating of Paths

Path No.	Basic Priority Index		No. of Persons Served		Travel Time		Trip Frequency		Average Rating
	Basic Priority Index	Rating	No. of Persons	Rating	Travel Time (minutes)	Rating	Trip Frequency (total, trips/hh/day)	Rating	
1	1 and 3	12.0	1,220	5.0	75	5.0	1.00	5.0	6.75
2	1	10.0	1,100	4.0	45	3.0	2.00	9.0	6.50
3	3 and 1	12.0	1,130	4.0	104	8.0	0.40	3.0	6.75
4	1,3,3 and 1	24.0	1,700	6.0	124	10.0	1.50	7.0	11.75
5	1	10.0	1,540	5.0	105	8.0	2.00	9.0	8.00
6	1	10.0	1,750	6.0	30	2.0	2.00	9.0	6.75
7	3 and 1	12.0	1,830	6.0	87	6.0	0.70	4.0	7.00

Figure 4.9 - Illustration on Path Ranking and Prioritization

Path Ranking and Prioritization

Rank No.	Path No.	Ave. Rating	Priority Category *
1	4	11.75	First Priority
2	5	8.00	Second Priority
3	7	7.00	- do -
4	1	6.75	- do -
4	3	6.75	- do -
4	6	6.75	- do -
5	2	6.50	- do -

* This is based on the following :

Average Rating

10.0 and above
 6.5 to 9.99
 Below 6.5

Priority Category

First Priority
 Second Priority
 Third Priority

4.3.3 Programming of BTIS Projects

After the paths are prioritized, the identification of basic transport projects according to priorities, will follow. Projects under the first priority category will be recommended for implementation within the short term (i.e. within one to two years). Those under the second priority category will be for a medium term implementation (i.e. three to five years from present) and those in third priority will be for a long term implementation (i.e. beyond five years from present).

The identification of specific BTIS projects will look into the links composing the prioritized path. These projects will correspond to the links which need to be upgraded. An illustration on the programming of BTIS projects is shown in Figure 4.10.

The programmed BTIS projects will now be translated into a local BTIS plan. A suggested format of the plan is shown in Figure 4.11. In order to institutionalize the said plan, it should be submitted to a higher authority for review and approval. In the case of local government units, the said plan will be submitted to the LDC, which is headed by the local chief executive (e.g. Mayor). The LDC, upon receipt of the recommended plan, will act on it, specifically doing the following :

- (a) Review of the plan
- (b) Approval of the plan
- (c) Inclusion of the plan in the medium term local development plan

The local planner should note that this planning procedure is not the final decision-making tool for projects to be implemented. Although the main basis in this methodology is the social impact of the identified projects, local decision makers may have other factors to consider which are beyond the scope of the planning procedure presented in this report.

Figure 4.10 - Illustration on BTIS Project Programming

BTIS Projects Programming

Priority Category	Existing Condition		Improvement Needed		Implementation Period
	Length (km)	Type & Condition	Infrastructure	Services	
1.0 First Priority					
(a) Path No. 4					
l ₄	5.0	Trail	Good Gravel Road	Provide tricycles *	0 to 2 yrs from now
l ₅	8.0	Gravel Road	None	None	-
2.0 Second Priority					
(a) Path No. 5					
l ₆	4.0	Trail	Good Gravel Road	Provide tricycles*	3 to 5 yrs from now
l ₁	3.0	Trail	Good Gravel Road	Provide tricycles *	- do -
(b) Path No. 7 :					
l ₂	2.0	Earth Road	(see above)	(see above)	(see above)
l ₃	4.0	Gravel Road	None	None	3 to 5 yrs from now
l ₅	8.0	Gravel Road	None	None	
(c) Path No. 1 :					
l ₁	3.0	Trail	(see above)	(see above)	(see above)
l ₂	2.0	Earth Road	Good Gravel Road	Provides tricycles *	3 to 5 yrs from now
(d) Path No. 3 :					
l ₁	3.0	Trail	(see above)	(see above)	(see above)
l ₃	4.0	Gravel Road	None	None	-
l ₅	8.0	Gravel Road	None	None	-
(e) Path No. 6 :					
l ₂	2.0	Earth Road	(see above)	(see above)	(see above)
(f) Path No. 2 :					
l ₁	3.0	Trail	(see above)	(see above)	(see above)

* Involves formation of cooperatives and making available to said cooperatives appropriate funding for procurement of equipment thru a loan mechanism.

Figure 4.11 - Suggested Format of a Local BTIS Plan

BTIS Plan

Municipality : x

Province : y

Implementation	Infrastructure Projects	Services Projects
<p>A. <u>Within the next two years</u></p>	<p>1.0 Construction of a Gravel Road from barangay B to junction of main road (5km.)</p>	<p>1.0 Form a local transport cooperative at barangay B and provide credit facilities for procurement of tricycle</p>
<p>B. <u>Within the next Three to Five years</u></p>	<p>1.0 Construction of a Gravel Road from barangay A to barangay B (4km)</p> <p>2.0 Construction of a Gravel Road from barangay A to junction of main road (3km)</p> <p>3.0 Upgrading of the Earth Road from barangay C to junction of main road to Gravel Road (2km)</p>	<p>1.0 Form a local transport cooperative at barangay A and provide credit facilities for procurement of tricycle</p> <p>2.0 Form a local transport cooperative at barangay C and provide credit facilities for procurement of tricycle</p>

4.3.4 Project Financing

This is the stage of the project development cycle wherein the LGU concerned will now search for project funding so that the projects can be implemented. The main sources are :

- (a) LGU budgets
- (b) National Government Fund
- (c) Lending Institutions
- (d) Countrywide Development Fund (CDF)

Prior to the search of available funds, it is advisable that the LGU concerned must package each project thru the preparation of a project brief. This document gives a brief but complete information about the project such as its objectives, location, physical description, beneficiaries, estimated costs and implementation schedule. It is a handy document that gives prospective financiers a general idea on what the project is all about. A sample format of a Project Brief is shown in Figure 4.12. The items to be filled up in the Project Brief are briefly defined as follows :

- (a) Name of Project - to give identity to the project, write here the name that best describes it.
Example: Barangay B to Junction Road.
- (b) Type of Project - specify whether it is an infrastructure or services projects.
- (c) Brief Technical Description - briefly describe the physical structure of the project. For example if it is a road construction, describe the proposed structure to be constructed, its length in kilometers, its width or number of lanes, its general alignment and the overall terrain. If the project involves the provision of transport services, describe the general components of the procurement process starting from cooperative formation to availment of credit facilities.
- (d) Location : specify the location of the project according to barangay, municipality, province and region.
- (e) Project Objectives : briefly describe and enumerate the purpose(s) of the projects as to what does it intend to provide.
- (f) Project Beneficiaries : specify the number of persons that will be benefited by the project and from what localities are these people.
- (g) Estimated Cost (P) : give a rough estimate on the total cost needed to put up the project.
- (h) Implementation Schedule : per local development plan, state the proposed inclusive dates the project is expected to be implemented.

Initial negotiations with funding sources will make use of the Project Brief as it will serve as an introductory material regarding the project which could trigger further negotiations. If the LGU is eyeing its local budget, the decision making as to how much funds can be allocated rests on the LDC. The Project Brief can serve as a discussion material for LDC deliberation on project budgeting. For other financing sources, there are requirements to be complied in order to avail of funds to be used for the project. These requirements vary from one funding source to another. The LDC and its secretariat should familiarize themselves with these requirements and prepare them as required. If the prospective financier will appraise the project, the LDC and its secretariat should prepare all the needed documents and justifications. The end product of this stage is the approval of funds for specific BTIS projects and the corresponding fund release after which the project(s) are now ready for implementation.

Figure 4.12 - Format of a Project Brief

PROJECT BRIEF	
1.0 Name of Project :	_____
2.0 Type of Project :	_____
3.0 Brief Technical Description :	_____ _____ _____
4.0 Location :	_____
	(Barangay) (Municipality)

	(Province) (Region)
5.0 Project Objectives :	_____ _____ _____ _____
6.0 Project Beneficiaries :	_____ _____ _____
7.0 Estimated Cost (P) :	_____
8.0 Implementation Schedules :	_____

4.3.5 *Project Financing Mechanisms*

The scarcity of financial resources has always been a problem to local government units. The inability of LGUs to implement essential socio-economic projects, including transport infrastructure and services, could be attributed mainly to inadequate finances.

The Local Government Code of 1991 grants LGUs adequate authority and power to generate financial resources and effectively utilize revenue sources. A more detailed discussion of funding sources for development projects, including basic transport and services, and the utilization of such sources follows.

Funding requirements for basic services and facilities (including transport infrastructure) are to be provided mainly by the LGU concerned from its share in the national taxes, particularly the Internal Revenue Allotment (IRA), and its tax and non-tax revenues. The Code specifically mandates the sanggunian of each LGU to allocate for the provision of basic services and facilities any funds available from these sources.

A. Local Taxation as Sources of Funds

LGU are empowered to derive income from a) local taxation, b) rentals and charges from the use of public property and resources within its local jurisdictions, c) earnings from local public enterprises and utilities, d) permits and licenses issued for establishments and operations within local boundaries, and e) charges and fees for local government services and activities.

Increasing the capability of LGUs to maximize their taxing powers and revenue sources carries with it the judicious and optimum allocation and utilization of financial resources. There is, therefore, need for careful and rational decision on program thrusts and project priorities.

B. Funds from Shares of LGUs in National Taxes

1. Share of LGU in Internal Revenue Allotment (IRA)

LGUs get a share of the IRA, their share depending on their level (whether barangay, municipal, city or provincial). Under the Code, provinces get 23%, cities 23%, municipalities 34%, and barangays 20% of the share of the LGU in the IRA. IRA for 1994 was estimated to be around P47 billion (Tabunda and Galang, p134). As the percentages show, municipalities get the biggest percentage; barangays with a population of not less than 100 get a share of the IRA that is supposed to be not less than P80,000. The share of each LGU, in turn, is to be determined based on population (50%), land area (25%), and equal sharing (25%).

The percentage of LGU income derived from external sources, of which the IRA is the most important, has grown rapidly in recent years. This is particularly true for provinces, in which the IRA now constitutes almost 74% of total provincial income; as for municipalities, IRA made up almost 53% of total income in 1993, up from 38% for the period 1981-1991 (Manasan, 1995). This trend is confirmed in a study of Dagupan City, where it was found that in 1993 the IRA comprised more than 62% of the City's total income (Ilagao, 1994, p.54).

2. LGUs share in the national wealth

Each LGU gets a share in the proceeds from National Government collections on mining taxes, royalties, fisheries and forestry charges, fees, fines, etc., on the development/exploitation of natural resources located in the LGU's jurisdiction. The entire proceeds from such share are to be used to finance local development and

livelihood projects. Exceptions to this requirements are proceeds from the development and utilization of hydrothermal, geothermal and other energy sources, which shall be applied solely to reduce the cost of electricity in the LGU where the energy source is situated (Tabunda and Galang, p. 143).

Except for the better-off LGUs, however, the proceeds from IRA and local taxes, fines, fees, etc. are more likely than not eaten up by personnel and operational expenses of rural LGUs, with hardly any left for developmental and infrastructure projects, and indeed for capital outlays.

The capability of LGUs to finance BTIS may be assessed by looking at their expenditure patterns. According to the functional classification of government expenditures, BTIS projects would generally fall under the categories "economic services" and "capital outlay".

The same study by Manasan cited above found that "general public services" comprised almost 51% of municipal government expenditures for 1993 (in 1992 the percentage was 62%), while for all LGUs proportion was 41 percent. "Economic services", on the other hand, claimed more than 21% of municipal government expenditures in 1993; for all LGUs, the percentage spent for the same was slightly higher (Manasan, p. 6). These findings are confirmed for Dagupan by Ilago who found that " general public services" claimed more than 41% and " economic services " only 25% of the city's expenditures (Ilago, p. 68).

Using expenditures for "capital outlays" as the criterion for assessing the capability of LGUs to finance and allocate resources for BTIS leads to an even more pessimistic conclusion. For the 8-year period 1986-1993, only 5.6 percent of the City's total expenditures went to capital outlays; for same period, personal services and MOOE claimed 58% and 36%, respectively, of total expenditures (Ilago. pp. 68-70).

What these findings (both the general findings of Manasan and the specific findings of Ilago) suggest is that LGUs lack the capability to finance the provision of BTIS from the existing revenue sources that they have so far exploited (including transfers from the national government). There is a need for them to explore and tap non-traditional financing sources and/or arrangements. These are identified and discussed below.

3. Alternative Funding Sources

(a) Loans and credit financing

An LGU may contract loans, credits and other forms of indebtedness with any government or domestic private bank, or other lending institutions to finance the construction, installation, improvement, expansion, operation or maintenance of public facilities including transport infrastructure projects. Since national transfers and local shares are unlikely to be sufficient to cover operational expenses, let alone capital expenditures, having access to credit is one important alternative open to LGUs for financing their projects.

Government financing institutions such as the Development Bank of the Philippines (DBP), the Land Bank of the Philippines (LBP), the Philippine National Bank (PNB), and the Government Service Insurance System (GSIS) grant loans to LGUs for infrastructure projects such as road building and maintenance, acquisition of transport facilities, agricultural equipment and machinery, and construction or reconstruction of irrigation and toll bridges. The amount of the loan is based on the need as well as the financial repayment capability of the LGU.

To facilitate the processing and approval of the application of an LGU for a domestic loan, credit or other forms of indebtedness, compliance with certain requirements is necessary. The procedures for securing loans and grants from lending/funding institutions are :

- 1) The Sanggunian first passes a resolution authorizing the local chief executive (e.g., the mayor) to negotiate and enter into a contract for the purpose of securing loans and grants.
- 2) The local chief executive then exercises his/her authority to negotiate and enter into a contract.

The need to increase access by LGUs to resources has always been recognized. Both the Local Government Code of 1991 and Presidential Decree 752, called the Decree on Credit Financing for Local Governments, allow LGUs to enter into direct borrowing from domestic private banks and other government financing institutions.

Applications for domestic loan or any form of indebtedness may differ according to the requirements of the government or domestic private banks, and lending institutions that grant loans to LGUs.

Lank Bank of the Philippines (LBP)

LBP grants loans to LGUs to finance local infrastructure and other socio-economic projects. The amount loaned depends on the funding requirements of the project, but shall not exceed the Net Borrowing Capacity of the LGU. The other requirements for LBP loans include :

- 1) The LGU must contribute 25% to the total cost of the project;
- 2) Based on the LGUs cash flow, the term of the loan shall not exceed five (5) years and a maximum grace period of two (2) years is allowed for repayment of the principal amount of the loan;
- 3) The interest rate is based on the prevailing market rate;
- 4) A collateral, which may be any of the following , is required : hold-out on deposits, real estate properties of the LGU (not devoted or intended for public service or for national wealth development), machineries or equipment or a Deed of Assignment on LGUs' IRA, regular taxes or net profit/income.

Development Bank of the Philippines (DBP)

Under its charter, the DBP grants loans to LGUs for infrastructure projects, public markets, irrigation, waterworks, toll bridges, slaughterhouses, for cadastral surveys and other self-liquidating or income-producing services or the purchase and acquisition of municipal electric power plants and heavy equipment and machinery. The bank's policy in extending credit to LGUs is contained in its lending program requirements, such as the following :

- 1) The amount of the loan is determined according to the financial requirements of the project and the repayment capability out of anticipated project earnings;
- 2) The period for repayment of loans varies depending on the type of loan granted to the LGU: a) public market and slaughter-houses, 10-15 years; b) heavy equipment/farm machinery, 5-7 years; and c) other loans, maximum of 15 years;
- 3) The loan amortizations shall be collected by draft from the LGU's depository account of the municipal/city/provincial treasurer in the Philippine National Bank or any other bank.

Philippine National Bank (PNB)

The Philippine National Bank has very limited lending transactions with LGUs. However, it has a special financing scheme for LGUs known as the Local Government Equipment Acquisition Loan Program. Under the program, LGUs can avail of bank credit for the purchase or acquisition of construction equipment. The lending requirements of the loan program are :

- 1) The loan is extended only to LGUs which are not beneficiaries of the Rural Road Program of the national government;
- 2) The amount of the loan will depend on the funding requirements of the project and the paying capacity of the LGU;
- 3) The tenure of the loan shall not exceed five (5) years with a rate of interest of 18% per annum; and
- 4) Loan collaterals may be in the form of real estate property, machinery and equipment, acceptable bonds, BIR allotment and Highway Maintenance funds and guaranty of the national government.

Government Service Insurance System (GSIS)

The GSIS is authorized to extend loans, credits, and other forms of indebtedness to LGUs for the construction, installation, and improvement of electric light and power plants, public markets and slaughterhouse, waterworks and irrigation system, telephone and radio communications system, the purchase of rural and urban estates, and other capital investment projects, subject to the GSIS charter and other laws.

Some of the requirements for the loan application are the following :

- 1) The loan application shall be accompanied with a copy of the sanggunian resolution authorizing the loan;
- 2) A copy of the Actual Income and Expenditures of the LGU for the past three (3) years together with the current budget estimates duly signed by the chief executive of the borrowing LGU;
- 3) A copy of the feasibility study of the proposed project to be undertaken and the approved plans and specifications; and
- 4) A copy of the TCT/OCT of the property offered as collateral for the loan free from all liens and encumbrances.

Of the financing institutions mentioned, the DBP stands out as the biggest lender to LGUs. This can be explained by the priority given by the bank to loan applications of LGUs as mandated in its charter. The limited sharing in the provision of loans and credits of PNB, LBP and GSIS is due to the specialized nature of their functions under the law.

PNB, for instance, responds mostly to loan applications for the acquisition of rural development equipment, while LBP is limited to providing loans to finance self-liquidating projects undertaken by LGUs in support of the agrarian reform program in which the direct beneficiaries are the farmers. The GSIS, on the other hand, lends to LGUs only after it has fulfilled its mandatory obligation under its charter.

Studies on local finance point to the growing awareness and willingness of LGUs to explore alternative funding sources like bank loans and other financing schemes. It was noted that these funding sources are not limited to highly urbanized cities like Makati, Manila, Puerto Princesa and Tagaytay, but also to lower-income LGUs like Munoz, Nueva Ecija and Bangued, Abra.

(b) Issuance of bonds and long-term securities

The legal framework authorizing LGUs to issue bonds and other long-term securities was laid out by PD 752 in 1975 but was superseded by the LGC of 1991. The Code has less restrictive provisions on the design of the bond, although it retains the limitation on the scope of financing specified in PD 752.

The Code also simplified the requirements and procedures for the availment by LGUs of bonds and securities. A certification from the local sanggunian through an ordinance approved by a majority of its members stating the terms and conditions of the bonds and the purpose of the proposed indebtedness is all that is required now.

The features of the bond and the choices that are available to the market participants are summarized below:

Issuer : All LGUs are allowed to issue bonds.

Purpose : LGU bonds have been tied to income-generating projects, a condition related to debt repayment capacity.

Amount of bond principal : It is the market that determines the debt capacity of the issuer relative to the project being financed.

Type of security : A wide range of securities and other obligation are allowed subject to the regular supervision and approval of the Central Bank and the Securities and Exchange Commission.

Price : Bond price is determined in the market based on the relationship between the prevailing interest yield and the bond's nominal interest.

Term or redemption period : The term of redemption is left for the market to set. The feasibility of ten-year or longer-term bonds is related to the interest yields that the LGU shall offer. The redemption option, especially one that can be exercised anytime by the issuer with a simple Board resolution, is normally negotiated between the LGU and the investors, with consequences on the acceptability and pricing of the bond.

Interest rate : The LGU sets the interest rate on its bond relative to the market.

Approving authorities : The Central Bank of the Philippines and the Securities and Exchange Commission are involved in the review and approval of the LGU bond.

Annual LGU Budget Allocation : The LGU is mandated that the annual LGU budget allocates funds for debt service and retirement of the bond. This requirement serves to lower the cost of financing to the LGU while reducing the perceived risk of the bond to the investors.

The Cebu bond case demonstrates both the feasibility of, and the difficulties encountered by LGUs in, accessing the securities markets. Investors' demand was generated through Cebu's presentation in the market of its inherent strengths, particularly its growth potential. However, the case also showed that the law (PD 752) was grossly inadequate as a regulatory basis for municipal bond issues and that LGUs needed external advisory assistance to ensure success in a bond issue.

The requirement that proceeds from bond issued be used in income generating and/or self-liquidating projects moreover limits the potential of this mode for rural transport infrastructure and services, which are generally not attractive from a purely economic point of view. In general, the market for

bonds and securities is not as developed in the Philippines, particularly in the rural areas, as it is in the US, a fact that limits its potential as a source of funds for local projects.

(c) Inter-local government loans, grants and subsidies

Grants from richer to poorer LGUs have so far not been a principal source of financing for rural infrastructure projects. But something like the "sister/adopted city" relationship, in which a rich city/municipality enters into such a relationship with a poor LGU (as in the case of Makati City and Agoo, La Union) may be an option worth exploring for small rural infrastructure projects.

If an LGU decides to avail of loans or grants from other LGUs, it has to go through the following steps or process :

- a) The LGU executive sends letters requesting financial assistance from LGUs which have accumulated surplus funds
- b) The borrowing LGU enacts the necessary local ordinances, pass resolutions, and sign a memorandum of agreement with the lending LGU.

(d) Countrywide Development Fund/Congressional Initiatives Allocation (CDF / CIA)

The Countrywide Development Fund and Congressional Initiatives of senators, congressmen and even the Offices of the President and the Vice-President are also potential sources of financing for rural infrastructure projects. For instance, in 1995 the CDF of the Vice-President provided financial assistance for the construction, repair and maintenance of barangay roads and farm-to-market roads to recipient LGUs.

Members of the House of Representatives allocate their CDF according to the local development plans submitted to them by the LGUs. The LGUs are required to submit a detailed description of the goals/objectives of their development plans, giving special attention to the sectoral plans (e.g. for the infrastructure sector : roads and bridges, water, communication facilities), including budgetary allocation for each of the priority projects.

An interview with a Congressman from Mindanao reveals that her CDF is allocated equally among the LGUs in her congressional district. In line with the development thrust of the legislator to provide health services and education to his constituents, a substantial portion of the CDF goes to projects on health care delivery such as the construction of barangay health centers and the purchase of much needed medicines and first-aid kits. Projects on education include the construction of multi-purpose halls used as pre-school/day care centers and the purchase of books and other classroom aids needed by the teachers in the barangays.

Other examples of projects in an urban area which were funded from the CDF include the perimeter fence of a university, waiting sheds, basketball courts, and barangay multipurpose halls. The construction of school buildings and the improvement of existing roads are also among projects funded by DCF.

(e) Build-Operate and Transfer and related schemes for infrastructure projects

LGUs may enter into build-operate-and transfer (BOT) or similar arrangements (Build-Operate-Own, Build-Transfer-Operate, Rehabilitate-Own-Operate-Transfer) in accordance with RA 6957 (the BOT Law) for the construction, operation, and maintenance of infrastructure projects. The Code has made it easier for LGUs to

undertake BOT projects by simplifying the requirements for availment : they only need to secure the approval of NEDA, upon the (prior) recommendation of the Secretary of Finance.

The legal framework for BOT in the Philippines was established with the passage of Republic Act 6957, "An Act Authorizing the Financing, Construction, Operation and Maintenance of Infrastructure Projects by the Private Sector and for Other Purposes" and its accompanying Implementing Rules and Regulation. BOT as defined in RA 6957 is "a contractual arrangement whereby the contractor undertaken the construction, including financing, of a given infrastructure facility over a fixed term during which it is allowed to charge facility users appropriate tolls, fees, rentals and other charges sufficient to enable the contractor to recover its operating and maintenance expenses and its investment in the project plus a reasonable rate of return thereon."

The BOT scheme is a means of realizing LGU infrastructure projects without directly using public funds. Following are the steps to be followed in undertaking BOT :

- 1) The province, city or municipal engineer, upon formal request in writing by the local chief executive, shall prepare the plans and specifications of the proposed infrastructure project, which shall be submitted to the sanggunian for approval;
- 2) Upon approval by the sanggunian of the project plans and specifications, the provincial, city or municipal engineer shall cause to be published once every week for two (2) consecutive weeks in at least one (1) local newspaper, a notice inviting all duly qualified contractors to participate in a public bidding for the infrastructure projects so approved;
- 3) The contract shall be awarded to the lowest complying bidder whose offer is deemed most advantageous to the LGU and based on the present value of its proposed tolls, fees, rentals and charges over a fixed term for the facility to be constructed, operated and maintained;
- 4) The repayment shall be made by authorizing the contractor to charge and collect reasonable tolls, fees, rentals, and charges for the use of the project facility for a fixed period not exceeding fifty (50) years.
- 5) Project ownership is then transferred to the LGU upon repayment of the project debt financing or at the expiration of a specified period for repayment.

Most BOT projects have so far been undertaken for/by the National Government, although LGUs are now beginning to explore this non-traditional funding sources, as shown in the case of Mandaluyong.

Under the BOT scheme, the city government of Mandaluyong spent practically nothing to rebuild its public market and even got in addition, a modern commercial complex. This experience shows that the BOT scheme is practicable--at least in one of its aims, which is to be able to give support and assistance to LGUs that have no available funds for infrastructure and public works projects.

(f) Joint or Cooperative Financial Arrangement with Other LGUs

LGUs may enter into joint cooperative financial agreements with each in order to finance the provision of certain services, including basic transport infrastructure and services. The only limit is the amount of surplus funds in the preceding fiscal year of the lending LGU.

(g) Organization and operation of transport cooperatives

In poor rural areas, transport cooperatives may provide the only source of the needed financing for basic transport infrastructure and services, particularly the latter. The organization and operation of other forms of

cooperatives such as electric cooperatives, credit cooperatives, and (to a lesser extent) marketing cooperatives, any provide the experience whose transferability to transport cooperatives may be explored.

With the approval of Memorandum No. 09, Series of 1996 or the "Amended Implementing Guidelines on the Utilization of Countrywide Development Fund/Congressional Initiatives for Cooperative Development", putting up a cooperative, or in particular a transport cooperative, may become a potential financial resource for transport infrastructure and services.

Art. 66, Rule XIII of the Rules and Regulations Implementing the Local Government Code of 1991 specifically allows LGUs to enter into joint financial ventures and other cooperative arrangements with POs, NGOs or the private sector to engage in the delivery of basic services, like basic infrastructure and services, capability-building and livelihood projects, and projects that will enhance the economic and social being of the people.

A transport cooperative and the LGU may jointly obtain financial assistance from the Cooperative Development Authority (CDA) for the financing of, construction, maintenance, operations, and management of infrastructure projects and other socio-economic projects especially in poverty or marginalized communities.

The Countrywide Development Fund/Congressional Initiatives was conceived to provide funds in the form of grant or loans to finance the development efforts of cooperatives, POs, GOs, of development projects at reasonable terms and conditions :

- 1) Submission of the duly accomplished Application for Financial Assistance and other requirements such as articles of cooperation and by-laws, board and general assembly resolutions requesting financial assistance and financial statements;
- 2) Project proposals detailing the purpose/objectives of the project, costs and budgetary requirements, program of activities and implementation plan;
- 3) Letter of Endorsement of the sponsoring senator/congressman;
- 4) A duly notarized Memorandum of Agreement between the CDA and the proponent.

For infrastructure projects, the CDA imposes additional requirements such as : a performance security in the form of surety bond equivalent to 30% of the total fund assistance, pre/post qualification and Bid and Award documents by the DPWH and the project plans and design.

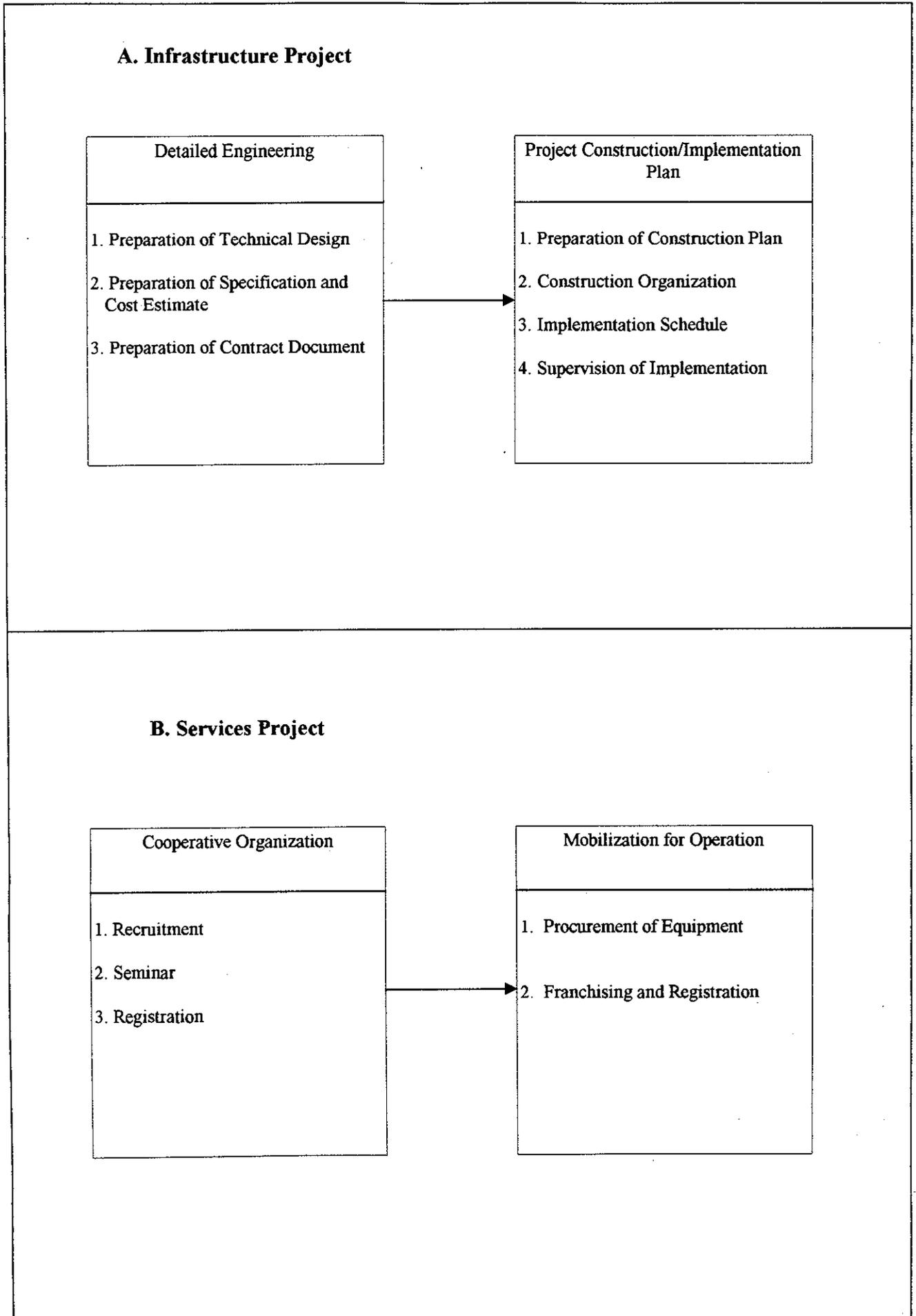
4.4 The BTIS Project Implementation Framework

Once a decision to implement the BTIS project is made and the necessary funding support is secured, the process of project implementation begins. Figure 4.13 shows the BTIS Implementation Process. The first step of the process involves the planning for an overall strategy for implementation. In general, planning for the implementation of BTIS projects which is similar to other types of projects can be divided into two (2) phases:

- (a) Detailed Engineering Design Phase; and
- (b) Actual Project Construction/Implementation Phase.

For BTIS projects, the utilization of labor-based technologies may have its most practical application. It is therefore suggested that LGUs explore to the extent possible their use in the implementation of BTIS projects.

Figure 4.13 - The BTIS Implementation Process



4.4.1 Detailed Engineering Design

Detailed engineering is relevant in BTIS projects involving the construction of physical facilities or infrastructures. It normally includes the following activities:

- A) Preparation of Final Technical Design - under this activity, each project component is designed based on technical standards or criteria that will establish the desired engineering features of the project. These come in two (2) forms: a) design or performance standards which refer to the structural characteristic and quality of the project when completed; and b) geometric standards which specify the capacity and other geometric features required of the project components;

1) Design Standards

Strictly speaking, all of the infrastructures falling under the BTIS category need to be designed based on accepted engineering principles and in accordance with government standards. However, in some types of BTIS projects such as footpaths and trails, it may not be practical to undertake their D/E "per se" because of the following reasons: a) no government standards exist at the present time; b) the cost involved in their provision is so minimal such that the preparation of the D/E including the working drawings might even cost more than the construction itself (cost of construction of footpaths is about P20,000/kilometer); c) design considerations are not that critical to safety of lives and limbs since these are mostly used by pedestrians and animals; d) they are technically simple to implement and more often, equipment are not required for their construction.; e) more often, these are implemented by the people of the community themselves even without the assistance of the LGU; f) because of the numerous projects of this type that need to be implemented all over the country, it may be more practical to utilize a simplified engineering design/plan/drawing so that their implementation can be facilitated; and g) labor-based technologies may have their most appropriate application because no stringent government standards exist.

On the other hand, larger bridge structures are designed mostly in accordance with Standard Specifications for Highway Bridges, as adopted by the American Association of State Highway and Transportation Officials (AASHTO). Local versions have some variations but have been patterned after these accepted standards. Barangay roads made of either earth or gravel are designed in accordance with the Department of Public Works and Highways Standard Specifications for Public Works and Highways. These standards have been partly lifted and are in consonance with the engineering standards of the American Association of State Highway Officials (AASHO) and are based on vehicular traffic, passing sight distances and vehicle speed. Standard designs/plans are also available for bridges and reinforced concrete box and pipe culverts.

2) Geometric Standards

- (i) *footpaths and trails* - there are no established standards for these types of infrastructure at the present time. More often, such types of infrastructure are carved out of the existing terrain and are built without the benefit of engineering standards. These are mostly constructed by simple clearing and grubbing and sometimes are strengthened by laying out stones or boulder blocks to make it usable during the rainy season..
- (ii) *barangay roads* - barangay roads currently have roadways widths of six to nine meters. This roadway width includes the road pavement and shoulders of one (1) to one and a half (1-1/2) meters on both sides of the road, leaving a road pavement of from four (4) to six or seven (6-7) meters width. The lowest level of improvement for these types of roads should at least provide surfacing such as base or subbase course materials to make these all-weather roads. The thickness of the base or subbase course should preferably

be to less than six inches or 15 centimeters. The minimum standard should be capable of handling light traffic for many years with simple routine and annual maintenance. It is assumed that at least one inch of base course will be washed away during the rainy season for flat terrain, and at least two to three inches for rolling and mountainous terrain. For routine and annual maintenance, part of these may have to be replaced with new material. Furthermore, annual cleaning of drainage structures should be part of the maintenance program.

(iii) *bridges* - Standards for bridges may be broken down into two categories, to wit:

(a) Bridges and waterway/river crossings for trails

- * river crossings
- * hanging bridges
- * timber or bamboo bridges

(b) Bridges for barangay roads

- * wooden bridges
- * bailey bridges
- * concrete bridges
- * box culverts

Bridges and river crossings for trails are mostly simple structures which are built by the barangay and household folks themselves. These are normally constructed as crossings over waterways or deep mountain gorges in order to complete the trail links and to avoid a more circuitous route if these structures were not available. Since these serve as links for trails, traffic likewise consists of culvert pipes lines or a series of culvert pipe lines which are covered with embankment materials. Slope protection such as riprap or stone masonry are often provided for these structures. Well-built and designed structures may be usable year-round. Other river crossings consist of well-placed boulders or rocks, either natural or hand-placed which serve as stepping blocks. These are however mostly only temporary paths and have to be replaced and/or rerouted after heavy rains. Hanging bridges are mostly wire or rope-supported structures with wooden planks which serve as the pathwalk. Timber and bamboo bridges for trails are mostly wooden or bamboo structures, respectively and have simple structural designs. More often, these are temporary structures which need to be replaced should have minimum widths of 1 to 1-1/2 meters to accommodate human traffic. Animal drawn carts will require widths of at least three meters and would be applicable only to culvert crossings due to its heavier load.

Bridges for barangay roads are better designed structures in accordance with engineering principles. Although temporary in nature, timber and bailey bridges can sometime serve for a number of years. These may handle heavier loads such as vehicular traffic, although with load limit impositions. Reinforced concrete box culverts and bridges are permanent structures intended for all types of loads. There are existing geometric and engineering standards for all of the mentioned bridges for barangay roads.

(iv) *water pipelines* - There are programs under the Provincial Engineer's Office (PEO) and the District Offices of the DPWH which provide pipelines to identified water sources, mostly springs, to the rural households. Although there are no existing design standards for these types of structure, nonetheless can still be designed based on sound engineering principles and standards. These projects have been considered as falling under the category of BTIS projects.

B) *Preparation of Specification and Cost Estimation* - Detailed specifications of the project components/items should be prepared to provide the type, number, as well as the kind and quality of

construction works. Detailed estimates of the quantities and cost of each work item are prepared as accurately as possible (probably within 5-10%).

C) *Preparation of Contract Documents* - This involves the preparation of a complete set of contract documents to be used in the bidding to include the following:

- (a) general instruction to bidders;
- (b) procedures for prequalification of contractors;
- (c) itemized proposal term, including bid schedule;
- (d) specifications;
- (e) contract form;
- (f) bond form and instructions; and
- (g) bid-evaluation procedures.

D) *Manner of Execution*

The detailed engineering design can either be undertaken by hiring consultants, by the internal capabilities of the LGU, or by other government agencies.

Before making a decision on who will undertake the detailed design, the concerned LGU needs to assess the nature and scope of the design work involved and its internal design capability. In some of the BTIS project categories like footpaths and trails, no established standards exist and generally these projects are built by the local folks themselves sometimes even without any assistance from the municipal or barangay government. For these project categories, the detailed design (or probably simplified design) can be done by the LGU staff. For the other categories where standards have to be adhered to, it would be helpful for the LGU to undertake an inventory of its expertise including its personnel's experience and facilities available for the various design requirements of the project. Whenever it is established that the LGU's capabilities are inadequate for the task at hand, it may be desirable to tap other government agencies which may have the expertise or engage the services of consultants. If it has been decided that a consultant will be engaged, then a Terms of Reference (TOR) showing the detailed scope of the services that will be provided by the consultant will have to be prepared. In the engaging of consultants, certain procedures have to be followed in the selection process. The process of consultant selection includes:

- (a) Invitation of Firms to Submit Prequalification Statements;
- (b) Shortlisting of Consultants;
- (c) Invitations to Submit Proposals;
- (d) Evaluation of Proposals;
- (e) Selection of Best Proposal / Firm;
- (f) Negotiation for Award; and
- (g) Awarding of Contract;

In the Consultant selection process, the LGU may prescribe its own procedures. However, there is already an existing Guidelines on the Procurement of Consulting Services for Government Projects (Implementing Rules and Regulations) Approved by the NEDA Board in December 1992 which is being prescribed to all government agencies and instrumentalities. The Commission on Audit also has existing Rules and Regulations and/or Guidelines on the prequalification of contractors, bids and awards for local infrastructure project which are also prescribed for the selection of Consultants. The provisions of these Guidelines have to be adhered to by the LGU in the consultant selection and awarding of the consulting services contract. Also, a Prequalification, Evaluation and Awards Committee for Consultancy (PEAC) which shall be responsible for

the conduct of prequalification of consultants, evaluation of proposals, selection and recommending award of contract, may have to be created by the LGU for these purposes.

For purposes of estimation, the cost of consulting services for the detailed engineering design of the project shall not be more than 6% of the total project cost.

4.4.2 *Actual Project Construction/Implementation*

The next step in BTIS project implementation is the preparation of an overall construction / implementation plan for the effective and efficient execution of the project. This construction/ implementation plan indicates how the various phases of the construction works are to be undertaken so that actual construction is carried out according to plans, specifications, work program and schedules. The plan normally contains the following information :

- (a) implementation schedule, by work items;
- (b) work allocation showing items to be done by the LGU, the contractors, and the equipment suppliers if separate from the contractors;
- (c) construction organization of each involved; and
- (d) resource use schedules.

Since the project can be executed in several ways, the construction plan must serve mainly as a framework plan and has to be flexible so that adjustments can be made continuously during actual implementation.

Manner of Execution

The LGU can either contract out the construction of the project to local contractors or undertake it by administration or tap the services of other government agencies like DPWH depending on the capability of the LGU concerned.

- (a) *By contract* - Projects involving the construction of barangay roads, bridges, box culverts and rural ports are undertaken by contract. This is because such projects normally require the use of heavy equipment which are not available within the local government pools. Furthermore, due to government bureaucracy, local governments normally find it less cumbersome to simply let out its infrastructure projects. Designs, plans and specifications are prepared by the government agencies concerned. Private contractors are then invited to participate in the bidding for the construction of these projects.
- (b) *By administration* - In some cases, because the LGU has the required heavy equipment, it may decide to undertake the project by itself. Most provincial governments have the capability and expertise to undertake BTIS types of projects. However, the same cannot be said of most municipal governments which are just starting to develop their own equipment resources as a result of the enactment and implementation of the Local Government Code recently.
- (c) *By other government agencies* - In some instances, because LGUs lack the capability to implement/construct a project either in terms of equipment or technical expertise, some LGU projects are implemented by the Provincial Engineer's Office or by the District Offices of DPWH.

In undertaking the BTIS projects through any of the above means, the concerned LGU must prepare its own monitoring and evaluation plan so that progress can be assessed and timely decisions can be taken to ensure that progress of works is maintained according to schedule. Usually, an effective project monitoring includes

the following elements: 1) measuring physical progress against plans and work schedules; 2) measuring financial progress against projected cashflows and budget allocations; 3) identifying problems at the project level so that corrective actions can be taken; and 4) making a comparative analysis both on the physical and financial aspect of implementation for similar types of projects.

In such instances where the construction of the BTIS project is contracted, the Local Prequalification, Bids and Awards Committee (PBAC) will have to be mobilized and convened. The Local PBAC is responsible for:

- (a) the conduct of prequalification of contractors;
- (b) bidding;
- (c) evaluation of bids; and
- (d) the recommendation of awards.

As prescribed under the Local Government Code of 1991, the PBAC is composed of the following members :

- | | | |
|----------|---|---|
| Chairman | - | Governor (for province); Mayor (for city or municipality) |
| Members | - | 1) Chairman of the Appropriations Committee of the Sanggunian; |
| | | 2) A Representative of the Minority Party of the Sanggunian, if any, if there be none, one (1) chosen by the Sanggunian from among its members; |
| | | 3) The local treasurer; |
| | | 4) Two (2) representatives of non-government organizations (NGO) that are representatives in the Local Development Council, to be chosen by the NGOs themselves |
| | | 5) Any practicing certified public accountant from the private sector to be designated by the local chapter of the Philippine Institute of Certified Public Accountants (PICPA) |

To provide technical assistance to the local PBAC, the local PBAC Technical Committee is also created. The technical committee is composed of the Local Government Engineer, Local Government Planning and Development Coordinator and other officials designated by the Local PBAC.

In contracting out the construction of BTIS projects, certain procedures in the prequalification, bidding and award of contract have to be followed as prescribed by the rules and regulations of the Commission on Audit. Prospective bidders for civil works are prequalified pursuant to the provisions of R.A. 4566. An Implementing Rules and Regulations similar to PD 1594 is being formulated for local government civil works projects. Presumably, this IRR will prescribe standard procedures on civil works contracts of LGUs. Normally, contract is awarded to the bidder who meets the prescribed technical standards and offers the lowest price. After making the awards, contracts are entered into and executed by the winning bidder and the LGU.

Another aspect of project implementation is the project supervision or construction management. This activity can be undertaken in three (3) ways: (1) by hiring consultants; 2) by LGU in-house capability; or 3) by tapping the services of other government agencies. The LGU, because it lacks the capability to supervise the construction of the project, it may decide to request the assistance of other government agencies or engage the

services of consultants. Once a decision is made to hire consultants, the same procedure as in the conduct of detailed engineering design is followed in the consultant selection.

Construction Standards and Specifications

The most widely used construction standard and specification for all of the above projects is the DPWH Standard Specifications for Public Works and Highways, 1988, Volume II. This set of standards provides technical specifications and construction procedures for each project work item. It also prescribes the methods of payment and the corresponding unit of measurement for payment of works accomplished. Furthermore, it also provides materials specifications for almost all types of materials incorporated into the works. Special materials or construction methods are covered mostly by special provisions which are issued on a case to case basis.

Cost as Basis in Project Implementation

The most important factor in project implementation is the availability of funds. In a situation where there are more than enough funds to cover identified priority projects implementation are based on the priority rankings. However, if funds are limited, the rule of thumb is for the LGU to utilize the available amount fund on a specific project whose cost is within the funding resources, regardless of whether the project is first priority or not. To illustrate, suppose there are two projects such as :

<i>Priority 1</i>	<i>Project A</i>	<i>Cost : P 2,000,000.00</i>
<i>Priority 2</i>	<i>Project B</i>	<i>Cost : P 1,000,000.00</i>

If the available fund is only P 1,000,000, it may be more prudent to utilize this amount on Project B. In this case, the LGU is assured of a completed project with the full benefits expected to be realized upon its completion. However, if the LGU decides to program the P 1,000,000 for Project A, the end result is probably a half-finished project and the benefits that would be derived may not necessarily be equal to one half of the anticipated benefits not would probably even be lesser. If the LGU will spend it on Project A, it will result to an uncompleted project.

4.4.3 Use of Labor-Intensive or Labor-Assisted Methods

Even before the project reaches the implementation stage, it may be worthwhile for the LGU to explore the possibility and extent by which labor-based technologies can be utilized in BTIS projects and an early decision has to be made if these construction methods will be pursued in the implementation. For the BTIS projects which are generally situated in rural environments, labor based methods and technologies may have their most immediate and practical solution. In the Philippines, it is true that there are many poor people in the rural areas and most of whom are underemployed or unemployed. Also, in the rural areas, large number of transport and other infrastructures are needed, some of which are small, technically simple to implement and geographically dispersed as confirmed in this study. Sometimes, because of the existing terrain, it may be very expensive if not physically impossible to bring the equipment and materials to the project site thus leaving labor-based methods and the use of materials indigenous in the area as the only solution in project implementation.

Setting up a plan and program for labor-based methods of construction is not an easy task especially for larger BTIS projects like roads. However, for smaller and simpler projects like footpaths, trails, footbridges, etc., labor-based technologies can be most appropriate and provide the most practical procedure for implementation. It is emphasized that if labor-based methods could only be given a chance by having much of

construction, probably get considerable employment from its maintenance as well. Moreover, they will have a sense of participation in the development process, pride in its accomplishments and probably unity within the community will be attained.

On a national scale, labor intensive construction technologies offer cushion to the foreign exchange burden being exerted by equipment-based operation. The foreign exchange could have been utilized for more urgently needed high technology projects of the government.

In view of the above, LGUs are encouraged to utilize labor-based technologies not only in construction but also in the maintenance of BTIS projects in order to sustain the provision and operation of these projects. Trails and footpaths are normally constructed by labor-intensive methods because they are technically simple to implement. In some cases, paths are formed through repeated passage until the grasses and weeds are worn out, thus defining the trail itself. For these types of projects where there are no specific requirements for technical and engineering standards, much of the work can be done through labor-based means. For other types of construction, it may be advisable to use only labor-assisted methods, basically to comply with the specified technical and engineering standards. Some work items which can be done by labor-intensive methods include the following: 1) production of construction materials; 2) excavation and loading; 3) hauling or transporting construction materials; 4) spreading of earth materials; 5) cleaning of ditches and culverts; 6) trimming trees; 7) cutting grasses on road shoulders; 8) filling potholes; 9) cleaning drainage channels; and other construction and maintenance works which can be done by hand or with the help of tools. But for other work items such as base course or concreting which have more stringent technical requirements may not be achieved through labor-intensive methods. As a guiding tool, it is therefore suggested that labor methods be applied only for such work items which are basically for material production only and not for finishing activities. Also, the project design and specification of BTIS should be suitable for LBM, e.g., macadam base is suited for LBM while crushed base is not.

4.4.4 Implementation of a BTIS Service Project

A BTIS Service project is one that involves the procurement of basic transport carriers such as tricycles, jeepneys or bancas. Unlike infrastructure projects, this does not have a direct involvement of any government entity, be it an LGU or a national government agency. Government's role here is regulatory in nature although it can assist by way of providing credit facilities thru several government financing institutions. The provision and operation of basic transport services will be better handled by the private sector. However, since we are talking here of rural communities, one possible private entity that can handle this is a local cooperative.

The basic requirements for an entity to be qualified as a service operator are its legal personality and its financial capacity. Legal personality can mean an individual person, a corporation or a cooperative. In rural areas, a cooperative is one effective tool to represent a legal personality as it also promotes socio-economic upliftment of its members who are local residents in the community. A cooperative which operates a basic transport service will therefore serve a dual purpose namely, (a) provision of the basic service and (b) enhancing per capita income of the local citizenry.

The main activities in implementing a BTIS service project, assuming that funds are available, are :

- (a) *formation of a local cooperative* - this will involve recruitment of prospective members, seminar to prospective members on cooperativism and registration of the cooperative with the Cooperative Development Authority (CDA). A cooperative duly registered with the CDA has

already a legal personality to engage in any type of business undertaking specified in its Article of Cooperation.

- (b) *procurement of equipment* - this will involve the provision of credit facilities to a registered cooperative for them to be able to procure the needed carrier equipment. The government can take the lead in establishing credit facilities to BTIS service projects thru government leading institutions such as the Development Bank of the Philippines (DBP), Land Bank of the Philippines (LBP), Philippine National Bank (PNB). These institutions can work out a credit facilities program specifically for BTIS service projects, similar to the Boundary Hulong program of transport cooperatives.
- (c) *securing of government licenses* - this will involve the filing by the cooperative of an application for a franchise to operate a service with the appropriate government agency, as required. Upon approval of its franchise to operate, the cooperative shall register the authorized equipment with the appropriate government agency. These are needed to formally authorize the cooperative to operate the services.

In the implementation of BTIS service projects, the local community should take an active role in preparing the projects which can be lifted from the local development plan. The LGU's should encourage the local citizens to undertake the activities described above. The CDA shall also provide assistance thru effective information and education campaign among the local community about cooperativism. After all, the direct beneficiaries of the project are the local people themselves.

4.5 Proposed Institutional Arrangements for BTIS Project Planning and Implementation

4.5.1 Project Planning (Pre-Investment Phase)

The LGU is primarily responsible in plan formulation activities of BTIS projects. Specific units in the LGU shall perform specific activities, as enumerated below :

<u>LGU Unit</u>	<u>Activity Responsibility</u>
1. LPDO	(a) Identification, , prioritization, recommendation of projects
2. LDC/Local Sanggunian	(a) Review, approval and inclusion of projects in local development plan; (b) Submission of local development plan to the RDC (c) Packaging of projects for funding purposes

Some NGO's may participate in project identification. The project financing stage of planning is an effort shared by the LGU, some national government agencies, some NGO's and financing institutions (both government and private). These are enumerated below :

<u>Agency / Organization</u>	<u>Activity Responsibility</u>
1. LDC, Local Executive, Local Sanggunian	(a) Fund allocation in local budget, if available (b) Submission of project (s) to NEDA and/or DILG for funding request; (c) Submission of project (s) to other funding sources such as CDF and other financing institutions
2. NEDA / DILG	(a) Consolidation and prioritization of submitted BTIS projects for financing allocation (b) Coordination with other financing sources
3. DBM	(a) Budget allocation sourced from national government fund (i.e. GAA) (b) Release of funds
4. Other Financing Sources	(a) Review, appraisal of submitted project (s) (b) Release of funds
5. CDA	(a) Supervision and registration of cooperatives
6. Local Cooperatives (NGO's)	(a) Formation of cooperatives to operate basic transport service (b) Submission of basic transport service projects to financing institutions

4.5.2 Project Implementation (Investment Phase)

As soon as funds are available, BTIS projects can now be implemented. The following agencies shall be responsible for the specified activities :

<u>Agency / Organization</u>	<u>Activity Responsibility</u>
1. LGU : Local Engineer's Office	(a) Implementation of infrastructure projects funded from local funds (b) Coordination with Provincial Engineers Office on implementation of infrastructure projects funded from other sources
2. DILG : Provincial Engineer's Office	(a) Implementation of infrastructure projects funded from national government funds, CDF, bilateral agreements and grants
3. NEDA	(a) Monitoring of implementation of infrastructure projects

- 4. LDC/Local Sanggunian
 - (a) Monitoring of implementation of infrastructure projects
- 5. NGO's
 - (a) Monitoring of implementation of infrastructure projects
- 6. Local Cooperatives
 - (a) Procurement of transport service equipment

4.5.3 Project Operation (Post Investment Phase)

Upon completion of the infrastructure facilities and/or procurement of transport service equipment, said transportation facilities will now be used to provide the needed mobility. The agencies involved are :

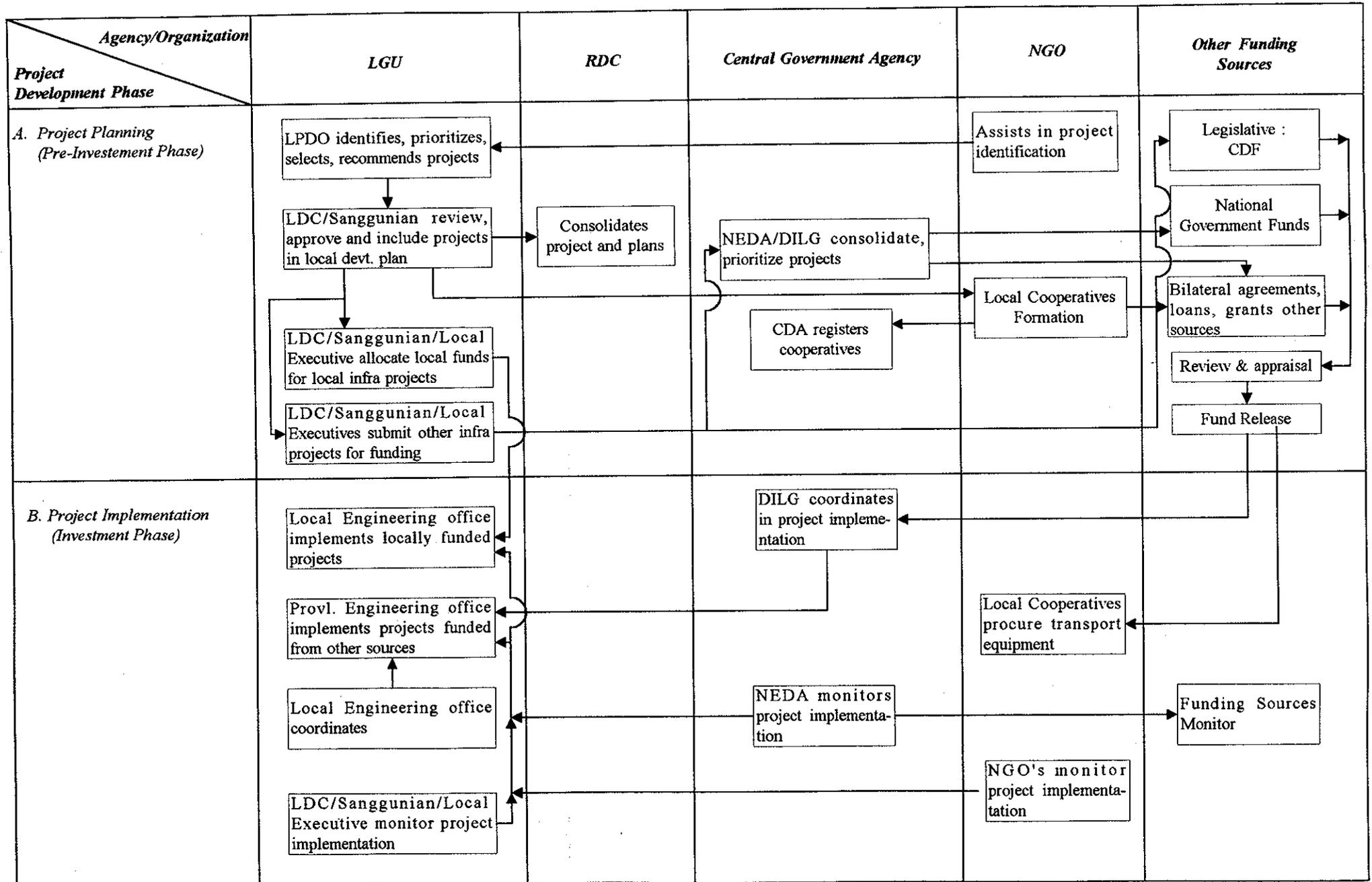
<u>Agency / Organization</u>	<u>Activity Responsibility</u>
1. LGU : Local Engineer's Office	(a) Maintenance of local infrastructure facilities
2. DILG : Provincial Engineer's Office	(a) Maintenance of local infrastructure funded from the national government, CDF and other sources
3. Local Cooperatives	(a) Operation of transport services
4. LGU : LPDO and LDC	(a) Monitoring of operational characteristics
5. LGU : Treasurer's Office	(a) Payment of loan amortization
6. Funding institutions	(a) Acceptance of loan amortization payments

To illustrate the overall institutional framework for BTIS projects, a flow chart is shown in Figure 4.14.

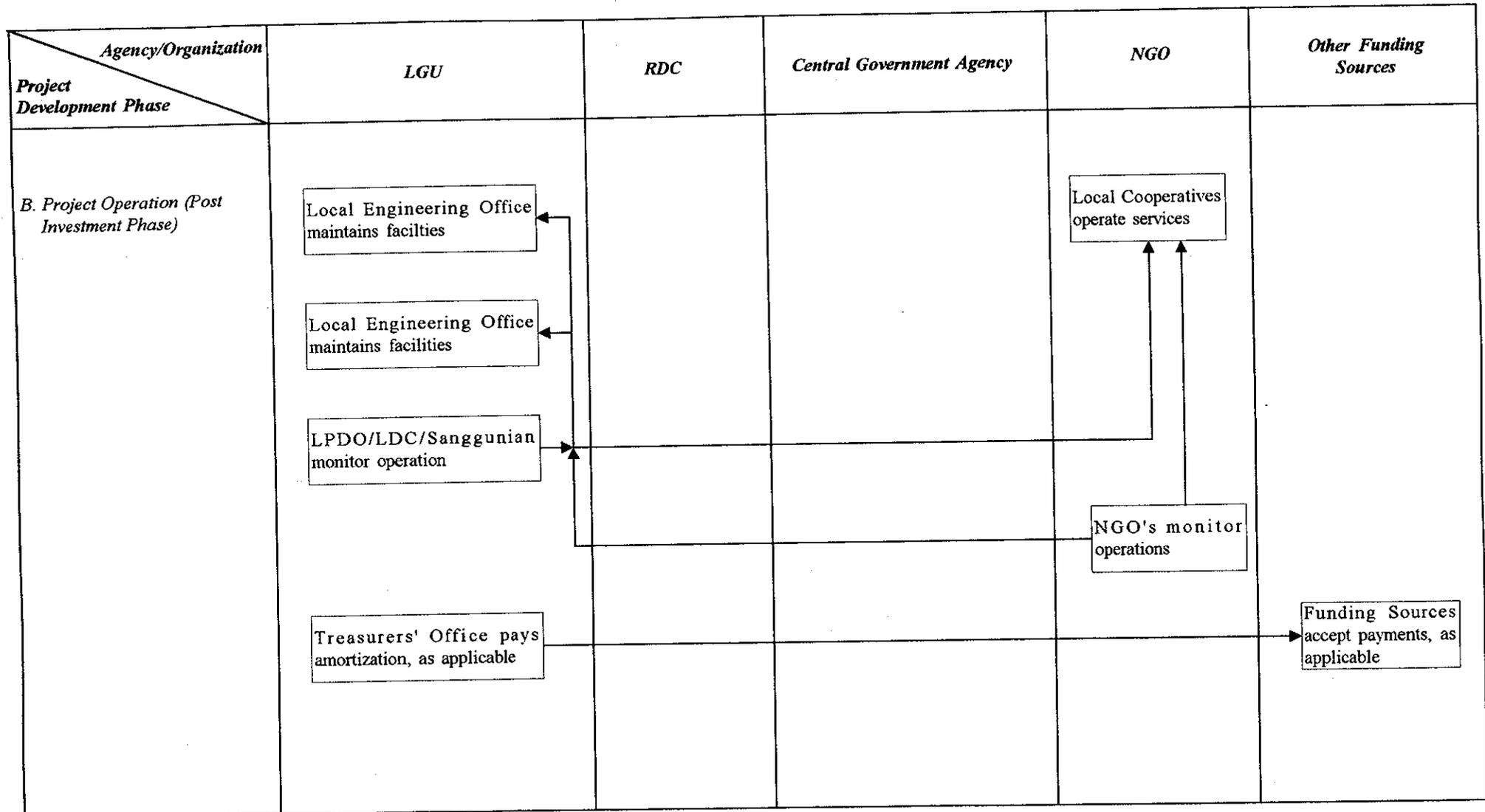
4.5.4 Strategies to Enhance the BTIS System

- A. To generate more funds from local taxation : LGUs should be encouraged to undertake aggressive campaigns to improve local tax collection and revenue generation efforts.
- B. On resources generation : Technical assistance on project development and financial packaging should be made available to LGUs through the Department of Finance or the DILG.
- C. On local development planning :

Figure 4.14 - Institutional Framework and Flow Chart of BTIS Project Development



Con't. - Figure 4.14 - Institutional Framework and Flow Chart of BTIS Project Development



- 1) DILG should conduct an information campaign on the mechanics of BTIS project planning and implementation, as contained in the manual prepared for the purpose.
- 2) Local chief executives and other officials of LGUs should be regularly updated on new ideas and current trends in local financing and development planning.

D. On improving the system of financial resource allocation and utilization :

- 1) There is a need to transfer the technical supervision of local budgeting from the Department of Finance to the DBM. The transfer of this function will relieve local treasurers of the budget function, allowing them to concentrate on revenue collection and administration.
- 2) The DBM should continuously render technical assistance on improved revenue utilization to local budget officers and fiscal planners;

E. On the LGUs share of the national wealth : The Department of Finance and the Bureau of Internal Revenue should improve the system of allocation and distribution of LGUs share in the national wealth, so that the LGUs can in turn properly allocate funds for projects prior to the preparation and approval of their local development plans.

F. On the Financing of BTIS Projects

Limited financial resources coupled with the broadening of functions and responsibilities of LGUs confront them with the problem on how to prioritize and finance local development programs and implement BTIS projects. To increase the financial capacity of LGUs, the following measures and institutional arrangements are proposed :

a. On the use of credit financing as a strategy to support local development programs and BTIS projects

- 1) An intensive nationwide campaign on the availability of credit financing for LGU projects should be undertaken jointly by the DILG and the government financing institutions like DBP, LBP, GSIS, PNB. Local officials should be made aware of the availability of credit financing and its viability as a funding source for LGUs.
- 2) On the part of the financing institutions, loan application requirements and the terms and conditions on credit eligibility of LGUs should be made less cumbersome. Special consideration should be given to LGUs that need financing for the implementation of BTIS projects. However, sanctions on delinquent borrowers should also be strictly imposed.
- 3) A local government credit facility should be established in the government banks (LBP, DBP) with the specialized function of providing credit to LGU projects. Such a facility shall be staffed with personnel who are specialized on the needs of local governments and who are able to devise a simplified system for assessing the credit worthiness of applicant LGUs.

b. Resort to alternative funding sources granted by law and institutional mechanisms

Since the Local Government Code of 1991 specifically grants LGUs authority to incur indebtedness and to avail of credit facilities to finance local infrastructure and other socio economic development projects, local executives and other officials should be informed and encouraged to avail of these alternative sources.

- 1) On issuance of bonds and other long-term securities : LGUs should be made aware of the existence and viability of non-traditional funding sources through information campaign with the local executives and other officials of the LGU.
- 2) An information campaign should be undertaken on the availability and viability of BOT scheme, especially for BTIS projects, as shown in the Mandaluyong case.
- 3) On the CDF/CIA as a funding source which is made available through the Cooperative Development Authority and other government agencies :

(i) Allocation of CDF/CIA through the Cooperative Development Authority

The requirements for the availment of the financial assistance/grant to cooperatives should be made less stringent, especially since these cooperatives are already duly registered with the CDA;

The CDA should give priority to applications for financial support/grant jointly filed by transport cooperative and the LGU especially if the primary objective is to provide basic transport and infrastructure services to the residents of the barangay.

(ii) Allocations of CDF/CIA through other government agencies (DPWH, DOH, DA)

Projects intended to provide basic services in rural communities, e.g. BTIS project, should be given priority in the allocation of CDF funds.

Legislators should be convinced to adopt the proposed methodology for project prioritization (as described above) in allocating CDF/CIA funds to LGUs.

4.6 BTIS Project Operation

The implementation stage of BTIS projects ends when : (a) the infrastructure facility has been completed and/or (b) the service equipment have been procured and are ready for operation. The operation stage commences when the infrastructure facility is now open for use and/or the service equipments are running to serve the transport needs of the people. During this stage, the LGU's with assistance from the local citizens, should see to it that the infrastructure facilities are properly maintained and that they should be serving the beneficiaries in accordance with the purpose for which they were conceived. The LGU's should have an infrastructure maintenance program and should follow it. In the case of service facilities, the cooperative/operator should maintain an efficient service taking into primary consideration the satisfaction of the local basic transport needs as well as its profitability. A sound operation management will enable the operator to achieve both.

The LGU's, local citizens groups and the people themselves should monitor the performance of BTIS facilities so that any problems and deficiencies can be dealt with accordingly by concerned government agencies.

5.0 MANUALS ON THE PLANNING, FINANCING, IDENTIFICATION AND IMPLEMENTATION, AND INSTITUTIONAL ARRANGEMENT PROJECTS

5.1 Manual on the Planning of BTIS Projects

5.1.1 Introduction

This manual is intended for use by the local planning and development office (LPDO) for the purpose of identifying, prioritizing, selection, programming and packaging of basic transport infrastructure and service (BTIS) projects in their locality. A BTIS project is a transport infrastructure or service that will provide a minimum acceptable level of service to link a community or a group of households to areas where services are available to provide their minimum basic needs. The steps in planning BTIS projects are shown in Figure 5.1.

5.1.2 The BTIS Planning Process

The planning steps shown in Figure 5.1 are explained below. Each step is shown in a box with a corresponding box number.

5.1.2.1 Identification of the Study Area

To start the planning process, the planner must first identify the planning or the study area. The municipal planning officer whose area of concern is the municipality or town can identify the whole municipality as his study area. The person in charge of planning in a barangay can also identify the whole barangay as his study area. Similarly, a provincial planning officer can identify the whole province as his study area. Identifying the study area is closely related to the level of detail of the plan to be formulated. The smaller the study area, more detailed smaller projects can be identified. On the other hand, a bigger study area will normally identify the principal or primary links, eliminating the smaller links.

5.1.2.2 Delineation of Sub-Areas

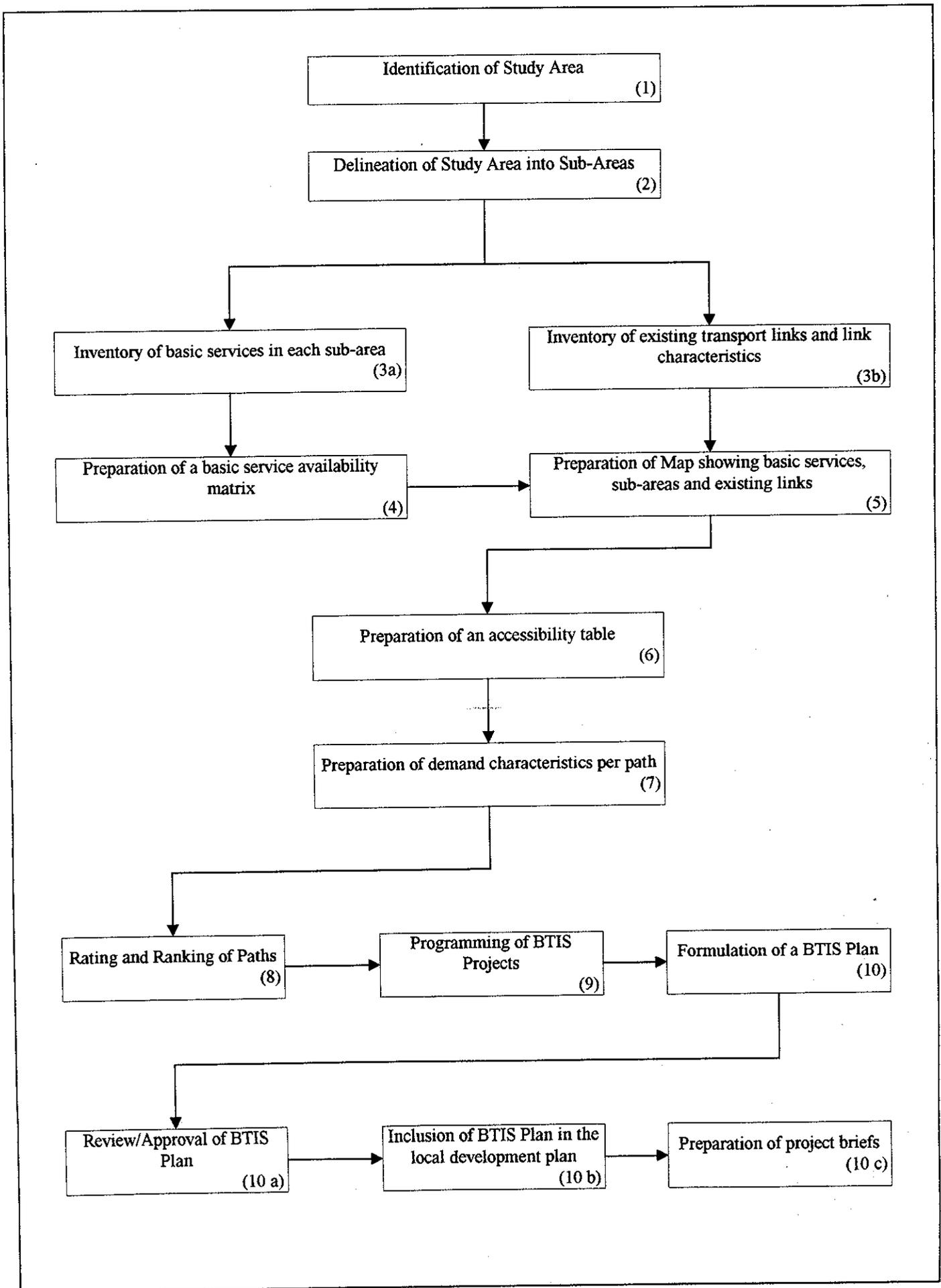
Once the study area has been identified, the planner will now delineate smaller sub-areas within the study area. In order to facilitate the procedure, the planner can make use of the administrative units composing the study area. This means that for a barangay, the sub-areas are the sitios; for a municipality, these are the barangays and for a province, these are the municipalities. The purpose of these sub-areas is for the planner to collect data based on them and for determining origin and destination points for the transport links that will be analyzed later.

5.1.2.3 Inventory of Basic Services in each Sub-Area and Existing Transport Links and Link Characteristics

Since the exercise is transport planning in nature, socio-economic data will be obtained for each sub-area. The focus however is on basic human services. Based on the concept that transport demand is brought about by the interaction of socio-economic activities of various areas, the socio-economic parameters for each sub-area needed in this exercise are :

- * number of households or population
- * number of resident student
- * the available basic human services

Figure 5.1 - The BTIS Planning Procedure



**Table 5.0 - Minimum Basic Needs (MBN) :
Barangay Function**

Basic Needs Category	Basic Services Needed
A. Survival	<ul style="list-style-type: none"> a) Multi-purpose / Big Sari-sari store b) Market / Talipapa c) Barangay Health Center / Station d) Water Supply / Artesia Well / Deepwell / Spring e) Drug store
B. Security	<ul style="list-style-type: none"> 1. Police Outpost / Sub-Station 2. Barangay Hall / Barangay Tanod Outpost 3. Livelihood Center 4. Multipurpose Cooperative
C. Enabling	<ul style="list-style-type: none"> 1. Day Care Center 2. Elementary School 3. High School 4. Other NGO's

In addition to above, data on existing transport links and their corresponding link characteristics will also be obtained. A sample Household Survey Form is hereto attached. This form shall be used to generate the above socio-economic data thru a survey. The collection of data requires hiring people as enumerators thru the local planning and development office or the local census office. Preference will be given to residents with adequate field work experience.

Special attention will be given to the briefing and orientation of enumerators prior to field activities. This will provide adequate understanding of the survey sampling design, general instructions regarding the accomplishment, editing and coding of the survey instruments, interviewing techniques and pre-testing of questionnaires. The attached Sample Household Survey Form is expected to generate basic information at the barangay level. Using an appropriate sample size, the main information that can be obtained thru this survey for each barangay in a given municipality are :

- (a) Average household size;
- (b) Average Number of residing high school and elementary students per household;
- (c) Availability in the barangay of fourteen (14) basic services for the minimum basic human needs;
- (d) If not available in the barangay, where are these services located;
- (e) For those services not available in the barangay, travel characteristics of the people in going to these areas, such as :

* distance traveled, travel time, travel mode and frequency of trips

The purpose of the above is to determine the existing accessibility level from each barangay to each basic service located outside the barangay. This will be the basis in identifying possible basic transport facilities to be put up within the municipality. Since the above data represent a sample only, the profile of each barangay can be estimated by applying statistical adjustment factors. This will involve knowing the following data for the whole barangay which can be obtained from the local planning office or from barangay officials or public school teachers :

- * population of each barangay
- * total number of households per barangay

In addition to the above, existing transport links and link characteristics should also be obtained. This will involve either a primary collection of data (if data are not available) or secondary (if data are already available). The needed data are :

- (a) existing road (be it gravel, asphalt, concrete or earth) links interconnecting the barangays, and their distances;
- (b) existing trails, footpaths, foot bridges used by the people in traveling from their barangays to other barangays and municipalities, including the distance of each;
- (c) location of small ports or river landings serving each barangay, if any;
- (d) existing transport services available, such as number and service area and frequency of tricycles, animal-drawn vehicles, manually-operated vehicles, jeepneys (including the routes served), bancas and other forms.
- (e) travel time components for each mode of service such as : running time of the vehicles for a given distance, waiting time for each service, walking time for a given distance.

Sample Household Survey Form

Identification Block -

Barangay _____
 Name of Respondent _____
 Marital Status _____
 No. of children in household:
 Aged 0-2 _____
 3-6 _____
 7-13 _____
 14 and over _____

Municipality _____
 Sex _____ Age _____
 Occupation _____
 Place of Work _____
 Total No. of Household members _____
 No. of Working Members _____
 Total Family Income (P/mo.) _____
 No. of Residing Elem. Sch. Children _____
 No. of Residing High School Student _____

On Accessibility (Data for the whole household)

Type of Service	Avail - able in Barangay Y/N	If Not available in Barangay (Where availed of)	Travel Mode	Frequency of Trip (person trips/day)	Total Travel Time (in min)	Total Distance (in km.)	Remarks
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

Legend :

Type of Service

- 1) Multi-purpose store (MPS)
- 2) Market / Talipapa (M/T)
- 3) Health Center / Station (HC)
- 4) Water Supply / Well / Spring (WS)
- 5) Drugstore / Botica (D/B)
- 6) Police Outpost (PO)
- 7) Barangay Hall / Tanod Outpost (BH)
- 8) Livelihood Center (LC)
- 9) Multipurpose Cooperative (MC)
- 10) Day Care Center (DC)
- 11) Elementary School (ES)
- 12) High School (HS)
- 13) Other NGO (NGO)
- 14) Church / Place of worship (C/PW)

Mode of Travel

- 1) Walking (W)
- 2) Tricycle (T)
- 3) Jeepney (J)
- 4) Cart/Sled (C)
- 5) Weapons Carrier (WC)
- 6) Boat (B)
- 7) Other (Specify)

Travel time - this includes average waiting time

Where Availed of :

- 1) Poblacion
- 2) Nearby barangay (name of barangay)
- 3) Nearby barangay but in other town (name it of barangay)

Frequency of trip

Example :
 2 / day
 1 / week

Note that the above data gathering procedure can also be applied to other sub-areas, such as sitios or municipalities. The level of details will vary though. If applied to a sitio level, the travel characteristics would be from sitio to sitio. Similarly, if applied to a municipality level characteristics would be from one municipality to another.

5.1.2.4 Preparation of a Basic Service Availability Matrix

As soon as the base data have been obtained, the planner can now proceed with the project identification phase. This starts with the preparation of a basic service availability matrix. It is a table showing which barangays have available basic services for minimum basic needs and which have none. The table consists of barangays as rows and basic services as columns. If there are m barangays and n basic services, there will be a total of $m \times n$ pairs of barangay and basic service. Each pair corresponds to a cell in the table. If a basic service is available in a given barangay, the cell corresponding to the pair is marked an "X". If not available, the cell is left blank. To illustrate, assume a hypothetical example shown in Figure 5.2. All the data are given in the said figure. Using the data as given, a basic service availability matrix has been prepared. This is shown in Figure 5.3.

From the said matrix, the planner will have an initial assessment on the accessibility requirements. These are the barangay-basic service pairs which have blank cells. These can be treated as Origin-Destination (OD) pairs. These OD pairs need accessibility facilities.

5.1.2.5 Preparation of Map

This is an important part of the planning activity. In order to have a clearer picture of the local situation, a map has to be prepared. Most of the data gathered at the initial stage of the exercise shall be reflected in the map. The map basically shall show the following :

- (a) Locations of all barangays
- (b) Locations of all basic services
- (c) Existing transport links

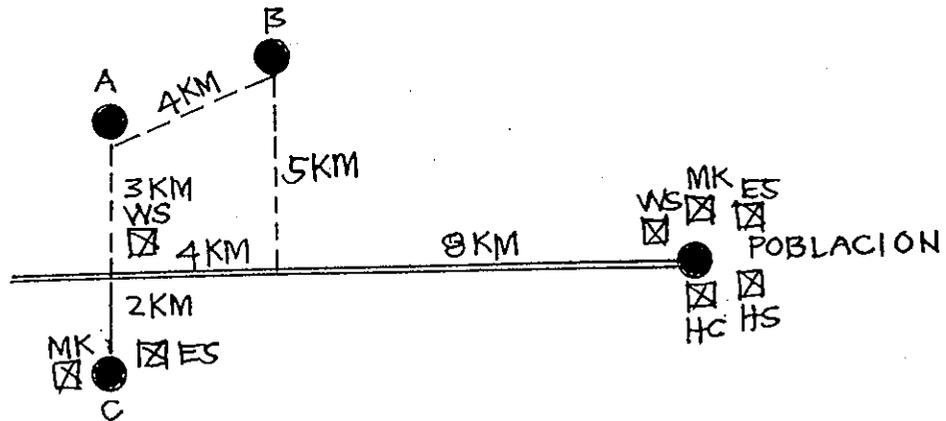
To facilitate subsequent analysis, the map should be presented as a link-and-node map. Each barangay and basic service location is a node. Each transport link junction is also a node. Nodes are points. The connection between two nodes is a link. In this case, the link is a transport facility link, e.g. road link, trails link, a bancas service link, etc. Based on the data on Figure 5.2 and 5.3, a link-and-node map has been prepared. This is shown in Figure 5.4. In the example shown, six (6) links are identified. A list of these links are prepared, showing the type of link and the link distance.

5.1.2.6 Preparation of an Accessibility Table

From the base link-and-node map, together with the corresponding link characteristics, an accessibility table can now be prepared. This table is actually a modified OD table where existing paths for each OD pair are determined including the distances, travel times and modes of transport for each path.

An added feature is the identification of link deficiencies in each path which is actually the process of identifying a long list of possible link improvement projects. It should be noted that the OD pairs to be included in the accessibility table are those corresponding to the blank cells in the basic service availability table. In preparing the accessibility table, list down all the possible OD pairs and for each OD pair, indicate the path taken (or series of links traversed), the path distance, total travel time along

Figure 5.2 - Illustrative Example



Legend :

==== Gravel Road
 _____ Earth Road
 - - - - - Trail

MK ---- Market
 WS ---- Water Supply
 ES ---- Elementary School
 HS ---- High School
 HC ---- Health Center

Available Data :

Barangay	No. of Households	Population	No. of Resident Elementary School Children	No. of Resident High School Students
Poblacion	600	3600	1200	500
A	220	1100	120	30
B	280	1540	100	60
C	350	1750	150	80

Trip Frequencies (trips/hh/day)

To					
From	WS	HC	ES	HS	MK
Poblacion	-	0.10	1.00	1.00	1.00
A	2.0	0.10	0.60	0.30	0.40
B	2.0	0.10	0.40	0.50	0.50
C	2.0	0.10	0.80	0.60	0.60

Existing Transport Service Characteristics :

(a) Jeepneys operate along the gravel road :

- * Ave. Waiting Time = 30 min.
- * Ave. Running Speed = 25 kph

(b) Tricycles operate along the earth and gravel roads :

- * Ave. Waiting Time = 20 min.
- * Ave. Running Speed = 15 kph

(c) Ave. Walking Speed = 4 kph

Figure 5.3 - Example of a Basic Services Availability Matrix

Basic Services Availability Matrix

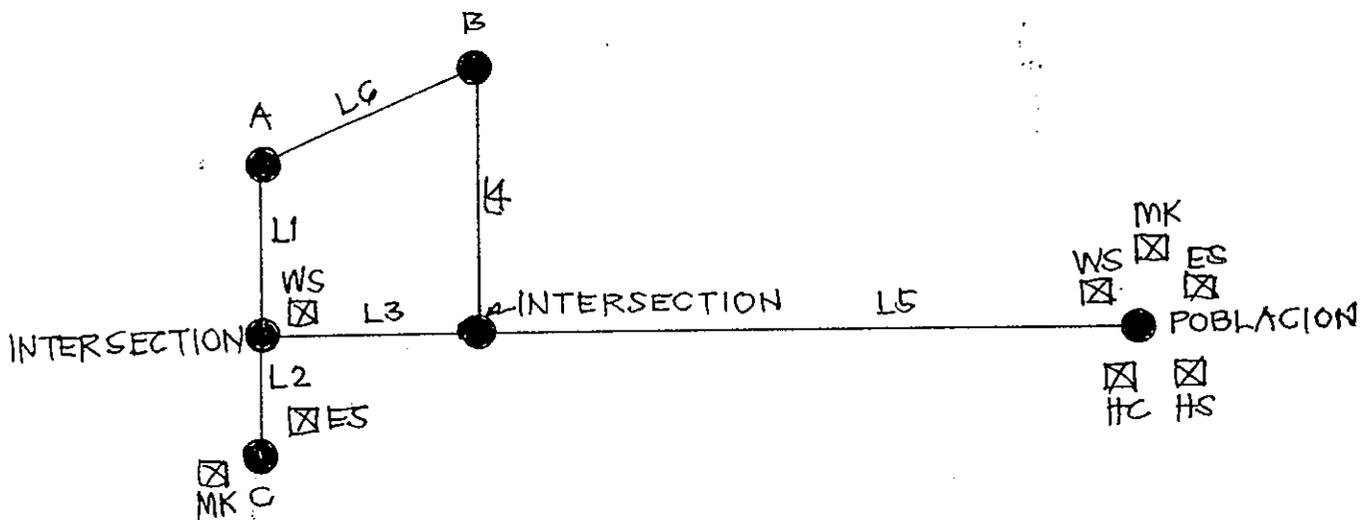
Barangay	Basic Service				
	MK	WS	ES	HS	HC
Poblacion	X	X	X	X	X
A					
B					
C	X		X		

Note : Refer to Figure 5.2 for the data assumptions.

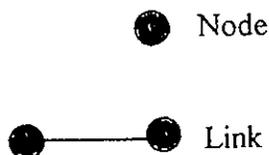
Above table shows that :

- (a) Barangays A and B, with all cells blank, need access to all basic services.
- (b) Barangay C needs access only to WS, HS and HC.
- (c) Poblacion has all basic services available. No accessibility requirements are needed.

Figure 5.4 - Example of a Link and Node Map



Legend :



Summary of Links Characteristics :

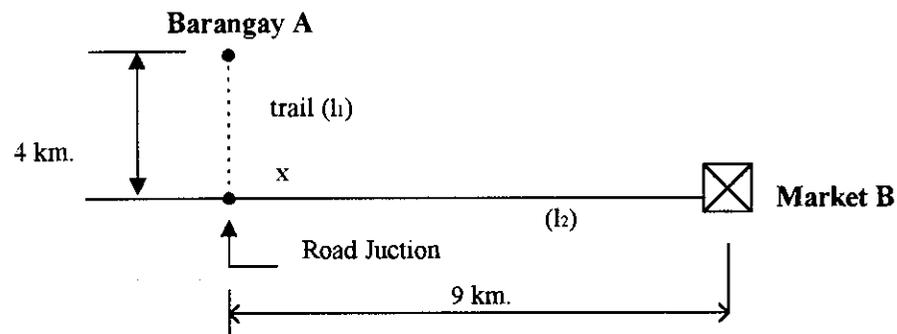
Links Code	Distance (km.)	Type of Link
l ₁	3.0	Trail
l ₂	2.0	Earth Road
l ₃	4.0	Gravel Road
l ₄	5.0	Trail
l ₅	8.0	Gravel Road
l ₆	4.0	Trail

the path, transport modes used in traveling the path and the improvement needed for each link in the path.

For clarification, note the following definition of terms as applied to this exercise :

- (a) Origin (O) - refers to a node representing a barangay center or group of households. This is assumed to be the origin of trips to basic services.
- (b) Destination (D) - refers to a node representing the location of a basic service. This is assumed to be the destination of trips to basic services
- (c) Path - is a series of links presently traversed in traveling from O to D.
- (d) Path Distance - refers to the kilometerage from O to D for a given path.
- (e) Travel Time (in minutes) - refers to the total time spent in traveling from O to D in a given path. This includes waiting time, walking time, vehicles running time.
- (f) Mode - refers to the manner or carrier used in traveling from O to D in a path. Since a path is composed of one or more links, one or more modes are involved. Walking is one mode of travel.
- (g) Link Improvement - refers to the type of improvement needed in a link or links in a given path in order to provide better accessibility

To illustrate further, consider the following example.



The above figure shows an OD pair, Barangay A and Market B.

A basic service is located in Market B. Barangay A residents going to Market B will use two links, i.e., the trail from Barangay A to road junction x and the gravel road from junction x, to Market B. Using the above definition of terms, Barangay A is an O, Market B is a D. The path for this OD Pair is composed of link l_1 (a trail 4 km. Long) and l_2 (a good gravel road 9 km. Long). The path can be described as l_1 - l_2 . The path distance is 13 km. Travel time may be estimated as follows :

- * Traveling along l_1 is by walking; assuming a walking speed of 4 kph, the travel time from Barangay A to road junction x is distance 4 km. divided by speed of 4 kph or 1 hr. Converted to minutes this is 60 minutes.
- * Assuming that there are jeepneys plying along l_2 , the travel time along this link is estimated by counting the waiting time at road junction x and the jeepney running time from road junction x to Market B. Assume a jeepney waiting time of 30 minutes and a jeepney

running speed of 25 kph, the total travel time is 30 minutes plus the jeepney running time 9 km. divided by 25 kph, which is 0.36 hr. or 22 minutes.

So, the total travel time from road junction x to Market B is 30 plus 22 or 52 minutes.

- * Total travel time from Barangay A to Market B along path l_1 - l_2 is 60 + 52 or 112 minutes.

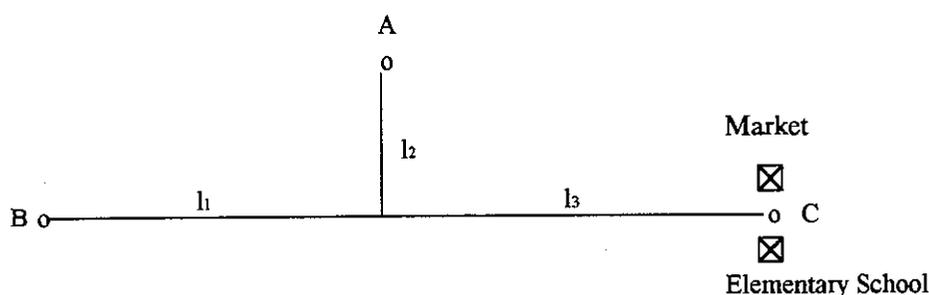
The modes used in traveling from Barangay A to Market B are walking and jeepney. The link improvement needed along the path is the upgrading of the trail from barangay A to road junction x to a gravel road (this is l_1) to make possible the entry of motor vehicles such as tricycles or jeepneys thus reducing travel time. Along the same path., no basic improvement is still needed for l_2 because it is already a good road. In terms of basic transport facility, the improvement of l_1 is more urgent in order to give complete accessibility from Barangay A to Market B. An example of an Accessibility Table is shown in Figure 5.5. This is based on the sample case in Figure 5.2.

5.1.2.7 Preparation of Demand Characteristics per Path

From the accessibility table, one can identify the paths being used for all OD pairs. It is possible that one path is used not only by one but two or more OD pairs. The long list shown in the accessibility table can be sorted per path. This will involve a preparation of another table based on each path used. Each path is identified and for each, the following data shall be indicated :

- * list of barangays served and the corresponding basic services
- * the priority index for each basic service
- * number of persons served
- * travel time
- * trip frequency

To illustrate, suppose two barangays A and B need access to a market and an elementary school at barangay C, as shown below :



An accessibility table for the above will show the following OD pairs and paths :

<u>O</u>	<u>D</u>	<u>Path (Links Traversed)</u>
A	Market C	l_2 - l_3
A	Elem. Sch. C	l_2 - l_3
B	Market C	l_1 - l_3
B	Elem. Sch. C	l_1 - l_3

Figure 5.5 - Example of an Accessibility Table

O	D ^{1]}	Path (Links Presently Traversed)	Path Distance (km.)	Existing Travel Characteristics Along Path		Link Improvements Needed
				Travel Time ^{2]}	Modes Used	
A	MK	$l_1 + l_2$	5.0	75	Walking	l_1 from trail to gravel l_2 from trail to gravel
A	WS	l_1	3.0	45	Walking	l_1 from trail to gravel
A	ES	$l_1 + l_2$	5.0	75	Walking	l_1 from trail to gravel l_2 from earth to gravel
A	HS	$l_1 + l_3 + l_5$	15.0	104	Walking and Jeepney	l_1 from trail to gravel Increase jeepney frequency
A	HC	$l_1 + l_3 + l_5$	15.0	104	Walking and Jeepney	- do -
B	MK	$l_4 + l_5$	13.0	124	Walking and Jeepney	l_4 from trail to gravel Increase jeepney frequency
B	WS	$l_6 + l_1$	7.0	105	Walking	l_6 from trail to gravel l_1 from trail to gravel
B	ES	$l_4 + l_5$	13.0	124	Walking and Jeepney	l_4 from trail to gravel Increase jeepney frequency
B	HS	$l_4 + l_5$	13.0	124	Walking and Jeepney	- do -
B	HC	$l_4 + l_5$	13.0	124	Walking and Jeepney	- do -
C	WS	l_2	2.0	30	Walking	l_2 from earth to gravel
C	HS	$l_2 + l_3 + l_5$	14.0	87	Tricycle and Jeepney	l_2 from earth to gravel Increase jeepney frequency
C	HC	$l_2 + l_3 + l_5$	14.0	87	Tricycle and Jeepney	- do -

^{1]} Nearest available basic service from the concerned barangay.

^{2]} Estimated based on transport service characteristics given in Figure 5.1.

In the above example, there are four (4) OD pairs in the accessibility table. However, there are only two (2) paths involved, namely l_2+l_3 and l_1+l_3 . In preparing the demand characteristics table per path, the sorting is by path and they are presented as :

Path No.	Links Traversed	Barangay Served	Basic Service
1	l_2+l_3	A	Market C
		A	Elem. School C
2	l_1+l_3	B	Market C
		B	Elem. School C

The above table shows that Path No. 1, l_2+l_3 , serves one barangay and two basic services. Similarly Path No. 2, l_1+l_3 , also serves one barangay and two basic services. The above is only a part of the demand characteristics table. To complete it, other characteristics as mentioned above, shall be indicated for each path. An example of a table showing the demand characteristics per path is shown in Figure 5.6. This is based on the accessibility table shown in Figure 5.5.

5.1.2.8 Rating and Ranking of Paths

Each path in the demand characteristics table shall now be rated according to the following rating system.

(a) Basic Service Priority

<u>Priority Index</u>	<u>Rating</u>
1	10.0
2	6.0
3	2.0

The basic priority index is based on Minimum Basic Needs (MBN) categories (see Table 5.0), i.e. Survival, Security and Enabling. A priority index of 1 is assigned to Survival needs, 2 to Security needs and 3 to Enabling needs.

Each basic service is rated according to the above rating system. The overall rating is the total of the rating of each basic service. This is to reflect the quantity as well as the quality of basic services the path is serving. The more basic services that are served the greater is the overall rating for this category. Using the sample figures given in Figure 5.6 take, for example path No.4. It serves a market (MK), an elementary school (ES), a high school (HS) and a health center (HC). Using the priority indices (i.e. MK = 1 ES = 3 HS = 3 and HC = 2) and the rating system (i.e. Index 1 = 10.0 Index 2 = 6.0 and Index 3 = 2.0), the total rating for Path No. 4 is $10.0 + 2.0 + 2.0 + 6.0$ or 20.0 On the other hand, Path No 2 which serves one basic service only i.e. water supply (WS), gets a total rating of 10.0.

Figure 5.6 - Illustration on the Demand Characteristics per Path

Demand Characteristics per Path

Path No.	Links Traversed	Barangays Served	Basic Service	Basic Service Priority Index	No. of Persons Served	Travel Time (minutes)	Trip Freq. (trips/hh/day)
1	l_1+l_2	A	MK	1	1,100	75.0	0.40
		A	ES	3	120		0.60
2	l_1	A	WS	1	1,100	45.0	2.00
3	$l_1+l_3+l_5$	A	HS	3	30	104.0	0.30
		A	HC	1	1,100		0.10
4	l_4+l_5	B	MK	1	1,540	124.0	0.50
		B	ES	3	100		0.40
		B	HS	3	60		0.50
		B	HC	1	(see above)		0.10
5	l_6+l_1	B	WS	1	1,540	105.0	2.00
6	l_2	C	WS	1	1,750	30.0	2.00
7	$l_2+l_3+l_5$	C	HS	3	80	87.0	0.60
		C	HC	1	1,750		0.10

(b) Number of Persons Served

The rating system is :

<u>No. of Persons Served</u>	<u>Rating</u>
Above 3,000	10.0
2636 to 3000	9.0
2272 to 2635	8.0
1909 to 2271	7.0
1546 to 1908	6.0
1183 to 1545	5.0
820 to 1182	4.0
457 to 819	3.0
100 to 456	2.0
Below 100	1.0

If a path serves one barangay with one or more basic services which are applicable to the whole community (i.g. water supply, health center, markets), the total population of the barangay will be considered as the number of persons served. If a path serves one or more barangays with one or more basic services which are applicable to the whole community the total population of the concerned barangays will be considered. For schools, the number of resident school children will be considered and added to the population. For example, Path No.1 serves barangay A to Market and to Elementary School. If the population of barangay A is 1,100 and the number of resident elementary school children is 120, the total number of persons served is 1,220. On the other hand, suppose Path 1 were to serve barangay A to Market and barangay B to health center, the total number of persons served would be the population of A plus the population of B.

(c) Travel Time

The rating system is :

<u>Travel Time (minutes)</u>	<u>Rating</u>
Above 120	10.0
115 to 120	9.0
103 to 114	8.0
91 to 102	7.0
79 to 90	6.0
67 to 78	5.0
55 to 66	4.0
43 to 54	3.0
30 to 42	2.0
Below 30	1.0

Travel time refers to a particularly path. Regardless of how many basic services are served by the path, the one that is rated here is the path itself.

(d) Trip Frequency

The rating system is :

<u>Trip Frequency (trips/hh/day)</u>	<u>Rating</u>
Above 2.0	10.0
1.79 to 2.00	9.0
1.55 to 1.78	8.0
1.31 to 1.54	7.0
1.07 to 1.30	6.0
0.83 to 1.06	5.0
0.59 to 0.82	4.0
0.35 to 0.58	3.0
0.10 to 0.34	2.0
Below 0.10	1.0

This criterion refers to the users of the path. Each basic service has its trip frequency. For a path serving two or more basic services, the total trip frequency is determined by summing the individual frequencies.

The rating of each path can be summarized in a table, as shown in Figure 5.6. Note that there are four criteria used and all are given equal weight. Since numerical values have been assigned to each criterion, an average rating can be computed for each path. The degree of importance of a path, in so far as identifying it as a basic transport facility is concerned, is measured according to its average rating, with the higher numbers indicating the more importance paths. Based on the average rating, the paths can be prioritized according to the following categories :

<u>Average Rating</u>	<u>Priority Category</u>
10.0 and above	First Priority
6.5 to 9.99	Second Priority
Below 6.5	Third Priority

Based on the average rating shown in Figure 5.7, the paths in the current sample exercise are ranked and prioritized categorized. These are shown in Figure 5.8.

5.1.2.9 *Programming of BTIS Projects*

After the paths are prioritized, the identification of basic transport projects according to priorities, will follow. Projects under the first priority category will be recommended for implementation within the short term (i.e. within one to two years). Those under the second priority category will be for a medium term implementation (i.e. three to five years from present) and those in third priority will be for a long term implementation (i.e. beyond five years from present).

The identification of specific BTIS projects will look into the links composing the prioritized path. These projects will correspond to the links which need to be upgraded. An illustration on the programming of BTIS projects is shown in Figure 5.9.

Figure 5.7 - Illustration on the Rating of Each Path

Rating of Paths

Path No.	Basic Priority Index		No. of Persons Served		Travel Time		Trip Frequency		Average Rating
	Basic Priority Index	Rating	No. of Persons	Rating	Travel Time (minutes)	Rating	Trip Frequency (total, trips/hh/day)	Rating	
1	1 and 3	12.0	1,220	5.0	75	5.0	1.00	5.0	6.75
2	1	10.0	1,100	4.0	45	3.0	2.00	9.0	6.50
3	3 and 1	12.0	1,130	4.0	104	8.0	0.40	3.0	6.75
4	1,3,3 and 1	24.0	1,700	6.0	124	10.0	1.50	7.0	11.75
5	1	10.0	1,540	5.0	105	8.0	2.00	9.0	8.00
6	1	10.0	1,750	6.0	30	2.0	2.00	9.0	6.75
7	3 and 1	12.0	1,830	6.0	87	6.0	0.70	4.0	7.00

Figure 5.8 - Illustration on Path Ranking and Prioritization

Path Ranking and Prioritization

Rank No.	Path No.	Ave. Rating	Priority Category *
1	4	11.75	First Priority
2	5	8.00	Second Priority
3	7	7.00	- do -
4	1	6.75	- do -
4	3	6.75	- do -
4	6	6.75	- do -
5	2	6.50	- do -

* This is based on the following :

Average Rating

10.0 and above
 6.5 to 9.99
 Below 6.5

Priority Category

First Priority
 Second Priority
 Third Priority

Figure 5.9 - Illustration on BTIS Project Programming

BTIS Projects Programming

Priority Category	Existing Condition		Improvement Needed		Implementation Period
	Length (km)	Type & Condition	Infrastructure	Services	
1.0 First Priority					
(a) Path No. 4					
I ₄	5.0	Trail	Good Gravel Road	Provide tricycles *	0 to 2 yrs from now
I ₅	8.0	Gravel Road	None	None	-
2.0 Second Priority					
(a) Path No. 5					
I ₆	4.0	Trail	Good Gravel Road	Provide tricycles*	3 to 5 yrs from now
I ₁	3.0	Trail	Good Gravel Road	Provide tricycles *	- do -
(b) Path No. 7 :					
I ₂	2.0	Earth Road	(see above)	(see above)	(see above)
I ₃	4.0	Gravel Road	None	None	3 to 5 yrs from now
I ₅	8.0	Gravel Road	None	None	
(c) Path No. 1 :					
I ₁	3.0	Trail	(see above)	(see above)	(see above)
I ₂	2.0	Earth Road	Good Gravel Road	Provides tricycles *	3 to 5 yrs from now
(d) Path No. 3 :					
I ₁	3.0	Trail	(see above)	(see above)	(see above)
I ₃	4.0	Gravel Road	None	None	-
I ₅	8.0	Gravel Road	None	None	-
(e) Path No. 6 :					
I ₂	2.0	Earth Road	(see above)	(see above)	(see above)
(f) Path No. 2 :					
I ₁	3.0	Trail	(see above)	(see above)	(see above)

* Involves formation of cooperatives and making available to said cooperatives appropriate funding for procurement of equipment thru a loan mechanism.

A basic guideline in identifying the type of link upgrading to be done for an identified BTIS project is one that will provide the minimum acceptable facility will improve the travel time on a given link.

For example, an existing trail can be upgraded to a gravel road in good condition so as to encourage public utility vehicles such as tricycles and jeepneys to operate.

5.1.2.10 Formulation of a BTIS Plan

The programmed BTIS projects will now be translated into a local BTIS plan. A suggested format of the plan is shown in Figure 5.10. In order to institutionalize the said plan, it should be submitted to a higher authority for review and approval. In the case of local government units, the said plan will be submitted to the LDC, which is headed by the local chief executive (e.g. Mayor). The LDC, upon receipt of the recommended plan, will act on it, specifically doing the following :

- (a) Review of the plan
- (b) Approval of the plan
- (c) Inclusion of the plan in the medium term local development plan

Prior to the search of available funds, it is advisable that the LGU concerned must package each project thru the preparation of a project brief. This document gives a brief but complete information about the project such as its objectives, location, physical description, beneficiaries, estimated costs and implementation schedule. It is a handy document that gives prospective financiers a general idea on what the project is all about. A sample format of a Project Brief is shown in Figure 5.11 The items to be filled up in the Project Brief are briefly defined as follows :

- (a) Name of Project - to give identity to the project, write here the name that best describes it.
Example: Barangay B to Junction Road.
- (b) Type of Project - specify whether it is an infrastructure or services project.
- (c) Brief Technical Description - briefly describe the physical structure of the project. For example, if it is a road construction, describe the proposed structure to be constructed, its length in kilometers, its width or number of lanes, its general alignment and the overall terrain. If the project involves the provision of transport services, describe the general components of the procurement process starting from cooperative formation to availment of credit facilities.
- (d) Location : specify the location of the project according to barangay, municipality, province and region.
- (e) Project Objectives : briefly describe and enumerate the purpose(s) of the projects as to what does it intend to provide.
- (f) Project Beneficiaries : specify the number of persons that will be benefited by the project and from what localities are these people.
- (g) Estimated Cost (P) : give a rough estimate on the total cost needed to put up the project.
- (h) Implementation Schedule : per local development plan, state the proposed inclusive dates the project is expected to be implemented.

Initial negotiations with funding sources will make use of the Project Brief as it will serve as an introductory material regarding the project which could trigger further negotiations. If the LGU is eyeing its local budget, the decision making as to how much funds can be allocated rests on the LDC. The Project Brief can serve as a discussion material for LDC deliberation on project budgeting. For other financing sources, there are requirements to be complied in order to avail of funds to be used for the project. These requirements vary from one funding source to another. The LDC and its secretariat should familiarize themselves with these requirements and prepare them as required.

Figure 5.10 - Suggested Format of a Local BTIS Plan

BTIS Plan

Municipality : x

Province : y

Implementation	Infrastructure Projects	Services Projects
<p>A. <u>Within the next two years</u></p>	<p>1.0 Construction of a Gravel Road from barangay B to junction of main road (5 km.)</p>	<p>1.0 Form a local transport cooperative at barangay B and provide credit facilities for procurement of tricycle</p>
<p>B. <u>Within the next Three to Five years</u></p>	<p>1.0 Construction of a Gravel Road from barangay A to barangay B (4km)</p> <p>2.0 Construction of a Gravel Road from barangay A to junction of main road (3km)</p> <p>3.0 Upgrading of the Earth Road from barangay C to junction of main road to Gravel Road (2km)</p>	<p>1.0 Form a local transport cooperative at barangay A and provide credit facilities for procurement of tricycle</p> <p>2.0 Form a local transport cooperative at barangay C and provide credit facilities for procurement of tricycle</p>

Figure 5.11 - Format of a Project Brief

PROJECT BRIEF	
1.0 Name of Project : _____	
2.0 Type of Project : _____	
3.0 Brief Technical Description : _____	
4.0 Location : _____	
<i>(Barangay)</i>	<i>(Municipality)</i>

<i>(Province)</i>	<i>(Region)</i>
5.0 Project Objectives : _____	
6.0 Project Beneficiaries : _____	
7.0 Estimated Cost (P) : _____	
8.0 Implementation Schedules : _____	

5.2 *Manual for the Financing of BTIS Projects*

5.2.1 *Introduction*

The scarcity of financial resources has always been a problem to local government units. The inability of LGUs to implement essential socio-economic projects including transport infrastructure and services could be attributed mainly to inadequate finances. The Local Government Code of 1991 grants LGUs adequate authority and power to generate financial resources and effectively utilize revenue sources.

Funding requirements for basic services and facilities (including transport infrastructure) are to be provided mainly by the LGU concerned from its share in the national taxes, particularly the Internal Revenue Allotment (IRA), and its tax and non-tax revenues. The Code specifically mandates the sanggunian of each LGU to allocate for the provision of basic services and facilities any funds available from these sources. If funds are not adequate at the local level, there are other sources of funds which the LGU can avail of.

This manual gives a description of possible financing schemes which the LGU can tap to finance the implementation of its BTIS projects.

5.2.2 *Alternative Financing Mechanisms*

5.2.2.1 *Local Taxation as Source of Funds*

LGU's are empowered to derive income from a) local taxation, b) rentals and charges from the use of public property and resources within its local jurisdictions, c) earnings from local public enterprises and utilities, d) permits and licenses issued for establishments and operations within local boundaries, and e) charges and fees for local government services and activities.

Increasing the capability of LGUs to maximize their taxing powers and revenue sources carries with it the judicious and optimum allocation and utilization of financial resources. There is, therefore, need for careful and rational decision on program thrusts and project priorities.

The above locally-generated revenues will form part of the LGU's available funds to finance its budgetary requirements.

5.2.2.2 *Funds from Shares of LGU's in National Taxes*

A. *Shares of LGU in Internal Revenue Allotment (IRA)*

LGU's get a share of the IRA, their share depending on their level (whether barangay, municipal, city or provincial). Under the Code, provinces get 23%, cities 23%, municipalities 34%, and barangays 20% of the share of the LGU in the IRA. IRA for 1994 was estimated to be around P47 billion (Tabunda and Galang, p134). As the percentages show, municipalities get the biggest percentage; barangays with a population of not less than 100 get a share of the IRA that is supposed to be not less than P80,000. The share of each LGU, in turn, is to be determined based on population (50%), land area (25%), and equal sharing (25%).

The percentage of LGU income derived from external sources, of which the IRA is the most important, has grown rapidly in recent years. This is particularly true for provinces, in which the IRA now constitutes almost 74% of total provincial income; as for municipalities, IRA made up almost 53% of total income in 1993, up from 38% for the period 1981-1991 (Manasan, 1995). This trend is confirmed in a study of Dagupan City, where it was found that in 1993 the IRA comprised more than 62% of the City's total income (Ilago, 1994, p.54).

B. LGU's Share in the National Wealth

Each LGU gets a share in the proceeds from National Government collections on mining taxes, royalties, fisheries and forestry charges, fees, fines, etc. on the development/exploitation of natural resources located in the LGU's jurisdiction. The entire proceeds from such share are to be used to finance local development and livelihood projects. Exceptions to these requirements are proceeds from the development and utilization of hydrothermal, geothermal and other energy sources which shall be applied solely to reduce the cost of electricity in the LGU where the energy source is situated (Tabunda and Galang, P.143).

Except for the better-off LGUs however, the proceeds from IRA and local taxes, fine, fees, etc. are more likely than not eaten up by personnel and operational expenses for rural LGUs, with hardly any left for developmental and infrastructure projects, and indeed for capital outlays.

The capability of LGUs to finance BTIS may be assessed by looking at their expenditure patterns. According to the functional classification of government expenditures, BTIS projects would generally fall under the categories "economic services" and "capital outlay".

The same study by Manasan cited above found that "general public services" comprised almost 51% of municipal government expenditures for 1993 (in 1992 the percentage was 62%) while for all LGUs proportion was 41 percent. "Economic services", on the other hand, claimed more than 21% of municipal government expenditures in 1993; for all LGUs the percentage spent for the same was slightly higher (Manasan, p. 6). These findings are confirmed for Dagupan by Ilago who found that "general public services" claimed more than 41% and "economic services" only 25% of the city's expenditures (Ilago, p. 68).

Using expenditures for "capital outlays" as the criterion for assessing the capability of LGUs to finance and allocate resources for BTIS leads to an even more pessimistic conclusion. For the 8-year period 1986-1993, only 5.6 percent of the City's total expenditures went to capital outlays; for same period personal services and MOOE claimed 58% and 36%, respectively, of total expenditures (Ilago. Pp. 68-70).

What these findings (both the general findings of Manasan and the specific findings of Ilago) suggest is that LGUs lack the capability to finance the provision of BTIS from the existing revenue sources that they have so far exploited (including transfers from the national government). There is a need for them to explore and tap non-traditional financing sources and/or arrangements. These are identified and discussed in the next section.

5.2.2.3 *Other Funding Sources*

A. *Loans and Credit Financing*

An LGU may contract loans, credits and other forms of indebtedness with any government or domestic private bank, or other lending institutions to finance the construction, installation, improvement, expansion, operation or maintenance of public facilities including transport infrastructure projects. Since national transfers and local shares are unlikely to be sufficient to cover operational expenses, let alone capital expenditures, having access to credit is one important alternative open to LGUs for financing their projects.

Government financing institutions such as the Development Bank of the Philippines (DBP), the Land Bank of the Philippines (LBP), the Philippine National Bank (PNB), and the Government Services Insurance System (GSIS) grant loans to LGUs for infrastructure projects such as road building and maintenance, acquisition of transport facilities, agricultural equipment and machinery and construction or reconstruction of irrigation and toll bridges. The amount of the loan is based on the need as well as the financial repayment capability of the LGU.

To facilitate the processing and approval of the application of an LGU for a domestic loan, credit or other forms of indebtedness, compliance with certain requirements is necessary. The procedures for securing loans and grants from lending/funding institutions are:

- 1) The Sanggunian first passes a resolution authorizing the local chief executive (e.g., the mayor) to negotiate and enter into a contract for the purpose of securing loans and grants.
- 2) The local chief executive then exercises his/her authority to negotiate and enter a contract.

The need to increase access by LGUs to resources has always been recognized. Both the Local Government Code of 1991 and Presidential Decree 752, called the Decree on Credit Financing for Local Governments, allow LUGs to enter into direct borrowing from domestic private banks and other government financing institutions.

Applications for domestic loan or any form of indebtedness may differ according to the requirements of the government or domestic private banks, and lending institutions that grant loans to LGUs.

The following describes the requirements and conditions for credit financing by government financing institutions:

(a) *Land Bank of the Philippines (LBP)*

LBP grants loans to LGUs to finance local infrastructure and other socio-economic projects. The amount loaned depends on the funding requirements of the project, but shall not exceed the Net Borrowing Capacity of the LGU. The other requirements for LBP loans include:

- 1) The LGU must contribute 25% to the total cost of the project.
- 2) Based on the LGU's cash flow, the term of the loan shall not exceed five (5) years and a maximum grace period of two (2) years is allowed for repayment of the principal amount of the loan;

- 3) The interest rate is based on the prevailing market rate;
- 4) A collateral, which may be any of the following, is required : hold-out on deposits, real estate properties of the LGU (not devoted or intended for public services or for national wealth development), machineries or equipment or a Deed of Assignment on LGU's IRA, regular taxes or net profit/income.

(b) **Development Bank of the Philippines (DBP)**

Under its charter, the DBP grants loans to LGUs for infrastructure projects, public markets, irrigation, waterworks, toll bridges, slaughterhouses, for cadastral surveys and other self-liquidating or income-producing services or the purchase and acquisition of municipal electric power plants and heavy equipment and machinery. The bank's policy in extending credit to LGUs is contained in its lending program requirements, such as the following:

- 1) The amount of the loan is determined according to the financial requirements of the project and the repayment capability out of anticipated project earnings;
- 2) The period for repayment of loans varies depending on the type of loan granted to the LGU; a) public market and slaughter-houses, 10-15 years; b) heavy equipment/farm machinery 5-7 years; and c) other loans maximum of 15 years;
- 3) The loan amortizations shall be collected by draft from the LGU's depository account of the municipal / city / provincial treasurer in the Philippine National Bank or any other bank.

(c) **Philippine National Bank (PNB)**

The Philippine National Bank has very limited lending transactions with LGUs. However, it has a special financing scheme for LGUs known as the Local Government Equipment Acquisition Loan Program. Under the program, LGUs can avail of bank credit for the purchase or acquisition of construction equipment. The lending requirements of the loan program are :

- 1) The loan is extended only to LGUs which are not beneficiaries of the Rural Road Program of the national government;
- 2) The amount of the loan will depend on the funding requirements of the project and the paying capacity of the LGU;
- 3) The tenure of the loan shall not exceed five (5) years with a rate of interest of 18% per annum; and
- 4) Loan collaterals may be in the form of real estate property, machinery and equipment, acceptable bonds, BIR allotment and Highway Maintenance funds and guaranty of the national government.

(d) **Government Service Insurance System (GSIS)**

The GSIS is authorized to extend loans, credits , and other forms of indebtedness to LGUs for the construction, installation, and improvement of electric light and power plants, public markets and slaughterhouse, waterworks and irrigation system, telephone and radio communications systems, the purchase of rural and urban estates, and other capital investments projects, subject to the GSIS charter and other laws.

Some of the requirements for the loan application are the following:

- 1) The loan application shall be accompanied with a copy of the sanggunian resolution authorizing the loan;
- 2) A copy of the Actual Income and Expenditures of the LGU for the past three (3) years together with the current budget estimates duly signed by the chief executive of the borrowing LGU;
- 3) A copy of the feasibility study of the proposed project to be undertaken and the approved plans and specifications; and
- 4) A copy of the TCT / OCT of the property offered as collateral for the loan free from all liens and encumbrances.

Of the financing institutions mentioned, the DBP stands out as the highest lender to LGUs. This can be explained by the priority given by the bank to loan applications of LGUs as mandated in its charter. The limited sharing in the provision of loans and credits of PNB, LBP and GSIS is due to the specialized nature of their functions under the law.

PNB, for instance, responds mostly to loan applications for the acquisition of rural development equipment, while LBP is limited to providing loans to finance self-liquidating projects undertaken by LGUs in support of the agrarian reform program in which the direct beneficiaries are the farmers. The GSIS, on the other hand, lends to LGUs only after it has fulfilled its mandatory obligation under its charter.

Studies on local finance point to the growing awareness and willingness of LGUs to explore alternative funding sources like bank loans and other financing schemes. It was noted that these funding sources are not limited to highly urbanized cities like Makati, Manila, Puerto Princesa and Tagaytay, but also to lower-income LGUs like Munoz, Nueva Ecija and Bangued, Abra.

B. Issuance of Bonds and Long-Term Securities

The legal framework authorizing LGUs to issue bonds and other long-term securities was laid out by PD 752 in 1975 but was superseded by the LGC of 1991. The Code has less restrictive provisions on the design of the bond, although it retains the limitation on the scope of financing specified in PD 752.

The Code also simplified the requirements and procedures for the availment by LGUs of bonds and securities. A certification from the local sanggunian through an ordinance approved by a majority of its members stating the terms and conditions of the bonds and the purpose of the proposed indebtedness is all that is required now.

The features of the bond and the choices that are available to the market participants are summarized below:

Issuer : All LGUs are allowed to issue bonds.

Purpose : LGU bonds have been tied to income-generating projects, a condition related to debt repayment capacity.

Amount of bond principal : It is the market that determines the debt capacity of the issuer relative to the project being financed.

Type of security : A wide range of securities and other obligation are allowed subject to the regular supervision and approval of the Central Bank and the Securities and Exchange Commission.

Price : Bond price is determined in the market based on the relationship between the prevailing interest yield and the bond's nominal interest.

Term or redemption period : The term and redemption is left for the market to set. The feasibility of ten-year or longer-term bonds is related to the interest yields that the LGU shall offer. The redemption option, especially one that can be exercised anytime by the issuer with a simple Board resolution, is normally negotiated between the LGU and the investors, with consequences on the acceptability and pricing of the bond.

Interest rate : The LGU sets the interest rate on its bond to the market.

Approving authorities : The Central Bank of the Philippines and the Securities and Exchange Commission are involved in the review and approval of the LGU bond.

Annual LGU Budget Allocation : The LGU is mandated that the annual LGU budget allocates funds for debt services and retirement of the bond. This requirement serves to lower the cost of financing to the LGU while reducing the perceived risk of the bond to the investors.

The Cebu bond case demonstrates both the feasibility of, and the difficulties encountered by LGUs in accessing the securities markets. Investors' demand was generated through Cebu's presentation in the market of its inherent strengths, particularly its growth potential. However, the case also showed that the law (PD 752) was grossly inadequate as a regulatory basis for municipal bond issues and that LGUs needed external advisory assistance to ensure success in a bond issue.

The requirement that proceeds from bond issued be used in income generating and/or self-liquidating projects moreover limits the potential of this mode for rural transport infrastructure and services, which are generally not attractive from a purely economic point of view. In general, the market for bonds and securities is not as developed in the Philippines, particularly in the rural areas, as it is in the US, a fact that limits its potential as a source of funds for local projects.

C. Inter-Local Government Loans, Grants and Subsidies

Grants from richer to poorer LGUs have so far not been a principal source of financing for rural infrastructure projects. But something like the "sister/adopted city" relationship, in which a rich city/municipality enters into such a relationship with a poor LGU (as in the case of Makati City and Agoo, La Union) may be an option worth exploring for small rural infrastructure projects.

If an LGU decides to avail of loans or grants from other LGUs, it has to go through the following steps or process :

- (a) The LGU executive sends letters requesting financial assistance from LGUs which have accumulated surplus funds.
- (b) The borrowing LGU enacts the necessary local ordinances, pass resolutions, and sign a memorandum of agreement with the lending LGU.

D. Countrywide Development Fund/Congressional Initiative Allocation (CDF/CIA)

The Countrywide Development Fund and Congressional Initiatives of senators, congressmen and even the Offices of the President and the Vice-President are also potential sources of financing for rural infrastructure projects. For instance, in 1995 the CDF of the Vice-President provided financial assistance for the construction, repair and maintenance of barangay roads and farm-to-market roads to recipient LGUs.

Members of the House of Representatives allocate their CDF according to the local development plans submitted to them by the LGUs. The LGUs are required to submit a detailed description of the goals/objectives of their development plans. Giving special attention to the sectoral plans (e.g. for the infrastructure sector : roads and bridges, water, communications facilities) including budgetary allocation for each of the priority projects.

An interview with a Congressman from Mindanao reveals that her CDF is allocated equally among the LGUs in her congressional district. In line with the development thrust of the legislator to provide health services and education to her constituents, a substantial portion of the CDF goes to projects on health care delivery such as the construction of barangay health centers and the purchase of much needed medicines and first-aid kits. Projects on education include the construction of multi-purpose halls used as pre-school/day care centers and the purchase of books and other classroom aids needed by the teachers in the barangays.

E. Build-Operate and Transfer (BOT) and Related Schemes

LGUs may enter into build-operate-and transfer or similar arrangements (Build-Operate-Own, Build-Transfer-Operate, Rehabilitate-Own-Operate-Transfer) in accordance with RA 6957 (the BOT Law) for the construction, operation, and maintenance of infrastructure projects. The Code has made it easier for LGUs to undertake BOT projects by simplifying the requirements for availment : they only need to secure the approval of NEDA, upon the (prior) recommendation of the Secretary of Finance.

The legal framework for BOT in the Philippines was established with the passage of Republic Act (as amended by Republic Act No. 7718) " An Act Authorizing the Financing, Construction, Operation and Maintenance of Infrastructure Projects by the Private Sector and for Other Purposes" and its accompanying Implementing Rules and Regulations. BOT as defined in RA 7718 is a contractual arrangement whereby the contractor undertakes the construction, including financing, of a given infrastructure facility over a fixed term during which it is allowed to charge facility users appropriate tolls, fees, rentals and other charges sufficient to enable to contractor to recover its operating and maintenance expenses and its investment in the project plus a reasonable rate of return thereon."

The BOT scheme is a means of realizing LGU infrastructure projects without directly using public funds. Following are the steps to be followed in undertaking BOT :

- 1) The province, city or municipal engineer, upon formal request in writing by the local chief executive, shall prepare the plans and specifications of the proposed infrastructure project, which shall be submitted to the sanggunian for approval.
- 2) Upon approval by the sanggunian of the project plans and specifications, the provincial, city or municipal engineer shall cause to be published once every week for two (2) consecutive weeks in at least one (1) local newspaper, a notice inviting all duly qualified contractors to participate in a public bidding for the infrastructure projects so approved.
- 3) The contract shall be awarded to the lowest complying bidder whose offer is deemed most advantageous to the LGU and based on the present value of its proposed tolls, fees, rentals and charges over a fixed term for the facility to be constructed, operated and maintained;
- 4) The repayment shall be made by authorizing the contractor to charge and collect reasonable tolls, fees, rentals, and charges for the use of the project facility for a fixed period not exceeding fifty (50) years;
- 5) Project ownership is then transferred to the LGU upon repayment of the project debt financing or at the expiration of a specified period for repayment;

Most BOT projects have so far been undertaken for / by the National Government although LGUs are now beginning to explore this non-traditional funding source, as shown in the case of Mandaluyong.

Under the BOT scheme, the city government of Mandaluyong spent practically nothing to rebuild its public market and even got in addition, a modern commercial complex. This experience shows that the BOT scheme is practicable—at least in one of its aims, which is to be able to give support and assistance to LGUs that have no available funds for infrastructure and public works projects.

F. Joint or Cooperative Financial Arrangements with Other LGU's

LGUs may enter into joint cooperative financial agreements with each other in order to finance the provision of certain services, including basic transport infrastructure and services. The only limit is the amount of surplus funds in the preceding fiscal year of the lending LGU.

G. Organization and Operation of Transport Cooperatives

In poor rural areas, transport cooperatives may provide the only source of the needed financing for basic transport infrastructure and service, particularly the latter. The organization and operation of other forms of cooperatives such as electric cooperatives, credit cooperatives and (to a lesser extent) marketing cooperatives, may provide the experience whose transferability to transport cooperatives may be explored.

With the approval of Memorandum No. 09, Series of 1996 or the “Amended Implementing Guidelines on the Utilization of Countrywide Development Fund/Congressional Initiatives for Cooperative Development”, putting up a cooperative, or in particular a transport cooperative, may become a potential financial resource for transport infrastructure and services.

Art. 66, Rule XIII of the Rules and Regulations Implementing the Local Government Code of 1991 specifically allows LGUs to enter into joint financial ventures and other cooperative arrangements with POs, NGOs or the private sector to engage in the delivery of basic services, like basic infrastructure and services, capability-building and livelihood projects, and projects that will enhance the economic and social being of the people.

A transport cooperative and the LGU may jointly obtain financial assistance from the Cooperative Development Authority (CDA) for the financing of construction, maintenance, operation, and management of infrastructure projects and other socio-economic projects especially in poor or marginalized communities.

The Countrywide Development Fund/Congressional Initiatives was conceived to provide funds in the form of grant or loans to finance the development efforts of cooperatives, POs, Gos, of development projects at reasonable terms and conditions :

- 1) Submission of the duly accomplished Application for Financial Assistance and other requirements such as articles of cooperation and by-laws, board and general assembly resolutions requesting financial assistance and financial statements;
- 2) Project proposals detailing the purpose/objectives of the project, cost and budgetary requirements, program of activities and implementation plan;
- 3) Letter of Endorsement of the sponsoring senator/congressman;
- 4) A duly notarized Memorandum of Agreement between the CDA and the proponent;

For infrastructure projects, the CDA imposes additional requirements such as : a performance security in the form of surety bond equivalent to 30% of the total assistance, pre/post qualification and Bid and Award documents by the DPWH and the projects plans and design.

H. Multilateral/Bilateral Agreements

There are foreign government donors which provide funds in the form of grants for projects which address basic needs and poverty alleviation. A list of these grants is with the National Economic and Development Authority (NEDA). LGU's may inquire about these funding sources from NEDA. The LGU concerned can negotiate directly with these sources. If found qualified for the grant, the LGU concerned shall report within thirty (30) days from grant approval, to both houses of Congress and the Office of the President thru the DILG. The LGU shall also inform NEDA about the grant availment.

I. Possible BTIS Fund in the General Appropriations Act (GAA)

This is not yet available at the moment. The study team is recommending that under the national government budget thru the GAA, there should be earmarked a yearly allocation to be named BTIS Fund which shall finance BTIS projects. The proposed BTIS Fund shall be included in the budget of the DILG. The DILG shall be the one tasked to allocate funds for specific BTIS projects chargeable against the BTIS fund. In performing the task, the DILG shall adopt a prioritization scheme which will give weight to LGU's which have urgent need for BTIS projects and which have utilized the BTIS planning procedure. LGU's wishing to avail of the BTIS Fund shall submit their BTIS plan and project briefs to the DILG for review and evaluation.

5.3 *Guide on the Identification and Implementation of BTIS Projects*

5.3.1 *Introduction*

This manual provides additional guide in the identification and implementation of BTIS projects including the labor-based methods which may be utilized and suitably applied during construction.

5.3.2 *Types of BTIS Projects*

A. Infrastructure

The objective of the Study is to provide the necessary infrastructure so that the basic services needed by the rural populace are readily accessible. This implies that the types of projects under consideration are of the more basic types and these depend on the trip frequency and demand, the characteristic of the terrain, and the available resources to pursue these projects. Where trip demand is minimal, footpaths and trails are normally provided and used. These are usually constructed by the local folks themselves. Such types of infrastructure are frequently carved out of the existing terrain and are constructed without the benefit of engineering standards. These are mostly constructed simply by clearing and grubbing and are sometimes strengthened by laying out stones or boulder blocks to make it usable during the rainy season. Traffic consists mostly of humans and animals such as carabaos or horses carrying goods from the farms/households to the local markets center. Most of the footpaths and trails serve either individual families or a small cluster of families as access to and from their individual housing units to the barangay roads or to the sources of water. It is therefore doubtful if BTIS should encompass such types of projects. The construction of footpaths and trails may be better left to the jurisdiction of the barangays in coordination/consultation with the affected individual households. As traffic increases, wider paths may be needed. In the same token, construction methods remain the same, but with increasing volumes of earthwork and man-hours. In both cases however, labor-intensive methods may be applicable.

Such trails may eventually evolve into rural or barangay roads which may be the more appropriate type of infrastructure for higher levels of traffic. As trails, animal drawn carts were normally used to carry the produce to and from the farmlands. As roads, these are now accessible to land vehicles such as tricycles or jeeps. As these trails become established as rural or barangay roads, the end user start to clamor and request for improvements. It is possibly in situations such as these that BTIS may be applicable. All these requests are channeled to the municipalities and are either resolved at that level or passed on to the provincial government or DPWH District Offices. The same is true of river crossings which were formerly only parts of the trails. Small bridges for human crossings will eventually be replaced with larger bridges which may likewise accommodate vehicular traffic.

In some remote areas or island provinces where natural waterways abound, small ports are used as links to other barangays or the municipal centers. This is partly because roads may be more costly, especially if long permanent bridges were to be constructed as parts of the road links.

Lastly, it has been shown that the highest frequency of trips made from a rural household is for fetching water. Water pipelines may therefore be constructed in lieu of road links or footpaths for this purpose.

B. Services

Another objective of BTIS is to provide basic transport services where transportation infrastructure are already in place or may not be the required facility to provide/improve the necessary access to the basic services or these may be more cost effective than infrastructure. Such transport services may include the provision of tricycles, jeepneys or pump boats, or other forms of transport generally accepted or used by the community.

The common channel for government assistance for such services are through Non-Governmental Organizations (NGO's) or cooperatives recognized by the municipal governments. Some existing cooperatives have been financed by Government banks such as Land Bank of the Philippines and the Development Bank of the Philippines.

5.3.3.1 Standards and Specifications

5.3.3.1 Geometric Standards

- (i) *footpaths and trails* - there are no established standards for these types of infrastructure at the present time. More often, such types of infrastructure are carved out of the existing terrain and are built without the benefit of engineering standards. These are mostly constructed by simple clearing and grubbing and sometimes are strengthened by laying out stones or boulder blocks to make it usable during the rainy season..
- (ii) *barangay roads* - barangay roads currently have roadways widths of six to nine meters. This roadway width includes the road pavement and shoulders of one (1) to one and a half (1-1/2) meters on both sides of the road, leaving a road pavement of from four (4) to six or seven (6-7) meters width. The lowest level of improvement for these types of roads should at least provide surfacing such as base or subbase course materials to make these all-weather roads. The thickness of the base or subbase course should preferably be not less than six inches or 15 centimeters. This minimum standard should be capable of handling light traffic for many years with simple routine and annual maintenance. It is assumed that at least one inch of base course will be washed away during the rainy season for flat terrain, and at least two to three inches for rolling and mountainous terrain. For routine and annual maintenance, part of these may have to be replaced with new material. Furthermore, annual cleaning of drainage structures should be part of the maintenance program.
- (iii) *bridges* - Standards for bridges may be broken down into two categories, to wit:
 - (a) Bridges and waterway/river crossings for trails
 - * river crossings
 - * footbridges
 - * timber or bamboo bridges
 - (b) Bridges for barangay roads
 - * wooden bridges
 - * bailey bridges
 - * concrete bridges
 - * box culverts

Bridges and river crossings for trails are mostly simple structures which are built by the barangay and household folks themselves. These are normally constructed as crossings over waterways or deep mountain gorges in order to complete the trail links and to avoid a more circuitous route if these structures were not available. Since these serve as links for trails, traffic likewise consists mostly of humans and animal drawn carts. Some river crossings may consist of culvert pipe lines or a series of culvert pipe lines which are covered with embankment materials. Slope protection such as riprap or stone masonry are often provided for these structures. Well-built and designed structures may be usable year-round. Other river crossings consist of well-placed boulders or rocks, either natural or hand-placed which serve as stepping blocks. These are however mostly only temporary paths and have to be replaced and/or rerouted after heavy rains. Hanging (foot)bridges are mostly wire or rope-supported structures with wooden planks which serve as the pathwalk. Timber and bamboo bridges for trails are mostly wooden or bamboo structures, respectively and have simple structural designs. More often, these are temporary structures which need to be replaced or repaired after heavy rains. Suffice it to say that all the abovementioned structures should have minimum widths of 1 to 1-1/2 meters to accommodate human traffic. Animal drawn carts will require widths of at least three meters and would be applicable only to culvert crossings due to its heavier load.

Bridges for barangay roads are better designed structures in accordance with engineering principles. Although temporary in nature, timber and bailey bridges can sometime serve for a number of years. These may handle heavier loads such as vehicular traffic, although with load limit impositions. Reinforced concrete box culverts and bridges are permanent structures intended for all types of loads. There are existing geometric and engineering standards for all of the mentioned bridges for barangay roads.

- (iv) *water pipelines* - There are programs under the Provincial Engineer's Office (PEO) and the District Offices of the DPWH which provide pipelines to identified water sources, mostly springs, to the rural households. Although there are no existing design standards for these types of structure, nonetheless can still be designed based on sound engineering principles and standards. These projects have been considered as falling under the category of BTIS projects.
- (v) *ports/river landings*- Presently, there are no prescribed geometric standards for small ports and for river landings. Generally, river landings are staired platforms which are built along river banks to facilitate the loading and unloading of passengers and cargoes to and from the bancas. Depending on the volume of users, the sizes and types of structures can vary from locality to locality.

5.3.3.2 *Design Standards*

At a glance, all of the infrastructures falling under the BTIS category need to be designed based on accepted engineering principles and in accordance with government standards. However, in some types such as footpaths and trails where the traffic generated is very minimal and because of the numerous projects that need to be implemented, it may be more practical for the barangay to be responsible for the construction and planning of these simple types of structures.

On the other hand, larger bridge structures are designed mostly in accordance with Standard Specifications for Highway Bridges, as adopted by the American Association of State Highway and Transportation Officials (AASHTO). Local versions have some variations but have been patterned after these accepted standards. Barangay roads made of either earth or gravel are designed in accordance with the Department of Public Works and Highways Standard Specifications for Public Works and Highways. These standards have been partly lifted and are in consonance with the

engineering standards of the American Association of State Highway Officials (AASHO) and are based on vehicular traffic, passing sight distances and vehicle speed. Standard designs/plans are also available for bridges and reinforced concrete box and pipe culverts.

5.3.3.3 Construction Standards and Specifications

The most widely used construction standard and specification for all of the above projects is the DPWH Standard Specifications for Public Works and Highways, 1988, Volume II. This set of standards provides technical specifications and construction procedures for each project work item. It also prescribes the methods of payment and the corresponding unit of measurement for payment of works accomplished. Furthermore, it also provides materials specifications for almost all types of materials incorporated into the works. Special materials or construction methods are covered mostly by special provisions which are issued on a case to case basis.

5.3.4 Cost Parameters

In addition to the four (4) criteria previously discussed on project prioritization the cost factor could be utilized as an additional criterion in the final programming / budgeting of the BTIS projects.

<i>General Categories of Basic Transport Infrastructure</i>	<i>Estimated Unit Cost P (1997)</i>	<i>Remarks</i>
<i>A - Barangay roads</i>		Carriageway width (m) 6.0
a) gravel roads	1,300,000 / km	
b) earth roads	105,000 / km	Pavement width (m) 4.0 Shoulder width (m) 1.00 - 1.50
<i>B - Footh & trails</i>	15,000 / km	
<i>C1 - Bridges crossing for trail</i>		
a) river crossing	7,000 / 1.m.	
b) foot bridges	8,000 / 1.m.	
c) timber or bamboo bridges	6,000 / 1.m.	
<i>C2 - Bridges for brangay roads</i>		
a) wooden bridges		Construction (Temporary)
* (with permanent structure)	140,000 / 1.m.	
* (with timber pile foundation)	30,000 / 1.m.	
b) bailey bridges	250,000 / 1.m.	with permanent structure
c) concrete bridges	200,000 / 1.m.	Construction (Permanent)
* (bridges structure only)	250,000 / 1.m.	
* (including road approach, cofferdam, creaneway, detaour, facilities)	32,000 / 1.m.	
d) box culvert		Construction (Permanent)
<i>D - Water Pipelines</i>	1,145,000 / k.m	Spring development using GI pipes

5.3.5 Manner of Construction

Construction of BTIS projects can either be contracted out to local contractors or can be undertaken by administration.

- (a) *By contract* - Projects involving the construction of barangay roads, bridges, box culverts and rural ports are undertaken by contract. This is because such projects normally require the use of heavy equipment which are not available within the local government pools. Furthermore, due to government bureaucracy, local governments normally find it less cumbersome to simply let out its infrastructure projects. Designs, plans and specifications are prepared by the government agencies concerned. Private contractors are then invited to participate in the bidding for the construction of these projects. Since the use of labor-based methods is being recommended for BTIS projects, its utilization in applicable work activities should be specified in the contract. Local contractors with experience in labor-based methods and techniques may be given preference.
- (b) *By administration* - In some cases, because the LGU has the required heavy equipment, it may decide to undertake the project by itself. Most provincial governments have the capability and expertise to undertake BTIS types of projects. However, the same cannot be said of most municipal governments which are just starting to develop their own equipment resources as a result of the enactment and implementation of the Local Government Code.

5.3.6 Use of Labor-Based Methods in BTIS Projects

For purposes of this Study, labor-based methods can be defined as the methods used in construction wherein activities are undertaken using labor (with the aid of hand tools, animals and improvised manual equipment) as the basic construction resource.

For the BTIS projects which are generally situated in rural environments, labor based methods and technologies may have their most immediate and practical solution. In the Philippines, it is true that there are many poor people in the rural areas and most of whom are underemployed or unemployed. Also, that a large number of basic transport infrastructures some of which are small, technically simple to implement and geographically dispersed need to be implemented mostly in the rural areas. It therefore seems logical that labor-based technologies can be most appropriate and may provide the most practical procedure for implementation of most of the BTIS projects.

Some traditional labor-based methods are admittedly often inefficient but through some small modifications and innovations these can be improved and can be made highly productive. In previous experiences from pilot projects and full-scale projects in developing countries, including the Philippines, it has been proven that labor-based methods can be a viable alternative to equipment-based methods. However, it has also been proven that a great deal of effort and continuous inputs are necessary to fully realize the potential of labor-based technologies. If labor-based methods could only be given a chance therefore by having much of the work in BTIS projects done by hand and tools, the poor people in the rural areas would not only receive the much needed income from its construction but would probably get considerable employment from its maintenance as well. Moreover, they will have a sense of participation in the development of the community, pride in its accomplishment and probably unity and cooperation among the community people will be attained.

Some of the construction and maintenance activities suitable for labor-based methods which are mostly for road construction projects but may also be applicable to other types of basic infrastructure projects include the following:

- a) site clearance;
- b) excavating;
 - * ditches and trenches
 - * bulk (soft and loose soil)
 - * terracing and contouring
- c) loading and unloading of bulk materials;
- d) short hauling;
 - * labor up to 200 meters
 - * animal up to 1 kilometer
- e) material production;
- f) refilling pipe and culvert excavation;
- g) placing, spreading and shaping bulk materials;
- h) cleaning of ditches and culverts;
- i) cleaning drainage channels;
- j) filling potholes; and a range of other activities which can be done by hand and/or with tools.

5.4 *Manual on the Institutional Arrangement of BTIS Projects*

5.4.1 *Introduction*

This manual shows the institutional structure for the planning, implementation and operation of BTIS projects. It identifies the government agencies involved and their corresponding functions. The basic institutional structure is shown in Figure 5.12.

5.4.2 *The BTIS Institutional Framework*

5.4.2.1 *Project Planning (Pre-Investment Phase)*

Planning of BTIS projects is a primary responsibility of the local government unit (LGU) concerned. The local planning and development office (LPDO) of the said LGU is the specific unit within it which should be tasked to identify, prioritize, select and recommend BTIS projects. In line with the BTIS scheme, the LPDO should use the BTIS planning framework specifically designed for the purpose. Since project identification involves a comprehensive data gathering activity, the LPDO should coordinate with the local census office and other government agencies as well as with local non-governmental organizations (NGO's) to insure a more reliable data base.

The local BTIS plan as prepared by the LPDO, should be in the format specified in the BTIS Planning Manual. Said plan has to be approved by local authorities. The LPDO should therefore submit it to the local sanggunian and the local executive for review. Then the LPDO should make modifications if necessary, based on the review made after which the modified plan will be subjected to further review and deliberation by the local development council (LDC). The plan is subsequently finalized and both the local sanggunian and the LDC will adopt it, in the form of a resolution, and include it as part of the local development plan.

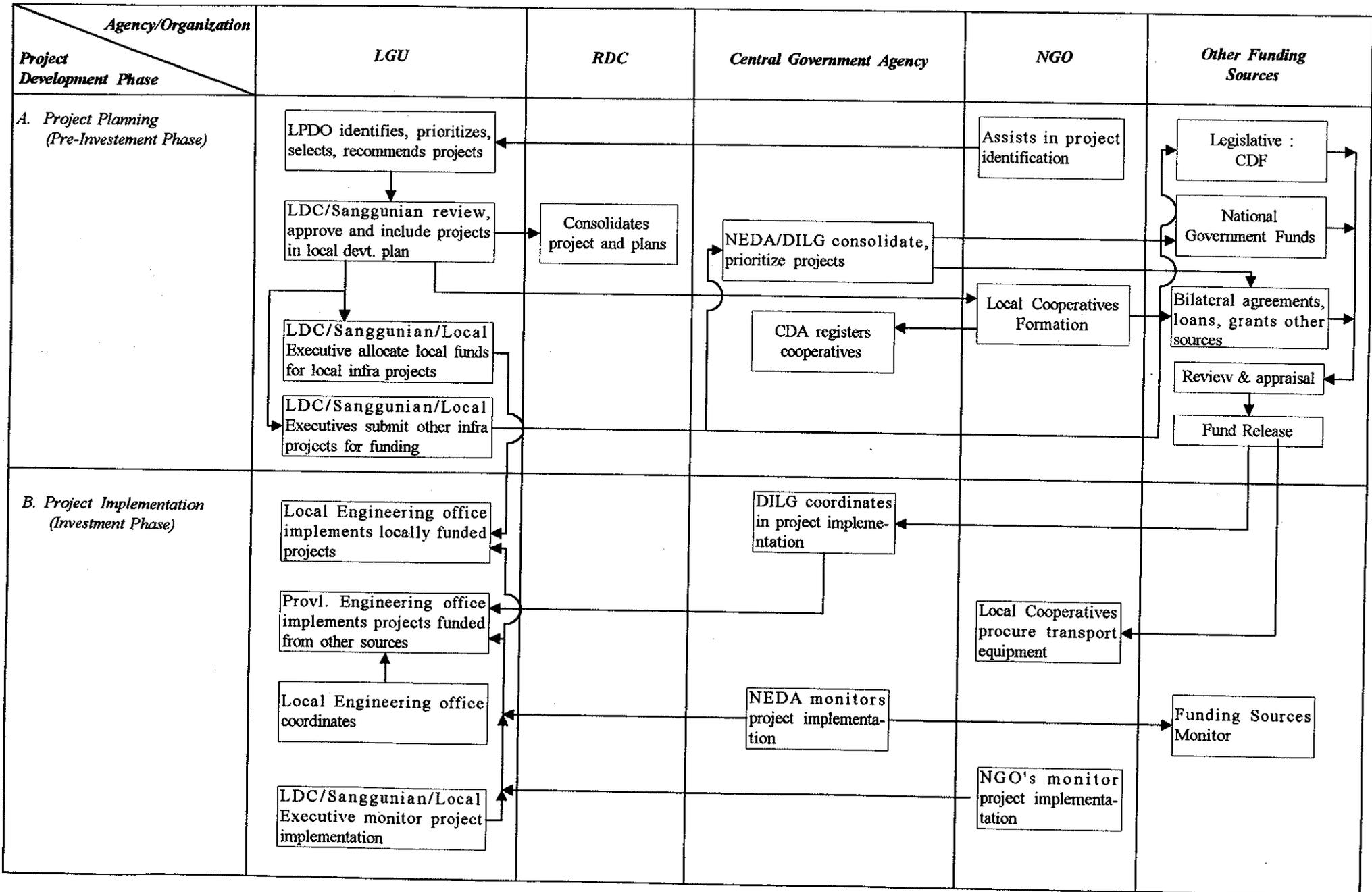
For information and coordination purposes, the local BTIS plan should be forwarded to the Regional Development Council (RDC) thru the provincial government, for inclusion in the overall regional development plan.

The local executive, local sanggunian and the LDC will now make decisions to implement the projects specified in the BTIS plan. As soon as these decisions are made, the search for project(s) funding will start. One source for fund is the local budget of the LGU. If available and within the local budget's capability, some projects could be considered. When the local sanggunian and the local executive officially include the identified project(s) in their local budget, said projects can now be implemented. It should be noted that under the BTIS scheme, the LGU implements BTIS infrastructure projects only. BTIS service projects can be passed on to local NGO's.

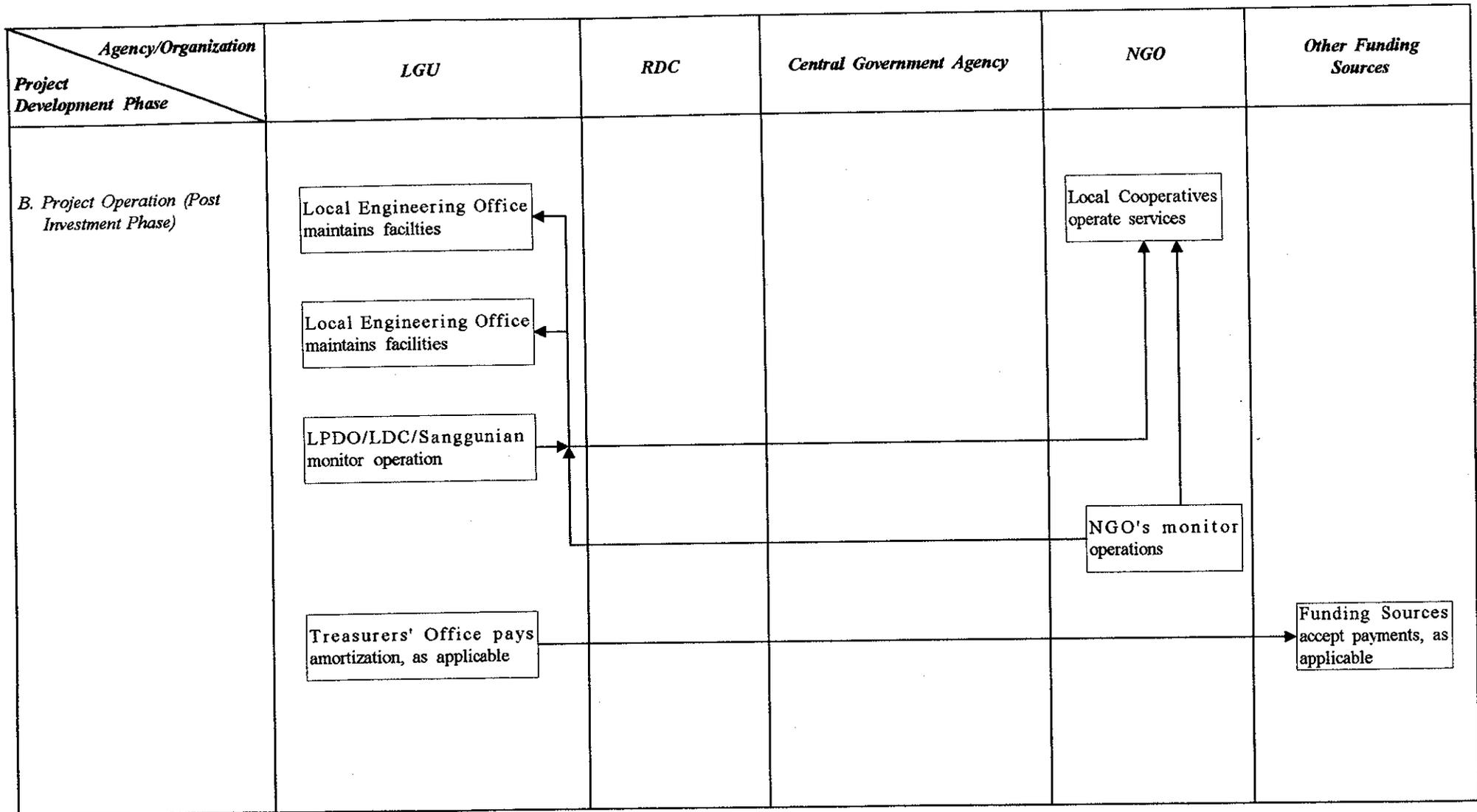
Other BTIS infrastructure projects which could not be funded by the local budget may be funded by other sources. It is the responsibility of the LGU to negotiate with other financing sources. The local executive, duly authorized by the local sanggunian, can do the negotiations, with the LPDO and the local finance and budget officers backstopping him particularly in the preparation of the required documents.

For funds sourced from the national government budget, i.e. the GAA, the LGU, thru its local executive, should submit the projects to NEDA, thru the DILG. The DILG will review the submitted

Figure 5.12 - Institutional Framework and Flow Chart of BTIS Project Development



Con't. - Figure 5.12 - Institutional Framework and Flow Chart of BTIS Project Development



projects particularly on the planning procedure used and if said projects were planned using the BTIS approach, would indorse same to the NEDA for qualification as fundable thru an earmarked BTIS fund in the GAA. To facilitate the process, NEDA and DILG may form a technical secretariat to handle the above activities. NEDA and DILG should coordinate with the DBM as regards budget allocation and subsequent release of funds.

For funds sourced from foreign loans and grants made possible thru bilateral agreements the process would be almost similar to the above except that these financial institutions have their own set of requirements and process. The NEDA-DILG secretariat will assist the LGU applicant in the preparation of the required documents, with the LGU itself mainly responsible in said preparations. The financing institutions may appraise the projects and the LGU should be ready to prepare all the required documentations. Final negotiations for possible loan or grant should be made between the LGU concerned and representatives of the financing institutions, with the NEDA-DILG secretariat as technical advisor to the LGU. Loan and/or grants agreements, should be entered into between said LGU and the financing institutions.

For funds sourced from the Countryside Development Fund (CDF) of legislators, the LGU concerned, thru its local executive, duly authorized by the local sanggunian, should make representations with the legislators and directly negotiate with the latter as far as funding is concerned.

BTIS projects involving provision of carrier services such as tricycles, bancas etc. are to be implemented by the private sector. In rural areas, a cooperative is one effective tool in establishing a personality to operate carrier services. It does not only provide the needed services, it also promotes economic upliftment of its members. The government's role in the provision of carrier services will be mainly on regulations, i.e. franchising and registration. However, national government agencies such as the DILG & CDA can assist by coordinating with financing institutions for the latter to provide credit facilities to local cooperatives for the financing of BTIS services projects.

To prepare for the operation of carrier services, a local cooperative shall be formed first. This will involve recruitment of members, seminar on cooperativism and registration of the cooperative with the CDA. The LGU can assist by encouraging local citizens to form cooperatives. The CDA shall take charge of the seminar and the registration.

5.4.2.2 *Project Implementation (Investment Phase)*

For BTIS infrastructure projects, the local engineering office (LEO) is mainly responsible in the implementation. For projects funded from the local budget, the LEO takes the lead in the implementation and it shall coordinate closely with the local finance office especially on the availability and release of funds. Actual disbursements however should be done by the local finance officer. For projects funded from the national government, loans and grants from both national and foreign financing institutions, release of funds shall be coursed thru the DILG. The DILG central office in turn will sub-allot the fund to the LGU concerned thru the concerned provincial government. Actual implementation shall be handled by the LEO under the supervision of the provincial engineer's office (PEO). For projects funded from legislator's CDF, release of funds shall be made directly to the LGU concerned. The LEO takes charge in the actual implementation. A monitoring system shall be adopted in such a way that government offices involved in the BTIS system can be informed of project status. For projects funded from the LGU budget and other funds directly negotiated with the source institutions, the LDC shall monitor and provide reports to the financing institutions. For projects funded from other sources, such as the national government, the DILG shall monitor and provide reports to other government agencies.

For BTIS services projects, the implementation will involve the procurement of the equipment by the local cooperatives concerned. Prior to procurement, local cooperatives shall negotiate with financing institutions as to the funding and the corresponding financing schemes.

5.4.2.3 Project Operation (Post Investment Phase)

For BTIS infrastructure facilities, the LGU concerned should implement a maintenance program consisting of an annual program of maintenance work activities and their corresponding budget. The LEO shall be directly responsible in actual maintenance works. The LGU concerned thru its local finance office should pay loan amortizations. Local cooperatives should also pay their loan amortizations.

Attached as Annex A is a list of responsibilities per office and unit concerned, in relation to the BTIS System.

Annex A
List of Offices and Responsibilities

Project Planning (Pre-Investment Phase)

The LGU is primarily responsible in plan formulation activities of BTIS projects. Specific units in the LGU shall perform specific activities, as enumerated below :

<u><i>LGU Unit</i></u>	<u><i>Activity Responsibility</i></u>
1. LPDO	(a) Identification, , prioritization, recommendation of projects
2. LDC/Local Sanggunian	(a) Review, approval and inclusion of projects in local development plan; (b) Submission of local development plan to the RDC (c) Packaging of projects for funding purposes

Some NGO's may participate in project identification. The project financing stage of planning is an effort shared by the LGU, some national government agencies, some NGO's and financing institutions (both government and private). These are enumerated below :

<u><i>Agency / Organization</i></u>	<u><i>Activity Responsibility</i></u>
1. LDC, Local Executive, Local Sanggunian	(a) Fund allocation in local budget, if available (b) Submission of project (s) to NEDA and/or DILG for funding request; (c) Submission of project (s) to other funding sources such as CDF and other financing institutions
2. NEDA / DILG	(a) Consolidation and prioritization of submitted BTIS projects for financing allocation (b) Coordination with other financing sources
3. DBM	(a) Budget allocation sourced from national government fund (i.e. GAA) (b) Release of funds
4. Other Financing Sources	(a) Review, appraisal of submitted project (s) (b) Release of funds
5. CDA	(a) Supervision and registration of cooperatives
6. Local Cooperatives (NGO's)	(a) Formation of cooperatives to operate basic transport service

Project Implementation (Investment Phase)

As soon as funds are available, BTIS projects can now be implemented. The following agencies shall be responsible for the specified activities :

<u>Agency / Organization</u>	<u>Activity Responsibility</u>
1. DBM	(a) Releases BTIS infrastructure funds to DILG.
2. DILG	(a) Sub-allots BTIS infra funds to LGU thru provincial government concerned (b) Monitoring of implementation of projects funded from the national government and sources other than the local budget and CDF and providing status reports to government agencies and financial institutions
3. LGU : Local Engineer's Office (LEO)	(a) Implementation of local BTIS infrastructure projects
4. Provincial Engineer's Office (PEO)	(a) Supervises Implementation of infrastructure projects funded from national government funds, bilateral agreements and grants
5. LDC	(a) Monitoring of implementation of infrastructure projects and providing of status reports to financial institutions.
6. NGO's	(a) Monitoring of implementation of infrastructure projects
7. Local Cooperatives	(a) Procurement of transport service equipment

Project Operation (Post Investment Phase)

Upon completion of the infrastructure facilities and/or procurement of transport service equipment, said transportation facilities will now be used to provide the needed mobility. The agencies involved are :

<u>Agency / Organization</u>	<u>Activity Responsibility</u>
1. Local Sanggunian/Loan Executive	(a) Program/Allocates Funds for the maintenance of local BTIS infrastructure facilities
2. LGU : Local Engineer's Office	(a) Maintenance of local BTIS infrastructure facilities
3. Local Cooperatives	(a) Operation of transport services
4. LGU : LPDO and LDC	(a) Monitoring of operational characteristics
5. LGU : Treasurer's Office	(a) Payment of loan amortization
6. Funding institutions	(a) Acceptance of loan amortization payments

5.5 *BTIS Consultative Workshops*

5.5.1 *Introduction*

Part of the Terms of Reference of the BTIS Study is the conduct of consultative workshops for selected LGU representatives in order to test the adaptability and effectiveness of the proposed BTIS Planning, Financing, Institutional and Implementation Manuals drafted by the Consultants. Also, the workshops were intended to gather first hand comments and suggestions from the LGUs themselves regarding the contents of the Manual and how this could be applied and utilized in the future.

In connection with the above, the Study Team, in collaboration with the Counterpart Team from the central office of the NEDA conducted the workshops in three venues, according to the following schedule :

<i>Location</i>	<i>Venue / Date</i>	<i>Target Participants</i>
1. <i>Davao City</i>	<i>Marina Azul Resort Hotel, Matina, Davao City, 26-27 May 1997</i>	<i>Selected Municipalities from Mindanao</i>
2. <i>Cebu City</i>	<i>Centrepoint Hotel, Plaridel / Osmeña Blvd. Cebu City, 29-30 May 1997</i>	<i>Selected Municipalities from the Visayas and Masbate</i>
3. <i>La Trinidad, Benguet</i>	<i>Agricultural Training Institute, Benguet State University Compound, La Trinidad, Benguet, 2-3 June 1997</i>	<i>Selected Municipalities from Luzon and Romblon</i>

Participants specifically invited for the Workshops were the Municipal : Planning and Development Officers, Engineers and the Budget Officers of the selected municipalities.

The LGUs invited to send participants to the Workshops were selected based on the following criteria :

- (a) Municipalities should either be fifth or sixth class municipalities from the Club 20 priority provinces; and
- (b) From these 5th and 6th class municipalities, those invited have relatively larger number of barangays compared with other municipalities in the province.

Annex B shows the list of the invited LGUs / Municipalities. Of the 73 municipalities invited, a total of 28 LGUs involving 55 participants attended the workshops. The geographical distribution of the participants is as follows :

<i>Geographical Grouping</i>	<i>Number of LGUs</i>		<i>Number of Participants</i>		<i>No. of NRO and other Participants</i>
	<i>Invited</i>	<i>Attended</i>	<i>Invited</i>	<i>Attended</i>	
<i>Mindanao</i>	25	10	50	20	6
<i>Visayas</i>	24	8	48	14	4
<i>Luzon</i>	24	10	48	21	2
<i>Total</i>	73	28	146	55	12

Annex C shows the list of participants in the workshops.

5.5.2 *Workshop Structure*

The workshop was conducted for one and a half days per venue. The main agenda of the workshop are:

a) Opening Ceremony / Introduction / Briefing on Workshop Objectives

A NEDA Regional official was invited to deliver the opening remarks at the start of the workshop after which the BTIS Project Manager explained the background and rationale of the BTIS project. Consultants, guests and participants were then introduced one by one. To cap the opening ceremony, the Consultant explained the objectives and contents of the workshop, the schedule of activities and expected outputs from the participants. Then, the participants were given the chance to read the BTIS Manual for two (2) hours prior to its formal presentation and detailed explanation.

b) Consultant's Explanation of the BTIS Manual

The Consultants explained in detail and discussed the contents of the Manual with emphasis on the planning procedure proposed, the social dimensions of the project, the surveys to be conducted, guidelines on infrastructure implementation, financing mechanisms and institutional arrangements. The participants were encouraged to ask questions any time and to give comments as the discussions progressed.

c) Sample Planning Exercises

In order for the participants to have a feel of the planning methodology, they were given sample planning exercises where the methodology can be applied. In each of the venues, participants were divided into four groups and each group was asked to do actual BTIS planning work based on the assigned sample case given to each group. The four (4) sample problem exercises are attached as Appendix D.

d) Presentation of Outputs and General Discussions

The last activity of the workshop was the participants presentation by the of the planning outputs based on the sample exercises given. After the presentation, each group was also given the opportunity to express their comments / suggestions on the BTIS Manual.

Shown as Annex E. is a typical Workshop Program of Activities.

5.5.3 General Workshop Results

In general, the workshops are considered successful. The participants were very enthusiastic about the new methodology based on their responses and reactions and they were generally knowledgeable and competent from the types of questions asked and issues raised during the workshop. They were also able to apply with relative ease the planning methodology given in the Manual as can be gleaned from the presentation of the groups outputs on the sample exercises which they were asked to do.

The participants were also able to express valid comments regarding actual situations in their respective localities with regards to planning activities, funding problems, political interventions, institutional problems and project implementation. Many relevant suggestions were made which are deemed useful in finalizing the BTIS Manual.

5.5.4 Summary of Comments and Suggestions from Participants

5.5.4.1 General Comments on the Methodology

The proposed planning procedure in the draft manual was generally well accepted by the participants. They consider the whole process as simple and easy to follow, although some typographical errors were noted. The participants pointed out that copies of the Manual should have been sent to them prior to the scheduled workshop for them to study and for them to be able to prepare and to give substantial comments.

5.5.4.2 Specific Comments on the Planning Methodology

(a) On minimum basic needs (MBN) as social inputs

- * The MPDCs are already using a comprehensive data gathering form based on the MBN approach. The BTIS procedure can make use of these basic data. What needs to be gathered are additional accessibility data/information.

- * One participant suggested that the “Church or place of worship” be included as a basic service. However this suggestion has to be evaluated first by the social dimensions specialist.
- * It was also suggested that production and consumption activities be included as basic services. Again, this has to be evaluated based on the MBN scheme.

(b) On the rating and ranking criteria

- * There was a general agreement among participants on the priority ranking of basic needs as recommended in the study (1 for Survival Needs, 2 for Security Needs and 3 for Enabling Needs) in order to have a uniform basis for prioritization across municipalities. However, the 1996 MBN survey in CAR indicated that income generation / livelihood, which was included under Security Needs in the Manual, ranked number 1 in terms of priority. It was therefore suggested that this be included under Survival Needs and should therefore be given a priority index of 1. This has to be evaluated by the social dimensions specialist.
- * Regarding the relative weights of the four (4) criteria in rating and ranking transport paths, most participants seemed to agree on equal weights. However, some participants in the Baguio workshop suggested that as a general rule, equal weights could be applied but certain level of flexibility should be provided to LGUs to assign different weights based on local needs and conditions.
- * Several participants suggested that the “cost” of the basic transport facility be included as a criterion in the rating and ranking of transport paths. This suggestion was well taken and hence will be given due consideration in the finalization of the planning manual. In relation to this, some participants in the Baguio workshop further suggested that cost parameters for highland construction should include the cost of transporting construction materials which sometimes cost a lot more than the materials themselves.
- * A suggestion that land area and growth potential of an area be considered as criteria in rating and ranking of transport paths was also raised. Again, this has to be reviewed based on the MBN scheme.
- * As to the numerical ratings proposed in the manual, a question was raised on whether these were statistically based. It was explained by the Consultants that since these numbers were not based on actual statistics they are therefore subject to calibrations. Another question was raised during the presentation of the results of the sample exercises as some participants noticed that not a single path passed the 10.00 points rating to get a first priority ranking. This led the participants to suggest that relative priorities be used instead in categorizing the paths based on relative rankings. These are valid comments and the Consultants will review the said numerical ratings based on actual statistics. In relation to this, participants from CAR noted that in the highlands, travel time of 8 hrs. or longer is not uncommon and total municipal populations in CAR are significantly smaller compared to other regions.
- * A suggestion was made in the Baguio workshop that instead of using population and trip frequency as separate criteria, a combination of the two which would quantify passenger volume, would possibly be more realistic. This seems to be a valid observation and the Consultants will give this a serious look.

5.5.4.3 *Comments About BTIS Infrastructure Facilities*

- * In the Cordilleras, it was suggested that a more appropriate upgrading of links is from a trail to an all weather concrete footpath instead of a gravel road. To construct a road may not be

technically and economically feasible in mountain slopes because of the extent of excavation and the very high cost of construction involved.

- * There are infrastructure types which are unique in CAR, such as : tire paths (two strips of narrow pavement just for tires) and tramlines. The Consultants shall review the adoptability of these types.
- * As to water pipelines, some participants opined that these should not be included because it could "open the door" for other types of non-transport infrastructures and thus reduce the program focus, These could be considered in other appropriate programs anyway. In addition to this, a question was raised whether waiting sheds and water collectors could also be considered as falling under the BTIS category. The answer to this is explained above.

5.5.4.4 *Comments About the Alternative Financing Schemes*

- * Funding from the IRA is not sufficient especially in the 5th and 6th class municipalities. These municipalities tend to allocate this fund on more urgent projects such as health and education projects.
- * Funds sourced from loans from GFIs (e.g. LBP, PNB, GSIS, DBP) are not relevant to BTIS projects because LGU's in 5th and 6th class municipalities may not be capable of meeting the loan repayment requirements.
- * The BOT and other related schemes are definitely not applicable because these are for income generating projects which do not characterize BTIS projects.
- * The CDF/CIA are not reliable sources of financing because of the politics involved.
- * To make use of the IRA and CDF/CIA funds, it was suggested that a mandatory allocation for BTIS projects out of these funds be pushed. This needs further review. Another suggestion, which also needs further review is for the reversal of the current IRA share distribution of 60% for the national government and 40% for the LGUs.
- * Many participants suggested that funds sourced from foreign grants through bilateral and multilateral institutions be made known to the LGUs so that they can avail of them. The LGUs, by experience have found it easier to access funds from these sources. The participants suggested that more information about these grant facilities be made available for BTIS projects.
- * Majority of the participants support the proposal that a BTIS Fund be included in the annual GAA. It was requested that the Manual should include a structure/mechanism on this BTIS Fund. It was further suggested that if this fund would materialize, funds should be released directly to the municipalities and not to the provinces. The BTIS Fund in the GAA is actually a recommendation of the Consultants. In finalizing the Manual, the recommendation will further be enhanced by a proposed mechanism to ensure an effective implementation of the scheme.
- * Other suggested funding sources are : the Local Government Empowerment Fund, and the share in postage stamps sale. These will be reviewed.
- * A question was raised on whether the BTIS project funding will include an allocation for operation and maintenance expenses. This again would need some review.

5.5.4.5 *Comments About the Proposed Institutional Arrangements*

- * The Manual should clarify the role of the RDCs in all stages of the BTIS project development process. This is to ensure consistency of the BTIS plan with regional plans.

- * There should be a legal basis for the institutionalization of the BTIS planning process at all local levels. The BTIS method should not only be acceptable at the municipal but also at the provincial and the regional levels.

5.5.4.6 *Comments About Resources Allocation of the BTIS Fund*

- * An effective prioritization process for resources allocation is needed so that national funds will really go to the poorest of the poor. A suggested process for resource allocation is for the national government to prioritize regions, the region to prioritize provinces, the province to prioritize municipalities. At the municipality level, the MPDO's prioritize BTIS projects which interlink barangays.
- * The Consultants will be proposing in the final version of the Manual a set of criteria to prioritize provinces and municipalities which will be the basis in programming the beneficiary areas for BTIS projects.

5.5.4.7 *Comments About BTIS Project Monitoring*

- * Suggestions were made that BTIS project implementation be monitored. A monitoring body shall be created at the local level and local funds be made available for the monitoring activities of this body. This body shall be mandated to impose sanction on offenders. It was further suggested that a portion of the BTIS Fund (say 1%) be allocated for monitoring activities of local monitoring bodies. The Consultants will look into this and propose a monitoring mechanism.

5.5.4.8 *Issues and Concern/Other Comments*

- * There were some apprehensions expressed on the technical capability of those who will be gathering data and making project prioritization.
- * Some MPDCs felt that they already have an overload in work activities. They suggested that additional logistics and training for the implementation of the BTIS process be provided.
- * Some mentioned about the fate of the IRAP project which mainly consisted of data gathering and no projects could be implemented due to lack of funding.
- * The participants suggested that NEDA should provide assistance to LGUs, for instance, in getting concessions from GFIs for the latter to reduce the requirements/documents for LGUs.
- * Some economic parameters be associated with BTIS projects because congressmen usually require some degree of prioritization according to the economic importance of local projects if LGUs would want to avail of their CDF and CIA funds.
- * Existing planning and prioritization processes for government resource allocation is not effective mainly because of politicking.
- * In the CAR, an issue was raised on the receptivity of local people to development. It was mentioned that there had been instances where local people resisted development projects because of cultural and environmental preservation reasons.
- * There was a suggestion that the name BTIS be changed to "Local Transport Infrastructure Study" because the latter would be more descriptive of the activity involved, one which is undertaken by the Local Government Unit.

The above comments, concerns and suggestions will be reviewed and evaluated by the Consultant and will be considered in the finalization of the BTIS Manuals.

ANNEX B - LIST OF MUNICIPALITIES INVITED FOR THE BTIS WORKSHOPS

VENUE	REGION	PROVINCE	NUMBER OF MUNICIPALITIES INVITED *	TOTAL NUMBER OF PARTICIPANTS IN REGION
<i>DAVAO CITY WORKSHOP MAY 26, 27 1997</i>	<i>ARMM</i>	1) <i>SULU</i>	6	30
		2) <i>MAGUINDANAO</i>	6	
		3) <i>TAWI-TAWI</i>	3	
	<i>CARAGA</i>	1) <i>SURIGAO DEL SUR</i>	5	20
		2) <i>AGUSAN DEL SUR</i>	5	
				DAVAO VENUE TOTAL = 50
<i>CEBU CITY WORKSHOP MAY 29, 30 1997</i>	<i>VI</i>	1) <i>ANTIQUE</i>	5	12
		2) <i>GUIMARAS</i>	1	
	<i>VIII</i>	1) <i>BILIRAN</i>	3	30
		2) <i>EASTERN SAMAR</i>	7	
		3) <i>SOUTHERN LEYTE</i>	5	
	<i>V</i>	1) <i>MASBATE</i>	3	6
<i>BAGUIO CITY WORKSHOP JUNE 2, 3 1997</i>	<i>CAR</i>	1) <i>IFUGAO</i>	4	42
		2) <i>ABRA</i>	5	
		3) <i>KALINGA</i>	2	
		4) <i>APAYAO</i>	2	
		5) <i>BENGUET</i>	4	
		6) <i>MT. PROVINCE</i>	4	
	<i>II</i>	1) <i>BATANES</i>	1	2
	<i>IV</i>	1) <i>ROMBLON</i>	1	4
		2) <i>AURORA</i>	1	

** Invited are 5th and 6th class municipalities of the province as indicated in attached sheets.*

*** MUNICIPALITIES INVITED FOR THE DAVAO CITY VENUE WORKSHOP**

A) TAWI-TAWI:

5th CLASS MUNICIPALITIES

BALIMBING
LANGUYAN
SIMUNUL
SITANGKAI*
TANDUBAS

6th CLASS MUNICIPALITIES

SAPA-SAPA *
TURTLE ISLAND
SOUTH UBIAN *

B) MAGUINDANAO:

5th CLASS MUNICIPALITIES

BARIRA
BULDON
DATU PIANG *
KABUNTALAN *
SOUTH UPI
SULTAN SA BARONGIS *
TALAYAN *

6th CLASS MUNICIPALITIES

DATU PAGLAS *
MATANOG *

C) SULU

5th CLASS MUNICIPALITIES

PANGUTARAN
PARANG
SIASI *
TALIPAO *

6th CLASS MUNICIPALITIES

INDANAN *
KALINGALAN CALUANG
LUGUS
LUUK
MAIMBUNG *
MARUNGAS
PANAMAO
PANDAMI
PANGLIMA ESTINO
PATA *
PATIKUL
TAPUL *
TONGKIL

D) SURIGAO DEL SUR:

5th CLASS MUNICIPALITIES

CAGWAIT
CARASCAL
CORTES *
LIANGA
LINGIG *
MADRID
MARIHATAG
SAN AGUSTING
TAGBINA *
TAGO*

6th CLASS MUNICIPALITIES

BAYABAS
CARMEN *

E) AGUSAN DEL SUR:

4th CLASS MUNICIPALITIES

BUNAWAN
LA PAZ
LORETO
PROSPERIDAD *
ROSARIO
SAN LUIS *
SIBAGAT *
TRENTO
VERUELA

5th CLASS MUNICIPALITIES

STA JOSEFA *
TALACOGON *

*** MUNICIPALITIES INVITED FOR THE CEBU CITY VENUE WORKSHOP**

A) BILIRAN:

5th CLASS MUNICIPALITIES

CAIBILIRAN
NAVAL *

6th CLASS MUNICIPALITIES

ALMERIA
BILIRAN
CABAGAYAN
CULABA *
KAWAYAN *
MARIPIPI

B) EASTERN SAMAR:

5th CLASS MUNICIPALITIES

ARTRECHE
BALINGIGA
CAN AVID *
LLORENTE
MAYDOLONG
ORAS *
SALCEDO *
SN. JULIAN
SALAT
TAFT

6th CLASS MUNICIPALITIES

BALANKAYAN
GEN. MC. ARTHUR *
GIPORLOS *
HERNANI
JIPADPAD
LAWAAN
MASLOG
MERCEDES
SAN. POLICARPIO *
QUINAPONDAN *

C) SOUTHERN LEYTE:

5th CLASS MUNICIPALITIES

BONTOC *
HINUNANGAN *
LILOAN
MACROHON
MALITBOG *
ST. BERNARD
SN. JUAN
SILAGO

6th CLASS MUNICIPALITIES

ANAHAW
HINUNDAYAN
LIBANGON
LILOAN
LIMASAWA
P. BURGOS
PINTUYAN *
SN. RICARDO
TOMAS OPPUS *
SAN FRANCISCO *

D) MASBATE

5th CLASS MUNICIPALITIES

BALUD *
BALENO
CLAVERIA
DIMASALANG
ESPERANZA
MANDAON
MOBO
MONREAL
PALANAS
PLACER *
SAN FERNANDO
SAN JACINTO

6th CLASS MUNICIPALITIES

BATUAN *
P.V. CORPUZ

E) ANTIQUE:

5th CLASS MUNICIPALITIES

ANINIG
BARBAZA *
BUGASONG
CALUYA
CULASI
DAO
HAMTIC *
LAUA-AN *
PANDAN
PATNONGON
SAN REMIGIO *
SABASTE
TIBIAO
VALDERAMA

6th CLASS MUNICIPALITIES

BELIZON *
LIBERTAD *

F) GUIMARAS:

4th CLASS MUNICIPALITIES

BUENAVISTA
JORDAN

5th MUNICIPALITIES

NEW VALENCIA *

* MUNICIPALITIES INVITED FOR THE BAGUIO VENUE WORKSHOP

A) IFUGAO:

5th CLASS MUNICIPALITIES:
AGUINALDO LAGAWE *
A. LISTA * LAMUT
BANAUE MAYOYAO*
KLANGAN

6th CLASS MUNICIPALITIES

TINOC *
HUNDUAN

B) ABRA

5th CLASS MUNICIPALITIES

TUBO *
TINOG

6th CLASS MUNICIPALITIES

JOLINEY LUBA
BUCAY * MALIBCONG
BUCLOC MANABO
DUGIOMAN PENARUBIA
DANGLAS PIDIGAN
DOLORES PILAR *
LACUB SALAPANDAN
LAGANGILANG * SAN ISIDRO
LAGAYAN SAN JUAN *
LAGINDON SAN QUINTIN
LAPAZ TAGUM
LICUAN-BAAY VILLA VISCIOSA

C) KALINGA/APAYAO

5th CLASS MUNICIPALITIES:

BALBALAN
FLORA
LUNA *
PUDTOL *
RIZAL
TANUDAN
TINGLAYAN *

6th CLASS MUNICIPALITIES

LUBUANGAN
PASIL *
STA. MARCELA

D) BENGUET

5th CLASS MUNICIPALITIES

ATOK
BAKUN
BAKOD
BUGUIAS *
KABAYAN *
KAPANGAN *
KIBUNGAN
SABLAN

6th CLASS MUNICIPALITIES

TUBLAY *

E) MT. PROVINCE

5th CLASS MUNICIPALITIES:

BAUKO *
BONTOC
NATONIN
PARACELIS
TADIAN *

6th CLASS MUNICIPALITIES

BARLIG
BESAO *
SABANGAN *
SADANGA
SAGADA

F) ROMBLON:

5th CLASS MUNICIPALITIES

CAJIDIOCAN
LOOC
SN. AGUSTIN
SN. FERNANDO

6th CLASS MUNICIPALITIES

ALCANTARA
BANTON *
CALATRAVA
CONCEPCION
CONCUERA
FERROL
LOOC
SN. ANDRESS
SN. JOSE
STA FE

G) AURORA:

5th CLASS MUNICIPALITIES

DINGALAN
DILASAG

6th CLASS MUNICIPALITIES

DINALUNGAN *

H) BATANES

6th CLASS MUNICIPALITIES

BASCO * MAHATAO
ITBAYAT SALTANG
IVANA UYUNGAN

Annex C - List of Workshop Participants

A. Davao City Venue

NAME	POSITION	MUNICIPALITY/PROVINCE
1) Saidali O. Akmad	Municipal Kagawad	Datu Paglas, Maguindanao
2) Edgar A. Esperat	MPDC	Datu Paglas, Maguindanao
3) Alfredo Macion	Municipal Engineer	Datu Paglas, Maguindanao
4) Arcadio Paz Duruin	Mun. Budget Officer	Datu Paglas, Maguindanao
5) Saudi U. Ampatuan	Municipal Mayor	Datu Piang, Maguindanao
6) Saidali T. Usman	Mun. Budget Officer	Datu Piang, Maguindanao
7) Salipada T. Quituar	Municipal Engineer	Datu Piang, Maguindanao, ARMM
8) Ahmad P. Kamid	MPDC	Kabuntalan, Maguindanao
9) Akmad M. Amputuan	Mun. Planning Dev't. Coor.	Sariff Aguak, Maguindanao
10) Halil A. Lucas	Municipal Engineer	Sariff Aguak, Maguindanao
11) Debualeg M. Utto	MPDC	Sultan sa Barongis, Maguindanao
12) Sedik M. Buga	MPDC	Talayan, Maguindanao
13) Banda A. Salik	Asst. Mun. Engineer	Talayan, Maguindanao
14) Eddie L. Tamais	Mun. Planning Dev't. Coor.	Pata, Sulu
15) Jaime A. Ludovico	Mun. Budget Officer	Pata, Sulu
16) Merilyn S. Exclamador	Mun. Planning Dev't Coor.	Siasi, Sulu
17) Sali A. Kayting	Mun. Planning Dev't Officer	South Ubian, Tawi-Tawi
18) Garwas S. Asaad	Mun. Planning Dev't Officer	Sapa-Sapa, Tawi-Tawi
19) Rolando N. Sanchez	Mun. Budget Officer	Prosperidad, Agusan del Sur
20) Yolando R. Estillore	Mun. Engineer	Prosperidad, Agusan del Sur
21) Macapado D. Benito	Planning Officer	RPDO, ARMM
22) Larry B. Sollano	Sr. EDS	NEDA Region XI
23) Angelito Albores	EDS I	NEDA Region XI
24) Mario M. Realista	EDS II	NEDA Region XI
25) Mary Bernadette P. Suarez	Project Officer	SOSKSARGEN
26) Marlet M. Matondo	Computer Operator II	SOSKSARGEN
27)		

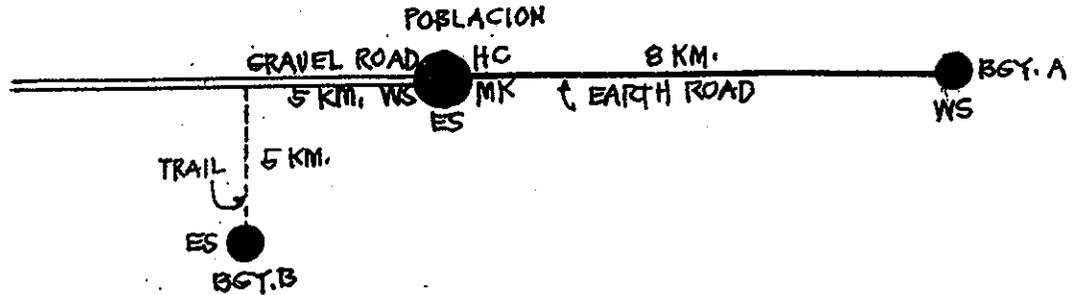
B. Cebu City Venue

NAME	POSITION	MUNICIPALITY/PROVINCE
27) Leticia B. Delgado	MPDC	Nueva Valencia, Guimaras
28) Marie D. Gaitan	Mun. Budget Officer	Nueva Valencia, Guimaras
29) Josephine O. Servando	Mun. Engineer	Nueva Valencia, Guimaras
30) Carlos D. Suan	MPDC	Libertad, Antique
31) Rudy M. Valdez	MPDC	San Policarpio, Eastern Samar
32) Artemio M. Maiso	Mun. Engineer	Oras, Eastern Samar
33) Isidro C. Magno	Mun. Engineer	Gen. Mac Arthur, Eastern Samar
34) Irwinio A. Navidad	MPDC	Gen. Mac Arthur, Eastern Samar
35) Antonio C. Yunque Jr.	MPDC/MCR	Pintuyan Southern Leyte
36) Eriberto M. Lamban	Mun. Engineer	Pintuyan, Southern Leyte
37) Raniel R. Cabasisi	Mun. Engineer	Malitbog, Southern Leyte
38) Ranulfo L. Capilitan	MPDC	Malitbog, Southern Leyte
39) Fidel A. Correa	Mun. Planning & Dev't. Coor.	Hinunangan, Southern Leyte
40) Russ Mark T. Gamallo	EDS II	NEDA Region VII Cebu City
41) Albert D. Ligan	EDS II	NEDA Region VII Cebu City
42) Lourdes F. Vale	Sr. EDS	NEDA Region VII Cebu City
43) Eriito H. Vitor	Sr. EDS	NEDA Region VIII Leyte

C. Baguio City Venue

NAME	POSITION	MUNICIPALITY/PROVINCE
44) Lunes D. Siloy	Mun. Engineer	Tublay, Benguet
45) Prudencio M. Mendoza	MPDC	Tublay, Benguet
46) Berry K. Sangao, Jr.	Mun. Engineer Ass't	Kabayan, Benguet
47) William P. Dulnuan	Mun. Planning Dev't Coor.	Lagawe, Ifugao
48) Ceasar R. Jarayata	Engineering Asst.	Lagawe, Ifugao
49) Alberto C. Garello	Mun. Planning & Dev't Coor.	Pudtol, Apayao
50) Darlo T. Arnedo	Municipal Eng'r	Pudtol, Apayao
51) Basilia M. Rivera	Mun. Budget Officer	Pudtol, Apayao
52) Alfredo G. Diano	Municipal Engineer	Bauko, Mt. Province
53) Constancio T. Wooden Sr.	MPDC	Bauko, Mt. Province
54) Salvador O. Decoy	Mun. Planning & Dev't Coor.	Sabangan, Mt. Province
55) Nestor C. Padloan	Mun. Engineer	Tadian, MT. Prov.
56) Estefania D. Lacob	Mun. Budget Officer	Tadian, MT. Prov.
57) Gaudelia T. Zapata	Mun. Budget Officer	Bucay, Abra
58) Romeo G. Trinidad	Mun. Engineer	Bucay, Abra
59) Jeronimo Leonardo R. Torres	MPDC	Bucay, Abra
60) Marino A. Astrande	Community Affairs Asst. II	Lagangilang, Abra
61) Raul B. Edwin	HRMO-I	Lagangilang, Abra
62) Elpidio V. Galinato, Jr.	Mun. Engineer	San Juan, Abra
63) Dennis S. Viado	Mun. Budget Officer	San Juan, Abra
64) Gregorio P. Ariz III	Chief, Infra Div.	NEDA-CAR
65) Aris N. Della, Jr.	EDS II	NEDA-CAR

Annex D1 - Sample Exercise No. 1



(a) Population Data :

Barangay	Population	No. of Elementary School Children
A	1,050	120
B	1,320	160
Poblacion	4,000	980

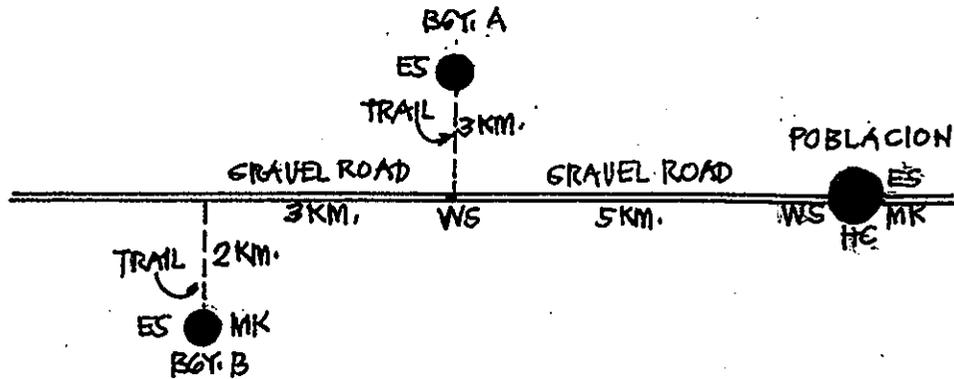
(b) Trip Frequency (trips/hh/day)

From / To	MK	WS	ES	HC
Poblacion	1.00	-	1.00	0.10
A	0.60	2.0	1.00	0.10
B	0.60	2.0	1.00	0.10

(c) Existing Transport Services :

- * Tricycles along main road : Ave. Waiting Time = 45 minutes
Ave. Travel Speed = 20 kph
- * Average Walking Speed = 4 kph

Annex D2 - Sample Exercise No. 2



(a) *Population Data :*

Barangay	Population	No. of Elementary School Children
A	1,040	92
B	1,670	158
Poblacion	3600	1,200

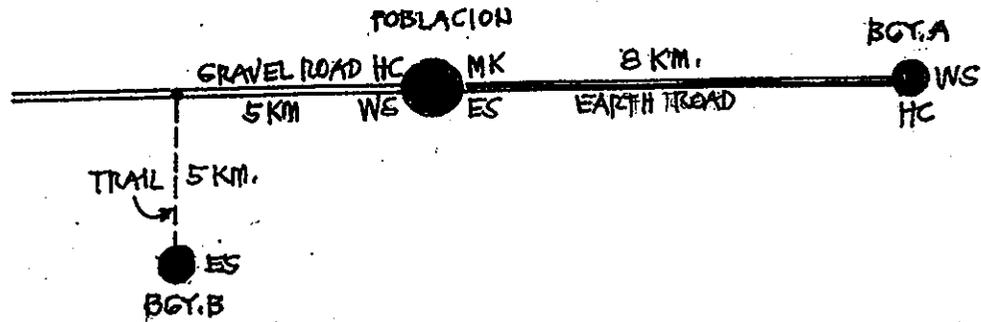
(b) *Trip Frequency (trips/hh/day)*

From / To	MK	WS	ES	HC
Poblacion	1.20	-	1.50	0.20
A	1.00	2.0	1.00	0.15
B	0.80	2.0	1.00	0.10

(c) *Existing Transport Services :*

- * Tricycles operate along main road : Ave. Waiting Time = 35 minutes
Ave. Travel Speed = 20 kph
- * Average Walking Speed = 4 kph

Annex D3 - Sample Exercise No.3



(a) Population Data :

Barangay	Population	No. of Elementary School Children
A	1,620	160
B	1,020	100
Poblacion	3,900	1,000

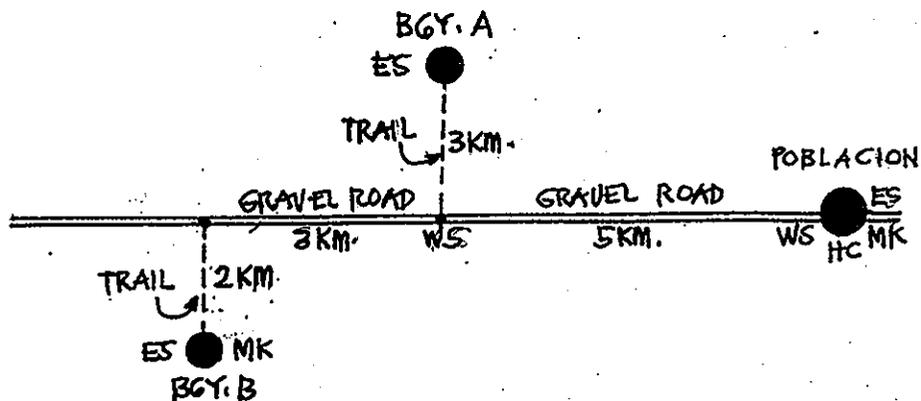
(b) Trip Frequency (trips/hh/day)

From / To	MK	WS	ES	HC
Poblacion	1.00	-	1.30	0.20
A	0.70	2.0	1.10	0.10
B	0.60	2.0	1.00	0.20

(c) Existing Transport Services :

- * Tricycles along main road : Ave. Waiting Time = 30 minutes
Ave. Travel Speed = 20 kph.
- * Average Walking Speed = 4 kph

Annex D4 - Sample Exercise No.4



(a) **Population Data :**

Barangay	Population	No. of Elementary School Children
A	1,806	143
B	1,112	102
Poblacion	4,000	1,200

(b) **Trip Frequency (trips/hh/day)**

From / To	MK	WS	ES	HC
Poblacion	1.20	-	1.60	0.30
A	0.60	2.0	1.00	0.20
B	0.90	2.0	1.00	0.10

(c) **Existing Transport Services :**

- * Tricycles along main road : Ave. Waiting Time = 30 minutes
Ave. Travel Speed = 20 kph
- * Average Walking Speed = 4 kph

Annex B

Consultative Workshop on the Identification and Provision of Basic Transport Infrastructure and Services

Program of Activities

May 29, 1997

- 8:00 - 9:00 ----- Registration
- 9:00 - 9:30 ----- Opening Ceremony
- I National Anthem (NEDA)
- II Welcome Remarks (NEDA)
- III Opening Remarks (MR. BEN CORONA, Chief EDS
NEDA Regional Office VII)
Representing Director Jose Romeo Escandor, Jr.
- IV Introduction of the Team and Participants (NEDA)

TECHNICAL SESSIONS

- 9:30 - 9:45 ----- Workshop Objective and Structure (Consultant)
- 9:45 - 10:00 ----- Coffee Break
- 10:00 - 12:00 ----- Reading Time
- 12:00 - 1:00 ----- Lunch Break
- 1:00 - 3:00 ----- Presentation of the BTIS Manual for Planning,
Financing and Institutional Arrangements
- 3:00 - 3:15 ----- Coffee Break
- 3:15 - 5:00 ----- Continuation of Presentation
- 5:00 - 6:30 ----- Open Forum
- 6:30 - 7:30 ----- Dinner
- 7:30 - 9:30 ----- Workshop on the Planning Framework
- 9:30 - 11:30 ----- Cocktails

May 30, 1997

- 8:00 - 10:00 ----- Presentation of Workshop Outputs by Group
- 10:00 - 12:00 ----- Consolidation of Comments/Wrap-up Session
- 12:00 - 1:00 ----- Lunch Break

* Check out after Lunch.

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 *On the BTIS Planning and Implementation Framework*

The framework developed in this Study would be utilized as a tool for LGUs in the planning and implementation of basic transport facilities in their localities. In the planning stage, the framework will enable the local planner to determine existing accessibility deficiencies to basic human services and to prioritize these deficiencies in order to address problem areas according to their degree of urgency. The prioritization scheme will also enable the local planner to program, over the medium term their basic transport requirements. The implementation guidelines will also enable the LGU's, through their local engineering office, to be directly involved in providing the needed transport infrastructure, taking into consideration local resources, thus maximizing their use and contribution to socio-economic development.

BTIS projects are grassroots solutions to grassroots problems which have been neglected over the years. Without these basic facilities, the affected communities will never be able to link themselves to the mainstream of economic development. All over the country, these affected communities / barangays could be thousands in number. It is felt that these areas also have growth and development potentials and these could only be realized if the government commits itself in providing them the basic links as has been declared as a policy in the Medium Term Philippine Development Plan, 1993 - 1998. Although, the Study focused on the identification and provision of basic transport facilities as they relate to the basic human needs, the implementation of these projects would be the take-off ground in ultimately connecting the remotest barangays of the country to the major cities and regional centers in particular and to the rest of the country in general. In view of this, it is therefore recommended that the government should now gear towards putting these basic links in place through the BTIS approach with the LGUs having a major role and actively participating to make this a successful and sustainable undertaking.

6.2 *Social Impact of BTIS Project*

The method commonly used in evaluating benefits of rural projects involves quantifiable factors in monetary terms. In the case of BTIS projects, benefits are difficult to quantify in the sense that these are mostly social in nature. Since BTIS is in line with the government's poverty alleviation efforts, projects under BTIS can be categorized as social projects.

BTIS projects seek to provide the poorer sector of society with the necessary links to their minimum basic survival, security and enabling needs. These address the initial stage of human development. At the start, there may not be quantifiable economic benefits that can be generated by the project, however, the fact that the basic human needs of the community are already being addressed, this sector of our society could now actively participate in the economic development process because of their improved accessibility. From the basic, these people could now proceed to higher levels of socio-economic activities. And this is attainable because of the basic services which have been made very accessible through the implementation of BTIS projects.

6.3 *Proposed Legislative and Administrative Agenda*

The BTIS scheme can be considered as one of the pillars in achieving the government's poverty alleviation objectives. In order to ensure that the transport needs of the so-called depressed areas are

addressed to, there should be an institutionalized mechanism to make the implementation of BTIS projects a reality. The following measures are hereby recommended to achieve this goal :

- (a) For legislative action - the inclusion in the Annual General Appropriations Act (GAA) of a National Fund earmarked for BTIS project implementation. LGUs wishing to avail of this fund should pass certain requirements to be determined by a national government agency such as the NEDA or the DILG, or both.
- (b) For administrative action by the executive branch of government - the institutionalization of the BTIS Planning and Implementation Framework through a department / administrative order of the DILG and / or the NEDA enjoining all LGUs to adopt the said framework should LGUs wish to avail of the funds from the national government or other external sources allocated for BTIS projects. In line with this, a unit shall be formed from existing government personnel of NEDA and DILG to handle all BTIS-related activities. An ad-hoc group can be mobilized for an interim period after which a formal group can be established, if so required.