



Expediente (31995)

Instituto Latinoamericano y del Caribe de Planificación Económica y Social
NACIONES UNIDAS-CEPAL-PNUD GOBIERNOS DE AMERICA LATINA Y EL CARIBE

Latin American and Caribbean Institute for Economic and Social Planning
UNITED NATIONS-ECLAC-UNDP LATIN AMERICAN AND CARIBBEAN GOVERNMENTS

Institut Latino-Américain et des Caraïbes de Planification Economique et Sociale
NATIONS UNIES-CEPALC-PNUD GOUVERNEMENTS DE L'AMERIQUE LATINE ET DES CARAIRES

AREA OF ADVISORY SERVICE PROGRAMMES



MINISTRY OF ECONOMIC DEVELOPMENT OF BELIZE
PROJECT BANK
MANUAL FOR THE APPRAISAL
AND MONITORING OF PROJECTS
Belmopan
April, 1988

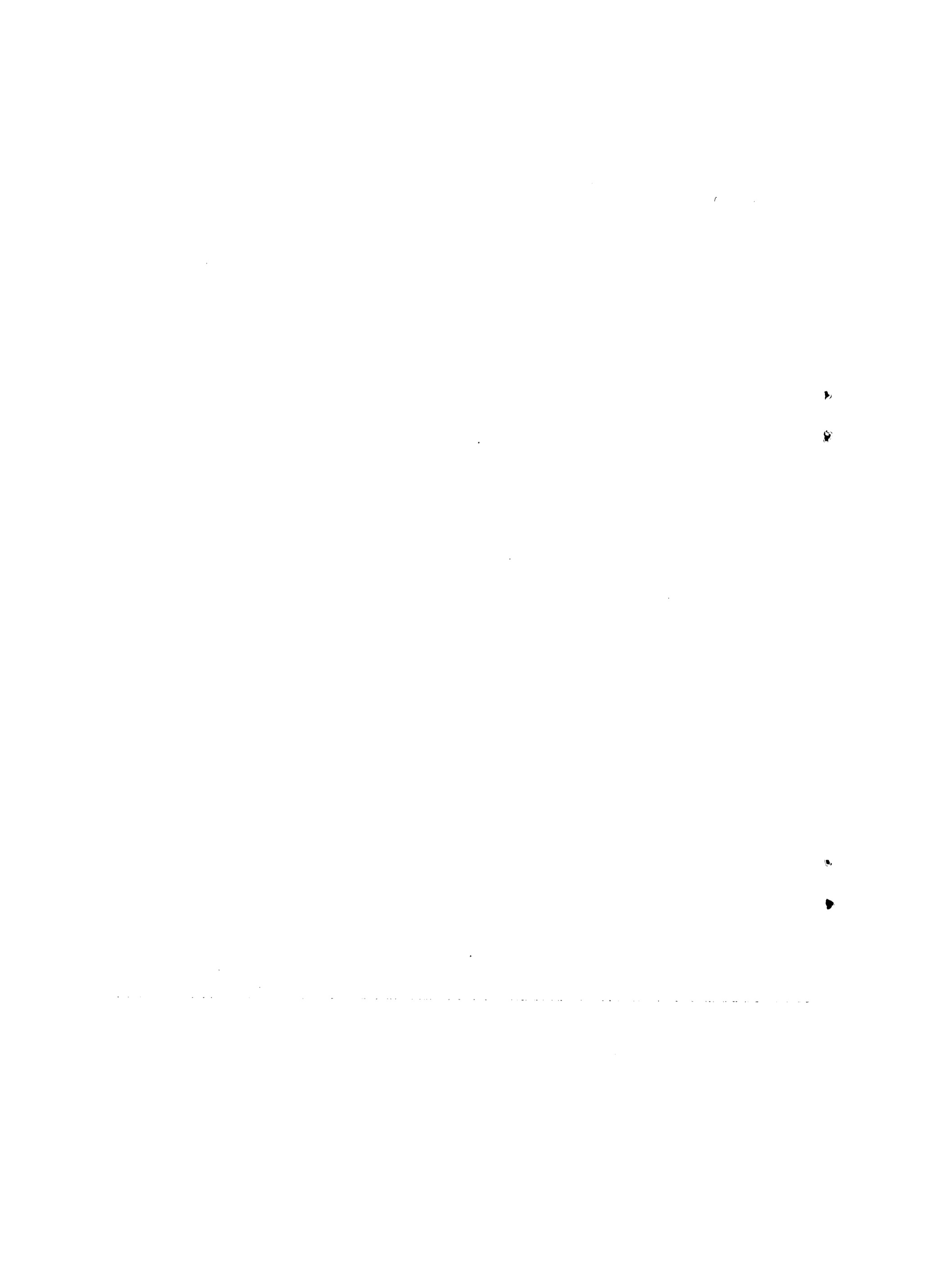


MINISTRY OF ECONOMIC DEVELOPMENT
OF BELICE

PROJECT BANK

MANUAL FOR THE APPRAISAL
AND MONITORING OF PROJECTS

BELMOPAN
APRIL 1988



PROJECT BANK FOR THE MINISTRY OF ECONOMIC DEVELOPMENT
MANUAL FOR THE APPRAISAL AND MONITORING OF PROJECTS

		Page
I. -	THE PROJECT BANK	1
1.1.	- General concepts	1
1.2.	- What is a Project Bank?	2
1.3.	- How does it work?	3
1.4.	- Institutional Framework	3
1.5.	- Present status and future activities	5
II. -	PROJECT LIFE CYCLE	8
2.1.	- Project Idea	10
2.2.	- Project Profile	11
2.3.	- Prefeasibility Stage	13
2.4.	- Feasibility Stage	15
2.5.	- Design Stage	17
2.6.	- Construction or Investment Stage	18
2.7.	- Operation	18
III. -	PREPARATION OF PROJECTS	19
3.1.	- Actual situation and its optimization	19
3.2.	- Analysis of alternatives	20
3.3.	- Market study of the product or service	21
3.4.	- Technological study	23
3.5.	- Production process study	24
3.6.	- Optimum size study	25
3.7.	- Project location study	25
3.8.	- Organizational study	26
3.9.	- Project financing study	27
IV. -	INVESTMENT DECISION CRITERIA	28
4.1.	- Net Present Value	28
4.2.	- Internal Rate of Return	31
4.3.	- Benefits/Cost Ratio	32
4.4.	- Capital Recover Period	32
4.5.	- Equivalent Annual Cost	33
4.6.	- Scoring models	34
4.7.	- Other criteria	34
4.8.	- Optimal project starting date	35
V. -	PRIVATE AND SOCIAL EVALUATION	37
5.1.	- Private evaluation	37
5.2.	- Social evaluation	40
5.3.	- Sensitivity analysis	43
5.4.	- Common errors in project evaluation	44
VI. -	PROCEDURES AND FORMS FOR PROJECT PRESENTATION	45
6.1.	- Forms for project presentation	45
6.2.	- Recommended procedures for project presentation	51
	BIBLIOGRAPHY	53
Annex 1	FORMS FOR PROJECT PRESENTATION	
Annex 2	EXAMPLE OF PROJECT EVALUATION AT THE PROFILE LEVEL AND INFORMATION TO BE REGISTERED IN THE PROJECT BANK	
Annex 3	RULES FOR ASSIGNING NAMES TO PROJECTS	
Annex 4	SECTORS AND SUBSECTORS	
Annex 5	SUGGESTIONS FOR THE IMPROVEMENT OF THE PROJECT BANK FOR THE MINISTRY OF ECONOMIC DEVELOPMENT	

•
•

•
•

I. — THE PROJECT BANK

1.1. GENERAL CONCEPTS

The search of economical and social progress by the developing countries necessarily involves the problem of using limited resources in the most efficient way. Manpower, capital, foreign currency and natural resources are usually scarce or limited and must be optimally assigned and used in order to achieve the highest possible growth rate.

Using resources for a project aimed at a given objective, necessarily implies that less resources are available for pursuing other objectives. If the resources are allocated in the most efficient way, more objectives can be pursued simultaneously.

The most simply macroeconomic models state that the economic growth rate of a country is related to the amount of capital investment. More complex models relate growth to some other factors, and make a distinction between investment in physical and in human capital. Attention has also been given to the influence of the quality of investment on the growth rate.

The contribution of the preinvestment process to economic development resides therefore in helping assigning investment resources to those projects that make a greater contribution to national development. To achieve this goal it is necessary to obtain and use efficiently information about the contribution that a given project can make to the national economy.

It is also important to realize the relation that the preinvestment process has with Planning and Budgeting. Economic planning must be translated into projects. In that sense, the preinvestment process allows to assess the contribution that a

given project makes to achieve the goals of the plan. Also, given that in the different stages of the preinvestment process a good estimation of project cost must be made, the information obtained becomes fundamental to elaborate the national budget.

1.2. WHAT IS A PROJECT BANK ?

The process of preinvestment generates sizable amounts of information about projects. Furthermore, at any time there are usually many projects at each of the different stages of the project life cycle (see Chapter II). Tracking all projects and making an efficient use of the information generated becomes very difficult.

An answer to this problem is the implementation of a Project Bank which is basically an information system about projects. But that is just the start. The information not only needs to be stored, it needs to be rearranged and presented in the most useful way in order to support the investment decision making process.

Also there is a need for methodologies for preparing the information that has to be registered in the system. In fact, any information system can be only as good as the information it manages. Therefore, the methodologies are needed in order to make sure that the information is prepared in a consistent and standardized way, which is a prerequisite for making comparisons between projects and prioritizing them.

But applying these tools is no trivial task. A project data bank must be supported by trained personnel that can make an efficient use of it. That creates a need for implementing training programs on the theory and usage of the Project Bank.

1.3. HOW DOES IT WORK ?

To be able to become a useful tool a Project Bank needs to include the information that is required for supporting the investment decision making process. Of course it is impossible for the Project Bank to register all information available about a given project; it includes only summarized information.

To gather the information about all projects currently being considered or undertaken, a data collection procedure must be instituted and forms for summarizing the information that is going to be feeded to the system must be designed. These forms should be filled by the institutions that are sponsoring each project, because only they know exactly all fundamental aspects of the project.

This summarized information is then entered into the Project Bank. Once this step has been completed, different reports can be generated for supporting Budgeting and Planning. For example, reports can be defined in order to show the funds required for covering recurrent costs of the projects currently being considered for financing. Or reports can be generated in order to estimate the manpower needed for the construction stage of a given set of projects. Also reports could be generated showing sources and uses of funds for investment. Actually, if the system includes all relevant information for the decision making process, reports can be generated to satisfy the needs of information related to investment projects of any institution.

1.4. INSTITUTIONAL FRAMEWORK

The Project Bank is not an autonomous entity that can survive outside the framework of the institutions and procedures that actually exist within the government for dealing with the

- i) It is necessary to Modify the structure of the database as suggested in Annex 5 in order to make it more powerful and fully satisfy the needs of the Ministry of Economic Development.
- ii) Programs in DBase III Plus must be developed in order to turn the Project Bank into an really user friendly system that can be managed without extensive training. It is also necessary that the data entered into the Project Bank is validated by the programs to avoid wrong classifications due to typing errors.
- iii) Methodologies for the appraisal of public investment projects at the profile level are needed in order to improve the quality and usefulness of the information in the Project Bank. This methodologies should be used to do a preliminary screening of public sector projects in order to assign further efforts and resources to those projects with the highest potential.
- iv) Given that the methodologies are going to be used for the social evaluation of projects, it is necessary to estimate the shadow prices of labor, currency and the social discount rate. Also the value to be assigned to time should be determined given its importance for appraising projects such as construction or resurfacing of roads, construction of bridges, improvement of airport terminals, etc.
- v) Training programs should be implemented in the following areas:
 - Basic training in the concepts and usage of the Project Bank, for all its users.
 - Extensive training in using Dbase III and in programing in DBase III for those who are going to be in charge of

the development and improvement of the Project Bank in the Ministry of Economic Development.

- Training in using the methodologies for project appraisals for all people in the government who are going to be in charge of preparing the information to be send to the Ministry of Economic Development.

Steps 1 to 5 are usually referred to as Preinvestment Process. They comprise studies which main objective is to ascertain the convenience of undertaking the project. It is necessary to emphasize that not all projects go through all stages; some stages can be skipped if the reduction in uncertainty they could provide is not worth the additional cost of undertaking further studies.

In what ensues, a brief description of each of the steps of the project cycle is made, in order to illustrate its importance and the kind of information that is generated. For any given project, the Project Bank is going to keep track of the stage it is currently in, and will also maintain a summary of the generated information.

2.1. PROJECT IDEA

A project idea arises as a result of unsatisfied needs, general policies, a development plan, from other projects or studies currently been undertaken which require complementary work in other fields, from institutional policies, from natural resources surveys or just because it seems to be economically convenient to undertake the project.

However, this step in the project cycle is not limited to just identifying a project idea. That idea needs to be polished and presented in a way suited for convincing others of devoting further efforts to it.

When stating and defining the problem that requires a solution it is necessary to describe as clearly as possible the actual situation and the goals to be achieved. Cost and benefits should also be roughly estimated.

Also at this stage an effort should be made to identify possible solutions to the problem or ways of satisfying the needs. Alternatives that are clearly infeasible or inferior should be discarded.

The objective of this stage is to gain the necessary information for deciding about the convenience undertaking studies on the project, postponing further work on the idea or eventually abandoning it.

At this stage, the following information should be registered in the data collection forms and entered into the Project Bank:

- Project number and file reference number
- Project name
- Geographical location (District - Village or Town)
- Sector and Subsector
- Project description
- Expected results
- Total investment cost (rough estimation)
- Project status (Idea)

2.2. PROJECT PROFILE

At this stage all available information regarding the project should be collected. For example, information about cost of similar projects, markets, beneficiaries, etc. should be sought in libraries, ministries or agencies or from persons with experience in the field. Recurrent costs should also be estimated in order to assess the feasibility of financing them.

PROJECT LIFE CYCLE

The viability of all alternatives identified should be carefully checked and their cost estimated. An evaluation at market prices (without correction for taxes, subsidies or social prices) should be attempted. Given that cost and benefit estimation are preliminary, it is better to work with ranges (maximum - minimum) instead of just one cifer.

Those aspects which are going to require further study should be identified and the cost of such studies should be roughly estimated.

Based on the outcome of this preliminary appraisal, a decision should be made about which alternatives can be discarded and which merit further study. Eventually, in the case of small projects with a low degree of uncertainty and where there is only one feasible alternative, or where one alternative is clearly superior to the others, a decision can be made to proceed directly to the stages of design and construction.

Of course it is possible that at this step it is realized that it is not worthwhile to proceed with the project or that it is better to postpone further work on it.

Given that this stage in the project life cycle does not require a high level of expertise and that the information to be used for the preliminary appraisals should be available information, project profiles should be elaborated by the institutions sponsoring the projects and be used to justify the need for assigning resources for further studies or for proceeding to the design and construction stages.

At this stage, the following information should be registered or updated (if necessary) in the data collection forms and entered into the Project Bank:

- Project description
- Expected results
- Employment generated
- Shedule
- Project cost
- Project financing
- Project status (Profile)
- Indicators
- House Resolution Number

2.3. PREFEASIBILITY STAGE

The basic objective of this stage is to evaluate the project alternatives and select the alternative that is more convenient for the country. Doing this requires the allocation of resources in order to obtain the necessary information.

Basic aspect that should be covered at this stage are:

- The identification of administrative measures or minor investment that could improve the actual situation. This process is known as optimization of the actual situation. The resulting scenario should be used as a basis for estimating the additional benefits that could be achieved by each of the project alternatives.
- In deep market studies to obtain accurate estimations of demand, offer, marketing practices and prices. This data is fundamental for evaluating the economic viability of the project. For project in the area of social services this kind of information (demand for the service and offer available) is fundamental for dimensioning the project.

- Preliminary engineering studies. As a result of these studies some alternatives can eventually be discarded due to technical problems. Also more accurate cost estimates can be obtained and possible problem areas can be identified.

- Outlining the organization required for running the projected facilities or operations. Based on this information and on the demand and offer studies, recurring costs as well as working capital requirements should be determined.

The evaluation can be undertaken in two steps. At the first step all feasible alternatives should be evaluated and prioritized. At the second stage, the most convenient alternative (or alternatives if two or more show similar results) should be reevaluated doing an extra effort in order to obtain further information about the variables that present a greater uncertainty. For those variables a sensitivity analysis should be done. It is recommended that the sensitivity analysis covers at least increments in the estimated investment and recurrent costs, reduced demand, lower prices for goods or services produced and higher prices of the inputs required in the production process.

Finally a recommendation should be made about the convenience of undertaking further studies in order to reduce the uncertainty associated with the decision, proceeding directly to the design and construction stages, postponing the project or abandoning it.

Given that doing a prefeasibility study requires a high level of technical expertise as well as a good knowledge of project evaluation techniques, these studies are usually done by, or with the participation of, consultants.

Most public sector projects go usually from this stage to design and construction. Only mayor and technically complex projects require doing feasibility studies.

At this stage, the following information should be registered or updated (if necessary) in the data collection forms and entered into the Project Bank:

- Project description
- Expected results
- Employment generated
- Shedule
- Project cost
- Project financing
- Executing and financing agencies
- Project status (Prefeasibility)
- Indicators
- House Resolution Number

2.4. FEASIBILITY STAGE

The basic objective of this stage is to achieve a further reduction in the uncertainty associated with the decision of undertaking the project. In that sense it constitutes the last stage in the process of successive certainty gains at the expense of higher costs.

At this stage the selected alternative should be carefully and comprehensively analyzed, without foreclosing modifications to it that could help in better achieving the project objectives. Some topics which are usually covered in feasibility studies are:

- Determination of the optimum size of the project. This aspect, which should have been already covered in the

prefeasibility study, is reanalyzed in deep in order to determine the optimum size of all the elements that make up the chosen alternative. Usually this process calls for a trade-off between size and risk.

- Fine tuning of technical aspects and estimated costs, based on manufacturer specifications and quotations for the equipment and materials required for the project.
- Defining the optimum schedule for implementing the project.
- Establishing the organization that is needed to run the project.
- Studying all the financing aspect of the project.

Finally a decision must be taken about the convenience of starting with the design stage, postponing the project or abandoning it.

At this stage, the following information should be registered or updated (if necessary) in the data collection forms and entered into the Project Bank:

- Project description
- Expected results
- Employment generated
- Schedule
- Project cost
- Project financing
- Executing and financing agencies
- Project status (Feasibility)
- Indicators
- House Resolution Number

2.5. DESIGN STAGE

The design stage is the final study stage before construction.

This is the stage at which the engineering or architectural designs are made. Also the operating manuals and detailed specifications for equipment should be written.

Doing the engineering designs may require making some on-site studies or improving on them if they were undertaken at the feasibility stage. Examples of such studies are topographical studies and soil mechanics.

A result of this stage is a very precise estimation of the total project cost. That estimation should be checked against the total project cost used in the previous stage for appraising the project. It should not be forgotten that this is the last opportunity to avoid a costly mistake.

At this stage, the following information should be registered or updated (if necessary) in the data collection forms and entered into the Project Bank:

- Employment generated
- Schedule
- Project cost
- Project financing
- Executing and financing agencies
- Project status (Design)
- Indicators
- House Resolution Number

2.6. CONSTRUCTION OR INVESTMENT STAGE

At this stage the organization for undertaking the project must be created and funds allocated. Equipment and materials are acquired and the project is implemented.

The following information should be registered or updated (if necessary) in the data collection forms and entered into the Project Bank:

- Actual results
- Employment generated
- Schedule
- Project cost
- Project financing
- Executing and financing agencies
- Project status (Construction)
- House Resolution Number

2.7. OPERATION

This is the stage of the project life cycle at which the expected benefits should be obtained. It is important to realize that this stage usually requires the allocation of funds for working capital or for covering recurrent cost. This last aspect has a special importance in public sector projects, given that usually funds for covering this cost are limited.

III. — PREPARATION OF PROJECTS

In the previous chapter the different stages of the project life cycle were covered and a link between them and the Project Bank was established. In doing so, a lot of typical studies to be undertaken were cited. In order to clarify the content and purpose of the different aspects to be analyzed while appraising a project, an outline of the studies to be undertaken is included in this chapter.

The main aspects covered in a project appraisal should be:

- Diagnostic and optimization of the current situation.
- Analysis of alternatives.
- Market studies about the product or service.
- Technological studies.
- Production process.
- Optimal location study.
- Optimal size study.
- Organizational study.
- Financing study.

3.1. ACTUAL SITUATION AND ITS OPTIMIZATION

Cost and benefits estimated in the private or social evaluation of projects are always measured against the current situation. Therefore, in order to avoid assigning benefits to the project that could be achieved with minor improvements of the actual situation, a thorough diagnostic should be made identifying all improvements that can be made by implementing administrative measures or doing minor investments.

Examples of measures that should be studied in order to obtain an optimized actual situation are:

- Streamlining procedures and reorganizing available space in services which attend public, before building new facilities.
- Rationalizing usage of streets by changing traffic directions and improving traffic signals, before undertaking the construction of new lanes.
- Reassigning schoolchildren to schools with excess capacity or implementing a two shift system instead of building a new school.
- Optimizing space usage and reducing the period of bed occupancy by patients before expanding a health facility.

3.2. ANALYSIS OF ALTERNATIVES

The identification of alternatives is a fundamental in the project appraisal process. A great effort must be devoted to finding alternative solutions to the problem at hand. There is almost no problem that has a unique solution.

Desto greater the number of alternative solutions identified, greater is the possibility of finding the best solution to the problem.

Typical alternatives are:

- Expanding an existing facility, remodeling it, using another existing facility or building a new one.
- Repairing bad areas on a road or street or resurfacing it.
- Manufacturing a product locally or importing it.

3.3. MARKET STUDY OF THE PRODUCT OR SERVICE

A market study should cover at least the following main topics:

- Market identification
- Offer
- Demand
- Marketing procedures

i) Market identification: The first step in any market study is to clearly identify what is (are) the specific market(s) in which the project is going to operate. Aspects to be studied in order to fully characterize the market(s) for the project are:

- Scope of the market(s), which can be defined in terms of a geographical area; age, sex, education or well-being of the consumers or any other characteristic of the target group(s).
- Number of consumers in each target group, including projections of it's size.
- Income of target groups. Also spending habits and disposable income should be studied.
- Actual and projected availability of substitute and complementary products.
- Pricing policy.
- Market trends that could affect offer or demand for the product or service provided by the project.
- Competition in the market, identifying each competitor provider of the product or service and assessing its future plans.

With all this information a clear identification of the actual can be obtained, which is fundamental for analyzing and projecting offer and demand.

- ii) Offer analysis: It is a study of the actual production of the product or service. Producers should be identified and their expansion plans investigated. Substitute and complementary goods should be identified and their market analyzed.

This analysis should also be done in public sector projects. A few examples of topics to be covered while analyzing public sector projects are:

- Number of hospital beds available in the area and its surroundings.
- Number of students that can be enrolled in schools in the area.
- Capacity of existing roads and streets.
- Actual production capacity of drinking water or capacity of sewerage systems.
- Number of people per hour that can be attended at existing facilities (airport, restaurant, public office).

- iii) Demand analysis: This is one of the most complex parts of a project appraisal study. Actual demand must be studied and the reasons underlying its existence must be identified. Projections must be made of future demand, ideally by consumer group or geographical area. The required information can be obtained from consumer surveys, existing statistics or special studies (e.g. vehicle counting in roads).

To obtain demand projections the most commonly used methods are:

- Time series analysis.
- Regression analysis relating demand with variables such as total population or population in the target group, gross national product, income, etc.
- Estimations based on income, consumption levels and elasticities.

Examples of demand estimation for public sector projects are:

- Hospital projects: Actual and expected bed occupancy rates at existing and/or projected facilities and number of patients turned down for lack of capacity.
- Schools: Actual and expected enrollment at schools in the project area.
- Airports: Number of passengers (inbound, outbound) and planes arriving over a given period; hourly distribution of demand.
- Roads and streets: number of vehicles using existing or alternative roads classified by type of vehicle; hourly distribution of demand. For new roads: Traffic based on estimated output and needs of the opened area.

iv) Marketing process study: This part of the study should cover areas such as:

- Marketing channels, estimating the actual and future volumes to be marketed through each of them.
- Packing and sanitary regulations that may affect the product.
- Means of transportation used to deliver the product.

An example for public sector projects is determining the means of transportation to be used by patients or schoolchildren to access the facilities or eventually by passengers to access a bus terminal or an airport.

3.4. TECHNOLOGICAL STUDY

The aim of the technological study is to identify and analyze alternatives from a technical standpoint. That includes analyzing the viability of each alternative and estimating its cost. In the prefeasibility stage the analysis should include a predesign, at the feasibility stage the basic engineering for the project should

be done and at the design stage detailed engineering should be finished.

This study should indicate:

- Equipment, machinery and facilities to be used in the project and therefore the cost of implementing each alternative.
- Materials, personnel and services required in the production process and therefore the recurrent costs and working capital requirements of each alternative.

Some of the studies that are intimately related to the technological study are:

- Production Process Study.
- Optimum size studies.
- Site selection study.

3.5. PRODUCTION PROCESS STUDY

A production process is basically a sequence of transformations that are applied to some inputs in order to produce a given product or service. The aim of this analysis is to identify the most convenient production process. In that sense, it is intimately tied with the technological study given that a certain production process implies a specific technology.

In the service sector, production process studies are aimed at establishing the most efficient way of providing a given service. For example, in an hospital an optimum outlay of all facilities should be established in order to avoid unnecessary movement of patients and visitors around the facility; in offices that attend public the optimum location of clerks should be established so as to minimize space requirements and speed the service.

3.6. OPTIMUM SIZE STUDY

The objective of this study is to establish, for a given alternative, the size that makes it possible to achieve the project objectives at the minimum cost or that maximizes profits. A basic input for this part of the study is the market study and it is also closely tied with the technological study. Examples of size determination problems in public sector studies are:

- Number of beds in a hospital.
- Number of students to be enrolled in a new school.
- Size of waiting rooms and customs area and number of clerks in an airport terminal.
- Number of lanes in a road.
- Number of acres to be irrigated or drained.

3.7. PROJECT LOCATION STUDY

In some projects location is preestablished, as in mining projects and rehabilitation of existing facilities. In some other cases it is necessary, and not always easy, to choose an optimal location for the project.

Examples of projects that usually require location studies are schools, health facilities, hotels, agricultural projects, manufacturing projects and power or water treatment plants.

The process of selecting the optimal location of the project can be divided in macro-localization and micro-localization studies. I.e. first it is necessary to select the geographical area in which the project is going to be located and afterwards the optimal site within that geographical area must be identified.

Main factors that usually bear on the selection of a site for implementing the project are:

- Resources to be employed.
- Means of transportation availablely.
- Characteristics of the consumers of the product or users of the services provided.
- Availability of manpower, both skilled and unskilled.
- Availability and prices of land.
- Climatic conditions.

Typical criteria for selecting the best location include highest Net Present Value or Minimum Total Cost of providing the service.

3.8. ORGANIZATIONAL STUDY

The aim of this study is twofold: establishing the organizational requirements and the procedures to be followed for implementing the project and designing the organizational structure required for running the project.

The study should determine the optimal institutional framework for the implementation of the project, considering demand for skilled and unskilled workers. A result will be an estimation of the overhead cost during the construction stage. Also problems such as a lack of trained personnel to be in charge or act as counterpart during the project construction stage can be identified.

The second part of the study should establish the number of people needed to operate the project and the qualifications they require. A result of this analysis would be an estimation of recurrent cost for covering personnel expenses. Also the need for implementing training programs should be established.

3.9. PROJECT FINANCING STUDY

Project financing is a crucial aspect to study. No project can be implemented without money. But not only must the availability of funds be established. It is also necessary to study if the flow of funds matches the fund requirements of the project. Two stages can also be distinguished in this study.

First, it is necessary to evaluate the availability and timing of funds available for the construction period. The second aspect is to evaluate the availability of funds for covering recurrent cost and, eventually, for servicing the debt that may arise as part of the project financing arrangements.

IV. INVESTMENT DECISIONS CRITERIA

The basic objective of the entire preinvestment process is to select those project that optimize the use of scarce resources for the achievement of the national goals. Therefore there is a need for defining criteria to prioritize and select projects. Some of the most commonly used criteria are:

- Net Present Value (NPV)
- Internal Rate of Return (IRR)
- Benefit/Cost Ratio
- Capital recover period.
- Equivalent annual cost.
- Scoring models.

The aim of this chapter is to define briefly this criteria and mention some others in order to suggest possible methods to prioritize projects with the help of the Project Bank.

4.1. NET PRESENT VALUE

Net Present Value (NPV) is used in order to compare the cost of the project with the benefits it is going to generate on an equal basis. The problem with directly deducting project costs from project benefits resides in that cost and benefits usually occur at different points in time. Therefore it is necessary to "actualize" costs and benefits to a common date. (A certain amount of money today is worth more than the same amount in a couple of years into the future, even after correcting for inflation. Just ask yourself what would you prefer or think about how much money you would have in the future if you invest it today).

INVESTMENT DECISIONS CRITERIA

Conceptually, NPV measures, in current money, how much richer the investor is going to be in the future if he undertakes the project.

The basic formula for calculating the NPV of a project is:

$$NPV = \sum_{t=0}^n \frac{(B_t - C_t)}{(1 + r)^t}$$

Where: B_t = Benefits in year "t"
 C_t = Costs in year "t"
 r = Discount rate
 n = Evaluation horizon in years.

Using this criteria, it would be convenient to undertake a given project only if it has a positive NPV, which means that the investor is going to be richer in the future by undertaking the project.

As an example consider a project with the following stream of cost and benefits:

Year 1: Investment:	\$ 50000		
Year 2: Recurring costs:	\$ 10000	Income:	\$ 30000
Year 3: Recurring costs:	\$ 10000	Income:	\$ 30000
Year 4: Recurring costs:	\$ 10000	Income:	\$ 30000
Year 5: Recurring costs:	\$ 10000	Income:	\$ 30000
Year 6: Recurring costs:	\$ 10000	Income:	\$ 30000
		Residual value:	\$ 10000

Using a 12% discount rate, the Net Present Value of this project is:

$$NPV = -50000/1.12 + 20000/1.12^2 + 20000/1.12^3 + 20000/1.12^4 + 20000/1.12^5 + 30000/1.12^6 = 24794$$

INVESTMENT DECISIONS CRITERIA

Although one of the best criteria for selecting projects, NPV does not reflect capital investment required for obtaining a certain NPV. Therefore, to prioritize projects, it is better to use the ratio NPV/Capital Investment. Using this criteria the projects with the highest ratio should be chosen.

As an example consider the previous project and another project with the following net cash flows:

Year 1:	- 200000
Year 2:	60000
Year 3:	60000
Year 4:	60000
Year 5:	60000
Year 6:	80236

This project has also an NPV of \$ 24794, however, investment required to gain that money is much higher. For the first project the ratio NPV/Investment would be 0.5 while for the second it would be 0.12.

It is also necessary to be aware that the economic environment changes from year to year. There are going to be years in which there are plenty funds to be invested and other years in which available investment capital is very limited. Therefore a more realistic case would consider a discount rate that changes from year to year. I.e. NPV would not be calculated using a unique discount rate; instead the discount rate is going to be different for each year. However, if there are no good forecast about future availability of funds, it is suggested that a unique discount rate, equal to the actual discount rate, is used for calculating NPV.

4.2. INTERNAL RATE OF RETURN

b

The Internal Rate of Return (IRR) of a project is defined as the discount rate that makes its NPV equal to zero. To estimate this rate, the formula for the NPV is set equal to zero and the resulting value for "r" is calculated.

For example, for the first project with NPV = \$ 24794, an IRR of 31% is obtained by solving the equation:

$$-50000/1.12 + 20000/1.12^2 + 20000/1.12^3 + 20000/1.12^4 + 20000/1.12^5 + 30000/1.12^6 = 0$$

For the second project discussed an IRR of 17% is obtained by following the same procedure.

The decision criteria using IRR calls for undertaking a project if its IRR is higher than the cost of capital (opportunity cost of the capital to be invested) or relevant interest rate for the investor.

Some of the limitations of IRR as a decision criteria are:

- If there are some years in the future in which cost are greater than benefits, i.e. if net cash flows of the project presents more than one change of sign over time, more than one interest rate would satisfy the equation NPV = 0.
- The estimation of the IRR assumes that it is possible to reinvest positive cashflows at the same rate, which is usually not feasible given that it is supposed than we are choosing the best investment alternative at hand.
- IRR does not allow to select mutually exclusive projects, given that a higher rate of return not necessarily means a higher NPV.

4.3. BENEFITS/COSTS RATIO

This criteria calls for choosing those projects that show a higher Benefits/Costs ratio. Its main limitation is that it does not take into account the period in time where costs and benefits occur. For example, consider the following projects:

Project 1: Cost 100, Benefits 200 in year 1

Project 2: Cost 100, Benefits 100 in year 5 and 101 in year 10.

Clearly, although Project 2 has a higher ratio (2.01) than Project 1 (2.00), Project 1 is better than Project 2.

4.4. CAPITAL RECOVER PERIOD

This criteria measures the number of years required to recover the capital invested in the project. To calculate this parameter, benefits from the project are deducted from the investment cost, in chronological order, until zero is reached. The number of years whose benefits had to be deducted is defined as the Capital Recover Period.

As an example consider the first project discussed. Investment was 50,000 and a net income of 20,000 was perceived once it started operating. Therefore three years are needed in order to recover capital invested (2 and 1/2 if income is monthly).

This criteria is used mainly in high risk situations where it is desirable to recover investment as soon as possible. It is not a good criteria for selecting projects because it does not consider the entire stream of costs and benefits that the project is going to generate over its life span.

4.5. EQUIVALENT ANNUAL COST

This criteria is based on distributing investment over the project life span in such a way as to obtain actual investment when those flows are actualized. To the investment amount assigned to each year the maintenance and operating cost are added. The resulting amount is the annual equivalent cost.

The formula for estimating these values is:

$$EAC = (I - L) \frac{r(1+r)^n}{(1+r)^n - 1} + L*r + D$$

Where: I = Investment
 L = Residual value
 r = Discount rate
 n = Evaluation horizon in years
 D = yearly running cost

This criteria is used to compare alternatives in projects whose benefits can not be estimated in economic terms and where all alternatives satisfy equally well the project objectives. Then EAC can be calculated and the alternative with the lowest EAC should be selected.

As an example, the equivalent annual cost for the first project used as example in 4.1 would be:

$$EAC = (50000 - 10000) \frac{0.12*(1+0.12)^6}{(1+0.12)^6 - 1} + 10000*0.12 + 10000$$

$$= 20929$$

4.6. SCORING MODELS

It is also possible and sometimes convenient to rank projects based on subjective criteria. In order to take into account subjective aspects of a given project in the most objective way, scoring models are used.

In a scoring models, criteria against which the projects are going to be evaluated are defined before starting the evaluation process. These criteria can be based on national policies, on a macroeconomic development plan or on national security. Of course, any of the before described criteria can be included. Also weights for the different criteria must be assigned and a grading system must be selected.

Once an agreement is reached concerning this evaluation framework, evaluators start assigning grades to each project based on how well it meets each criteria. These grades are then multiplied by its assigned weight to obtain the evaluator's grade for the project. A final grade is calculated for each project as the average weighted grade assigned to it by each evaluator. Finally, projects with the highest grades are selected.

In applying scoring models, it is recommended that when substantial differences in the grades assigned by different evaluators to the same project are observed, an effort is done in order to achieve greater consistency. Very dissimilar grades could be reflecting badly defined criteria, which are interpreted differently by each evaluator.

4.7. OTHER CRITERIA

The criteria described before, although being the most commonly used for choosing projects, are not necessarily the

INVESTMENT DECISIONS CRITERIA

only ones. With the help of the Project Bank, other indicators can be constructed in order to help in the investment decision making process. As an example:

- The ratio total employment generated by the project could be calculated and used to select those projects that create more jobs with fewer money (those with higher ratios).
- The total cost for each student enrolled could be calculated in school projects, in order to choose those projects that create a greater educational capacity with a limited amount of money.
- The ratio local input/agency input could be calculated and used to select those projects with a lower ratio, so as to maximize total investment by optimizing the use of local resources assigned as counterpart of foreign resources.

4.8. OPTIMAL PROJECT STARTING DATE

Not only is there a need for criteria to prioritize and select projects; it is also necessary to determine the optimal date for starting a given project.

The procedure for determining the optimal date for starting a project is based on NPV. The criteria calls for postponing a project if its NPV increases when it is postponed. The optimal starting date would be the one that maximizes the project's NPV. It is important to bear in mind that NPVs for all starting dates should be actualized to the same date.

INVESTMENT DECISIONS CRITERIA

Let's suppose we have a project with an evaluation horizon of "n" years. Alternative A would call for starting immediately while Alternative B would call for starting next year. NPV for both alternatives would be given by:

Alternative A:

$$NPV_A = \sum_{t=0}^n \frac{(B_t - C_t)}{(1+r)^t}$$

Alternative B:

$$NPV_B = \sum_{t=1}^{n+1} \frac{(B_t - C_t)}{(1+r)^t}$$

Where: B_t = Benefits in year "t"
 C_t = Costs in year "t"
 r = Discount rate
 n = Evaluation horizon in years.

The criteria would call for postponing the project if $NPV_A < NPV_B$. It should be realized that in Alternative B, we are postponing investment 1 year and therefore losing the benefits to be accrued on year one and gaining the benefits of year $n+1$. Therefore, if there is no increase in the investment cost when postponing the project one year, this criteria can also be applied as follows:

Postpone the project until:

$$B_1 > I*r + (B_{n+1} / (1+r)^{n+1})$$

Where I =Investment, B_1 = Net benefit in year "i".

For projects with a long evaluation horizon or when using a high discount rate, this criteria can also be approximated by:

Postpone the project until:

$$B_1 > I*r$$

V. PRIVATE AND SOCIAL EVALUATION

The appraisal of a project consist in comparing the costs with the benefits generated by it over a given period of time. That analysis is aimed at obtaining relevant information for deciding on its implementation. The comparison of cost and benefits can be done from a private standpoint or from a social standpoint. To visualize the differences between this two kind of evaluation, first the procedures for private evaluation of projects will be outlined and then the differences with a social evaluation will be discussed.

5.1. PRIVATE EVALUATION

The private evaluation analyses the flow of costs and benefits that are directly generated by a given project and are perceived by the investor. Those flows are estimated based on market prices.

There are basically two approaches used in private project evaluation. The first approach consists in analyzing only the economic convenience of undertaking the project, without considering the way it is going to be financed. That approach is equivalent to assuming that the project is going to be financed exclusively with capital owned by the investor.

The second approach, which is called financial evaluation, measures the rentability obtained by the investor for the capital he has allocated to the project, depending on different financing alternatives. This approach is different from the previous one in that it considers loans as income and interest and debt service payments as costs.

PRIVATE AND SOCIAL EVALUATION

The following table summarizes all information needed for the economic evaluation of a project from a private standpoint. The information should be obtained from the studies described in Chapter IV.

COST AND BENEFITS TO BE CONSIDERED IN A PRIVATE EVALUATION

ITEM	YEARS			
	1988	1989	1990LAST YEAR
GROSS INCOME				
Sales of goods				
Income from services				
Residual value				
Other income				
TOTAL INCOME				
INVESTMENT				
Engineering Design				
Land				
Preparation of land				
Equipment				
Licenses and permits				
Construction				
Supervision				
Consultants				
Other costs				
Subtotal				
Non expected costs (as % of subtotal)				
Working Capital				
TOTAL INVESTMENT COST				
RECURRENT COSTS				
Labor				
Materials				
Fuel or energy				
Administrative costs				
Selling costs				
TOTAL RECURRENT COST				
TAXES				
TOTAL COST				
NET				INCOME

Once all the required information for filling the previous form (or a similar one) has been collected, the resulting yearly totals must be actualized using the corresponding discount rate in order to calculate the Net Present Value (NPV) of the project. These same flows are used for calculating the Internal Rate of Return of the Project (IRR).

INVESTMENT DECISIONS CRITERIA

It is likely that during the construction stage all cash flows will be negative, beginning to decrease as the project enters into the production stage. Later, once the project is operating at full capacity, net income should be positive in order to cover cost and leave some utility.

One category that was not included in the previous table is depreciation. For appraising a project, depreciation should not be considered because the investment cost has already been considered and because it does not represent a cash outlay.

However, depreciation should be considered while estimating taxes to be paid, given that it constitutes a tax shelter. The procedure for doing this is outlined in the following table:

	<u>Example</u>	
Income	100.000	
- Variable costs	60.000	
- <u>Fixed costs</u>	<u>20.000</u>	
= Gross income	20.000	
- <u>Depreciation</u>	<u>8.000</u>	
= Income before taxes	12.000	
- <u>Taxes</u>	<u>6.000</u>	(50%)
= Income after taxes	6.000	
+ <u>Depreciation</u>	<u>8.000</u>	
= Net cash flow	14.000	

Working Capital is required for covering the cost of goods needed for the operation of the project during its useful life. The main assets whose cost need to be covered are: raw materials, materials and replacement parts, goods in process and finished goods inventory, money in current accounts and receivables.

Working capital is an investment that has to be made at the beginning of the project and which is recovered at the end of its useful life. Therefore it should be considered as a cost in the year the project enters into operation and as an income in the last year of the evaluation horizon.

5.2. SOCIAL EVALUATION

The social evaluation of a project consists in comparing the cost and benefits that a given project reports to the society (country), i.e. it tries to estimate the impact the project is going to have on the well-being of the society.

The main difference between the social evaluation and the private evaluation arises from the fact that the private evaluation uses market prices for estimating costs and benefits while the social evaluation uses social prices.

Market prices are the prices that can be observed in day to day transactions among people. For example, market prices are the price of bread at the bakery, the prices of agricultural products at the local market, the rates charges by utilities, the wages that have to be paid for hiring workers, the interest rate of a loan at the bank, etc.

On the other hand, social or shadow prices reflect the real cost of the resources. I.e. they try to estimate the productivity loss in the economy when a given resource is taken away from its actual or potential use in order to be used by the project.

In perfect market conditions both evaluation are going to be coincident. However, perfect market conditions are a mere theoretical exercise, and therefore usually social and private

prices are going to be different. Among the most common market distortions are taxes, import duties, subsidies, monopolies, monopsonies, fixed prices and quotas. These distortions are reflected in the prevailing market prices and are therefore taken into account in the investment decision making process by private investors. There are also some goods, known as Public Goods, for which no price can be observed, even if there is a cost of providing them. Examples of such goods are roads and parks.

However, from a social standpoint, taxes, import duties and subsidies do not represent a real cost or benefit for the country given that they are only a transfer of resources among individuals and/or institutions. Also using public goods has a cost, given that they wear and must be regularly maintained.

To estimate the social rentability of a project, it is necessary to use social or shadow prices for the resources it uses and for goods or services it produces. Therefore market prices have to be corrected in order to reflect the real cost for the society of the resources used and the real value of the goods produced. The most commonly used social prices are the social price of labor, the social price of foreign currency and the social discount rate.

The social (or shadow) cost of labor is going to depend on the prevailing conditions and the distortions in the labor market (basically from differences between offer and demand prices). In conditions of full employment and in a perfect labor market, the social cost of labor will be equal to the private cost due to the fact that getting a worker for the project would necessarily be at the expense of some other project or activity, therefore reducing the labor force in other areas and consequently economic output.

The most common distortions in the labor market are those due to the existence of taxes or subsidies for hiring workers, social security to be paid by the employer or the employee, minimum wages and wages above market prices achieved by unions.

The social discount rate is a weighted average of the social productivity of capital and the cost of getting funds for investment in the country. The weights to be used depend on the elasticities of the savings and investment functions. Also reflected in the social discount rate is the fact that project financing by way of foreign loans may reduce the country's ability for obtaining further loans and raise the rate at which they can be obtained.

Most projects either use foreign currency for importing equipment or materials or generate foreign currency from goods exported or by substituting imports. To estimate the social cost of foreign currency, import and export duties or taxes, as well as quotas, have to be taken into account. The social price of a unit of foreign currency should reflect the additional imported goods it could generate or the value of the exported goods that could be kept in the country. To estimate this parameter it is also necessary to estimate the elasticities of offer and demand for foreign currency.

The existence of secondary effects also produces differences between the social and the private evaluation. Secondary effects are the cost or benefits that are generated by the project and which affect third parties and do not directly the project sponsors. Examples of such effects are pollution produced by industrial facilities and damage to fishing produced by a dam on a river. As a positive secondary effect could be cited the reduction in the number of mosquitoes and associated illnesses in a land drainage project.

Usually it is very difficult to estimate the magnitude and cost (benefit) of the secondary effects of a project. Even so, it is important to describe as clearly as possible all secondary effects in order to make the decision maker aware of them.

A project can also generate indirect effect, which are changes in the market of related goods (either substitute or complementary). It is likely that those markets also present distortions and therefore there would be a need for estimating the social costs and benefits due to changes in those markets. This costs and benefits should then be added to the costs and benefits directly generated by the project.

Finally a project can also have intangible effects. This are aspects related to the project which can be identified but not quantified. Examples are strategic or national security implications (like in the development of border areas) and income redistribution to poorer sectors of the country's population. This effects should also be clearly described in the project appraisal.

5.3. SENSITIVITY ANALYSIS

Given that in any project evaluation estimates have to be made about a lot of variables, and that based on those assumptions cost and benefits are calculated, a certain degree of uncertainty is associated with the project indicators. The decision maker is going to undertake the project only if certain minimum criteria are met. Therefore, it is necessary to estimate how much the value of certain variables can change, without causing the selected project indicators to fall below the acceptably minimum value. In that sense, sensitivity analysis helps in assessing the risk involved in undertaking the project, especially in cases where the expected value of some variables is difficult to predict.

The sensitivity of the project's indicators (NPV, IRR or other) to variations in all fundamental variables should be estimated. Some of the variables that should be included in a sensitivity analysis are investment, running cost, demand, offer by competitors or market prices and growth rate of population or customers.

5.4. COMMON ERRORS IN PROJECT EVALUATION

Some of the pitfalls in project evaluation that should be avoided are:

- The cost estimations should include all costs, even if they do not represent cash outlays. For example, the use of land that belongs to the institution undertaking the project should be considered a cost, valuing the track at market prices. Also costs such as wages of personnel from the sponsoring institutions that is going to work full time on the project should be considered. I.e., the opportunity cost of all used resources should be included in the evaluation.
- If the social evaluation of the project has considered all costs and benefits generated by the project and has valued them at social prices, it is not necessary to make any further corrections or add extra benefits for aspects such as employment generated and foreign currency earned or saved. Those aspect have already been taken into account in the estimation of the social prices.
- Import duties, subsidies and taxes should be excluded in the social evaluation given that they are only a transfer of resources.

VI. PROCEDURES AND FORMS FOR PROJECT PRESENTATION

As was already said, the preinvestment process generates a large amount of data that has to be registered in the Project Bank. Also it should be noted that the output obtained from the Project Bank can only be as good as the information it contains. Therefore, there is a need for designing a data collection system that ensures the timely update of the Project Bank and that allows the standardization and normalization of the information.

Given that the Project Bank is going to be operated by the Ministry of Economic Development, and that the information is generated in the different Ministries and Agencies that sponsor projects, there is a need for instituting forms and procedures for feeding the proper information into the Project Bank.

6.1. FORMS FOR PROJECT PRESENTATION

After analyzing the information actually included in the Project Bank and identifying the information that should be added in order to satisfy the needs of the Ministry of Economic Development, two data collection forms were designed. These forms include information that is not currently managed by the Project Bank, but which should be managed once all suggestions for its improvement are implemented.

The forms are aimed at collecting data for public sector projects, Form 1, and for private sector projects, Form 2 (see Annex 1). Form 1 was designed with participation of Mr. Pablo Espot and Form 2 with participation of Mr. John Briggs.

PROCEDURES AND FORMS FOR PROJECT PRESENTATION

It is still necessary to write the instructions for filling these forms, a job that should be done by the Ministry of Economic Development. In what ensues, some suggestions are given in order to serve as a guideline in writing those sets of instructions.

The first page of the forms has been designed to contain the information that is common for private sector and public sector projects.

The Project Number assigned to the project and registered in the upper left corner of the form should be the number assigned to it by the sponsoring agency or the number given to it in the Project Bank.

The File Reference on the upper right corner should correspond to the number assigned to the file that contains the project studies in the Ministry of Economic Development.

The Project Name should be assigned based on the rules for assigning names to projects (Annex 3).

Points 2 and 3 of the forms should be used for identifying the geographical location of the project. In order to assure homogeneity of the information registered in the Project Bank, it is recommended that at least the names of the districts are tabulated in the instructions for filling the forms.

Points 4 and 5 of the forms should be used to indicate the sector and subsector classification of the project, based on the sectorial classification currently been used or, if implemented, on the sectorial classification suggested in Annex 4 of this report.

INVESTMENT DECISIONS CRITERIA

The Project Description should be a brief but clear description of the project to be undertaken. The description should include physical magnitudes and quantities. The area for Comments on the second page of the forms can be used to continue with the project description, in case the space available is insufficient. This point includes The Development Objective, as defined in the actual Project Bank Manual.

Points 7, 8, and 10 correspond to the the same concepts as defined in the actual Project Bank Manual. However, it is recommended that these fields be changed to "Memo Fields" in the Project Bank in order to allow more extensive descriptions, therefore improving ease of understanding.

Progress corresponds to a description of the work done on the project. Possible statements should be:

- Completed .. months before schedule.
- Completed on schedule.
- Completed .. months after schedule.
- ... % of work done, .. months before schedule.
- ... % of work done, on schedule.
- ... % of work done, .. months after schedule.

Employment generated registers the number of new employments that are going to be generated by the implementation of the project. Three labor categories have been included. Employments for Belizean nationals should be classified as skilled or unskilled based on the level of training required for doing each jobs. What kinds of jobs to include in each category should be clearly stated in the instructions for filling the forms. Those categories should be the same for private and public sector projects.

PROCEDURES AND FORMS FOR PROJECT PRESENTATION

The category "Foreign Experts" should be used to register the number of foreign nationals that are going to be working in the project.

For an efficient use of this information it is necessary that all data is registered in an common unit. It is suggested using men-month as the unit for measuring generated employment. One men-month is defined as the work done by one man working full time for one month. For example, 2 men full time over 6 month equals 12 men-month, 1 men full time over 1 year and 2 men half-day over 6 month equals 18 men-month.

The information regarding the Schedule of the project should include:

- Starting date, which corresponds to the date when actual construction or implementation of the project is going to start.
- Completion date, which corresponds to the date when the construction and/or implementation of the project is going to be completely finished.
- Operation date, which corresponds to the date when the project is going to begin operating. Depending on the characteristics of the project, this date can be before or after completion date.
- Estimated Project Life, which correspond to the number of years it is estimated the project is going to continue in operation. This number can be greater than the number of years used as evaluation horizon, but never less than that number.

INVESTMENT DECISIONS CRITERIA

The information regarding Project Cost should be detailed by year and by main activities (studies, construction or implementation and acquisition and installation of equipment). Also information should be given on the estimated recurring costs of the project. The first year for which information should be given is the current year, which is included in order to allow monitoring of ongoing projects (the years for which information is asked should be updated annually).

For recurring costs, the column "AFTER 89" should be understood as "average yearly running cost during full operation" and the column for totals should be left blank.

Given the existence of inflation, it is also necessary to ask for the date on which (or the date for which) cost estimates were made. Knowing this date will allow updating cost related information in the future.

Information regarding Project Financing should also be registered in the forms. This information should be given on a yearly basis and by source of funds. The agency or agencies providing the funds should be identified. Obviously yearly totals should match yearly totals of point 13 of the forms.

Points 15 to 19 of Form 2 do not require further description in this document, they have been set up in accordance with Mr. John Briggs and are based on current procedures at the Ministry of Economic Development.

Point 15 of Form 1, Indicators, is reserved for registering project appraisal criteria such as those suggested in Chapter IV of this document. Which indicators to use is going to depend on the methodologies for appraising public sector projects, which should be developed on the next stage of the implementation of the Project Bank.

PROCEDURES AND FORMS FOR PROJECT PRESENTATION

On Point 16 of Form 1 the following information should be registered using codes for each possible agency or ministry:

- Executing Agency, which correspond to the institution in charge of the construction or implementation of the project.
- Financing Agency, which is the institution that is going to provide the funds (or the greater percentage of them) for construction or implementation of the project.
- Operating Agency, which is the institution that is going to be in charge of the project during its operation and which is going to provide the funds for covering running costs.
- Other agency, which should include the code for any other agency (or agencies) taking part in the project.
- Finally, for infrastructure projects, it should be indicated if the construction is going to be done by a private contractor or directly by a government institution.

Project Status should indicate the stage of the project life cycle at which the project is. As described in Chapter II of this document, project status can be:

- Idea
- Profile
- Prefeasibility
- Feasibility
- Design
- Construction
- Operation
- Postponed
- Abandoned

Point 18 of the form should be used to include any additional information about the project which is considered important. Point 19 and 20 do not require further comments given that they are self explaining.

6.2. RECOMMENDED PROCEDURES FOR PROJECT PRESENTATION

The following recommendations are valid only for public sector projects, given that private sector projects follow different procedures. For them, it is only recommended that Form 2 is instituted as a summary of the project information presented by investors, and that the forms be filled directly by the investors.

For public sector projects the following procedure is recommended:

- The Ministry of Economic Development should establish the procedures and dates for project presentation and the methodologies for appraising projects at the profile level, and should elaborate and distribute the forms for project presentation.
- Projects should be evaluated by the sponsoring institutions. Those institutions should fill Form 1 and send it together with the corresponding studies to the Ministry of Economic Development.
- The Ministry of Economic Development should review the information received, enter the information contained in Form 1 into the Project Bank and give an opinion on the convenience of proceeding to the next stage of the project life cycle. If the information sent was incomplete, it may request more information from the

PROCEDURES AND FORMS FOR PROJECT PRESENTATION

sponsoring institution before giving a recommendation. The recommendation should be communicated to the sponsoring institution and to the Ministry of Finance, as well as to any other institutions participating in the project.

BIBLIOGRAPHY

1. Preparación y Presentación de Proyectos de Inversión.
ODEPLAN - Santiago, September 1985.
2. "Banco Integrado de Proyectos el Sector Público - B.I.P. Conceptos, Métodos y Técnicas. Tomo I".
Proyecto CHI/79/004 ODEPLAN-PNUD/DCTD, Santiago, 1982.
3. "Procedimientos y Formularios para el Sistema de Estadísticas Básicas de Inversión - SEBI".
ODEPLAN - Departamento de Inversiones, Santiago, Diciembre 1986.

ANNEX No 1

FORMS FOR PROJECT PRESENTATION

PROJECT NUMBER:	MINISTRY OF ECONOMIC DEVELOPMENT PROJECT DATA CAPTURE FORM 1 PUBLIC SECTOR PROJECTS				FILE REFERENCE:
1. PROJECT NAME:					
2. DISTRICT :			4. SECTOR :		
3. TOWN/VILLAGE:			5. SUBSECTOR:		
6. PROJECT DESCRIPTION:					
7. EXPECTED RESULTS:					
8. ACTUAL RESULTS:					
9. PROGRESS: 10. REASONS :					
11. EMPLOYMENT GENERATED:				12. SCHEDULE:	
CATEGORY	CONSTRUCTION		OPERATION		STARTING DATE:
	1 YEAR	TOTAL	1 YEAR	FULL O.	COMPLETION DATE:
UNSKILLED					OPERATION DATE:
SKILLED					ESTIMATED PROJECT LIFE (YEARS):
FOREIGN EXP.					

13. PROJECT COST:

ACTIVITY	1987	1988	1989	AFTER 89	TOTAL
STUDIES CONSTRUCTION EQUIPMENT					
TOTAL INVEST.					
RECURRENT COST					

DATE OF COST ESTIMATE: / /

14. PROJECT FINANCING:

SOURCE OF FUNDS	1987	1988	1989	AFTER 89	TOTAL
LOCAL IN KIND					
LOCAL IN CASH					
LOAN					
GRANT					
.....					
.....					
TOTAL					

15. INDICATORS:

16. EXECUTING AGENCY:
 FINANCING AGENCY:
 OPERATING AGENCY:
 OTHER AGENCY :
 PRIVATE CONTRACTOR? YES [] NO []

17. PROJECT STATUS:

18. COMMENTS:

19. HOUSE RESOLUTION NUMBER :
 CABINET RESOLUTION NUMBER:

DATE : / /
 DATE : / /

20. THIS FORM WAS COMPLETED BY:

NAME:

PHONE:

SIGNATURE :

DATE : / /

PROJECT NUMBER:	MINISTRY OF ECONOMIC DEVELOPMENT PROJECT DATA CAPTURE FORM 2 PRIVATE SECTOR PROJECTS		FILE REFERENCE:																								
1. PROJECT NAME:																											
2. DISTRICT :		4. SECTOR :																									
3. TOWN/VILLAGE:		5. SUBSECTOR:																									
6. PROJECT DESCRIPTION:																											
7. EXPECTED RESULTS:																											
8. ACTUAL RESULTS:																											
9. PROGRESS: 10. REASONS :																											
11. EMPLOYMENT GENERATED: <table border="1" data-bbox="409 2099 1281 2421"> <thead> <tr> <th rowspan="2">CATEGORY</th> <th colspan="2">CONSTRUCTION</th> <th colspan="2">OPERATION</th> </tr> <tr> <th>1 YEAR</th> <th>TOTAL</th> <th>1 YEAR</th> <th>FULL O.</th> </tr> </thead> <tbody> <tr> <td>UNSKILLED</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SKILLED</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FOREIGN EXP.</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			CATEGORY	CONSTRUCTION		OPERATION		1 YEAR	TOTAL	1 YEAR	FULL O.	UNSKILLED					SKILLED					FOREIGN EXP.					12. SCHEDULE: STARTING DATE: COMPLETION DATE: OPERATION DATE: ESTIMATED PROJECT LIFE (YEARS):
CATEGORY	CONSTRUCTION			OPERATION																							
	1 YEAR	TOTAL	1 YEAR	FULL O.																							
UNSKILLED																											
SKILLED																											
FOREIGN EXP.																											

13. PROJECT COST:

ACTIVITY	1987	1988	1989	AFTER 89	TOTAL
STUDIES CONSTRUCTION EQUIPMENT					
TOTAL INVEST.					
RECURRENT COST					

DATE OF COST ESTIMATE: / /

14. PROJECT FINANCING:

SOURCE OF FUNDS	1987	1988	1989	AFTER 89	TOTAL
CAPITAL-PRINCIP FOREIGN LOANS DOMESTIC LOANS FROM INCOME					
TOTAL					

15. EXEMPTION REQUESTED:
(Category, see Ap.1)

16. PROFITABILITY: NPV: DISCOUNT RATE:
 IRR:

17. COMMENTS:

18. S. I. NUMBER: DATE: / /

19. COMPANY NAME :

MAJOR SHAREHOLDERS:

ADDRESS BELIZE :

PHONE:

ADDRESS FOREIGN:

PHONE:

CONTACT PERSON:

ANNEX No 2

EXAMPLE OF PROJECT EVALUATION AT THE PROFILE LEVEL
AND INFORMATION TO BE REGISTERED IN THE PROJECT BANK

This annex presents a fictitious project in the health care sector. The idea and profile stages are developed and the forms with the information corresponding to each of these stages are presented. The objective of this example is to help in clarifying the kind of information that has to be collected and the type of analysis to be done at the idea and project profile stages of the project life cycle.

EXAMPLE OF INFORMATION COLLECTED AT THE

IDEA STAGE

Project Name:

RECONSTRUCTION OF RURAL HEALTH CARE CENTER AT PUERTO CHACABUCO.

Actual Situation:

The health care needs of the people of Puerto Chacabuco are actually taken care of at a rural health care center. The center has a constructed surface of 846 sq/ft; 495 sq/ft are used by medical rooms and 351 sq/ft are used by the house of the caretaker, who at the same time is the resident paramedic.

EXAMPLE OF A PROJECT PROFILE

The foundations and floor of the building are made of concrete and the structure is made of wood. Walls are covered in the interior with agglomerate wood sheets and on the exterior with asbestos-cement sheets.

The building is well conserved and requires only minor repairs. Among them are changing a broken asbestos-cement sheet and repainting the interior and exterior of the building.

Also part of the ceiling could be replaced given that it presents deformations.

The expected life of the building can be estimated at 10 years. If the exterior is repainted to increase protection from rain and some other minor repairs are made, expected life could be extended to 15 years.

The medical team visits Puerto Chacabuco once a week. It is made up by a physicalist, a midwife, a nurse and a dentist.

Information obtained from the medical team and the caretaker of the center indicates that no patient need to be rejected due to a lack of capacity.

There are three medical rooms available, each of approximately 10 by 10 ft and with a lavatory. The dentist works in a nearby school. Only the paramedic has, on the day of the visit from the medical team, no place to work.

Given that all attentions are concentrated in one day, the waiting room is insufficient to contain all patients.

There is no bathroom for the patients. The medical team uses the bathroom of the paramedic's house.

EXAMPLE OF A PROJECT PROFILE

The milk storing, pharmacy and archives areas are directly connected to the house.

The third medical room was previously the third dormitory of the house. Actually sons and daughters of the caretaker must share one room.

Expected results:

Providing each health care professional with adequate facilities for developing his work.

Ensuring availability of space in the waiting room for accommodating all patients.

Providing the paramedic (caretaker) with adequate housing facilities.

Project description:

At this stage it is possible to envisage the following project alternatives which can be considered as possible descriptions of the future project:

- Construction of a new rural health care center in the area, using the entire existing facilities as a better house for the paramedic. The surface of the new building should be about 1300 sq/ft and the estimated cost, based on actual building cost in the area should be around US\$ 40.000.
- Closing the Center and reassigning the attention of the population to the nearest hospital which is 32 miles away. There is one daily bus leaving the town at 9 AM and returning at 6 PM.

EXAMPLE OF A PROJECT PROFILE

Construction of three additional medical rooms and two bathrooms and reassignment of areas in order to increase the size of the waiting room. Total construction surface would be 470 sq/ft and the estimated cost, based on actual building cost in the area should be around US\$ 14.500.

EXAMPLE OF INFORMATION COLLECTED AND ANALYSIS DONE AT THE

PROFILE LEVEL

Project Name:

RECONSTRUCTION OF RURAL HEALTH CARE CENTER AT PUERTO
CHACABUCO.

1.- DIAGNOSTIC

1.1. GOVERNMENT POLICY (1)

The following health care sector policies are relevant for
the appraisal of this project:

The global health care strategy of the country is based on
the premise that each citizen has a right to health care
attention from the moment he is born until his death. Given
this right, the state assumes the responsibility of providing
integral and opportune health care attention, of the best
possible quality compatible with the available resources.

This strategy is translated in the following objectives
pursued by the Ministry of Health:

- Guaranty equalitarian access to curative and recovery
medicine for all the population.
- Continue with a reduction of the infant mortality rate and
eradicate infant malnutrition.

(1) The health care sector policy described is only an example and
does not necessarily reflects actual government policy.

EXAMPLE OF A PROJECT PROFILE

- Incorporate to the programs of prebirth control, parturition attention and postpartum care all woman requiring it.
- Incorporate to the health control programs all extremely poor kids.
- Maximize the preventive actions through family education programs.
- Create the necessary investitures for enabling access to health care of lower income sectors.
- Achieve minimally acceptable sanitary conditions, adapted to the urban and rural environment.

1.2. DEFINITION OF A RURAL HEALTH CARE CENTER

According to the previously summarized health sector policies, it is necessary to provide adequate access to health care for the people of Puerto Chacabuco. Given the size of the population (see 1.3) and actual standards for the health care sector, the corresponding facility should be a rural health care center.

A rural health care center has as it's fundamental objective extending health care actions to the population located far from mayor health care centers. It is defined as a center to cover health care needs of a population around 1000 people, concentrated or scattered within a radius of 12 miles.

This type of health care center should undertake all actions aimed at preserving health and preventing illnesses. It should be adequately equipped to solve minor health problems and to recognize cases that should be send to a hospital.

The rural health care center is permanently staffed by a paramedic. A medical team, integrated by a physician, a

EXAMPLE OF A PROJECT PROFILE

nurse, a midwife a dentist and a nutritionist should periodically visit the center.

1.3 HEALTH CARE NEEDS

1.3.1 Assigned population

The area assigned to a rural health care center is the one circumscribed within a radius of 12 miles. The population in this area, according to the last national census (1983) was the following:

<u>LOCATION</u>	<u>TOTAL</u>	<u>MEN</u>	<u>WOMAN</u>	<u>0-5</u>	<u>6-14</u>	<u>15-24</u>	<u>25-64</u>	<u>OVER 65</u>
Road to Puerto Chacabuco	199	110	89	25	45	46	74	9
Puerto Chacabuco	676	337	339	112	179	110	249	26
TOTAL	875	447	428	137	224	156	323	35

The projection of this population with the regional population growth rate of 2.08% annually, gives the following ciphers for 1987:

<u>LOCATION</u>	<u>TOTAL</u>	<u>MEN</u>	<u>WOMAN</u>	<u>0-5</u>	<u>6-14</u>	<u>15-24</u>	<u>25-64</u>	<u>OVER 65</u>
Road to Puerto Chacabuco	216	119	97	27	49	50	81	10
Puerto Chacabuco	734	365	368	122	194	119	270	28
TOTAL	950	484	465	149	243	169	351	38

1.3.2 Projected assigned population

The recent growth of the fishing industry at Puerto Chacabuco has not implied a corresponding growth of the population of the town because most workers live at nearby Puerto Aysen. Even if this trend in the fishing industry continues, no mayor population growth is envisaged given that the fishing fleet is mainly an offshore fleet with factory ships. Also,

EXAMPLE OF A PROJECT PROFILE

it is the policy of the regional authorities to favor population growth at Puerto Aysen in order to fully utilize the better infrastructure of that town.

Based on the previous facts, it seems reasonably to project the growth of the population of Puerto Chacabuco using the 2.08% yearly population increase rate. Based on this assumption, the following ciphers are obtained for a 10 year and a 20 year horizon:

Assigned population in 1997:

<u>LOCATION</u>	<u>TOTAL</u>	<u>MEN</u>	<u>WOMAN</u>	<u>0-5</u>	<u>6-14</u>	<u>15-24</u>	<u>25-64</u>	<u>OVER 65</u>
Road to Puerto Chacabuco	265	146	119	33	60	61	100	12
Puerto Chacabuco	901	448	453	150	238	146	332	34
TOTAL	1166	594	572	183	298	207	432	46

Assigned population in 2007:

<u>LOCATION</u>	<u>TOTAL</u>	<u>MEN</u>	<u>WOMAN</u>	<u>0-5</u>	<u>6-14</u>	<u>15-24</u>	<u>25-64</u>	<u>OVER 65</u>
Road to Puerto Chacabuco	326	180	146	40	74	75	122	15
Puerto Chacabuco	1107	551	556	184	293	180	408	42
TOTAL	1433	731	702	224	367	255	530	57

Actual standards for the health care sector state that rural health care center should attend a population between 800 and 1500 people. Therefore, such a center would be adequate for Puerto Chacabuco at least until the year 2007.

1.3.3 Expected and actual health care demand

Based on the expected average rate of attentions per year (EARA), required by person in the different health care programs (which are national parameters), the following demand should be expected from the population assigned to the rural health care center at Puerto Chacabuco:

EXAMPLE OF A PROJECT PROFILE

PROGRAM	ASSIGNED POPULATION	EARA	EXPECTED DEMAND	ACTUAL DEMAND ⁽¹⁾
Child care	392	4.28	1678	1961
Maternal	254	2.54	645	443
Adult	558	1.50	837	2191
Dentist	---	---	---	296

⁽¹⁾ Actual demand corresponds to the actual number of attentions given during 1986.

The previous ciphers clearly show that actual demand widely surpassed expected demand in the Child care and Adult programs. Even so, the medical team reported that during 1986 no patient was turned away due to lack of capacity.

On the other hand, attentions given through the maternal care program were below the expected number.

The higher demand in the adult program can be attributed to the harsh working conditions in the fishing fleet. This extra demand should be taken into account when choosing a project alternative, given that dimensioning standards are based on expected number of attentions requested by the assigned population.

1.4 Size of the rural health care center.

The size of this type of centers follows a national standard, which recommends a building plan with a total surface of 1094 sq/ft.

2.- ACTUAL SITUATION AND PROJECT ALTERNATIVES

2.1. ACTUAL SITUATION

Based on meetings with the functionary in charge of managing health care programs in the area, the director of the hospital of Puerto Aysen and the paramedic of Puerto Chacabuco; and also based on a visit to the actual facilities, the following deficit for providing minimally acceptably working conditions and facilities for the public was estimated:

2 bathrooms	56 sq/ft
1 medical room	81 sq/ft
extra waiting space	<u>81 sq/ft</u>
TOTAL	218 sq/ft

Therefore, there is no way of improving the quality of the service provided under the current operating conditions.

2.2. OPTIMIZED ACTUAL SITUATION

Possibly ways of achieving a better attention level without mayor investments are:

Alternative 1:

The medical team could be split in two. Therefore only two professionals would visit the rural health care center on a given day. There would be two visits per week, each with a different pair of professionals.

With this system it would be possibly to continue using the center as it is today. There would be no need for expanding the waiting room, given that the public attending the center

EXAMPLE OF A PROJECT PROFILE

would be split in two days.

The dentist would continue giving his services at the school. There would be a need for constructing two bathrooms, 1 for the professionals and one for the public. It would also be necessary to estimate the higher cost of transportation for the medical team.

The caretaker's house would not recover the third bedroom. Also the areas for storing milk and pharmacy would continue being integrated to the house.

Alternative 2:

The program of visits could be modified so that only one professional visits the center on a given day. There would be four visits during the week.

For this alternative only one medical room is required. A second room would be assigned to the paramedic and the house would recover the third bedroom.

There would be a need for constructing two bathrooms, 1 for the professionals and one for the public. It would also be necessary to estimate the higher cost of transportation for the medical team.

2.3. PROJECT ALTERNATIVES

The following alternatives imply mayor investments and are therefore considered project alternatives:

Alternative 3:

The existing rural health care center could be closed and the population reassigned to Puerto Aysen, which is 32 miles away.

EXAMPLE OF A PROJECT PROFILE

At Puerto Aysen there are actually 8 medical doctors but only seven medical rooms. Therefore, there would be a need for building at least two extra medical rooms in order to provide adequate attention to the reassigned population.

The waiting rooms and the storage areas for milk and pharmaceutical products would be sufficient. There would be a need of constructing approximately 260 sq/ft (includes two medical rooms and aisles).

This alternative has an extra transportation cost for the people of Puerto Chacabuco. They would also incur in a cost for having lunch in Puerto Aysen, given that the bus comes in in the morning and returns in the afternoon.

There is a saving equal to the actual transportation cost of the medical team.

Alternative 4:

This alternative calls for the construction of 3 medical rooms and two bathrooms at Puerto Chacabuco. This solution also allows for increasing the size of the waiting area. The dentist would continue working at the school. The house could recover the third bedroom actually used as a medical room. Total construction surface would be approximately 470 sq/ft.

Alternative 5:

In this alternative the existing building would be entirely used for providing health care and for storing milk and pharmaceuticals. A tree bedroom house, with a surface of 410 sq/ft, would be build for the caretaker. The dentist would continue working at the school.

Alternative 6:

This alternative consists in the construction of a new rural health care center with a total surface of 1100 sq/ft. The

EXAMPLE OF A PROJECT PROFILE

new facility would include 4 medical rooms, adequate space for the waiting area and a 3 bedroom house for the paramedic - caretaker.

3. ANALYSIS OF ALTERNATIVES

The following table presents a summary of all costs relevant for the analysis.

<u>COST ITEM</u>	<u>ALT-1</u>	<u>ALT-2</u>	<u>ALT-3</u>	<u>ALT-4</u>	<u>ALT-5</u>	<u>ALT-6</u>
Construction	56 sf	56 sf	260 sf	470 sf	410 sf	1100 sf
Operational	SAA	SAA	LTA	GTA	GTA	GTA
Maintenance	SAA	SAA	LTA	GTA	GTA	GTA
Transport. medical team	GTA	GTA	0	SAA	SAA	SAA
Transportation of public	0	0	YES	0	0	0
Modification of program of medical team visits.	YES	YES	-	NO	NO	NO

SAA = Same as actual.
 GTA = Greater than actual.
 LTA = Lower than actual.

Apart from the costs associated with each solution, some qualitative aspects must be taken into account in selecting the best alternatives. Some of these aspects are:

- It is the opinion of health care sector professionals interviewed that the alternatives than consider splitting the medical team are inconvenient. The advantage of being able to transfer patients directly among the different members of the team would be lost. Also, it would be necessary to adopt the same operating strategy in all other rural health care centers visited by the medical team. Also more vehicles would be needed for providing transportation for the members of the medical team.

Therefore, Alternatives 1 and 2 are considered non acceptably.

EXAMPLE OF A PROJECT PROFILE

- Closing the actual center and reassigning the population to Puerto Aysen would imply a substantial cost and loosing and entire day for any person in Puerto Chacabuco that requiring medical assistance. This situation could disincentive participation in the health care programs, producing a decline in the health indexes of the area.

- Puerto Aysen is way out of the 12 miles radius suggested as influence area for a rural health care center; the distance between the towns would be to great in emergency cases. Also, Puerto Chacabuco should have such a center given its actual and projected population, and national standards.

- Finally, it is necessary to consider that even not being optimal a facility actually exists, and that it has a useful life that should be exploited. The disappearance of this center is not considered an acceptable solution by local authorities as well as by the Ministry of Health Care.

Consequently, alternative 3 is also disregarded.

4. EVALUATION OF ALTERNATIVES

For the three preselected alternatives, detailed cost estimates were made and the equivalent annual cost was calculated. All cost are indicated in American Dollars.

4.1 ALTERNATIVE 4

4.1.1	<u>Construction cost</u>	
a)	<u>Construction of new areas</u>	16450
	Surface of new buildings: 470 sq/ft	
	Cost per sq/ft: US\$ 35	
b)	<u>Repairs in existing building</u>	
	Modifications in milk storage area, archives and pharmacy	500
	Renewals of ceiling, agglomerated wood, 0.5 US\$ per sq/ft, 460 sq/ft	230
	Exterior paint, 0.2 US\$ per sq/ft, 960 sq/ft	192
	Interior paint, 0.2 US\$ per sq/ft, 3250 sq/ft	650
	Replacement of broken exterior sheet	20
	Worker salaries	850
	General expenses, unexpected costs (15%)	366
	TOTAL COST OF REPAIRS	2808
	 TOTAL CONSTRUCTION COST	 19258
4.1.2	<u>Recurrent costs (per year)</u>	
	Wages	16800
	Medical supplies	1500
	General expenses	300
	 TOTAL RECURRENT COST	 18600
4.1.3	<u>Maintenance cost (per year)</u>	800
4.1.4	<u>Equivalent annual cost</u>	
	Assumptions:	
	Useful life of the building: 15 years	

EXAMPLE OF A PROJECT PROFILE

Residual value: US\$ 10.000
Discount rate: 12 %

$$EAC = (I - L) \frac{r(1+r)^n}{(1+r)^n - 1} + L*r + D$$

Where: I = Investment
L = Residual value
r = Discount rate
n = Evaluation horizon in years
D = yearly running cost

$$EAC = (19258 - 10000) \frac{0.12*(1+0.12)^{10}}{(1+0.12)^{10} - 1} + 10000*0.12 + 19400$$

$$= 21959$$

4.2 ALTERNATIVE 5

4.1.1 Construction cost

a)	<u>Construction of new house for caretaker</u>	14350
	Surface of new buildings: 410 sq/ft	
	Cost per sq/ft: US\$ 35	
b)	<u>Repairs in existing building</u>	
	Modifications in milk storage area, archives and pharmacy	500
	Renewals of ceiling, agglomerated wood, 0.5 US\$ per sq/ft, 460 sq/ft	230
	Exterior paint, 0.2 US\$ per sq/ft, 960 sq/ft	192
	Interior paint, 0.2 US\$ per sq/ft, 3250 sq/ft	650
	Replacement of broken exterior sheet	20
	Worker salaries	850
	General expenses, unexpected costs (15%)	366
	TOTAL COST OF REPAIRS	2808
	TOTAL CONSTRUCTION COST	17158

EXAMPLE OF A PROJECT PROFILE

4.1.2	<u>Recurrent costs</u> (per year)	
	Wages	16800
	Medical supplies	1500
	General expenses	300
	TOTAL RECURRENT COST	18600

4.1.3	<u>Maintenance cost</u> (per year)	800
-------	------------------------------------	-----

4.1.4 Equivalent annual cost

Assumptions:

15 years useful life of the building

Residual value US\$ 10.000

Discount rate 12 %

$$EAC = (17158 - 10000) \frac{0.12 * (1 + 0.12)^{15}}{(1 + 0.12)^{15} - 1} + 10000 * 0.12 + 19400$$

$$= 21651$$

4.3 ALTERNATIVE 6

4.1.1	<u>Construction cost</u>	
	<u>Construction of building</u>	49500
	Surface of new buildings: 1100 sq/ft	
	Cost per sq/ft: US\$ 45	
4.1.2	<u>Recurrent costs</u> (per year)	
	Wages	16800
	Medical supplies	1500
	General expenses	300
	TOTAL RECURRENT COST	18600
4.1.3	<u>Maintenance cost</u> (per year)	300

4.1.4 Income from sale of old building (8000)

4.1.5 Equivalent annual cost

Assumptions:

20 years useful life of the building

Residual value US\$ 20.000

Discount rate 12 %

$$EAC = (49500 - 8000 - 20000) \frac{0.12 * (1 + 0.12)^{20}}{(1 + 0.12)^{20} - 1} + 20000 * 0.12 = 24178$$

5. CONCLUSIONS AND RECOMMENDATIONS

From the standpoint of the number of attentions actually given at Puerto Chacabuco, it is clear that there is a high degree of participation of the community in the different health programs. Therefore no substantial gain in the health indexes of the area can be expected from the implementation of this project.

This situation has been achieved despite the deficit of space in the actual facilities. A extra medical room, two bathrooms and a bigger waiting room are needed.

Although no patients are actually rejected, the quality of the attention given to each of them may be compromised by the poor working conditions. Moreover, the increasing population of Puerto Chacabuco definitively makes the current situation inadequate.

This deficit can be solved in many different ways, being the construction of a new facility the definitive solution for Puerto Chacabuco.

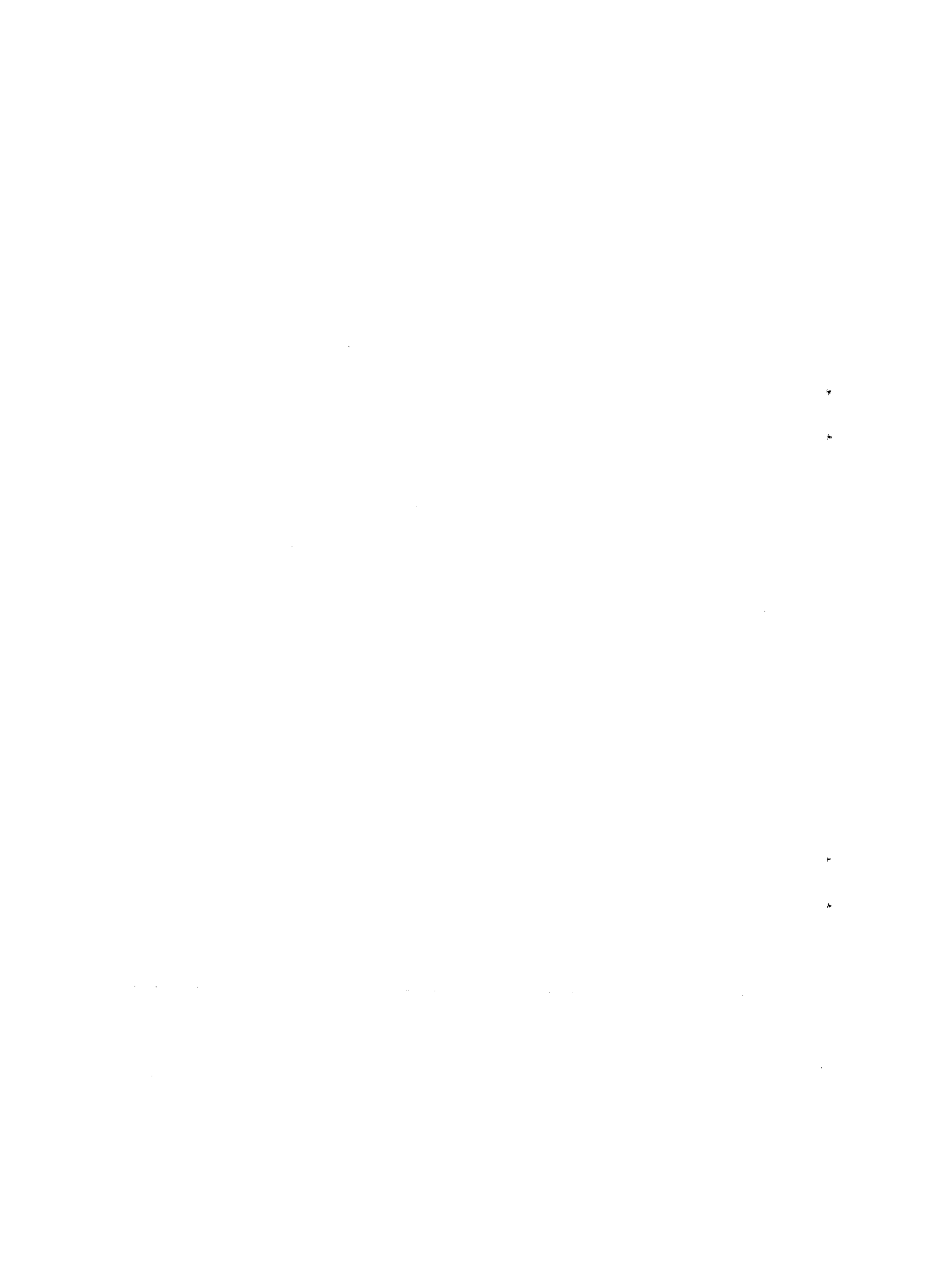
EXAMPLE OF A PROJECT PROFILE

However, considering the fact that the actual building has a remaining useful life of at least ten years and that there is some uncertainty regarding expected growth of the population in the area, it seems reasonable to postpone mayor investments in Puerto Chacabuco for some years.

The evaluation of the three selected project alternatives showed that the lowest annual equivalent cost correspond to the alternative of building a new house for the caretaker and his family and using the entire existing building as health care center.

This proposition satisfies actual standards for this type of centers, with the lowest investment cost (US\$ 17158).

Finally, given the existing deficit in space and the simplicity and low cost of the selected solution, it is recommended to proceed directly to the construction stage, without devoting further resources and time to a prefeasibility study.



PROJECT NUMBER:	MINISTRY OF ECONOMIC DEVELOPMENT PROJECT DATA CAPTURE FORM 1 PUBLIC SECTOR PROJECTS		FILE REFERENCE:		
1. PROJECT NAME: Reconstruction of rural health care center at Puerto Chacabuco.					
2. DISTRICT : Region 12 3. TOWN/VILLAGE: Puerto Chacabuco		4. SECTOR : 04 5. SUBSECTOR: 02			
6. PROJECT DESCRIPTION: Construction of a new rural health care center. The existing facilities would be used as a better house for the paramedic, who is also the caretaker. The surface of the new building would be around 1300 sq.ft. Other alternatives are closing the center or constructing three additional medical rooms and a bathroom. For this last alternative, the surface to be build would be 470 sq.ft.					
7. EXPECTED RESULTS: <ul style="list-style-type: none"> - Providing each health care professional with adequate facilities for developing his work. - Ensuring availability of space in the waiting room for accommodating all patients. - Providing the paramedic with adequate housing facilities. 					
8. ACTUAL RESULTS:					
9. PROGRESS: 10. REASONS :					
11. EMPLOYMENT GENERATED:			12. SCHEDULE:		
CATEGORY	CONSTRUCTION		OPERATION		STARTING DATE: COMPLETION DATE: OPERATION DATE: ESTIMATED PROJECT LIFE (YEARS):
	1 YEAR	TOTAL	1 YEAR	FULL O.	
UNSKILLED					
SKILLED					
FOREIGN EXP.					

13. PROJECT COST:

ACTIVITY	1987	1988	1989	AFTER 89	TOTAL
STUDIES CONSTRUCTION EQUIPMENT		40.000			40.000
TOTAL INVEST.		40.000			40.000
RECURRENT COST					

DATE OF COST ESTIMATE: 15/04/87

14. PROJECT FINANCING:

SOURCE OF FUNDS	1987	1988	1989	AFTER 89	TOTAL
LOCAL IN KIND					
LOCAL IN CASH					
LOAN					
GRANT					
.....					
.....					
TOTAL					

15. INDICATORS:

16. EXECUTING AGENCY:
 FINANCING AGENCY:
 OPERATING AGENCY:
 OTHER AGENCY :
 PRIVATE CONTRACTOR? YES [] NO []

17. PROJECT STATUS: IDEA

18. COMMENTS:

A project profile is going to be developed by professionals from the Ministry of Public Health.

19. HOUSE RESOLUTION NUMBER :
 CABINET RESOLUTION NUMBER:

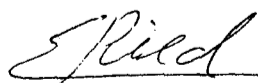
DATE : / /
 DATE : / /

20. THIS FORM WAS COMPLETED BY:

NAME: Enrique Riedemann

PHONE: 251254

SIGNATURE :



DATE : 30/04 /87

PROJECT NUMBER:	MINISTRY OF ECONOMIC DEVELOPMENT PROJECT DATA CAPTURE FORM 1 PUBLIC SECTOR PROJECTS			FILE REFERENCE:	
1. PROJECT NAME: Reconstruction of rural health care center at Puerto Chacabuco.					
2. DISTRICT : Region 12 3. TOWN/VILLAGE: Puerto Chacabuco			4. SECTOR : 04 5. SUBSECTOR: 02		
6. PROJECT DESCRIPTION: Construction of a new house for the paramedic, who is also the caretaker. The actual facility will be repaired and remodeled, obtaining one new medical room, a second bathroom, a greater waiting room and a adequate storage area. The new house would have tree bedrooms and a total surface of 410 sq.ft.					
7. EXPECTED RESULTS: <ul style="list-style-type: none"> - Providing each health care professional with adequate facilities for developing his work. - Ensuring availability of space in the waiting room for accommodating all patients. - Providing the paramedic with adequate housing facilities. 					
8. ACTUAL RESULTS:					
9. PROGRESS: 10. REASONS :					
11. EMPLOYMENT GENERATED:				12. SCHEDULE:	
CATEGORY	CONSTRUCTION		OPERATION		STARTING DATE: 04/88
	1 YEAR	TOTAL	1 YEAR	FULL O.	COMPLETION DATE: 06/89
UNSKILLED	6	12			OPERATION DATE: 06/89
SKILLED	1	2			ESTIMATED PROJECT LIFE (YEARS): 15
FOREIGN EXP.					

13. PROJECT COST:

ACTIVITY	1987	1988	1989	AFTER 89	TOTAL
STUDIES CONSTRUCTION EQUIPMENT		17.158			17.158
TOTAL INVEST.		17.158			17.158
RECURRENT COST		(1)			

DATE OF COST ESTIMATE: 10/11/87

14. PROJECT FINANCING:

SOURCE OF FUNDS	1987	1988	1989	AFTER 89	TOTAL
LOCAL IN KIND LOCAL IN CASH LOAN GRANT		17.158			17.158
TOTAL		17.158			17.158

15. INDICATORS:

16. EXECUTING AGENCY: Min. of Health
 FINANCING AGENCY: Min. of Health
 OPERATING AGENCY: Min. of Health
 OTHER AGENCY :
 PRIVATE CONTRACTOR? YES [x] NO []

17. PROJECT STATUS: PROFILE

18. COMMENTS:

(1) There is a yearly recurrent cost of US\$ 19400, but this is an actual running cost. The project generates no new recurrent costs.

Given the existing deficit of space and the simplicity and low cost of the selected project alternative, the ministry would like to proceed directly to the construction stage.

19. HOUSE RESOLUTION NUMBER :
 CABINET RESOLUTION NUMBER:

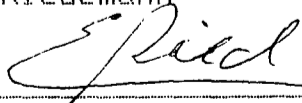
DATE : / /
 DATE : / /

20. THIS FORM WAS COMPLETED BY:

NAME: Enrique Riedemann

PHONE: 251254

SIGNATURE :



DATE : 15/11 /87

ANNEX No 3

RULES FOR ASSIGNING
NAMES TO PROJECTS

The name assigned to a project (or study) should convey as much information as possible without being too long. If names are assigned keeping in mind this objective, it becomes very easy to clearly identify projects in listings that do not include a description of each of them.

In order to achieve this objective, the following structure is suggested for assigning names to projects:

ACTION	OBJECT	LOCATION
(What is going to be done)	(On what?)	(Where?)

The name of any given project should start with the action that is going to be undertaken. Examples of possible actions are:

CONSERVATION	CONSTRUCTION	EQUIPMENT
IMPROVEMENT	REPAIR	TRAINING
CONTROL	FORESTATION	PREVENTION
RECOVERY	SUBSIDY	PROTECTION
TRANSFER	ANALYSIS	CENSUS
DIAGNOSTIC	EXPLORATION	INVESTIGATION
INVENTORY	PROSPECTING	

After the action, the object on which this action is performed should be indicated. Finally, the name of the project should end with the name of the city, village, town or area where the project is located. Examples of names of projects based on this rules are:

RULES FOR ASSIGNING NAMES TO PROJECTS

PROCESS	OBJECT	LOCATION
Construction	of Health Center	at Port Loyola
Construction	of Water Supply System	for Trinidad Village
Extension and Upgrading	of Hospital	at Orange Walk Town
Rehabilitation	of 300 miles of Rural Roads	in Southern Belize.
Re-Roofing and Rehabilitation	of Hospital,	Belize City.
Construction	of a Pre-School	at Belmopan.
Extension	of Ecumenical High School	at Stann Creek.
Construction	of Health center	at Placentia.
Construction	of a Drainage/Culvert System	for Belize City.
Design-Const.	of First Stage New Terminal,	Belize Int. Airport.
Rehabilitation	of 3 miles of road,	Crooked Tree Village.
Reconstruction	of Western Highway	at mile 19.
Extension and Upgrading	of Hospital,	Orange Walk.
Resurfacing	of 1.8 mi. of Western Hw.	between Fabers Rd/CA Blvd.

ANNEX No 4SECTORS AND SUBSECTORS

While reviewing the information actually registered in the Project Bank, problems were detected with the sector and subsector classification. A given project could be classified in different sectors based on the criteria of the person entering the information. For example, construction of a road could be classified in Construction or in Transport and Communications. In fact, most projects were classified in construction, which is the stage in the project cycle in which they were and not the economical sector to which they belong.

The sector classification actually being used is the Belize Industrial Classification which follows the International Standard Industrial Classification (ISIC) for economic activities. However, this classification is not suited for the objectives of a Project Bank, given that it is designed for monitoring the economic activity of a country and not for monitoring projects through their life cycle. A project would almost always fall in the construction category when at this stage of its life cycle and in any other sector during the preinvestment studies.

Therefore, in order to facilitate the sectorial classification of projects a new classification is proposed. The classification is structured in such a way as to clearly reflect the nature of the projects that fall within each category while permitting easy rearrangement of the information in order to obtain it classified in the sectors used for national accounts.

Finally, if deemed necessary, another field can be added to the database in order to register the code of the sector

SECTORS AND SUBSECTORS

corresponding to the project in the Belize Industrial Classification.

The sectors suggested to be used in the Project Bank are:

- 00 Multisectorial
- 01 Agriculture
- 02 Education and Culture
- 03 Energy
- 04 Health Care
- 05 Housing
- 06 Industry, Commerce and Finance
- 07 Justice
- 08 Mining
- 09 Sports and Recreation
- 10 Tourism
- 11 Transportation and Communications
- 12 Water and Sewerage
- 13 National Security

This sectors are further broken down into subsectors. It is recommended that the two first subsectors for each of this sectors be the following:

- 00 Intersubsectorial
- 01 Administration and Training

The first subsector for all sectors, Intersubsectorial, should be used to register all projects of a given sector that span more than one subsector. The second subsector Administration and Training, should include all projects aimed at improving the efficiency of the administration of the sectors (i.e. training of the people or improvement of the facilities of the institutions directly working in a given sector).

SECTORS AND SUBSECTORS

In what ensues, a description of suggested subsectors for each sector is given. It is recommended that for the purpose of registering sectors and subsector in the Project Bank, the numeric code is used instead of typing the name of the sector and subsector. This procedure avoids the problem of getting listing with more sectors than really exist, due to typing mistakes.

00. MULTISECTORIAL

This sector should be used to classify those projects or studies that span more than one given sector or that cannot be properly classified in any given sector. The subsectors suggested for this sector are:

00. 00. INTERSUBSECTORIAL

00. 01. ADMINISTRATION AND TRAINING

00. 02. COMMUNITY SERVICES

This subsector should be used to classify all project or studies aimed at providing services to the community that are not included in other sectors. Examples of projects to be classified in this area are:

- Cemeteries
- Churches
- Garbage collection and disposal

00. 03. URBAN DEVELOPMENT

This subsector should be used to classify all projects or studies aimed at planning the development or improvement of the urban environment. Examples of projects to be classified in this subsector are:

SECTORS AND SUBSECTORS

- Studies aimed at establishing zoning or city development plans.
- Parks and squares.

00. 04. GEOGRAPHY

This subsector should be used to classify all projects or studies aimed at obtaining or analyzing geographic information about the country.

00. 05. ENVIRONMENT

This subsector should be used to classify all projects or studies aimed at obtaining information about the environment or protecting it.

01. AGRICULTURE

This sector should include all studies or projects related to the use of renewable natural resources. The subsectors suggested for this sector are:

01. 00. INTERSUBSECTORIAL

01. 01. ADMINISTRATION AND TRAINING

01. 02. AGRICULTURE

This subsector should be used to classify all projects or studies directly related to agricultural production. Examples of projects to be classified in this subsector are:

- Technological improvements of seeds or plants.
- Control of plant diseases.
- Creation of agricultural farms.

01. 03. FORESTRY

This subsector should be used to classify all projects or studies aimed at studying, improving or exploiting forest resources. Examples of projects to be classified in this subsector are:

- Studies related to the introduction of new tree varieties.
- Reforestation projects.

01. 04. LIVESTOCK BREEDING AND REARING

This subsector should be used to classify all projects or studies aimed at rearing or breeding livestock. Examples of projects to be classified in this subsector are:

- Cattle rearing
- Dairy farming
- Egg production

01. 05. FISHING

This subsector should be used to classify all projects or studies aimed at improving capture or developing fishing resources. Examples of projects to be classified in this subsector are:

- Creation of marine farms.
- Improvement of fishing fleet.

01. 06. IRRIGATION

This subsector should be used to classify all projects or studies related to the construction of irrigation or drainage schemes. Examples of projects to be classified in this subsector are:

- Construction of dams and irrigation channels.
- Construction of drainage systems.

02. EDUCATION AND CULTURE

This sector should include all studies or projects related to the improvement of the educational and cultural level of the society. The subsectors suggested for this sector are:

02. 00. INTERSUBSECTORIAL

02. 01. ADMINISTRATION AND TRAINING

02. 03. PRESCHOOLS

This subsector should be used to classify all projects or studies aimed at improving the quality or coverage of preschool education. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of Day Care Centers.

02. 03. PRIMARY SCHOOLS

This subsector should be used to classify all projects or studies aimed at improving the quality or coverage of education at the primary school level. Examples of projects to be classified in this subsector are:

- Construction or improvement of primary schools.
- Acquisition of study materials, furniture or equipment for primary schools.

02. 04. SECONDARY SCHOOLS

This subsector should be used to classify all projects or studies aimed at improving the quality or coverage of education at the secondary school level. Examples of projects to be classified in this subsector are:

SECTORS AND SUBSECTORS

- Construction or improvement of secondary schools.
- Acquisition of study materials, furniture or equipment for secondary schools.

02. 05. PROFESSIONAL TRAINING

This subsector should be used to classify all projects or studies aimed at improving the quality or coverage of education at the professional level. Examples of projects to be classified in this subsector are:

- Construction or improvement of professional level training centers.
- Acquisition of study materials, furniture or equipment for professional level training centers.

02. 06. SPECIAL EDUCATION

This subsector should be used to classify all projects and studies aimed at improving the quality or coverage of special education centers. Examples of projects to be classified in this subsector are:

- Construction or improvement of schools for the blind, deaf, impaired or elderly.
- Acquisition of materials, furniture or equipment for special education centers

02. 07. ART AND CULTURE

This subsector should be used to classify all projects and studies aimed at conserving the cultural heritage of the country or improving the cultural level of its people. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of public libraries or museums.
- Restoration of ruins or historical buildings.

03. ENERGY

This sector should include all studies or projects related to generating and distributing energetic resources. The subsectors suggested for this sector are:

03. 00. INTERSUBSECTORIAL

03. 01. ADMINISTRATION AND TRAINING

03. 02. GENERATION OF ELECTRICITY

This subsector should be used to classify all projects and studies aimed at maintaining or increasing electricity generation capacity. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of hydroelectric facilities or power generating plants.
- Acquisition of engines or generators for producing electricity.

03. 03. DISTRIBUTION OF ELECTRICITY

This subsector should be used to classify all projects and studies aimed at maintaining or improving electricity distribution networks. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of transmission lines.
- Acquisition and installation of transformers.

03. 04. PUBLIC LIGHTING

This subsector should be used to classify all projects and studies aimed at improving or maintaining lighting systems. Examples of projects to be classified in this subsector are:

- Street lighting projects.

04. HEALTH CARE AND NUTRITION

This sector should include all studies or projects related to the provision of health care facilities or services as well as project or studies aimed at improving nutrition levels of the population. The subsectors suggested for this sector are:

04. 00. INTERSUBSECTORIAL

04. 01. ADMINISTRATION AND TRAINING

04. 02. PRIMARY LEVEL

This subsector should be used to classify all projects and studies aimed at the prevention of illnesses or at providing basic health care services. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of basic health attention centers in villages.
- Programs to educate people on prevention of illnesses.

04. 03. SECONDARY LEVEL

This subsector should be used to classify all projects and studies aimed at providing medium complexity health care services. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of non specialized hospitals.
- Acquisition of ambulances.

04. 04. THIRD LEVEL

This subsector should be used to classify all projects and studies aimed at providing high complexity

SECTORS AND SUBSECTORS

health care services. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of specialized hospitals.
- Acquisition of highly specialized medical equipment.

04. 05. NUTRITION

This subsector should be used to classify all projects and studies aimed at improving the nutritional level of the population. Examples of projects to be classified in this subsector are:

- Distribution of dairy products at schools.
- Construction of centers for the recovery of undernourished children.

05. HOUSING

This sector should include all studies or projects related to the provision of housing for people. The subsectors suggested for this sector are:

05. 00. INTERSUBSECTORIAL

05. 01. ADMINISTRATION AND TRAINING

05. 02. HOUSING

This subsector should be used to classify all projects and studies aimed at solving housing problems of homeless people or at increasing the stock of available housing units or improving the quality of that stock. Excluded are houses that are going to be assigned to government officials while in office or to teachers while teaching at a given school, which should be classified in subsector 01 of the sector corresponding

to their activities. Examples of projects to be classified in this subsector are:

- Construction or improvement of housing units to be given, sold or rented to homeless people.
- Subsidies for the acquisition or improvement of houses or apartments.
- Subsidies for the acquisition of building materials to be used in the construction or improvement of houses or apartments.

06. INDUSTRY, COMMERCE AND FINANCE

This sector should include all studies or projects related to the industrial, commerce and financial areas. The subsectors suggested for this sector are:

06. 00. INTERSUBSECTORIAL

06. 01. ADMINISTRATION AND TRAINING

06. 02. MANUFACTURING

This subsector should be used to classify all projects and studies aimed at improving the manufacturing capacity of the country. Examples of projects to be classified in this subsector are:

- Construction of factory shells.
- Construction of sawmills.
- Industrial surveys.
- Construction of bottling plants.

06. 03. WHOLESALE AND RETAIL

This subsector should be used to classify all projects and studies aimed at establishing, improving,

SECTORS AND SUBSECTORS

fostering or controlling commercial activities. Examples of projects to be classified in this subsector are:

- Construction of markets.
- Construction of storage facilities.

06. 04. BANKING AND INSURANCE

This subsector should be used to classify all projects and studies aimed at establishing, improving, fostering or controlling financial activities. Examples of projects to be classified in this subsector are:

- Construction of bank branches.
- Acquisition of hardware and/or software for controlling banking or insurance activities.

07. JUSTICE

This sector should include all studies or projects related to the judicial and legal services. The subsectors suggested for this sector are:

07. 00. INTERSUBSECTORIAL

07. 01. ADMINISTRATION AND TRAINING

07. 02. ADMINISTRATION OF JUSTICE

This subsector should be used to classify all projects and studies aimed at maintaining or increasing efficiency in the administration of justice. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of courts.
- Acquisition of furniture or office equipment for courts.

07. 03. REHABILITATION

This subsector should be used to classify all projects and studies aimed at the rehabilitation of indicted people. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of jails.
- Construction, improvement or maintenance of training centers for the indicted.

08. MINING

This sector should include all studies or projects related to mining and quarrying. The subsectors suggested for this sector are:

08. 00. INTERSUBSECTORIAL

08. 01. ADMINISTRATION AND TRAINING

08. 02. METALLIC

This subsector should be used to classify all projects and studies aimed at the exploitation of metallic mineral resources. Examples of projects to be classified in this subsector are:

- Gold mining projects.
- Ore mining projects.

08. 03. NON METALLIC

This subsector should be used to classify all projects and studies aimed at the exploitation of non metallic mineral resources. Examples of projects to be classified in this subsector are:

- Diamond mining projects.
- Gypsum quarrying projects.

08. 04. FOSSIL FUELS

This subsector should be used to classify all projects and studies aimed at the exploitation of fossil fuels. Examples of projects to be classified in this subsector are:

- Petroleum exploration projects.

08. 05. REFINING

This subsector should be used to classify all projects aimed at maintaining or increasing the refining capacity of minerals or fossil fuels. Examples of projects to be classified in this subsector are:

- Alumina production.
- Petroleum refining.

09. SPORTS AND RECREATIVE ACTIVITIES

This sector should include all studies or projects related to sporting or recreational activities. The subsectors suggested for this sector are:

09. 00. INTERSUBSECTORIAL

09. 01. ADMINISTRATION AND TRAINING

09. 01. SPORTS

This subsector should be used to classify all projects and studies aimed at providing facilities or equipment for sporting activities. Examples of projects to be classified in this subsector are:

- Construction of football fields.
- Acquisition of gymnastic equipment

09. 03. RECREATION

This subsector should be used to classify all projects and studies aimed at providing recreational facilities. Examples of projects to be classified in this subsector are:

- Construction of campgrounds or picnic areas.
- Construction of playing areas for children.

10. TOURISM

This sector should include all studies or projects related to fostering tourism or providing facilities required by tourists. The subsectors suggested for this sector are:

10. 00. INTERSUBSECTORIAL

10. 01. ADMINISTRATION AND TRAINING

10. 02. HOTELS

This subsector should be used to classify all projects and studies aimed at maintaining or increasing the availability of lodging for tourists. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of hotels.
- Acquisition of furniture for hotels.

10. 03. RESTAURANTS

This subsector should be used to classify all projects and studies aimed at maintaining or increasing the availability of dining facilities for tourists. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of restaurants.
- Acquisition of furniture for restaurants.

11. TRANSPORTATION AND COMMUNICATIONS

This sector should include all studies or projects related to the provision of infrastructure for transportation and communications. The subsectors suggested for this sector are:

11. 00. INTERSUBSECTORIAL

11. 01. ADMINISTRATION AND TRAINING

11. 02. URBAN AND PEDESTRIAN

This subsector should be used to classify all projects and studies aimed at providing walkways or streets in urban areas. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of streets.
- Construction, improvement or maintenance of walkways.

11. 03. SURFACE TRANSPORT

This subsector should be used to classify all projects and studies aimed at surface transportation services. Examples of projects to be classified in this subsector are:

- Construction, surfacing, resurfacing or maintenance of roads.
- Construction of bridges.
- Acquisition of truck or buses for providing transportation services.

12.03. AIR TRANSPORT

This subsector should be used to classify all projects and studies aimed at providing air transportation services. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of airport terminal buildings.
- Construction, improvement or maintenance of landing strips.

11. 04. MARITIME OR RIVER TRANSPORT

This subsector should be used to classify all projects and studies aimed at maritime or river transportation services. Examples of projects to be classified in this subsector are:

- Construction, dredging or improvement of ports or docking facilities.
- Acquisition of boats or barges for providing maritime transportation services.

12. WATER AND SEWERAGE

This sector should include all studies or projects related to the provision of drinking water schemes and sewerage systems. The subsectors suggested for this sector are:

12. 00. INTERSUBSECTORIAL

12. 01. ADMINISTRATION AND TRAINING

12. 02. WATER SYSTEMS

This subsector should be used to classify all projects and studies aimed at maintaining or increasing

drinking water production and distributing capacity. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of water treatment plants, drinking water storage tanks and water distribution systems.

12. 03. SEWERAGE SYSTEMS

This subsector should be used to classify all projects and studies aimed at providing sewerage disposal systems. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of sewerage collection systems, sewerage treatment plants and final disposal systems.

13. NATIONAL SECURITY

This sector should include all studies or projects related aimed at maintaining or improving national security. The subsectors suggested for this sector are:

13. 00. INTERSUBSECTORIAL

13. 01. ADMINISTRATION AND TRAINING

13. 02. POLICE

This subsector should be used to classify all projects and studies related to providing police services to the community. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of police stations.
- Acquisition of patrol cars.

13. 03. ARMED FORCES

This subsector should be used to classify all projects related to the armed forces. Examples of projects to be classified in this subsector are:

- Construction, improvement or maintenance of military facilities.
- Acquisition of weapons.

4

6

7

8

ANNEX No 5SUGGESTIONS FOR THE IMPROVEMENT OF THE PROJECT BANK
FOR THE MINISTRY OF ECONOMIC DEVELOPMENT

As part of the mission in Belize, a careful revision of the current development stage of the Project Bank was made. The information registered in the Project Bank was screened in order to detect any problems in the way that information had been collected and registered. Also extensive meetings were held with the staff of the Ministry of Economic Development to identify needs that were not covered by the actual structure of the Project Bank or possible improvements of it.

As a result, the following problems were detected:

- Names assigned to projects were in some cases confusing or misleading.
- The sectorial classification is structured in such a way that projects could be classified in different sectors depending on the criteria of the person using the Project Bank.
- The manual for using the system includes some information that may be dangerous to the integrity of the database if used by a person without extensive knowledge of DBase III.
- There are needs that are not been covered by the actual system, a problem that can result in the creation of parallel databases and the death of the Project Bank.
- The procedures designed for obtaining reports from the project bank are cumbersome and could present serious problems once the database grows.
- The users of the system lack formal training in DBase III and in the procedures of using the Project Bank.

SUGGESTIONS

Based on this findings the following suggestions are made in order to improve the Project Bank:

- 1.- Names of projects should be assigned based on common rules aimed at choosing names that convey the essence of the project without becoming too extensive. Such a system is suggested in Annex 3 of this document.
- 2.- The sectorial classification must be revised and a manual should be prepared in order to assure that project classification does not depend on the criteria of the person entering the information into the Project Bank. A first draft of such a manual with suggested modifications to the classification is included in Annex 3.
- 3.- Names of ministries and agencies should be normalized. Coding for these names should be designed in a way that makes remembering them as easy as possible. Using acronyms based on first letters is highly recommended. This work should be done locally.
- 4.- Fields should be added to the database in order to register the extra information included in the new data collection form. The information is needed to expand the uses of the Project Data Bank and satisfy the needs of the Ministry of Economic Development. That information includes:
 - Fields for registering yearly expenditures during the investment stage as well as running costs. Sources and uses of funds must also be registered as shown on points .. and .. of the data collection forms.

SUGGESTIONS

- An estimate of employment generated during construction and for operating the project. Such data is fundamental for appraising the global impact of a public sector investment program. It is suggested that provision is made for classifying workers by training levels (skilled and unskilled).
- Data about the number of foreign national working on the projects should be added, given a specific request on this sense from the Minister of economic Planning.
- Data required for managing projects presented by the private sector. The current structure of the database is ill suited for helping in managing that information, which has resulted in an attempt to develop a second database for that purpose.

5.- The structure of the database also requires modifications in order to become more powerful and flexible. Some of the modifications suggested are:

- A structure based on a core base and linked sub-bases should be implemented. The core would include all variables common to private and public sector projects. One sub-base would be made up by fields for registering information that is characteristic for public sector projects, while another sub-base would register information that is characteristic of private sector projects. The link between these databases should be the file reference number which is unique for each project (that file reference number is assigned when the project is received at the Ministry of Economic Development).

SUGGESTIONS

- Memo fields should be used instead of character fields for variables such as project description, objectives, reasons for being after schedule, and many other that require extensive descriptions and are never going to be used as criterion variables for selecting or ordering information in the database.
 - Preformatted reports should be developed in order to make it easier to obtain summary information from the Project Bank. Those reports should cover all basic needs of The Ministry of Economic Development and the Finance Ministry.
 - Programs should be developed in DBase III in order to make it simpler to enter and obtain information from the Project Bank.
 - Users of the system should be trained at two levels. A first level of training should be given to the entire staff of the Ministry for Economic Development in how to use Dbase III and specifically the Project Bank. A selected group should also be trained in programming in Dbase III and in the structure of the Project Bank and the programs to be developed.
- 6.- Methodologies for the evaluation of Public Sector project at a profile level should be developed. These methodologies are required in order to help in obtaining homogeneous information for all projects of a given type, so as to make it possible to use the Project Bank to prioritize them.
- 7.- The social prices of Foreign Currency, Labor and the Social Discount Rate should be estimated. These parameters are basic input for the social evaluation of projects.

1
2

3
4

100
100

100

100