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ECONOMIC DEVELOPMENT INSTITUTE OF THE WORLD BANK (EDI/WORLD BANK)
 ECONOMIC COMMISSION FOR LATIN AMERICA AND THE CARIBBEAN (ECLAC)
  LATIN AMERICAN AND CARIBBEAN INSTITUTE FOR ECONOMIC AND SOCIAL
                      PLANNING (ILPES)

        PROJECT AND ADVISORY ASSISTANCE PROGRAMME

            EDI/ECLAC/ILPES SEMINAR ON:
      "PROJECT DATA BANK AND PUBLIC SECTOR
          INVESTMENT PROGRAMMING"

                     VOLUME III

       List of Selected Institutional Papers

           Kingston, Jamaica, 20-22 November 1991

PROJECT AND ADVISORY ASSISTANCE PROGRAMME

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PROLOGUE

Efforts to enhance macroeconomic efficiency must be complemented by the appropriate preparation and selection of public investment projects. Experience has shown that in a context of greater overall efficiency, the profitability and impact of projects is significantly increased.

Likewise, better-prepared projects take on greater importance in a more competitive, open and decentralized environment. All of these factors are closely related to the efficiency of public spending and the way in which resources are allocated to meet priority needs. In other words, the challenges of macroeconomic adjustment require, at the microeconomic level, high-yield project portfolios and consequently different ways of making public investment plans and budgetary allocations.

In light of the foregoing considerations, ILPES, in cooperation with the World Bank's Economic Development Institute (EDI) and ECLAC, has promoted a number of regional meetings in recent years for the exchange of experiences and ideas on the subject of investment programming and project cycle.

This two-volume publication contains all of the material covered in the seminar on **"Project Data Bank and Public Sector Investment Programming"**, held in Kingston, Jamaica, from 20 to 22 November 1991.

Our aim is to help not only to publicize the advances made in individual countries, but also to itensify the search for new methods and systems for increasing the yield of public investment.

Edgar Ortegón
Director
Project and Advisory Assistance Programme

JAMAICA PROJECT DATA BANK
ILPES/INFOPROJECT 2.2

UNDP PROJECT JAM/89/019
(National Development Plan)

FOREWORD

In order to establish an effective technical cooperation in critical areas, an agreement was reached between the Planning Institute of Jamaica and ECLAC/ILPES, that was materialized through the participation of the latter two institutions in the UNDP Project JAM/89/019 (National Development Plan).

Under the above mentioned project the services to be provided by the cooperating agency (ECLAC/ILPES) were the following:

i)   To design a computerized Project Data Bank primarily for collecting, organizing, handling, and analyzing information on public investment projects, in order to give efficient operational support to the project cycle management system.

ii) To formulate a short-term macro-economic model for monitoring and forecasting the performance of the economy.

iii) To develop a short-term indicator system for the manufacturing sector, aimed at an efficient tracking of the economy.

iv) To implement in-service training to staff members in the manipulation of these instruments.

This document presents the logical design of the Jamaica Project Data Bank with its respective modules: The Preinvestment Module, the Project Follow-up Module and the Technical Cooperation Module. Moreover, considering the existing distribution of responsibilities among public sector institutions in relation to project cycle management, a distributed data base operating in personal computers is proposed.

Additionally, the document contains specific sections concerning the institutional framework and the roles played by the various institutions dealing with public investment in the Project Data Bank context; procedures for collecting data; rules for assigning names to projects and a proposed sector and sub-sector classification. As Annex 3, and with the purpose of facilitating the use and operation of the Project Data Bank, ten forms to be completed are included. Each one displays its corresponding instructives.

1. INTRODUCTION

1.1 Background

Traditionally it has been assumed that the only way for a country of achieving a higher development rate is through a higher investment rate, as the simplest macroeconomic models state when relating the economic growth of a country to the amount of capital investment. But experience has shown that not necessarily a higher investment rate produces a higher growth rate in the long term. Therefore, more complex models also 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.

Therefore, the search for economical and social progress by developing countries necessarily involves the problem of using available 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 other projects aimed at the same objective or for pursuing other goals. Therefore, if the resources are allocated in the most efficient way, it will be possible to undertake more and better projects and, accordingly, it will be more likely to achieve the proposed objectives.

The contribution of the preinvestment process to economic development resides, therefore, in helping in 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 assessing 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.

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However, a well instituted preinvestment process is no guarantee that the resources are going to be used in an efficient way. A good project can turn out to be a bad one if no provisions are taken in order to assure its completion within the schedule and budget estimated at the preinvestment stage. Therefore, it is necessary to implement a project follow-up system. Such a system should give timely warnings about projects that are having trouble in the implementation stage, allowing executing or funding agencies to adopt proper and timely corrective measures.

1.2 The Project Data Bank

The preinvestment process generates sizable amounts of information about projects at different stages of their life cycle. Furthermore, during the implementation stage the physical and financial follow-up of projects produces even greater amounts of data. Therefore, tracking all projects and making an efficient use of the information generated becomes very difficult.

An answer to this problem is the establishment of a Project Data Bank (PDB) which is basically an information system about projects. It registers in a standardized way information about all proposed or ongoing Public Sector Investment Programme (PSIP) projects. This information is then made available to the different institutions related to the PSIP in order to support their activities and facilitate the coordination among them.

The structure of a PDB is based on the Project Life Cycle. The PDB collects information about any given project from its inception as an idea until it is implemented and goes into operation or is abandoned at an intermediate stage. This information is then kept in the system to allow learning from previous successes or failures.

However, any information system can only be as good as the information it manages. Therefore, 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 ranking 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 training programmes on project identification, formulation and appraisal and on the theory and usage of the Project Data Bank.

Finally, given that many different institutions are involved in the PSIP and that all of them must facilitate information about the projects under their responsibility, there must be a strong

support within the government for implementing the PDB. Otherwise, it would be very difficult to collect all the desired information.

Therefore, for a PDB to be successful, its development must include:

a) A <u>training programme</u> aimed at public sector personnel and including short courses in project formulation and appraisal, in project management during the construction stage and in the use of the hardware and software of the PDB. This training programme should be instituted as a regular activity, in order to compensate for the loss of qualified personnel to the private sector or its movement from one public sector institution to another.

b) A <u>clear assignment of responsibilities</u> to the participating public sector institution (institutional and legal framework). There should be no duplication of tasks between institutions regarding who is in charge of collecting a given type of information and registering it in the PDB. No institution should be able to modify information registered by another institution according to its assigned role in the PDB. That means that only certain public sector institutions should be able to enter specific project information into the PDB. However, any institution participating in the PDB should have access to all registered information. Also, the PDB must conform to the legal framework. Therefore, it is necessary to analyze existing laws related to the management of public investment in order to assess their implications to the PDB and, if necessary, suggest amendments.

c) The <u>definition of forms, procedures and rules</u> for summarizing and coding the information in a standardized way. This ensures that meaningful reports can be readily generated and that they will be easily understood by all users. For example, aspects to standardize include the assignment of names to projects and their sectoral and geographical classification.

d) Also <u>project appraisal methodologies</u> must be developed for all types of projects. These methodologies must be tailored to the training level of the people that are going to apply them in each sector. This greatly facilitates project appraisal at the profile level and guaranties that it will be possible to compare and rank similar projects on an equal basis. The information generated would be summarized in data collection forms and then registered in the PDB.

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e) Finally, <u>hardware and software</u> are needed in order to manage all collected information in an efficient way. The software must be as user friendly as possible in order to reduce training requirements. But, at the same time, must have enough flexibility to adapt to the changing needs of the government and must be powerful enough to manage the huge volume of information to be registered.

1.3 Operation of the Project Data Bank

To become a useful tool a Project Data Bank needs to include the information that is required for supporting the investment decision making process. Of course it is impossible for the Project Data 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, data collection procedures must be instituted. The institutions that identify, formulate and appraise the projects should fill the data collection forms for registering projects in the PDB, because only they know exactly all fundamental aspects of the project. This information should then be send to a designed institution in order to be reviewed and registered in the PDB.

After 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 created in order to estimate the manpower needed for the construction stage of a given set of projects. Also reports could be produced 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.

Once the budget is developed, the Budget Office should register in the PDB the actual amounts assigned to each project. This can be done directly at the Budget Office if they are integrated to the PDB. If not, the information can be entered at the institution operating the PDB using listings supplied by the Budget Office.

When the project goes into the implementation stage, the PDB would register information about physical and financial progress. Given that this information is generated by the institution in charge of implementing the project, it should fill the corresponding data collection forms and send them to the

institution in charge of monitoring on-going projects. There the information would be reviewed, complemented if necessary, and registered in the PDB if they are integrated to it. Otherwise, the institution in charge of the PDB should receive copies of the revised data collection forms and register the information in the PDB.

The information could then be used to detect any delays or cost overruns in on-going projects in a timely way, allowing taking appropriate corrective action.

Finally, the historic information about completed or abandoned projects can be used to support ex-post project evaluation and, therefore, to improve project appraisal methodologies and project implementation programming techniques.

2. STRUCTURE PROPOSED FOR THE PDB

2.1 Modules of the PDB

As was stated before, the structure of a PDB is based upon the Project Life Cycle. The main phases of it are the Preinvestment Phase, the Implementation Phase and the Operation Phase. The PDB registers information relevant to decision-making generated during the first two phases. Therefore, the main modules of a PDB are the Preinvestment Module and the Project Follow-up Module. Additional modules include a Financial Follow-up Module, a Debt Monitoring Module and a Technical Cooperation Module.

The Preinvestment Module can register information about projects at the idea, profile, pre-feasibility and feasibility stages. However, it is rather common to start registering information about a project when it reaches the profile level. This is done in order to avoid that the database is filled with project ideas that have no chance of being implemented. The proposed structure and operation of this module is described in Section 3.

The Project Follow-up Module registers information relevant for decision making while the project is being implemented. This includes information generated during the design and the construction stages. The proposed structure and operation of this module is described in Section 5.

Apart from those two main modules, additional ones can be developed within the framework of the PDB to manage some other information related to projects in an integrated way. Three such modules are:

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a) A Technical Cooperation Module.
b) A Financial Follow-up Module.
c) A Debt Monitoring Module.

Within the technical assistance project JAM/89/019 developing the Technical Cooperation Module is considered. Its main characteristics and proposed structure are described in Section 6.

The Financial Follow-up Module would allow registering all transactions related to a given project. Therefore, it would facilitate cross-checking information with the Project Follow-up Module about money invested in projects. Moreover, a Financial Follow-up Module would complement the information about contracts registered in the latter, allowing full follow-up of each ongoing contract. This module is not going to be implemented under this project. However, the database to be installed in Finance will allow registering financing requested by public sector institutions for implementing projects as well as financing actually assigned. This part of the system is described in Section 4.

The objective of the Debt Monitoring Module would be to register relevant information about loans related to capital investment projects registered in the PDB. For example, this module would register for each loan information such as lending institution and beneficiary, projects financed by the loan, interest rates, repayment period, pre-disbursement conditions and information about disbursements made. This module should be fully integrated to the PDB in order to facilitate that institutions such as the Bank of Jamaica can make an efficient use of the information registered in the Preinvestment and Project Follow-up modules of the PDB.

Given that the development of the Debt Monitoring Module is not considered within the current technical assistance project, it is highly recommended that when such a task is undertaken, good coordination with the current project is established. Still, and in order to register in the PDB some information about loans and grants related to projects, a special data capture form has been designed. This form and its suggested use is described in Section 4.2.

Considering the above mentioned aspects, in the following sections a structure (architecture) is proposed for the PDB. Two aspects are addressed, namely structure of software and type of hardware.

2.2 Software

As was previously mentioned, the two main components of the PDB would be the Preinvestment Module and the Project Follow-up

Module.   Given that this two modules would be under the responsibility of different institutions, the PDB will be implemented as multiple databases.   Under this design, each participating institution would have its own database. The one at PIOJ would be the source of information about projects in the preinvestment phase and that of PAMCO would register project follow-up data.   A database at the Ministry of Finance would be used to register financing requested by institutions and actually assigned to projects, and allow officials from the Ministry access to information registered by PIOJ and PAMCO.

The software would be set up in such a way as to allow each institution to enter the information under its responsibility and get from the other institutions the remaining data about a project. PIOJ, Ministry of Finance and PAMCO would have full access to read information from the databases and produce reports. However, PIOJ would only be able to modify information about proposed projects and PAMCO would only be able to modify information about follow up of ongoing projects. Ministry of Finance would be able to view on screen or produce reports containing information registered by PIOJ and PAMCO, and would be responsible for registering financing requested and assigned to projects.

Ministries and agencies could also have their own databases. In that case, each institution would register in its database the information about projects under its direct responsibility. This information would then be aggregated at the PIOJ, PAMCO and Finance databases. The exchange of information will be done, in a first stage, using diskettes and later by modem. However, only the information received and reviewed by PIOJ, Finance or PAMCO would be considered valid PDB information.

In order to make the software simple to use and reduce the need of training, the main characteristics of the programs developed are:

- Provision of context-sensitive on-line help for all operations that the user can perform.

- Use of pull down menus in order to avoid that the user gets lost in a maze of menus.

- Selection of options in menus by highlighting them and pressing [Enter] or by pressing the first letter or number of the option to speed-up operation for proficient users.

- Consistency between menus to facilitate learning and use.

-   Automatic codification and validation of all information that can be tabulated, in order to facilitate data entry and reduce errors.

-   Screen formats as similar as possibly to data capture forms, which also facilitates data entry.

For selecting a programming language for developing the information system, consideration was given to the availability of local personnel familiar with the language, the potential of the language for developing a powerful and user friendly program and its ability to run in a DOS or network environment. Therefore, and considering the experience acquired by ILPES in implementing PDBs in other countries, the programs were developed using a DBase III dialect, specifically Clipper. This language is fully compatible with dBase databases and provides the necessary tools for creating very efficient and powerful programs.

2.3 Hardware

Given that the PDB is going to be established as multiple databases, there is no need for a computer capable of simultaneously processing requests from different users at different locations. Therefore, and considering the volume of information to be managed, the PDB can be implemented using personal computers. At least three different PCs should be considered, one at PIOJ, one at Finance and one at PAMCO.

In order to guarantee an adequate performance of the PDB, the minimum characteristics of the personal computers used should be:

-   A 286 or preferably a 386 microprocessor.
-   At least 1 megabyte of RAM memory.
-   One serial and one parallel port.
-   One high density floppy disk drive.
-   One hard disk of at least 70 megabytes.
-   Monochrome monitor with graphic capability.

Also a wide carriage printer should be considered for each computer and an uninterruptible power supply is highly recommended.

These computers should be reserved exclusively for the PDB to guarantee an appropriate level of security. At each of these institutions an official should be in charge of the operation of the PDB, one of its main responsibilities being updating the databases with the information received from the other institutions integrated to the PDB and making periodic backups of the information registered.

However, the above mentioned hardware represents the minimum equipment for starting operation of the PDB. Once the system is fully implemented, a substantial number of projects has been registered and the PDB is being used by more officials of PIOJ, Finance and PAMCO, better equipment will be required. Technical specifications of such hardware have not been prepared yet. However, some general guidelines based on the current situation in the participating institutions and the experience ILPES has acquired in similar projects in different countries, allows us to provide the following general guidelines:

a) Considering the type of equipment actually available in PIOJ and MFDP, it would be convenient that all computers to be acquired be MS-DOS machines.

b) PIOJ would require a file server to operate the PDB and a network to allow computers in the different units to tap into the PDB. A high speed printer and an un-interruptible power supply (UPS) would also be required.

c) MFDP has already a very powerful network and adequate file servers. Therefore, Computers should be provided only for the project unit to be created.

d) PAMCO has no computer equipment at all. Therefore, a file server, an entry level network and some PCs with printers should be supplied for the proper operation of the PDB and new systems to be developed. A high speed printer and an UPS would also be required.

e) Computers should be provided to selected project implementing institutions, in order to facilitate data collection regarding project follow-up.

Based on this general guidelines it can be assumed that the hardware required for full implementation of the PDB should comply with the following more detailed specifications:

a) <u>File Servers</u> (PIOJ and PAMCO).

MS-DOS compatible microcomputer with the following minimum characteristics:

- Microprocessor: 80386; 20 MHz.
- 4 Mb RAM on motherboard, expandable to 8 Mb.
- 300 Mb hard disk, 25 ms average access time.
- Tape backup unit, 60 Mb cartridges.
- One 3.5" and one 5.25" high density drives.
- One parallel and two serial ports.
- Ethernet card.

- Hayes compatible modem card.
- Black & white VGA monitor.
- 64 Kb disk cache memory.
- 400 cps (draft) wide carriage printer.
- Network specific UPS.

b) <u>Microcomputer type 1</u> (selected project implementing institutions and one for the debt monitoring system in Finance).

MS-DOS compatible microcomputer with the following minimum characteristics:

- Microprocessor: 80386SX; 20 MHz.
- 1 Mb RAM on motherboard, expandable to 5 Mb.
- 120 Mb hard disk, 25 ms average access time.
- One 3.5" and one 5.25" high density drives.
- One parallel and two serial ports.
- Hayes compatible modem card.
- Black & white VGA monitor.
- 240 cps (draft) wide carriage printer.

c) <u>Microcomputer type 2</u> (PAMCO, PIOJ AND MFDP, number to be determined).

MS-DOS compatible microcomputer with the following minimum characteristics:

- Microprocessor: 80286; 16 MHz.
- 1 Mb RAM on motherboard, expandable to 5 Mb.
- 40 Mb hard disk, 60 ms average access time.
- One 3.5" and one 5.25" high density drives.
- One parallel and two serial ports.
- Monochrome monitor.
- 240 cps (draft) printer.

d) <u>Software</u>

- Novell Netware 286 or similar (2 copies).
- MS-DOS 4.x (one copy for each computer).

3. THE PREINVESTMENT MODULE OF THE PDB

The preinvestment process generates a large amount of data that has to be registered in the PDB. Also it should be noted that the output obtained from the Project Data Bank can only be as good as the information it contains. Therefore, there is a need for

designing a data collection system that ensures a continuous and timely update of the information in the PDB.

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

For this purpose two data collection forms have been designed. The first one, PDB Form 1: Project Summary, is to be used for collecting information about projects in the different stages of the preinvestment phase (i.e. idea, profile, prefeasibility and feasibility). The second form, PDB Form 2: Programme Summary, should be used to register the main characteristics of investment programmes. These are defined as sets of projects aimed at a common general objective. Both forms are briefly described in the following sections. Copies of the forms as well as the instructions for completing them are presented in Annex 3.

3.1   Jamaica PDB Form 1: Project Summary

After analyzing the information currently collected by PIOJ (Project Profile and Project Summary of the IPMS System) a data collection form was designed. The objective of this form is to summarize the most relevant information about a given project. This form, called the Project Summary Form, will constitute the basic input for the Preinvestment Module of the PDB. It can be used for initially registering a project in the PDB or for updating information about a project that has been previously registered. It is a four page form (see Annex 3) which contains different sections that are discussed in the following paragraphs. Detailed instructions have been prepared for filling this form and are also included in Annex 3.

The first page of the form has been designed to contain the general information about the project. It should give a good understanding about the project to anybody that reads it.

The first section of the form, Project Identification, contains the project codes, the name of the project, the name of the institution that presents the project and the priority given to the project by this institution. The objective of this section is to allow a clear identification of the project. The PDB Identification Code is assigned automatically to the project when it is registered in the PDB. This code is unique for each project and should not change along the project life cycle. Once the project has been registered in the PDB, PIOJ should inform the sponsoring institution about the code assigned to the project, so

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that it can be used in any form send afterwards to update information or to inform PAMCO about project progress during the implementation stage.

For assigning names to projects some special rules have been prepared (see Annex 1). Their objective is to assure that the project name conveys as much information about the project as possible, without being too long. It will also allow retrieval of information based on the main function of the project (for example, a list of all projects whose main function is repairing damaged infrastructure).

The second section of PDB Form 1, named Project Classification, is aimed at registering information that will allow grouping projects by sector of economic activity, by stage in the project cycle or by an investment programme to which it belongs. This information is specially useful for preparing reports. For example, using this information as project selection criteria, a report could be generated listing all projects aimed at improving the quality of primary education, regardless of implementing institution.

The sectoral classification currently been used (see PSIP Users Guide of the I.P.M.S., Section 11-5) is not considered to be adequate because categories are too coarse to allow a detailed follow-up of the Five-Year Plan. Therefore, a new and more detailed sectoral classification is suggested in Annex 2 of this document. This classification system is based on similar systems in use in PDBs in other countries (like Belize, Colombia and Chile) but has been adapted to Jamaica considering the sectoral structure of the Five-Year Plan. Its application would facilitate economic analysis and planning activities as well as the follow-up of the Five-Year Plan.

A special section has been provided in the form to indicate the parish(es) and town(s) in which the project is going to be implemented. Further sections register the project objectives, scope of work, project description and project justification.

Another section of the form is used to register "Project Indicators". These are project appraisal criteria such as Net Present Value, Internal Rate of Return, Equivalent Annual Cost, Value Added, Employment Generated, etc. Which indicators will be registered depends on the methodologies for appraising public sector projects, which should be developed on a second phase of the implementation of the Project Data Bank. For each indicator this section registers the name of the indicator, the units in which it is measured and its magnitude (its value expressed in the units indicated).

Once project appraisal methodologies are developed, the indicators should be tabulated. This would avoid problems due to different ways of naming the same indicators (for example, the computer would consider "Employment skilled year 1" and "Employ. skilled year 1" as different indicators) and would facilitate filling the forms by making it possible to use acronyms instead of the full name of the indicator.

Another section of the form is to be used to register the names of all institutions that are related to the project and the type of relation to it. Some possible types of roles regarding the project are:

- **Implementing 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 part 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/or is going to provide funds for covering running costs (or part of them).

Also projects related to the project presented in the form can be registered by indicating their names and PDB (or TC-PDB) codes. Also, the type of relation should be registered, which could be:

- **Complementary:** if the current project is to be undertaken together with the indicated project in order to maximize benefits. For example, a road improvement project to a coffee growing area could be complementary to a project aimed at increasing coffee production in that area.

- **Substitute:** if only one of the projects, the currently proposed or the one indicated should be undertaken because both of them solve the same problem. For example, a project consisting in building a school for a small community could be substituted with increasing the capacity of an existing school in a near town.

- **Prerequisite:** if the indicated project must be completed before initiating the project presented in the form. For example, for a street paving project it could be a prerequisite that the water company has finished installing a drinking water pipeline under the street.

- **Dependant:** if the indicated project can be undertaken only if the project presented in the form has been previously completed. For example, in the previous case, the street

paving project would be dependant from the water pipeline project.

- **Supporting TA**: if the indicated Technical Assistance Project is aimed at supporting the implementation of the current project. For example, a TA-project could have as main objective to provide support to the design of bridge.

The form provides a section for registering the estimated Project Schedule and Cost for each Stage. In this section the estimated start and completion date of the next stages through which the project must go, as well as the total estimated cost of those stages should be indicated. Clearly, not all projects must go through all the stages. For example, if the information contained in the project profile is considered adequate to proceed to the project implementation phase, only estimates for Engineering Design, Construction, and Operation costs would be indicated.

This information is very useful to estimate likely dates in which projects that are actually at the preinvestment phase will require financing.

Project Capital Cost Estimates can also be registered in PDB Form 1, classified by type of expense and by year. This table is based on the table currently included in the project profile format requested for all PSIP projects. It allows registering the information for the next five years as well as the total cost by category. At the top of the table, a space has been provided for registering the date at which the cost estimates were made and the exchange rate at that date (this allows making adjustments to account for inflation or for changes in the exchange rate). This space should also be used to indicate the exchange rate between other currencies and the US$ when some of the costs were in other currencies and were converted to US$.

Another section of the form was designed for registering projected annual operating cost of the project and indicating which institution is going to finance those costs. Therefore, this section should allow the analysis of the current budget implications of the capital investment budget.

Finally, space has been provided in the form for additional comments about the project and for registering the identification of the person who filled the form as well as of the person that typed the information into the PDB.

3.2 Jamaica PDB Form 2: Programme Summary

When preparing a public sector investment programme, it is a regular practice to group projects in investment programmes

pursuing general sectoral or national objectives. Also, some multilateral financing agencies prepare investment programmes for loans to sectors such as urban development, education or health, where multiple small projects need to be undertaken.

In order to capture in the PDB information about investment programmes, a special data capture form was designed. In the following paragraphs a brief description of the type of information collected is presented. A copy of the form is included, together with the instructions for completing it, in Annex 3.

The first section of the form, Programme Identification, contains the programme codes and the name of the programme. The objective of this section is to allow a clear identification of the programme. The Programme Code is assigned automatically to the programme when it is registered in the PDB. This code is unique for each programme and should not change at a later date.

The second section of the form, named Programme Classification, is aimed at registering information that will allow grouping programmes by sector of economic activity, by type of assistance or by main function. The sectoral classification currently used should be the same applied for projects (see Annex 2).

A special section has been provided in the form to indicate the projects that are included in the investment programme. For each project its name and PDB-Code (if already registered in the PDB) should be indicated. This information is crucial, in order to follow-up programme implementation by aggregating the project follow-up information for the projects included in the programme.

Space has also been provided in the form for registering the description, justification and objectives of the programme. As in PDB Form 1, it is also possible to indicate the names of the institutions related to the programme and the role they play regarding it. To facilitate follow-up of the programme as a whole, a special section has been included in the form for registering the names of the officials in charge of the programme within the government or in any related institution.

A summary of the programme cost is also requested in the form. This information is required because the programme may have been defined but not all projects to be included in it have been identified. In such situation, it would not be possible to obtain cost data about the programme by adding cost data for projects included in it.

Finally, space is provided for additional comments about the project and for identifying the persons that completed the form and registered it in the PDB.

3.3 Reports of the Preinvestment Module

Once the information requested in PDB Forms 1 and 2 has been registered in the PDB it will be possible to generate different reports about proposed projects and programmes. In this section some reports are presented.

However, before describing the proposed reports, it is important to state that many other reports could eventually be generated. In this sense, the PDB would include the listed reports as standard pre-programmed reports which can be obtained by selecting them from a menu of reports. For advanced users of the PDB it will be possible to generate their own reports using existing report generators such as the one included in dBase III Plus. Also, if new reports are designed which are going to be used quite frequently, it will be possible to program those reports and add them to the PDB menu of standard reports.

Considering the previously cited aspects, the basic reports of the preinvestment module are:

a) <u>List of proposed projects</u>: This report would be a general list of all projects registered in the PDB during a given period. It would be possible to obtain the projects sorted by institution presenting the project, by economic sector and sub-sector, by stage in the project life cycle or by programme. The general format of this report would be:

PROJECT	NAME	PROJECT COST		
CODE		LOCAL	FOREIGN	TOTAL

SUBTOTALS BY SORTING CRITERIA

TOTALS

Also, it would be possible to obtain this report for selected (one or more) institutions, programmes, stages in project life cycle, sectors or subsectors.

b) <u>Project summary</u>: The project summary would be a printed copy of all the information contained in PDB Form 1. It would be possible to generate it for only one project or

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for a selected group of projects. This last option would permit printing all project summaries for a given institution or programme. The main application of this report would be to check the registered information against the information received in the form. It would also be useful for submitting detailed information about projects to potential financing agencies.

c) <u>Programme summary</u>: The programme summary would be a printed copy of all the information contained in PDB Form 2. It would be possible to generate it for only one programme or for a selected group of projects. The main application of this report would be to check the registered information against the information received in the form.

d) <u>Short project summary</u>: This report is similar to the project summary report (b) but contains only some information about a project. Its main objective would be to provide more concise information about a project for high ranking government officials. As for the previous report, it would be possible to print only one project or a selected group of projects. The information contained in this report would include for each project:

- Project name.
- Project code.
- Project location.
- Project description.
- Project justification.
- Project objectives.
- Selected project indicators.
- Participating institutions and their role.
- Project schedule.
- Total estimated cost (local and foreign).

All this information would be presented in its extended form, i.e. full names would be employed instead of codes or acronyms.

e) <u>Capital budget impact report</u>: This report would use the information contained in section 12 of PDB Form 1 to generate a table indicating yearly capital costs of selected projects. It would be possible to request the report by implementing institution, by sector and subsector or by programme in which cases the report would include yearly totals for each group and subgroup. The general format of this report would be as follows:

PROJECT CODE	PROJECT NAME	COST YEAR 1	COST YEAR 2	COST YEAR 3	COST YEAR 4	COST YEAR 5	TOTAL
	LOCAL:						
	FOREIGN:						
	TOTAL:						

SUBTOTALS BY SORTING CRITERIA

TOTAL

    f)   <u>Current Budget Implications of proposed projects</u>: This report would use the information contained in section 13 of PDB Form 1 to estimate the impact of a group of projects on the current budget of selected institutions. The user would be able to select the projects by institution, sector or programme. The resulting report would have the following format:

INSTITUTION	PROJECT CODE	NAME	ANNUAL RUNNING COST		
			LOCAL	FOREIGN	TOTAL

SUBTOTALS BY INSTITUTION

TOTAL

    g)   <u>Aggregate impact on selected indicators</u>: This report would present the aggregate impact of a group of projects on selected indicators. It would be possible for the user to select the projects by institution, sector and subsector or programme. Then he would select one or more indicators for which he wants the report. For each indicator he would also indicate if a total or an average is desired.1/ The format of the resulting report would be as follows:

1/   The sum of the indicators for all projects included would only make sense for some indicators. For example, it could provide useful information about employment generated by year of the PSIP programme, but would be meaningless for indicators such as Internal Rate of Return or Equivalent Annual Cost.

PROJECT CODE   PROJECT NAME   INDICATOR 1   INDICATOR 2   INDICATOR 3   ......   INDICATOR n

SUBTOTALS BY SORTING CRITERIA

TOTAL

The report heading would also include the unit used for each indicator. At the end of the report the total impact of all projects would be calculated.

h)   Recommendations about projects: This report would summarize the opinion of the different institutions involved in the appraisal and ranking of projects to be included in the PSIP. A first report would be prepared after the results of the appraisals conducted by PIOJ and by PAMCO have been registered in the PDB (see Section 3.4). A second report would be generated once the recommendations of the Project Pre-Selection Committee (PREC) have been registered in the PDB. A third report would include the recommendations of the Economic and Production Council and a last version would include the final recommendations made by the Cabinet.

Two versions of this report should be prepared. One would be based on report "a)", modified to include the final recommendation of each participating institution or committee (examples of such recommendations would be: "Proceed to implementation", "Do feasibility study", "Postpone", "Abandon"). The second version should be based on report "d)" modified to include the final recommendations given by each institution or committee and the reasons supporting that decision.

3.4   Recommended Procedures for the Preinvestment Module

For obtaining useful reports from the preinvestment module of the PDB it is essential to have the necessary information in the system. However, this task can only be done if the information has been received through the forms described in Section 3.1. Therefore, data collection procedures have to be defined and instituted in order for the Preinvestment Module of the PDB to become operational. In this section, a set of procedures aimed at this objective is defined.

The data collection process would begin with PIOJ distributing to all public sector institutions a set of instructions for project presentation, including instructions for preparing the project

profile and summarizing the information on PDB Form 1. These directions could include shadow prices for economic evaluation of projects.

Based on the instructions received, the different public sector institutions would prepare project profiles for all identified project ideas. For this task they could request assistance from PAMCO. Then they would fill-in one form for each project and send it, together with the project profile, to the PIOJ.

PIOJ would review the received information and register it in the PDB. Should any information be missing or if corrections are required, it would communicate the problem to the institution that presented the project. This institution would then make the necessary corrections or submit the additional data which would be used to update the information registered in the PDB. The Project Profiles and any other data related to the project would be kept in sequentially numbered files. These file numbers would also be registered in the PDB in order to facilitate access to the files if additional information is needed.

Also, a database file containing a complete copy of the information received would be send by PIOJ to PAMCO and to the Ministry of Finance. Summarized information would be sent to any other institution related to the PDB and interested in it.

The final result of the evaluation conducted by PIOJ would then be registered in the PDB, as well as a summary of the evaluation report of PAMCO. All this information would be presented to the Project Pre-Selection Committee (PREC). The PREC's decisions would be registered in the PDB and a summary report of all the information would be submitted to the Project Prioritization Committee (PRIOC) and to the Economic and Production Council for review and recommendations to the Cabinet. This recommendations would also be included in the PDB, as well as the final decision about implementing, postponing or abandoning the project. Once this process has been completed, PIOJ would send a complete report, printed and in a computer file, to PAMCO and to the Ministry of Finance, as well as to any other interested public sector institution.

4. PROJECT FINANCING AND DEBT MONITORING MODULES

The development of the financial follow-up and debt monitoring modules was not included in the current project. However, there is some basic information that is necessary for the proper operation of the PDB and that should be managed by these modules. Therefore, two data collection forms and the corresponding software have been

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developed in order to manage this information. The forms, as well as related reports, are presented in the next sections. Also, the procedures for using these forms as well as the software, are briefly discussed.

4.1 Jamaica PDB Form 3: Proposed Financing

For registering in the PDB financing requested for each project for the next fiscal years, PDB Form 3, Proposed Financing, was developed. This form should be completed by institutions requesting financing from the PSIP for a given fiscal year. Before completing this form and sending it to the Ministry of Finance, form one must have been completed, sent to PIOJ, and registered in the PDB.

The first section of the form is used to identify the project for which financing is being requested and the name of the institution requesting it. Next, financing required for each fiscal year to implement the project should be indicated. For each year, the total financing requirements should be broken down by proposed financing source. Totals by source and year should be clearly indicated. The date for which the cost estimates were made as well as the exchange rate at that date, should be indicated.

Also, a section has been provided for registering the current status of each proposed financing source. It should be used to indicate, for each proposed financing source, if financing has already been secured or is being negotiated. For example, if an IDB loan is being considered as a potential financing source, it should be indicated if the loan is still been negotiated, has been signed or disbursements have been made.

Finally, as in previous forms, space has been provided for additional remarks and the identification of the persons who completed the form and who registered it in the PDB.

4.2 Jamaica PDB Form 4: External Financing Agreements

To register the basic characteristics of loans and grants associated with projects registered in the PDB, PDB Form 4, External Financing Agreements, was designed. This form summarizes the most relevant information about loans and grants, such as conditions for disbursements, interest rates and schedule.

The first section of the form would contain information for clearly identifying the financial agreement. This would include a code for the agreement assigned by the PDB, if available, the code assigned by the funding agency or government to the agreement and its name, the file reference number for accessing more detailed

information and the name of the country or institution providing the funds.

A second section of the form was designed for registering the schedule of the financial agreement. This information can be very useful for tracking progress on agreements being negotiated or to compare financing requirements from projects with the disbursement schedule of the loan or grant.

The next two sections of the form should be used to register fees and interest rates associated with loans. Space has also been provided for registering, in a textual format, the conditions to be satisfied before the first disbursement is made, as well as conditions for subsequent disbursements. Registering this information in the PDB is important to facilitate checking if disbursement conditions are being satisfied, and therefore avoiding delays in obtaining the foreign funds.

Finally, space has been provided for any additional remarks and for identifying the persons who completed the form and who registered it in the PDB.

4.3 Reports on Project Financing and Financing Agreements

As was previously indicated, the project financing and financial agreements information to be collected by the PDB is going to be limited, for the time being, to essential project related information. Despite this fact it is possible to generate some useful reports. For example, the following reports could be generated with the available information:

a) Financing proposed for a project: This report would be a printed copy of PDB Form 3 for a single project or a group of projects selected by sector, institution, location, codes or any other classification variable.

b) Financing impact of investment programme: This report would use the information contained in Section 2 of PDB Form 3 to generate a table indicating yearly financing requirements for groups of projects. It will be possible to request the report by institution (financing or implementing), by sector and sub-sector or by programme. The report would include yearly totals for each group and sub-group. Also it would be possible to obtain the report for all foreign financing sources, for all national financing sources, or for both types combined. In this last case separate subtotals will be provided for foreign and local funds.

The general format of this report would be as follows:

FINANCING SOURCE	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL PROJECT COST
SUBTOTALS BY SOURCE						
TOTAL FOR LOCAL SOURCES						
TOTAL FOR FOREIGN SOURCES						
GRAND TOTAL						

c)   <u>Loan or grant summary</u>: This report would be a printed copy of PDB Form 4 for a loan or grant. It would also be possible to select a group of loans or grants by lending or donor agency.

d)   <u>Flow of foreign funds</u>: This report would present yearly inflows and outflows of foreign funds, related to the registered financial agreements, over a preselected time horizon, using the information contained in Sections 3, 4 and 5 of PDB Form 4. Yearly flows of funds would be presented for each agreement and totals by year would be calculated. Subtotal would be provided by status of the financial agreements. A version of this report could be prepared for obtaining quarterly or even monthly estimates of flows of foreign funds.

The general format of this report would be as follows:

AGREEMENT	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	(Etcetera....)
DISBURSEMENTS:						
REPAYMENTS:						
FEES:						
YEARLY SUBTOTAL FOR AGREEMENT:						
SUBTOTALS BY STATUS OF AGREEMENT:						
TOTAL						

4.4   Procedures

For the operation of this first stage of the Financial Follow-up Module and the Debt Monitoring Module, the following procedures are proposed.

PDB Form 3, Proposed Financing, should be used by the Ministry of Finance during the process of preparing each years budget. It should be completed for all proposed and ongoing projects by the

institutions in charge of their implementation, and submitted to the Ministry of Finance. One form should be used for each project and, if necessary, for each sub-project. At the Ministry of Finance the information would be reviewed and, if complete and correct, registered in the PDB.

Once a final decision has been made in order to assign financing to a project, the Ministry of Finance would register in the PDB the actual financing assigned to the project from each contributing financing source.

PDB Form 4, External Financing Agreements, should be completed by the official in the Ministry of Finance or in PIOJ who has the main responsibility for the financial agreement or for the agency providing it. The information should be obtained from the documents used in the negotiation process or from the agreement actually signed. The information regarding a particular agreement should be updated whenever mayor progress is made in its negotiation, until a final version is signed by the government and the agency or country.

5. PROJECT FOLLOW-UP MODULE

As was stated in Section 2.1, the PDB should include a Project Follow-up Module. This module would manage the information about physical and financial progress of all ongoing PSIP projects. The information would be collected from the different ministries and agencies in charge of implementing the projects. Therefore, data collection forms and standardized procedures are required in order to ensure that the information is collected regularly and that its quality is adequate.

Basically two data collection forms are required. The first one is aimed at registering the initial implementation schedule for the project or later modifications to it, and is described in Section 5.1. The second form, which should be requested on a quarterly basis, registers actual physical and financial progress, which can then be compared with the initial programme. This form is described in Section 5.2.

The information collected through the forms is registered in the Project Follow-up Module of the PDB and can then be used to produce reports by project, by programme or by institution. However, to facilitate interpreting the data collected and easily detecting projects that are running out of schedule, some Project Follow-up Indicators have been defined. These will constitute a basic element for the reports and are presented in Section 5.3. Finally, some possible reports are described in Section 5.4.

5.1   Jamaica PDB Form 5: Implementation Schedule

The objective of this form is to collect the information about the proposed implementation schedule of a project, cost of activities, physical goals and contracts. Effort has been done to keep this form as simple as possible in order not to burden implementing ministries and agencies with excessive information requests. However, the information demanded is comprehensive in the sense that no additional project programming information is required for the operation of the Project Follow-up Module of the PDB.

The form is composed of seven sections and can be used to register the implementation schedule for the project or later modifications to it. In the following paragraphs the different sections of the form are briefly described. The complete form is presented in Annex 3.

When filling-in the form, the first information to be indicated is whether the form is being used to register the projects' initial implementation programme or a modification to it. This later situation can arise if un-forecasted events cause such changes from the initial programme, that it would made no sense to compare the project progress against it. For example, after the initial implementation programme for a project has been registered in the PDB, natural events or market changes could make it convenient to postpone the project for months or even years. A similar situation would arise if due to factors not related to the project, a funding agency communicates that it is going to reduce its support, therefore severely affecting the implementation schedule. In cases like these, it would be recommendable to reprogram the implementation of the project and use the form to communicate the new schedule and register it in the PDB.

The first section of the form allows identifying the project. Given that the project should already have been registered in the PDB using PDB Form 1, a PDB identification code would already have been assigned to it and should be indicated in this section. This code is enough to identify the project. However, in order to cross-check the information and facilitate the use of the form, the full project name should also be indicated, which must be the same assigned to the project when it was initially registered in the PDB. Also space is provided to register any other existing project identification code, the number of the file where additional information is kept in PAMCO and the name of the institution in charge of implementing the project.

The next section of the form captures the basic information for the Project Follow-up Module of the PDB. The project should be broken down in its main activities. The specific activities will

depend on the type of project. However, the level of breakdown should be alike for all projects and similar projects should be broken down in analogous activities. For example, a project to provide drinking water to a town could be broken down in "Well digging", "Acquisition and installation of pump", "Conduction to reservoir", "Construction of reservoir" and "Distribution system". It is suggested that this breakdown of projects in activities is, in an initial phase, decided entirely by the implementing ministries and agencies. Later, based on the acquired experience, the categories in which different types of projects should be broken down could be tabulated and communicated to the implementing institutions, together with the instructions for filling-in the forms.

It is important to emphasize that a proper breakdown of the project in activities whose progress can be measured independently is a key prerequisite for a satisfactory operation of the Project Follow-up Module of the PDB. Therefore, it is recommended that PAMCO engineers provide assistance to sectoral institutions in this task. Also, it must be considered that dividing a project into many small activities can make the process of reporting project progress and analyzing it cumbersome. Therefore, it is not recommended to divide the project in more than 10 activities. However, if more activities need to be considered, they can be listed, using the same format, in Section 5 (Remarks) of the form (the PDB software has no limit for the number of activities that can be registered for one project).

For each activity the estimated starting date and ending date should be registered, as well as the total estimated cost of the activity and its magnitude in physical units, indicating the measurement units used. It is critical for doing a meaningful project follow-up to choose appropriate measurement units for each activity. For example, for measuring progress in repaving a road, cubic feet of concrete poured would be difficult to interpret. Miles (repaved) would be a much better unit.

For those activities for which it is impossible to select a meaningful unit, it would be necessary to consider the activity as a whole. In this instance, the progress of the activity can later be indicated as a percentage of the work to be done (estimated by the reporting official).

Another section of the form registers the basic data about the contract(s) subscribed or to be subscribed for implementing the project. If a code has been assigned to the contract by the institution in charge of implementing the project or by a financing source, it should be indicated in the second column of the table. The status of the contract should be indicated in the third column

of the table. It is proposed that the possible status of contracts are as follows:

CODE   STATUS

1   Contracting procedures not initiated.
2   Documents ready but no bid has been requested.
3   Bids were requested or private negotiations are under way.
4   Ready to be signed.
5   Signed but not initiated.
6   On going.
7   Suspended.
8   Completed.
9   Cancelled.

The cost of each contract should also be registered indicating the amounts to be paid in local and foreign currency. If the contract has not been signed, the best estimates available should be registered. Finally, the last column of the table should be used to indicate which of the activities listed in the previous section are included in each contract (using the activity numbers).

The fourth section of the form registers information about the project manager, in order to facilitate contacting him if additional information is required.

A space has been provided in the form for remarks. It should be used to register any additional information which is considered to be useful by the person filling the form (for example key assumptions on which the schedule is based and risk factors which may affect it). Also, this space can be used as an extension of any previous section if the space provided was insufficient.

Finally, the last two sections of the form should be used to register the identification of the person who filled the form and of the person that registered the information in the PDB.

5.2 Jamaica PDB Form 6: Project Follow-Up

The second form of the Project Follow-up Module of the PDB is aimed at collecting, on a quarterly basis, the information needed to appraise the progress of ongoing projects and compare it with the estimated implementation schedule. This form should be filled by the project manager.

The form is composed of seven sections. In the following paragraphs the different sections of the form are briefly described. The complete form is presented in Annex 3.

The first section of the form contains the basic information that allows identifying the project in the PDB. Given that the project should already have been registered in the PDB at the profile level using PDB Form 1 and its implementation programme should also have been registered using PDB Form 5, it would already have a PDB identification code which should be indicated in this section. Also, space is provided to register the name of the institution in charge of implementing the project.

A second section of the form should be used to indicate the starting and ending dates of the period for which information is being supplied. The starting date should be equal to the ending date of the previous report, or, if the current report is the first one, it should be equal to the date when PDB Form 5 was prepared and sent to PAMCO. The ending date of the period should be the ending date of the quarter.

The third section of the form registers the information actually used to monitor the implementation of the project. The project should be broken down in its main activities, which should be exactly the same activities detailed in PDB Form 5 when it was sent to be registered in the PDB.

For each activity, its status and the actual or estimated starting and ending dates should be registered. It is proposed to code the status of activities according to the following table:

CODE	STATUS
1	Not initiated.
2	On-going.
3	Completed.
4	Suspended.

If the activity has not yet begun, both dates would be estimated. If it has already started, the starting date should be the actual date and the ending date would be the latest estimate available. Finally, if the activity has been completed, both dates would be actual dates.

The same section of the form also registers actual physical progress for each activity. Figures informed should be cumulative, i.e. total progress up to the end of the reporting period. For reporting physical progress the same units registered for each activity in PDB Form 5 should be used.

The next section of the form registers the actual cost incurred in each activity, broken down in local and foreign currency. Amounts spend in a foreign currency different from US$ should be converted to US$ and the actual currency in which the

expenses were made and the exchange rate applied should be indicated in Section 5, "Remarks". Figures should correspond to expenses incurred during the reporting period (quarter). It is important to emphasize that an effort must be done to estimate the actual amounts spend by activity, because this information is basic for the operation of the Project Follow-up Module of the PDB.

A special section has been included in the form to inform about the contract(s) subscribed (or to be subscribed) for implementing the project. If a code has been assigned to the contract by the institution in charge of implementing the project or by a financing source, it should also be indicated, as well as the status of the contract. This section should also be used to register actual amounts paid to each contractor in local and foreign currency (again all foreign currencies should be converted to US$). Finally, it should be indicated which of the activities in which the project was broken down are been undertaken by each contractor.

As in all other PDB forms a section for remarks has been included. This space can be used to indicate the reasons for delays in the implementation of any of the activities, justifying cost overruns or indicating problems with contractors.

Finally, space has been provided in the form for identifying the person who filled the form and the person that registered the information in the PDB.

5.3 Project Follow-up Indicators

Before describing the reports to be programmed, it is important to define some index numbers that are going to be used for appraising the rate of implementation of the projects.

As was stated before, the data collection forms have been kept as simple as possible in order not to place an undue burden on the reporting institution. However, this implies that the task of calculating meaningful indexes of project progress will fall on the institution in charge of centralizing the project follow-up information and preparing reports thereon. Fortunately, the computerized system is designed to almost completely overtake this burden, presenting the institution in charge of project follow-up with reports that are easy to interpret and yet powerful enough to detect most problems that can arise during project implementation.

Basically two different aspects of project implementation would be monitored simultaneously by the system. This would be time schedule and cost. The next two sections define indicators designed for monitoring this two aspects.

5.3.1 Time Schedule Indicators

To monitor time schedule the unit used would be days behind or ahead of schedule. However, for interpreting deviations from the schedule, it must be considered that delays can be traced back to two main causes: delays in starting with the activity and delays due to an implementation rate below that projected. Therefore, the actual delay of an activity would be calculated as follows:

Actual delay of activity (ADA) :

$$ADA = SDA + IDA \tag{1}$$

where: SDA = Starting delay of activity.
IDA = Implementation delay of activity.

These delays would then be calculated as follows:

$$SDA = ASDA - ESDA \tag{2}$$

and:

$$IDA = (ERP-ASDA) - APU * (EEDA-ESDA)/TPU \tag{3}$$

where: ESDA = estimated starting date of activity (PDB Form 5)
ASDA = actual starting date of activity (PDB Form 6)
APU = actual physical units completed (PDB Form 6)
EEDA = estimated ending date of activity (PDB Form 5)
TPU = total physical units of activity (PDB Form 5)
ERP = end of reporting period date (PDB Form 6)

Using this same data a second useful indicator can be calculated, which is the expected delay of the activity. It would be calculated as follows:

$$EDA = SDA + IDA*(TPU/APU) \tag{4}$$

where: EDA = expected delay of activity, i.e. the total delay expected at the end of the activity if the current implementation rate (physical units by day) stays constant.

This last indicator is especially useful given that it can give early warnings about activities that are being implemented at a rate lower than estimated, and can eventually generate a large project delay.

The previously defined indicators can also be expressed as a percentage. In this case the respective definitions would be:

Percent actual delay of activity:

$$\%ADA = ADA*100/(EEDA-ESDA) \qquad (5)$$

and:

Percent expected delay of activity:

$$\%EDA = EDA*100/(EEDA-ESDA) \qquad (6)$$

As will be seen when the reports of the Project Follow-up Module of the PDB are described, this way of presenting the indicators is useful in order to allow the computer to automatically report on projects for which delays in activities are above accepted variance levels.

Obviously, it is not convenient to produce reports for high level decision makers detailed by activity. Therefore, it is necessary to obtain aggregate data at the project level. For the previously defined indicators (ADA and EDA) it is proposed that the project indicators (ADP and EDP) be equal to the sum of the indicators for each activity. Therefore:

Actual delay of project:

$$ADP = \Sigma\ ADA \qquad \text{(for all activities)} \qquad (7)$$

and:

Expected delay of project:

$$EDP = \Sigma\ EDA \qquad \text{(for all activities)} \qquad (8)$$

From a project management or an engineering standpoint, to assume that the actual delay in a project is equal to the sum of the delays in each activity is wrong, given that many activities can be undertaken simultaneously. However, this way of calculating project delays errs on the safe side. I.e. calculated project delays using this method will always be greater than actual delays, giving warnings in all situations that guarantee them as well in some situations where delays are still of no concern. Moreover, this method is much simpler to apply than requesting a PERT chart for each project and calculating delays considering actual relations among activities.2/

2/ This method is recommended only for the PDB in order to keep the system simple. Project Managers should, undoubtedly, use methods such as CPM and PERT.

Percent project delay indicators would be calculated in the same way as for each activity, that is:

Percent actual delay of project:

$$\%ADP = ADP*100/(EEDP-ESDP) \tag{9}$$

and:

Percent expected delay of project:

$$\%EDP = EDP*100/(EEDP-ESDP) \tag{10}$$

where: EEDP = estimated ending date of project (PDB Form 5)
ESDP = estimated starting date of project (PDB Form 5)

In summary, the indicators suggested for monitoring the implementation schedule of projects are:

Actual delay of activity	ADA
Expected delay of activity	EDA
Percent actual delay of activity	%ADA
Percent expected delay of activity	%EDA
Actual delay of project	ADP
Expected delay of project	EDP
Percent expected delay of project	%EDP

A final consideration: when one activity has been completed only the total delay of the activity and corresponding percent figure would be calculated as the difference between the estimated ending date and the actual ending date and that difference multiplied by 100 and divided by the estimated duration of the activity respectively. In these instances, for calculating the expected delay of the project, the expected delay of the completed activity would be replaced by the actual total delay. Also, once a project has been finished, only the total delay of the project and its corresponding percent figure would be calculated, following an analogous procedure.

5.3.2   Cost Monitoring Indicators

The indicators proposed for monitoring project cost are similar in concept to those defined for delays in the previous section. This indicators would again be calculated automatically by the Project Follow-up Module of the PDB and included in reports at the activity or project level or used to automatically detect activities or projects which present cost overruns falling outside allowed variance levels.

At the activity level it is proposed to use the following indicators:

Actual cost overrun of activity   ACOA
Expected cost overrun of activity   ECOA
Percent actual cost overrun of activity   %ACOA

Which would be defined as follows:

$$ACOA = CIA - (ECA/TPU)*APU \qquad (11)$$

$$ECOA = ACOA * (TPU/APU) \qquad (12)$$

$$\%ACOA = ACOA*100/(APU*ECA/TPU) \qquad (13)$$

Where:

CIA = cost incurred in activity   (PDB Form 6)
ECA = estimated cost of activity   (PDB Form 5)
APU = actual physical units completed   (PDB Form 6)
TPU = total programmed physical units of activity (PDB Form 5)

It is not necessary to calculate the percent expected cost overrun of an activity given that it would be equal to the percent actual cost overrun of the activity (%ACOA).

At the project level it is proposed to use the following indicators:

Actual cost overrun of project   ACOP
Expected cost overrun of project   ECOP
Percent actual cost overrun of project   %ACOP
Percent expected cost overrun of project   %ECOP

Which would be defined as follows:

$$ACOP = \Sigma \ ACOA \quad \text{(for all activities)} \qquad (15)$$

$$ECOP = \Sigma \ ECOA \quad \text{(for all activities)} \qquad (16)$$

$$\%ACOP = ACOP*100/(\Sigma(APU*ECA/TPU)) \qquad (17)$$

$$\%ECOP = ECOP*100/TEPC \qquad (18)$$

Where: TEPC = Total estimated project cost   (PDB Form 5)

Also, as in the previous section, once an activity or a project has been completed, estimated values would no longer be calculated, replacing them by actual values.

5.4 Project Follow-Up Reports

Using the information obtained through PDB Forms 1, 2, 3, 5 and 6, many different reports can be generated about progress of projects or programmes or about the project implementation efficiency of different institutions. In this section some possible reports are presented. They would be the main reports of the Project Follow-up Module of the PDB.

However, as was also said in Section 3.3, many other reports could eventually be generated. The PDB would include the listed reports as standard pre-programmed reports which can be obtained by selecting them from a menu of project follow-up reports. For advanced users of the PDB it will be possible to generate their own reports. Also, if new reports are designed and are going to be used quite frequently, it will be possible to program those reports and add them to the menu of standard reports.

The basic reports of the Project Follow-up Module of the PDB would include at least the following:

a) Project implementation schedule: This report would be a printed copy of the information collected through PDB Form 5 and registered in the Project Follow-up Module of the PDB for a given project. The information printed would correspond to the latest information registered in the PDB, i.e. if a project has suffered successive modifications to its implementation programme, only the latest will be printed.

The user would be presented with the option of selecting only one project or printing the information for a set of projects. For this last purpose, projects would be selected by institution, by programme or by sector.

b) Project follow-up report: This report would be a printed copy of the information collected through PDB Form 6 and registered in the Project Follow-up Module of the PDB for a given project. The user would be able to select the latest information registered or any previous one. The main purpose of this report would be to check if the information was correctly registered.

c) Current and expected status of projects: This report would be a listing of projects including for each one the indicators described in Section 5.3. The user would be able to request the report for a single project, for all ongoing projects or for a selected group of projects. For this last option, he would be able to select projects by implementing institution, by source of financing, by

economic sector and subsector or by programme. Also he would be able to select the ordering criteria of the projects listed, which could be by PDB identification code, by name, by cost, by geographical location or by value of the indicators.

The general format of this report would be:

PROJECT CODE   PROJECT NAME   ACOP   ADP   %ACOP   %ADP   ECOP   EDP   %ECOP   %EDP

Additional information would be included for some of the options, such as the total estimated cost of the project and the geographical location.

d) Project progress report: This report would be a listing of the activities in which a project has been broken down, presenting, for each activity, the indicators described in Section 5.3. The user would be able to request the report for a single project or for a selected group of projects. For this last option, he would be able to select projects by their PDB identification code, by implementing institution, by source of financing, by economic sector and subsector or by programme. He would also be able to select the ordering criteria of the projects listed, which could be by PDB identification code or by project name.

For a single project the format of this report would be:

PDB IDENTIFICATION CODE : _____   PROJECT NAME : _____
             ACTIVITY   ACOA   ADA   %ACOA   %ADA   ECOA   EDA   %ECOA   %EDA

For a group of projects the format of this report would be:

PDB CODE   PROJECT NAME   ACOP   ADP   %ACOP   %ADP   ECOP   EDP   %ECOP   %EDP

e) Jeopardies report: This report would list projects for which cost overruns or delays are greater than preestablished variance levels. Those variance levels will be set by the user, having the option of defining separate variance levels for activities and for projects. For example, the user could set a project delay variance of 30 days and a cost overrun variance of 20 percent. The computer would then list all projects for which actual delay is over 30 days or actual cost overrun is

above 20 %. The user would also be able to set variances for expected delays or expected cost overruns at the activity or project level. In this way he would be able to detect at an early stage projects that are running dangerously out of schedule.

The format of this report would be similar to one of the previous two reports, depending on the choice of the user (project level or activity level). However, they would include for those indicators for which the user has set variance levels, the level set.

f) <u>Implementing efficiency report</u>: When this report is requested, the system would calculate for each implementing institution aggregate delay and cost overrun indicators. The institutional delay indicator would be equal to the average of the percent actual delay of project indicator for all projects being implemented by the institution. The aggregate cost overrun indicator for the implementing institution would be calculated as a weighted average of project cost overrun indicators, using as weight for each project indicator the ratio total estimated cost of project/total estimated cost of all projects being implemented by the institution. The different columns of this report would be:

-   Name of institution.
-   Number of projects being implemented.
-   Total estimated cost of projects being implemented.
-   Percent average actual delay of project.
-   Percent weighted average cost overrun of projects.

g) <u>Deviations graph</u>: Although the indicators defined in Section 5.3 can be directly interpreted, it is usually much easier to visualize the actual state of a project if the information is presented graphically. Therefore, it is recommended that the project follow-up module of the PDB be able to present the percent indicators using the following graphic format:

INTERRELATIONS BETWEEN OVERRUNS AND DELAYS IN
PROJECT IMPLEMENTATION

% Delays

100

(II)   (I)

50

% Cost overruns

-100   -50   50   100

-50

(III)   (IV)

-100
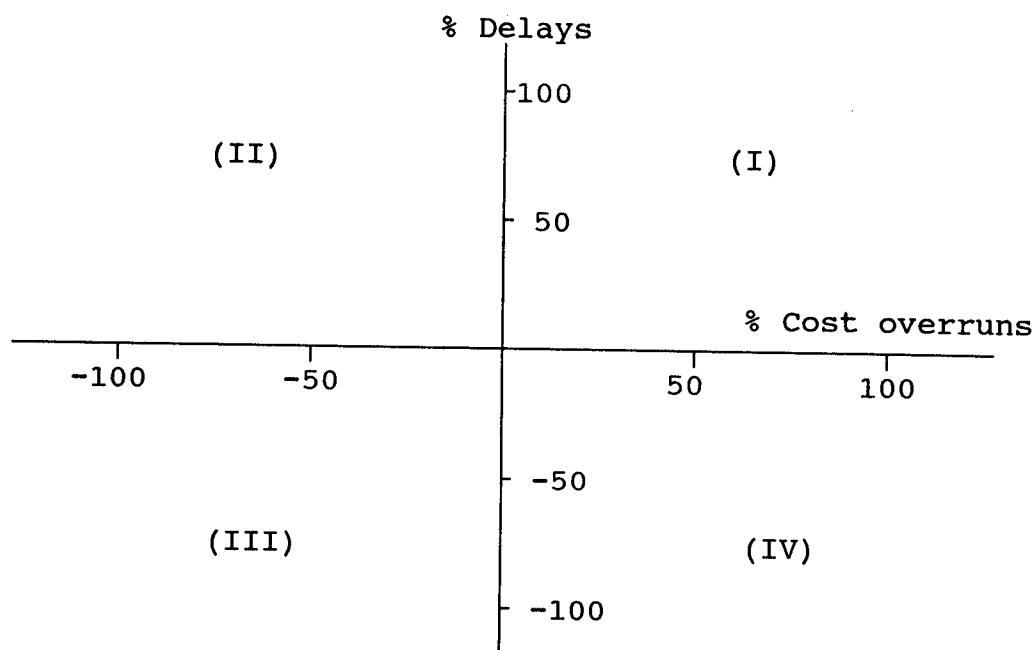
On this graph the following pairs of indicators can be plotted:

- Percent actual cost overrun of project (%ACOP); versus
- Percent actual delay of project (%ADP) (showing the actual situation of the project); and
- Percent expected cost overrun of project (%ECOP); versus
- Percent expected delay of project (%EDP); (showing the expected situation at the end of the project).

The same format can be used to plot the equivalent points corresponding to each activity in which a project has been broken down.

If a project is on schedule, the point corresponding to it should fall on the origin of the graph. The farther the points fall from the origin, the greater the deviations from schedule. If a project falls in quadrant I, it would be behind schedule and cost would be above estimated cost. If it falls in quadrant II, it would be behind schedule but costing less than forecasted. Quadrant III would correspond to

projects ahead of schedule and costing less than estimated. Finally, quadrant 4 would indicate that the project is ahead of schedule but costing more than forecasted.

Moreover, the graph can be used to plot all points corresponding to a project, i.e. points corresponding to different reporting periods. This would allow to perceive at first sight if the implementation efficiency of a project is worsening or improving (worsening if latest points fall further away from the origin, improving if they fall closer to the origin than points corresponding to previous periods).

5.5   Recommended Procedures for Project Follow-Up

The Project Follow-up Module of the PDB should be implemented at PAMCO. That means that PAMCO would have a complete version of the PDB software, but modified to allow the registration of the information collected through PDB Forms 5 and 6. Information about proposed projects would be fed into the system by requesting it from PIOJ and using diskettes for its transfer, or, if appropriate hardware exists, via modem.

The Project Implementation Schedule Form (PDB Form 5) should be send to PAMCO by all ministries and agencies before they start implementing a given project. This information should be reviewed by PAMCO and registered in the Project Follow-up Module of the PDB. Also this form should be send by the implementing institutions when due to un-forecasted circumstances the implementation schedule of the project has to be modified.

The Project Follow-up Form (PDB Form 6) should be completed on a quarterly basis for all PSIP projects by the institutions responsible for their implementation. This information would be reviewed by PAMCO and registered in the PDB. Reports would then be generated and distributed to all interested institutions (probable distribution would be the same actually given to PAMCO's reports).

Given that the PIOJ would also have a full version of the PDB, it would obtain from PAMCO the information about ongoing projects. This information would be transferred by diskette or if modems are available, by telephone. PIOJ would then be able to do its own analysis of the project follow-up data, but its version of the PDB would not allow modifying the project follow-up information, given that this would be PAMCO's responsibility.

6. THE TECHNICAL COOPERATION MODULE

This section is divided in three parts. The first one presents a general framework on the subject. The second part deals with the conceptual and logical structure of an information system for technical cooperation management. The third part proposes the establishment of a Technical Cooperation Module within the PDB structure.

6.1 General Framework

Management of technical cooperation projects has been occupying an important place among ILPES activities during the last years. At the request of the governments of the region, the Projects and Advisory Services Programme has been assigning high priority to the methodological and conceptual development of Project Data Banks, including capital investment and technical assistance projects (TA-Projects). Several workshops on PDBs and investment programming have been held and horizontal cooperation among Latin American and Caribbean countries has been sponsored.

The supply of technical cooperation, as it is well known, can be bilateral or multilateral, coming from developed or developing countries, being of sectoral or multi-sectoral nature, covering national or regional levels.

Technical cooperation among developing countries, also known by the acronym TCDC, has occupied a prominent place among the activities of the United Nations System since the World Conference on the subject, held in Buenos Aires in September 1978. In 1988 ECLAC prepared a report which analyses the capacity of the countries of the region to supply TCDC and the conditions under which those activities are carried out.3/

International Technical Cooperation (ITC) in turn, may come from bilateral or multilateral funding institutions, UN agencies and non-governmental organizations.

Both areas of technical cooperation - TCDC and ITC - represent significant sources of goods and services for the countries of the region. Consequently, it is important to give attention to the subject in medium and long-term planning.

3/ "Guide to Technical Cooperation Among Developing Countries (TCDC): TCDC Supply and Directory of Institutions". ECLAC, April 1988.

List Institutional Papers

To facilitate management of technical cooperation activities a TC-Information System can be developed.

Such a system, with the support of a Project Data Bank, will enable: planning and rationalizing external aid coming into the country, having in mind real needs; establishing priorities among TC-Projects and coordinating technical cooperation activities of bilateral and multilateral sources.

Inflows of development assistance (coming from multilateral and bilateral lending agencies) are crucial to Jamaica's development efforts. In the Five-Year Plan it is estimated that development assistance represents an average of 42 per cent of Government's Public Sector Investment Programme (PSIP). In other words, an estimated US$1.978 billion in external commitments are projected over the 1990-1994 period. However, not all technical cooperation is reflected in the PSIP. Technical assistance -as the transfer of knowledge by assignment of experts to various organizations, assistance received through advisory services and on-the-job training given by consultants, assistance provided through the awards of scholarships and fellowships to Jamaicans to study in the country or abroad- is not considered.

6.2 Information System for TC-Management

An information system for technical cooperation management is required to provide the reliable and timely information needed for decision-making purposes. It should include capital investment projects as well as technical assistance projects.

Technical cooperation management may be compared to a productive process in the sense that it uses financial, human and material resources and generates various products.

Throughout this "production process" it is possible to distinguish various stages, characterized by the degree of progress achieved by the project in each one of them. The stages define what is known as the "project cycle", which is different for capital investment projects and technical assistance projects. The former was already examined in the sections above and the latter will be perused in the next section.

Within this systemic approach the inputs for managing technical cooperation include: technical cooperation policies, information about technical cooperation supply and juridical and administrative procedures, an appropriate institutional framework, trained human resources and a Technical Cooperation Module (TC-Module) within the PDB.

On the other hand, technical cooperation management also produces outputs such as: TC project ideas and profiles, negotiated projects, reports about on-going projects and project listings by sponsoring institution, sector, region, etc.

This considerable amount of information should be linked conforming an overall system. This system should cover all the activities undertaken in the country which are concerned with the subject, i.e. decision-making on which projects should be proposed for technical cooperation, selection of executing agencies, negotiations with funding agencies and follow-up of on-going projects.

In accordance with current legislation, the Ministry of Finance, Development and Planning (MFDP) carries the responsibility for the coordination of the project cycle activities (where technical assistance projects are included). It discharges its project responsibilities through the Planning Institute of Jamaica (PIOJ), the Project Pre-Selection Secretariat and the Project Analysis and Monitoring Company Ltd. (PAMCO), the National Project Monitoring Body.

In order to fulfill this mandate, PIOJ undertakes technical cooperation activities through the services of the Technical Cooperation Division. Consequently, the responsibility for establishing the system for technical cooperation management, and the set up of the TC-Module within the PDB, will lie in this Division.

6.3 The Technical Cooperation Module of the PDB

The objective of the Technical Cooperation Module of the PDB will be to register relevant information about projects whose main objective is the transfer of knowledge to the country: i.e. technical assistance (TA) projects. TA-Projects are not aimed at generating physical infrastructure or acquiring capital goods and they are not usually considered in the PSIP. Such is the case of assistance received through: i) institutional strengthening through advisory services and on-the-job training given by consultants to key government agencies; ii) awards of scholarships and fellowships to Jamaicans to study in the country or abroad; iii) assignment of long-term experts to selected government agencies to transfer specific technologies; etc.

This characteristic of TA-Projects sets them apart from capital investment projects. Besides, their impact on the economy is measured with different parameters than those used for capital investment projects. Moreover, TA-Projects have a different project life cycle than capital investment projects. Therefore, in

order to facilitate their inclusion in the TC-Module, the following cycle is proposed for TA-Projects:4/

    i)   <u>Idea</u>. At this, the first stage, the problem or situation that requires technical assistance should be clearly identified, indicating alternative means of solution.

    ii)   <u>Profile</u>. The second stage, corresponds to a preliminary appraisal of the technical assistance project. The various activities that will comprise the project and the results expected for each one should be described. Additionally, a timetable of activities and a more detailed study of the estimated cost of the project -broken down by local and foreign contribution- should be stated. The institutions that will participate in the project, and their role in it, must be defined. Moreover, the various sources that offer the required technical assistance must be identified and the most appropriate selected.

    iii)   <u>Project document</u>. The third stage begins when a technical cooperation agency has been chosen for requesting technical assistance. During this stage, the document for the presentation of the project to the technical cooperation agency is formulated. The information is prepared in accordance with the formats and procedures of the institution to which the project is being submitted.

    iv)   <u>Implementation</u>. The fourth stage of a TA-Project, corresponds to the execution of the project. Information is needed principally on the physical and financial follow-up of the project, to allow the prompt adoption of corrective measures when discrepancies arise between the programmed and actual timetable and costs.

        For the purpose of the TC-Module of the PDB, two additional stages have been defined:

    v)   <u>Abandoned</u>, refers to those TA-Projects which at some stage of their life cycle were discontinued for reasons such as being technically or economically unfeasible or having being replaced by an alternative project.

4/   The technical cooperation project cycle and its relation to the capital investment project cycle is fully described in the document: "Conceptual and Methodological Bases for the Development of a Support System for the Management of Technical Cooperation". ILPES, Santiago, Chile. March 1989.

vi) <u>Postponed</u>, refers to those TA-Projects whose progress to the next stage of their life cycle has been deferred for reasons such as inappropriate timing or lack of a potential funding agency.

Finally, a stage of <u>ex post evaluation</u> may be identified for certain selected projects. At this stage, a study is carried out of the results that have been effectively obtained. These should be compared with the expected results described in the project document. From the study of discrepancies, conclusions may be reached which could be useful for the formulation of future technical assistance projects.

To guarantee the integration of the TC-Module within the PDB, the use of common definitions for the variables and data capture forms is crucial. Standard tables including institutions, parishes and towns, sectors and subsectors, capital investment and technical assistance project stages, indicators, physical units, etc. are also needed.

Once the system is structured, the information will be organized in three sources: files, library and computerized databases. The files will have the data (background information, requests, agreements) of each technical cooperation project, chronologically organized in individual folders. Responsible staff will be in charge of keeping them up-to-date. The library will maintain technical information (i.e. studies done as part of a TA-Project, studies produced as result of missions and information on technical cooperation providers). As in the case of folders, they will be identified with referential codes. An ad-hoc software will be developed to manage the databases and specific routines will be prepared for manipulation of project data.

After analyzing the type of information actually kept by the Technical Cooperation Division, and bearing in mind its important role in the management of technical cooperation projects, a selection of data has been made and four data capture forms have been designed for the TC-Module: Donor Profile, TA-Project Summary, TA-Project Implementation Schedule and TA-Project Follow-Up. These forms have been fully integrated with the data capture forms designed for the Preinvestment Module and the Project Follow-Up Module of the PDB in order to facilitate cross-checking information.

For example, technical assistance projects can be: i) independent projects; ii) related to capital investment projects; or iii) forming part of a government or technical cooperation programme. In all cases, technical assistance projects should be registered in the TC-Module of the PDB.

In order to achieve this objective, fields were incorporated into PDB Form 1 (Project Summary), PDB Form 2 (Programmes) and PDB Form 8 (TA-Projects) for registering relations between projects and programmes.

In the case of an independent technical assistance project, information should be registered in PDB Form 8 : TA-Project Summary which will be briefly explained in Section 6.3.2.

If a capital investment project contains technical assistance components, the capital investment project should be registered in PDB Form 1: Project Summary and the technical assistance component as a TA-Project in PDB Form 8. However, in order to make the linkage between them, the name of the TA-Project, its PDB code and its type of relation (TA component) should be registered in numeral 10, page 2, of PDB Form 1 (see Annex 3).

In the third case, when technical assistance projects form part of a Programme, TA-Projects should be registered as such in PDB Form 8 and at the same time, their names and PDB codes should be registered in Numeral 3, Page 1 of PDB Form 2 : Programme Summary (see Annex 3).

A brief description of PDB Forms 7, 8, 9 and 10 follows.

6.3.1.   Jamaica PDB Form 7: Donor Profile

Within the logical design of the system for the management of technical cooperation, various inputs were mentioned, being the TC-Module an important one. Moreover, the need for information on the supply of technical cooperation was also pointed out. This information will allow managers of technical cooperation a better knowledge of the various options of support available in the country, as well as the conditions in which such support can be obtained. Taking into consideration that such knowledge can help decision-makers in making better selections of projects and supporting favorable negotiations with the suppliers, a new component was added to the TC-Module: PDB Form 7: Donor Profile.

The objective of this form is to summarize the most relevant information about a given donor country or agency and will constitute a key element for the management of technical cooperation. The information gathered will make it possible to determine the various sources of multilateral and bilateral technical cooperation available to the country; the sectors and subsectors of interest to donor; as well as the conditions in which technical cooperation can be obtained. This will permit an allocation of resources to those projects that will maximize the benefits accruing to the country.

The Donor Profile Form can be used for initially registering a donor in the PDB or for updating information about a technical cooperation supplier who has been previously registered. It is a two-page form (see Annex 3, PDB Form 7) which contains different sections that are discussed in the following paragraphs. Detailed instructions have been prepared for filling this form and are also included in Annex 3.

The first section of PDB Form 7: **Donor Identification**, has been designed to provide a clear identification of the supplier of technical cooperation. It contains the donor code, name and acronym, the name of the country and a file reference number. The **Donor Code** is assigned automatically to the donor when it is registered in the PDB. This code is unique for each donor and should not change.

The second section of PDB Form 7, named **General Information**, is aimed at registering data that will allow grouping donors by type of assistance the donor is willing to provide, by sector or subsector of economic activity the donor gives priority and by stage in the donor planning cycle. This information is specially useful for preparing reports. For example, using this information as donor selection criteria, a report could be generated listing all donors which provide assistance aimed at improving the quality of the environment. The sectoral classification suggested in Annex 2 of this document should be used to register the economic or social sectors of interest to donor as well as all information related to this classification within the PDB.

The third and fourth sections of the form, **Foreign Agency/ Mission Details** and **Local Agency/Mission Details**, contain information whose purpose is to facilitate contacting the Agency or Mission on the country or abroad. The name and address of the Agency/Mission, the name of the contact person and the telephone number is registered.

A special section of the form, named **Amount of Assistance**, has been provided to indicate the amount of assistance that is estimated will be provided by the donor during the next five financial years.

Finally, in the second page of PDB Form 7, space has been provided for additional comments about the donor and for registering the identification of the person who filled the form as well as of the person who typed the information into the PDB.

6.3.2   Jamaica PDB Form 8: TA-Project Summary

As a second step in the construction of the PDB TC-Module, a data capture form has been designed for collecting information on technical assistance project ideas, profiles and project documents.

The first section of the form, **TA-Project Identification**, contains the TA-Project codes and the name of the TA-Project. The objective of this section is to allow a clear identification of the TA-Project. The **PDB Code** is assigned automatically to the project when it is registered in the PDB. This code is unique for each project and should not change along the project life cycle.

For assigning names to projects some special rules have been prepared (see Annex 1). Their objective is to assure that the project name conveys as much information about the project as possible, without being too long. It will also allow retrieval of information based on the main function of the project (for example, a list of all projects whose main function is training on project appraisal).

The second section of PDB Form 8, named **TA-Project Classification**, is aimed at registering information that will allow grouping projects by sector of economic activity, by type of assistance or by project included in Five-Year Plan. This information is specially useful for preparing reports. For example, using it as project selection criteria, a report could be generated listing all the projects aimed at improving the quality of primary education, regardless of the implementing institution.

PDB Form 8 provides a section for registering the estimated schedule (month and year) of the next stages through which the technical assistance project must go.

The next section allows registering information on the type of contribution incurred by the TA-Project, i.e. non-reimbursable funds, which can be either in cash or in kind, or loans.

A special section has been included in the form to indicate the parish(es) and town(s) in which the TA-Project is going to be implemented. Further sections register the TA-Project objectives, description and justification.

As in PDB Form 1, it is also possible to indicate the names of the participating institutions related to the TA-Project and the role they play regarding it (possible roles were explained in Section 3.1).

Additionally, projects related to the current TA-Project can be registered by indicating their names and PDB codes. Also, the type of relation should be registered. Examples of type of relation are: complementary, substitute, pre-requisite, dependant, etc. (See PDB Form 8 and its description and explanation in Annex 3).

Information on type of training and human resources required, by specialization and type of training (study tours, seminars, workshops, university degrees, etc.), locally or abroad, number of persons, total man-months and country (in the case of training) is also registered.

Additionally, space has been provided in the form for registering information on the estimated budget. Budget lines and item total cost (broken down in local, foreign and total) can be indicated.

Some space has been left available for including pre-requisites for implementation of the TA-Project, such as the preparation of an annual work plan before the first disbursement; the existence of a specific counterpart in the country before the arrival of the foreign experts; etc.

Finally, space has been provided in the form for additional comments about the project and for registering the identification of the person who filled the form as well as of the person that typed the information into the PDB.

6.3.3 Jamaica PDB Form 9: TA-Project Implementation Schedule

The next step in the construction of the PDB TC-Module was the design of a data capture form for collecting information on the implementation schedule of a given TA-Project (PDB Form 9).

This form is composed of nine sections and can be used to register the initial implementation schedule for the TA-Project or later modifications to it. In the following paragraphs the different sections of the form are briefly described. The complete form is presented in Annex 3.

The first information to be register is whether the form is being used to register the TA-projects initial implementation programme or a modification to it. Next, the first section of the form allows identifying the TA-Project. Given that the TA-Project should already have been registered in the PDB using PDB Form 8, a PDB identification code would already have been assigned to it and should be indicated in this section. However, in order to cross-check the information and facilitate the use of the form, the full TA-Project name should also be indicated, which must be the same

assigned to the project when it was initially registered in the PDB (PDB Form 8). Also space is provided to register any other existing TA-Project identification code, the number of the file where additional information is kept and the name of the institution in charge of implementing the TA-Project.

The second section of the form captures the schedule of the TA-Project: estimated starting date and estimated ending date expressed in months and years.

The next section of the form registers the expected results that will be generated by the TA-Project, broken down by activities. It is important to emphasize that a proper breakdown of the TA-Project in activities whose progress can be measured independently is a key prerequisite for a satisfactory operation of the TA-Project Follow-up.

For each activity to be undertaken within the TA-Project the fourth section of the form allows registering the estimated start and ending dates as well as the estimated cost. Also, the estimated magnitude of the activity in units suitable for monitoring progress of the activity can be registered. For those activities for which it is impossible to select a meaningful unit, it would be necessary to consider the activity as a whole. In this instance, the progress of the activity can later be indicated as a percentage of the work to be done (estimated by the reporting official). This information will be needed to make further comparisons between estimated and actual dates and costs.

The next section of the form allows registering the programmed local and foreign cost of a TA-Project broken down by budget line number and item (type of expense) and expressed in foreign and local currencies.

A space has been provided in the form for remarks. It should be used to register any additional information which is considered to be useful by the person filling the form. Also, this space can be used as an extension of any previous section if the space provided was insufficient.

Finally, the last two sections of the form should be used to register the identification of the person who is responsible for the administration of the project, of the person who filled the form and of the person that registered the information in the PDB.

6.3.4 Jamaica PDB Form 10: TA-Project Follow-Up

The data gathered by this form will make it possible to collect information about implementation progress for a given TA-Project.

This form is composed of nine sections which are briefly described in the following paragraphs. The complete form is presented in Annex 3.

The first section of the form is identical to the first section of PDB Form 9. Next, a space is provided to register the reporting period: start and ending dates for which information is being submitted in the form.

Another section of the form registers the basic data about the TA-Project progress and cost: status, actual starting and ending dates as well as cost incurred and progress made for each of the activities undertaken within the TA-Project. The activities to be considered should be the same reported in Section 4 of PDB Form 9.

The fifth section of the form deals with the training given within the TA-Project. It allows registration of data about the number of persons and man-months taught locally or abroad by specialization and type. Study-tours, seminars, workshops, courses, etc. are examples of training type.

A special section has been included in the form to register the human resources needed by the TA-Project by specialization (field of knowledge required), type (consultants, teachers, etc.) and country.

The next section of the form allows registering local and foreign cost incurred by budget line and item expressed in foreign and local currencies.

As in other forms, a space has been provided for remarks. It should be used to register any additional information which is considered to be useful by the person filling the form. Also, this space can be used as an extension of any previous section if the space provided was insufficient.

Finally, the last two sections of the form should be used to register the identification of the person who filled the form and of the person that registered the information in the PDB.

6.3.5   Technical Assistance Reports

Once the information requested in PDB Forms 7 through 10 has been registered in the PDB it will be possible to generate different reports about Donor Profiles and TA-Projects.

However, before describing the proposed reports, it is important to state that many other reports could eventually be generated as it was stated in Section 3.3 of this document.

In this section some basic reports of the technical cooperation module are presented.

a) <u>List of Donors</u>: This report would be a general list of all donors registered in the TA-Module. It would be possible to obtain a list of the donors sorted by type of assistance, by the sectors of interest to donor or by amount of assistance. The general format of this report would be:

DONOR CODE	DONOR NAME	FINANCIAL YEAR	AMOUNT OF ASSISTANCE

SUBTOTALS BY SORTING CRITERIA

TOTALS

b) <u>Donor Profile</u>: The donor profile would be a printed copy of the information contained in PDB Form 7. It should be possible to generate it for only one Donor (country or agency) or for all donors related to a particular country. The main application of this report would be to check the registered information against the information received in PDB Form 7. It would also be useful for decision-makers to know detailed information about potential funding agencies.

c) <u>List of proposed TA-projects</u>: This report would be a general list of technical assistance projects registered in the TC-Module. It will be possible to select projects by institution presenting project, by implementing institution, by funding source or by economic or social sector and sub-sector. The general format of this report would be:

TA-PROJECT CODE	TA-PROJECT NAME	PROJECT COST
		Local Foreign Total

SUBTOTALS BY SORTING CRITERIA

TOTALS

d) <u>TA-Project Summary</u>: The technical assistance project summary would be a printed copy of the information contained in PDB Form 8. It should be possible to generate it for only one TA-Project. The main

application of this report would be to check the registered information against the information received in the PDB Form 8. It would also be useful for submitting detailed information about TA-Projects to potential funding agencies. The information contained in this report would include for each TA-Project:

- TA-Project Identification.
- TA-Project Classification.
- Estimated TA-Project Schedule.
- Contribution.
- TA-Project Location.
- TA-Project Objectives.
- TA-Project Description.
- TA-Project Justification.
- Participating Institutions and their Role.
- Related Projects and the Type of Relation.
- Training Provided by Specialization.
- Human Resources Needed.
- Estimated Budget.
- Pre-requisites for TA-Project Implementation.

The user should select which sections he wishes to print.

e) <u>Monitoring of TA-Projects by Line Item</u>: The main application of this report is to compare for each TA-Project progress made in terms of cost incurred with cost estimates by Budget line item. The user would be able to request the report for a single TA-Project, for all ongoing TA-Projects or for a selected group of TA-Projects. For example: it would be useful to have this report only for those TA-Projects that register cost incurred greater than cost estimated.

The general format of this report would be:

TA-PROJECT CODE		TA-PROJECT NAME		
LINE	ITEM	ESTIMATED AMOUNT Foreign Local Total	ACTUAL AMOUNT Foreign Local Total	DIFFERENCE Foreign Local Total

f) <u>Monitoring of TA-Projects by Activities</u>: This report would be a listing of TA-Projects including for each one; Project Code, Project Name, Starting and Ending Date, Cost (Foreign and Local) and Magnitude (Amount and Unit) broken down by Schedule, Actual and Difference. The user would be able to request the report for a single project, for all ongoing projects or for a selected group of projects. For this last option, he would be able to select projects by institution presenting the TA-Project,

by implementing institution, by source of financing or by economic sector and sub-sector. Also he would be able to select the ordering criteria of the projects listed, which could be by PDB identification code, by cost or by sector/subsector.

The general format of this report would be:

TA-PROJECT CODE ACTIVITY	TA-PROJECT NAME STARTING DATE	ENDING DATE	COST Foreign Local	MAGNITUDE Amount Unit
1. Schedule Actual Difference				
2. Schedule Actual Difference				
SUBTOTALS BY SORTING CRITERIA				
TOTALS				

6.3.6 Recommended Procedures for Technical Cooperation Projects

As stated before, the set up of a Technical Cooperation Module within the Project Data Bank is only the first step to organize a system to manage the technical cooperation projects in Jamaica. The complete establishment of such a system will require in addition: definition of data collection procedures, establishment of an adequate institutional framework and training of personnel. In this section only recommended procedures will be examined. The institutional framework and training requisites are discussed ahead.

The first step to be taken should consist in organizing the files which contain information on technical assistance projects separating the reports or studies produced by the project from the general information on the project. The files will have the data (background information, requests, agreements) of each TA-Project, chronologically organized in individual folders. Responsible staff should be in charge of keeping them up-to-date.

Specific studies done within the framework of the projects or other studies produced as results of missions should be systematized with referential codes and kept in a special place (library or documentation centre).

At the same time that files and specific studies are being organized, the forms which will be needed to capture the information requested by TC-Module should be completed. In the

case of technical assistance projects it is suggested to begin filling the forms for those projects at the profile or project document stages which are related to capital investment projects included in the Five-Year Plan.

7. INSTITUTIONAL FRAMEWORK

The Project Data Bank can not operate outside the framework of the institutions and procedures that actually exist within the Government of Jamaica for dealing with capital investments. The information is generated and used by institutions and decisions are made on it by people following established rules and procedures. Consequently, the operation of the Project Data Bank requires the participation of all government institutions that have a role to play in the PSIP.

Having described in the previous sections the structure of the PDB, it is now possible to suggest an adequate institutional framework for its operation. I.e., the objective of this section is to suggest the distribution of responsibilities among existing public sector institutions regarding the operation of the PDB.

The Ministries and agencies that sponsor projects and are going to be in charge of their implementation should be responsible for preparing the information that is going to be registered in the Project Data Bank. To collect the information PDB Forms 1, 3, 5 and 6 are going to be used. By filling the forms and having them registered in the PDB, they are going to be able to increase their own ability to plan and control their capital investments. It would also facilitate preparing information for specific needs or agencies.

7.1 Role of the Planning Institute of Jamaica

Considering that in Jamaica all project profiles have to be presented to the Project Pre-Selection Committee at the PIOJ, it is suggested that the responsibility of managing the preinvestment module of the PDB falls on the PIOJ. This institution would be responsible for the quality of the information related to projects at the preinvestment phase. It would also be in charge of facilitating information about proposed projects to other institutions. Specifically, this duties call for:

- Checking the incoming information (PDB Forms 1 and 2) and, if necessary, requesting missing or incomplete information about proposed projects.

- Registering the information in the Project Data Bank.

- Regularly updating the information in the Project Data Bank.

- Preparing and distributing reports about proposed projects.

- Facilitating access to the information to any interested institution and transferring information to the other institutions integrated to the PDB.

- Updating, on a yearly basis, the project appraisal methodologies and the shadow prices to be used in their application.

- If necessary, modifying PDB Forms 1 or 2 to collect new information or to exclude unnecessary information.

- Preparing and updating the instructions for using PDB Forms 1 and 2.

In order to make sure that this tasks are adequately accomplished, the operation of the PDB should be assigned to a specific division of PIOJ, and one official should be appointed as the main responsible for the PDB in PIOJ. It may also be necessary to have at least one person assigned full time to the operation of the PDB. This person would be in charge of making regular backups of the database, exchanging information with Finance and PAMCO and generating special reports. He (she) could also be in charge of registering in the PDB the information collected through PDB Form 1, once it has been checked by the corresponding sectoral specialist. Another alternative would be having each sectoral specialist enter the forms he reviews, which would have the advantage of getting more people involved in the operation of the PDB.

7.2 Role of the Ministry of Finance

Various institutions share responsibilities in relation to the investment phase. For example, the Ministry of Finance, PAMCO and the Auditor General are directly involved in some or all projects at the implementation stage. This section discusses the role of the Ministry of Finance and the next one presents the role of PAMCO.

The Ministry of Finance should be in charge of the operation of the Financial Follow-up Module of the PDB as well as of the Debt Monitoring Module. Even if both modules are presently in a preliminary stage, still the role of the Ministry of Finance is critical for a satisfactory operation of the PDB.

The Ministry of Finance should ask all public sector institutions requesting financing for a given fiscal year, to complete one copy of PDB Form 3 for each one of their investment projects, either new or on-going. Also, the Ministry of Finance should register in the PDB financing actually assigned to projects included in the PSIP.5/ This information can be used to generate projections of resources required over a certain number of years for completing ongoing and proposed projects.

The role of the Ministry is specially important and critical in assuring that for being financed, a project has been previously registered in the PDB and has completed all steps described in Section 8.1.1. Projects that have not been evaluated, at least at the profile level, or are not registered in the PDB should not be considered for inclusion in the PSIP.6/

Therefore, the duties of the Ministry of Finance regarding the PDB would include:

- Checking the incoming information (PDB Forms 3 and 4) and, if necessary, requesting missing or incomplete information about proposed financing for projects.

- Registering the information in the Project Data Bank.

- Regularly updating the information in the Project Data Bank.

- Preparing and distributing reports about financing required by proposed projects.

- Facilitating access to the information to any interested institution and transferring information to the other institutions integrated to the PDB.

- If necessary, modifying PDB Forms 3 or 4 to collect new information or to exclude useless information.

- Preparing and updating the instructions for using PDB Forms 3 and 4.

5/ All projects must have been previously registered in the PDB by completing PDB Form 1 and submitting it to PIOJ.

6/ Exceptionally, during the implementation of the PDB, profiles should not be requested for ongoing projects.

To properly accomplish this task, Finance should appoint one official as the main responsible for the PDB. As with PIOJ, it would be convenient to have at least one person assigned full time to the operation of the PDB. This person would be in charge of making regular backups of the database, exchanging information with PIOJ and PAMCO and generating special reports. He could also be in charge of registering in the PDB the information collected through the data capture forms, once it has been checked by the corresponding specialist. But, again, a better alternative would be having each specialist directly enter the forms he reviews.

7.3 Role of the Project Analysis and Monitoring Company

As was mentioned in Section 5.5, it is suggested that the Project Follow-up Module of the PDB be managed by PAMCO.

Should PAMCO assume this responsibility, it would be in charge of the following tasks in relation to the PDB:

- Assisting executing agencies in preparing the project implementation schedules and completing PDB Form 5.

- Checking the incoming information about project implementation schedules (PDB Form 5) and project follow-up (PDB Form 6). If necessary requesting missing or incomplete information about proposed projects and/or complementing it with the work done in the field by PAMCO officials.

- Registering this information into the Project Data Bank.

- Regularly updating the project follow-up information in the Project Data Bank.

- Preparing and distributing the reports about on-going projects described in Section 5.4, or any other which it considers important to generate.

- Facilitating access to the information to any interested institution and transferring information to the other institutions integrated to the PDB.

- If necessary, modifying PDB Form 5 or PDB Form 6 to collect new information or to exclude useless information.

- Preparing and updating the instructions for using PDB forms 5 and 6.

To properly accomplish this task, PAMCO should appoint an official as the main responsible for the PDB. As with PIOJ and Finance, it would be convenient to have at least one person assigned full time to the operation of the PDB. This person would be in charge of making regular backups of the database and generating special reports. He could also be in charge of registering in the PDB the information collected through the data capture forms, once it has been checked by the corresponding specialist. But, again, a better alternative would be having each specialist directly enter the forms he reviews.

7.4 Other Institutions and Overall Coordination

Apart from PIOJ, the Budget Office of the Ministry of Finance and PAMCO, other potential users of the PDB would be the Office of the Auditor General, the Office of the Contractor General and the Bank of Jamaica. If these institutions decide to participate in the PDB, they should appoint a liaison officer, who would be in charge of regularly updating the database of the institution with information obtained from PIOJ, Finance and PAMCO.

The Ministries could also make extensive use of the Project Data Bank in tasks such as planning, budgeting and project monitoring. In that sense, it is fundamental that they have ready access to the information contained in the PDB and learn how to make an efficient use of it.

For this purpose, it is recommended that all ministries appoint a liaison officer who would be the main contact between the institution and the PDB (PIOJ-Finance-PAMCO). This person would centralize all forms prepared by the Ministry and send them to PIOJ (PDB Forms 1 and 2), to Finance (PDB Form 3) or to PAMCO (PDB Forms 5 and 6).

An important role for the proper operation of the PDB should be played by the Administrative Staff College. This institution should be the backbone for a training program in project appraisal at the profile level using simple project appraisal methodologies (which need to be developed). It could also provide support for training sectoral officials in the use of the PDB software, once databases are installed in the ministries.

For the overall coordination of the operation and further development of the PDB it is suggested that a special committee be created. Representatives from PIOJ, PAMCO and Finance should be present in the committee to guarantee that all changes to procedures, forms or software are properly coordinated and agreed upon. This would allow maintaining the integrity of the PDB.

8. PROCEDURES FOR THE OPERATION OF THE PDB

For the proper operation of the Jamaica Project Data Bank, it is necessary to implement a series of procedures that guarantee a constant flow of reliable information between the implementing institutions and the Planning Institute of Jamaica (PIOJ), the Ministry of Finance and the Project Analysis and Monitoring Company (PAMCO). Moreover, all procedures should be fully compatible with those established in the document "Project Cycle Management and Procedure Manual".

Given that the main goal of the PDB is to support an efficient public investment system by facilitating the follow-up of projects along their entire life cycle (preinvestment and investment) and providing information for planning and decision making, its entire structure is build around the projects. However, for facilitating analysis and decision making some complementary information should also be registered in the PDB and procedures established for collecting and updating it. Basically, the other elements for which information should be kept in the system are: investment programs, technical assistance activities, profiles of donor and lending agencies and characteristics and conditions of loans and grants related to projects.

In the following paragraphs, recommended procedures for collecting the information are outlined. A greater emphasis has been placed on the procedures corresponding to the preinvestment phase, given that before any of the other PDB main modules can register information, projects must have been included in the Preinvestment Module.

8.1 Procedures for Collecting Data about Projects

8.1.1 Preinvestment Phase

According to the "Project Cycle and Management Procedure Manual", one of the main responsibilities of the sector or implementing agencies regarding the Project Cycle is the generation of project ideas or identification of projects and preparation of project profiles and the execution of prefeasibility and feasibility studies. Accordingly, it is recommended that PDB Form 1: "Project Summary" is completed by the sectoral institutions.

The "Project Cycle and Management Procedure Manual" assigns to PIOJ the responsibility for coordinating prefeasibility and feasibility studies and investment and technical appraisals, and preparing the pipeline of projects on a quarterly basis. Also,

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PIOJ serves as the Project Pre-Selection Secretariat. Therefore, the information generated during the preinvestment phase should be send to PIOJ, using form one as a summary.

Based on this basic principles, the following step by step procedure for the preinvestment phase is recommended.

Step 1: Project Identification.

Projects would be identified by the sector or implementing agencies. Once a project has been identified and information has been collected for defining its main characteristics, the project would be considered as being at the idea stage. However, it is not recommended that projects at the idea stage are send to PIOJ to be registered in the PDB, in order to avoid loading it with data that may be too coarse for supporting decisions.

Still, and in order to allow the Plan Secretariat to start tracking implementation of the Five-Year Plan, it is recommended that a request is send to all sector and implementing agencies for reporting about projects included in the Five-Year Plan using PDB Form 1, even if they are at the idea stage.

For projects at the idea stage and included in the Five Year Plan, the institution presenting the project should be able to fill-in at least the following sections of PDB Form 1: one (except for codes), two, three (except cost by location), four to seven, nine, eleven, fourteen (if necessary) and fifteen. This information would be registered by PIOJ in the PDB and used to start monitoring the implementation of the Five-Year Plan. However, this does not exempt the institution presenting the project from proceeding with developing the corresponding project profile. As soon as a profile has been prepared, a new copy of PDB Form 1 should be completed and submitted to PIOJ together with a copy of the project profile.

Step 2: Project Profile.

All projects not included in the Five-Year Plan should be submitted to PIOJ only when they have reached the profile level. At this stage, the institution presenting the project should be able to fill-in all sections of PDB Form 1. However, until specific methodologies for project appraisal at the profile level are developed, it may be difficult to complete Section 9, "Project Indicators". It is recommended that an effort is done in order to calculate Net Present Value and Internal Rate of Return of each project. Should this be impossible, equivalent annual cost and cost by unit of product or service may be indicated. Other useful indicators to include would be employment generated during

construction (men-month) and during operation (number of jobs), as well as number of beneficiaries.

Step 3: Analysis at PIOJ (Pre-Selection Secretariat).

The project profiles received would be analyzed at PIOJ by the Project Pre-Selection Secretariat. If the information submitted is incomplete, additional data may be requested from the institution presenting the project. In such cases, the institution would prepare the necessary information and send it, together with an updated PDB Form 1 to PIOJ.

Once all information is complete, the Pre-Selection Secretariat would submit the project to the Pre-Selection Committee, together with a recommendation regarding the next stage to which the project should proceed.

Step 4: Decision of the Pre-Selection Committee.

Based on the information submitted by the institution presenting the project and on the recommendation of the Pre-Selection Secretariat, the Pre-Selection Committee would decide to which stage the project should proceed. Next stage could be:

- **Prefeasibility**, if the information available is not enough for recommending the implementation of the project.

- **Design**, if the information available is sufficient for recommending the implementation of the project and engineering designs are required.

- **Implementation**, if the information available is sufficient for recommending the implementation of the project and engineering designs are not required.

- **Abandoned**, if the results of the appraisal at the profile level indicate that the project is not viable due to economic or technical reasons.

- **Postponed**, if the results of the appraisal at the profile level indicate that the project is viable but that due to technical, economic or financial reasons, it is convenient to delay project implementation.

The decision of the Project Pre-Selection Committee would be registered in the PDB, indicating date of the decision and including any comments supporting it.

Step 5: Prefeasibility Study (not always required).

Given the responsibilities assigned in the "Project Cycle Management and Procedure Manual", if a prefeasibility study is required, it should be undertaken by the institution presenting the project, either directly, with the support of a technical assistance project or by contracting a consulting firm. At this stage, support from PAMCO could also be requested.

Once the prefeasibility study has been completed, the institution presenting the project should fill-in a new copy of PDB Form 1, which would summarize the main information about the project generated by the study. This form would be send, together with a copy of the prefeasibility study, to PIOJ.

Step 6: Analysis of Prefeasibility Study (not always required).

The information received in the PDB Form 1 by PIOJ would be registered in the PDB. The project would be analyzed by the Project Pre-Selection Secretariat and submitted, together with the recommendation of the Secretariat, to the Project Pre-Selection Committee.

Step 7: Decision of the Pre-Selection Committee on results of Prefeasibility.

If a prefeasibility study has been developed, the decision of the Committee could be to proceed to a new stage or to abandon or postpone the project. Therefore, next stage could be:

- **Feasibility**, if the information available is still not enough for recommending the implementation of the project.

- **Design**, if the information available is sufficient for recommending the implementation of the project and engineering designs are required.

- **Implementation**, if the information available is sufficient for recommending the implementation of the project and engineering designs are not required.

- **Abandoned**, if the results of the appraisal at the prefeasibility level indicate that the project is not viable due to economic or technical reasons.

- **Postponed**, if the results of the appraisal at the prefeasibility level indicate that the optimal time for implementing the project has not yet arrived.

8.1.2   Additional Steps before Project Implementation

If a feasibility study is recommended by the Project Pre-Selection Committee, the procedures to be followed for developing it and presenting the results to the Pre-Selection Secretariat and the Pre-Selection Committee would be identical to the procedures described for the prefeasibility stage.

Following the procedures outlined in the "Project Cycle Management and Procedure Manual", after the Project Pre-Selection Committee has recommended that a project proceeds to the design or implementation stage, it would be submitted to the Economic and Production Council (EPC) and Cabinet for a final decision. All these steps (send to EPC, decision of EPC, send to Cabinet, decision of Cabinet) would be registered in the PDB indicating the date at which the action was taken. The TC-Division from PIOJ would be responsible for registering this information in the PDB.

8.1.3   Investment Phase

Once a decision has been taken in order to start the implementation of a project, the information related to it in the PDB would fall under the responsibility of the Ministry of Finance and of PAMCO. Given that the different modules of the PDB would be interrelated, both institutions would have ready access to all data registered by PIOJ during the preinvestment phase.

The "Project Cycle Management and Procedure Manual" indicates that the line Ministries and implementing Agencies are in charge, among other responsibilities, of developing implementation schedules, preparing cash flow projections, securing financing and maintaining an efficient implementation programme. The manual assigns to PAMCO the responsibility (among other) for monitoring the implementation of projects and preparing reports on a quarterly basis.

Regarding financing, the "Project Cycle Management and Procedure Manual" indicates that access to budget financing is by way of submission of an agency proposal to the Budget Division of the Ministry of Finance, supported by the necessary documentation. On the other hand, access to foreign financing sources (bilateral or multilateral) is by way of PIOJ during the preliminary negotiations and by way of the Ministry of Finance during the final stages of preparation of the agreement. The manual also assigns to the Ministry of Finance the responsibility for monitoring the capital budget on a quarterly basis.

In accordance with the guidelines contained in the "Project Cycle Management and Procedure Manual", some of which where briefly outlined, the following procedures are proposed for the operation of the PDB in relation to the implementation phase of projects.

Step 1: Request for Financing.

The first step for a project to be included in next years' budget would be to submit a request for financing to the Ministry of Finance (using PDB Form 3). Given that Finance would have already in the PDB database all basic information about projects that have been selected to be implemented, it is not necessary to request it again from the implementing ministries or agencies. Therefore, PDB Form 3 requests data only about financing required for implementing the project, broken down by source and year, and status of financing for each source (proposed, requested, secured, etc).

PDB Form 3 should be completed by the institutions requesting financing for all projects to be included in the PSIP, regardless of whether they are new or ongoing.

The Ministry of Finance would register the information in the PDB and generate reports in order to analyze:

a) That financing requested for the project is consistent with the cost informed to PIOJ when the project was submitted for appraisal.

b) That the project has gone through all necessary steps and is ready for implementation, i.e., studies have been completed and approval of the Pre-Selection Committee and of the EPC and Cabinet, if necessary, has been obtained.

c) That total financing requested by each institution for projects and total financing required for all projects is within the ceilings estimated for the next fiscal year and forthcoming years.

d) That the aggregated operating cost of projects is within the financing capabilities of each institution and of the Government in general.

All this information would be submitted to the Project Prioritization Committee to support it's task of assisting the Budget Division of the Ministry of Finance in preparing the draft PSIP.

Step 2: Registration of Financing Assigned.

After the budget has been approved, the Budget Division of the Ministry of Finance would register in the PDB the actual amount assigned to each project for the next fiscal year, as well as firm commitments of foreign funding sources or the best estimates available if foreign funds are going to be supplied on the basis of reimbursing incurred costs.

Step 3: Implementation Schedule.

Once an implementing ministry or agency is informed that financing has been assigned to a given project, it should prepare a detailed implementation schedule for the project, including a breakdown in its main components or activities. This implementation schedule should be prepared only for new project, or for ongoing projects which due to unforseen circumstances have to be reprogrammed.

The implementing agency would summarize the implementation schedule in PDB Form 5, and submit it to PAMCO. This institution would register the information in the PDB and share it with the other institutions integrated to the system.

Step 4: Monitoring of Implementation.

During the fiscal year, institutions would have to report on project implementation to PAMCO on a quarterly basis. For this purpose, PDB Form 6 of the PDB has been designed.

One form should be completed by the project managers in each implementing agency for each project under their supervision. The activities to be considered should be the same reported in PDB Form 5.

Once received in PAMCO, the information submitted should be reviewed for completeness and registered in the PDB. This data, together with the information transferred from the PDB modules of PIOJ and the Ministry of Finance, would help PAMCO in analyzing project progress and implementing efficiency of institutions.

For the preparation of PAMCO's quarterly report, the PDB would include an option to generate a text file with all the information registered in the PDB that is to be included in the report. PAMCO officials, using a word processor, would be able to edit this information and complement it with the information collected in the field.

8.2 Procedures for Collecting Data about Programmes

Within the context of the Five-Year Plan, programmes play an important role.7/ Also, quite frequently technical assistance activities are structured in TA programmes. Therefore, for an appropriate monitoring of the implementation of Government or TA-programmes, a special option has been provided in the PDB for managing information regarding programmes.

For capturing the basic information about programmes, a special data-capture form has been designed (PDB Form 2). The information contained in the form should be sufficient for a clear identification of each programme. Follow-up of each programme would be done by mean of reports generated by the PDB and based on the aggregation of follow-up information contained in the system for projects integrating the programme.

Given that programmes could be either Government or TA-agency generated, the following procedures are suggested for collecting information and registering it in the PDB.

a) **Government Programmes**: These programmes are generated by different government agencies. Therefore, each agency responsible for a given programme should fill in PDB Form 2 and send it to the TC-Division of PIOJ, where the information would be reviewed for completeness. If corrections or additional information are needed, a request would be made to the agency presenting the programme in order to submit the appropriate information. Once all necessary corrections to the data supplied in the form have been made, it would be registered by the TC-Division of PIOJ in the PDB.

b) **Technical Assistance Programmes**: In the case of TA-agency programmes, PDB Form 2 should be completed in PIOJ by the official in charge of the agency to which the programme belongs. The necessary data could be obtained from the documents regarding TA to be provided or, if no programme document has been prepared, directly from the agency. Once data-capture PDB Form 2 has been completed, the information would be registered in the PDB by the same official who prepared the form.

7/ Programmes are defined as sets of projects aimed at a common objective.

8.3 Procedures for Collecting Data about Donors and TA-Projects

Many projects include TA-components or are financed by TA-agencies. Also, frequently the need arises of finding a suitable TA-agency to support the implementation of a high priority project. Therefore, it becomes important to register within the PDB-System information regarding actual or potential donor or lending agencies.

For this purpose, a special data capture form has been designed. This form summarizes the most relevant information about donor or lending agencies. It should be completed by the official in the TC-Division of PIOJ who is in charge of the agency, geographical area corresponding to the country or type of institution. He may need to request from the agency any information that is not available at PIOJ. Once the form has been completed, it would be registered in the PDB. The code assigned to each agency should be the same indicated in the PDB institutional table.

9. MODULES TO BE COMPLETED AND RELATION TO OTHER SYSTEMS

The Project Data Bank, in its actual stage of development, does not includes all project-related information which can be registered. For example, given that the Financial Follow-up Module has not been developed, it does not register information about all financial transactions done in relation to a project. Also, given that the Debt Monitoring Module is still to be developed, it does not includes follow-up information about loans or grants related to projects. Finally, TA-project monitoring has yet to be implemented within the PDB.

9.1 Financial Follow-Up Module

The PDB Project Follow-up Module registers information about physical and financial progress of all ongoing PSIP projects. However, financial progress information should not be confused with the detailed financial follow-up that must be done by the Office of the Budget. The Project Follow-up Module will only register data about money spend on each project (by activity) during each quarter. This information would be provided by the implementing agency, on a quarterly basis, to PAMCO.

A Financial Follow-up Module could be developed within the framework of the PDB for detailed monitoring of project financing

on a monthly basis. An initial element of this module has been already implemented as reflected in Jamaica PDB Form 3 (see Annex 3).

For completing this module of the PDB, forms for collecting, on a monthly basis, data about financial transactions related to projects should be designed, as well as follow-up reports and the software for managing this information.

However, should the Ministry of Finance implement a computerized accounting system about capital investments independent from the PDB, it would be highly convenient to guarantee the feasibility of exchanging data between the PDB and the accounting system. This could easily be done if all information managed in the accounting system includes the code of the project to which it is related.

As was stated before, the PDB is going to manage the information using the project as the basic data aggregation unit. A project identification code will be assigned to each project when it is registered in the PDB for the first time. Therefore, if the accounting system of the Ministry of Finance could include this project code as one of the elements of the database, it would be very easy to aggregate information from the PDB with information from the accounting system.

If this is considered to be inviable, a second-best alternative would be to have a table within both system that would allow relating the project identification code in the PDB with the project codes applied at the Ministry of Finance. This alternative would also allow crossing information from both systems, but would make this procedure much more difficult to carry out.

Another aspect that should be considered is that the Ministry of Finance may wish to manage the information at the contract level or at the programme level, as opposed to the project level. This would also complicate the relation between the accounting system and the PDB, given that one program could include many projects, one contract could be awarded for a set of projects or one big project could be split in two or more contracts.

When more than one contract is assigned for a given project, it would still be feasibly to cross information from both systems. If the project identification number of the PDB is associated to each transaction in the accounting system, the information for a project can be easily obtained by aggregating the information for all contracts related to a given project.

However, if only one contract is awarded for a set of projects and the accounting system registers information at the contract level, it would be impossible to aggregate information from both systems at the project level.

9.2 Debt Monitoring Module

A first step in the development of a debt monitoring module for the PDB is represented by PDB Form 4 "External Financial Agreements" (see Annex 3).

However, the data actually been collected is only a summary of the main characteristics of financial agreements. No provision has been made for monitoring implementation of the agreement. For this purpose special data capture forms should be designed and the corresponding software should be developed.

For example, information should be collected regarding claims presented and disbursements made. Reports could be generated regarding the status of specific financial agreements or flows of funds for a series of agreements.

9.3 Technical Cooperation Module

Four data capture forms have been designed for this module, namely PDB Form 7: Donor Profile, PDB Form 8: TA-Project Summary, PDB Form 9: TA-Project Implementation Schedule and PDB Form 10: TA-Project Follow-Up. However, software has been developed only for registering Form 7 and 8.

Also, for completing this module, it would be highly convenient to implement a TA project monitoring system. This would require designing special forms and procedures and training PIOJ officials in its use. The corresponding software should also be developed.

9.4 Relation with other Information Systems

Apart from the Ministry of Finance and PAMCO, other agencies or organizations could be interested in being able to relate information they manage or are going to manage with the information contained in the PDB. For example, the Contractor General and the Bank of Jamaica could be interested in accessing information registered in the PDB. This possibility should be allowed and encouraged.

Any institution interested in exchanging or combining data they collect with the data in the PDB should keep in mind that their information system must be structured using as basic element the project or a sub-level within projects. If the information

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they collect is managed in a more aggregate way, it will be difficult to combine it with information in the PDB, unless provision is made by the institution to identify which projects are encompassed in each unit of the higher aggregation level they use. For example, if an institution that collects data at the programme level wishes to exchange information with the PDB, it would need a table indicating which projects belong to which programme.

A N N E X   1

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

The name of any given project should start with the action that is going to be undertaken. Examples of possible actions are:1/

MAINTENANCE	CONSTRUCTION	SUPPLY
IMPROVEMENT	REPAIR	TRAINING
CONTROL	DEVELOPMENT	PREVENTION
RECOVERY	SUBSIDY	PROTECTION
TRANSFER	ANALYSIS	CENSUS
DIAGNOSTIC	EXPLORATION	INVESTIGATION
INVENTORY	PROSPECTING	REFURBISHING

After the action, the object on which this action is performed should be indicated. Finally, the name of the project should indicate the specific location of the project (name of the parish, town, area, street or building where the project is located). Examples of project names (fictitious) based on this rules are:

1/ For the regular operation of the PDB it would be highly convenient to standardize action verbs to be used for project names. This would allow obtaining reports by type of action (for example all construction projects).

ACTION	OBJECT	LOCATION
Construction	of a Health Center	in Portmore
Creation	of an Apiculture Unit	at Ministry of Agriculture
Refurbishing	of the Hospital	of Mandeville
Upgrading	of the Cruise Ship Pier	of Montego Bay
Acquisition	of Text Books	for St. Ann Schools
Financing	of Low Income Shelter	(1)
Computerization	of the Custom Office	at Sangster Airport
Strengthening	of the Jamaica Constabulary Force	in Kingston
Construction	of Sewerage System	for Spanish Town
Improvement	of Irrigation Facilities	at Yallahs Delta
Training	of Primary School Teachers	(1)
Prospection	of Dolomite Deposits	at Steward Bay
Resurfacing	of the Runway	at Norman Manley Airport

(1)   For projects with island-wide coverage the location should be left blank.

A N N E X   2

PROPOSED SECTORS AND SUBSECTORS CLASSIFICATION

The sectoral classification actually applied at PIOJ 2/ is inadequate for an appropriate classification of the projects to be registered in the PDB by sector of economic activity. Categories are few and do not match the sectoral structure of the Five-Year Plan. Also, experience has shown that some standardized classification systems, such as the International Standard Industrial Classification (ISIC) for economic activities, do not adequately serve the objectives of the PDBs. Therefore, a specialized sectoral classification system has been developed and successfully used for PDBs.

Consequently, a new classification system is proposed. It is structured in such a way as to clearly reflect the nature of the projects that fall within each category. The suggested classification also takes into consideration the sectoral structure of the "Jamaica Five-Year Development Plan 1990-1995", in order to facilitate follow-up of plan implementation. Finally, this system tries to avoid the possibility of a project being classified in different sectors depending on the criteria of the person entering the information.

If deemed necessary, another field can be added to the database of the PDB to register the code of the sector corresponding to the project in the ISIC coding system. This would allow easy rearrangement of the information in order to obtain it classified by the sectors traditionally used for national accounts.

The sectoral classification system recommended for the Project Data Bank is structured in areas, sectors and subsectors. The areas are four, namely:

- Global Issues;
- Physical Infrastructure;
- Productive Sectors; and
- Social Sectors.

2/   See "PSIP User's Guide of the I.P.M.S.", Section 11-5.

Within each of these areas different economic sectors are identified and a code is assigned to each of them. The proposed sectors for each area are:

1. <u>Global Issues</u>

    - 010 Environment
    - 020 Information
    - 030 Multisectoral
    - 040 National Security
    - 050 Science and Technology
    - 060 Urban and Rural Development

2. <u>Physical Infrastructure</u>

    - 110 Communications
    - 120 Domestic Water Supply and Sewerage
    - 130 Energy and Electricity
    - 140 Irrigation
    - 150 Transport

3. <u>Productive Sectors</u>

    - 210 Agriculture and Forestry
    - 220 Fishing and Aquaculture
    - 230 Industry and Services
    - 240 Mining
    - 250 Tourism

4. <u>Social Sectors</u>

    - 310 Art and Culture
    - 320 Education
    - 330 Employment, Social Security and Welfare
    - 340 Food and Nutrition
    - 350 Health
    - 360 Housing
    - 370 Justice
    - 380 Sports and Recreation

Most of these sectors are further broken down into subsectors. Projects that span two or more subsectors of a given sector should be registered in the sector category. In what ensues, the suggested subsectors for each sector are listed, a code is assigned to each of them and a brief description is given.

80

010 Environment

- 011 Control of air pollution.

  Includes studies and projects whose main objective is to detect, measure, control or reduce air pollution.

- 012 Control of coastal pollution.

  Includes studies and projects whose main objective is to detect, measure, control or reduce pollution of coastal areas.

- 013 Improvement and management of freshwater resources.

  Includes studies and projects whose main objective is to detect, measure, control or reduce pollution of rivers. Also included are studies and projects aimed at making a more efficient use of available freshwater resources.

- 014 National parks.

  Includes all studies or projects aimed at creating, maintaining or improving National Parks.

- 015 Protection of flora and fauna.

  Includes all studies and projects aimed at studying, protecting or recovering the flora and fauna of the island and coastal waters.

- 016 Soil conservation.

  Includes all studies and projects whose objective is to preserve soils by preventing erosion, depletion or pollution.

020 Information

- 021 Information systems.

  Includes all studies and projects whose objective is to develop, install or improve computerized information systems. Also included are projects aimed at acquiring software, computers or peripherals.

- 022 Statistical information.

    This subsector would include all projects aimed at collecting, storing, processing or distributing social and economical statistical data.

030 Multisectoral

- 031 Diplomatic service.

    This subsector would include all projects related to the diplomatic service such as acquisition, improvement or remodeling of embassy buildings in foreign countries.

- 032 Geography.

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

- 033 Social and economic planning.

    This subsector should be used to classify all studies related to social, economic and regional planning.

040 National Security

- 041 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 and acquisition of weapons.

- 042 Constabulary force.

    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 and acquisition of patrol cars.

050 Science and Technology

- 051 Science.

This subsector would include all studies and projects whose objective is to acquire scientific knowledge in any field.

- 052 Standards.

  This subsector would include all studies and projects aimed at developing or implementing standards for fields such as industrial activities or food production.

- 053 Technology.

  This subsector should be used to classify all studies and projects aimed at developing technology or at adapting foreign technologies to Jamaica.

060 Urban and Rural Development

- 061 Community services.

  This subsector should be used to classify all projects 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: construction or improvement of cemeteries or churches and studies or projects related to garbage collection and disposal.

- 062 Rural development.

  This subsector should include all projects whose main objective is promoting the development of rural areas.

- 063 Urban development.

  This subsector should be used to classify all projects or studies aimed at planning the development of the urban environment or at improving it. Examples of projects to be classified in this subsector are: studies aimed at establishing zoning or city development plans and construction or remodeling of parks and squares.

110 Communications

- 111 Mass media.

  Includes all studies and projects regarding mass media communications such as television, radio broadcasting and newspapers.

- 112 Postal service.

  Includes all studies and projects whose objective is to improve the postal service.

- 113 Radio and telex.

  Includes all studies and projects whose objective is to develop radio communications or telex services.

- 114 Telephone and telegraphy.

  Includes all studies and projects whose objective is to improve existing telephone or telegraphy services or to provide this services to new areas.

120 Domestic Water Supply and Sewerage

- 121 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.

- 122 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.

130 Energy and Electricity

- 131 Electricity distribution.

  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 and acquisition and installation of transformers.

- 132 Electricity generation.

    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 power generating plants or acquisition of engines or generators for producing electricity.

- 133 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: maintenance, improvement or installation of street lighting.

- 134 Other Energy Sources.

    This subsector would include all projects whose objective is developing or using energy sources different from electricity.

140 Irrigation (no subsectors)

    This sector would include all studies and projects whose objective is to maintain, improve or extend existing irrigation systems and projects aimed at providing irrigation to new areas.

150 Transport

- 151 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 and construction, improvement or maintenance of landing strips.

- 152 Maritime transport.

    This subsector should be used to classify all projects and studies aimed at improving or providing maritime transportation services. Examples of projects to be classified in this subsector are: construction, dredging or improvement of ports or docking facilities.

- 153   Railways.

    This subsector would include all studies and projects related to the provision of railway transportation.

- 154   Road transport.

    This subsector should be used to classify all projects and studies aimed at improving or providing road transportation services. Examples of projects to be classified in this subsector are: construction, surfacing, resurfacing or maintenance of roads and construction of bridges.

- 155   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 and construction, improvement or maintenance of walkways.

210   Agriculture and Forestry

- 211   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 and control of plant diseases.

- 212   Forestry.

    This subsector should be used to classify all projects 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 and reforestation projects.

- 213   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 and egg production.

220 Fishing and Aquaculture

- 221 Fishing.

  This subsector should be used to classify all projects or studies aimed at improving capture or developing fishing techniques.

- 222 Marine and freshwater farming.

  This subsector would include all studies and projects aimed at developing marine or freshwater farming facilities.

230 Industry and Services

- 231 Commerce.

  Includes all studies and projects whose objective is to promote or facilitate national or international commerce, including free trade zones.

- 232 Financial services.

  Includes all studies and projects whose objective is to promote or facilitate the provision of financial (banking, insurance, etc.) services.

- 233 Industry.

  Includes all studies and projects whose objective is to promote or develop industrial facilities and projects aimed at facilitating the operation of existing industries.

- 234 Small-Scale Enterprises.

  Includes all studies and projects whose objective is to promote or support the development of small-scale enterprises.

- 235 Tradeable services.

  Includes all studies and projects whose objective is to promote tradeable services, such as consulting activities.

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240 Mining

- 241 Bauxite and alumina.

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

- 242 Non bauxite minerals.

   This subsector should be used to classify all projects and studies aimed at the exploitation of metallic and non metallic mineral resources different from bauxite. Examples of projects to be classified in this subsector are: marble mining projects and gypsum quarrying projects.

250 Tourism

- 251 Promotion.

   This subsector should be used to classify all projects and studies aimed at promoting tourism to Jamaica.

- 252 Tourism infrastructure.

   This subsector should be used to classify all projects and studies aimed at maintaining or increasing the availability of infrastructure for tourism, such as hotels, lodging and restaurants for tourists.

310 Art and Culture

- 311 Art.

   This subsector includes all studies and projects whose objective is to promote the development of arts in Jamaica.

- 312 Culture.

   Includes all studies and projects whose objective is to increase the cultural level of the population, such as construction, improvement or maintenance of public libraries or museums.

- 313 Preservation of national heritage.

    This subsector should be used to classify all projects and studies aimed at preserving the cultural heritage of the country. Examples of projects to be classified in this subsector are: restoration of historical buildings and investigations about traditional handicrafts.

320 Education

- 321 Pre-schools.

    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.

- 322 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 and acquisition of study materials, furniture or equipment for primary schools.

- 323 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: construction or improvement of secondary schools and acquisition of study materials, furniture or equipment for secondary schools.

- 324 Higher education.

    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 included in this sector are acquisition of equipment for universities.

- 325 Training.

  This sector includes all studies and projects whose objective is to teach new skills to workers in any field, except those working in the public sector.

- 326 Training of public servants.

  This sector includes all projects aimed at teaching new skills to public sector employees.

- 327 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 and acquisition of materials, furniture or equipment for special education centers.

330 Employment, Social Security and Welfare

- 331 Social security.

  Includes all studies and projects whose objective is to improve the quality or coverage of social security services.

- 332 Children.

  Includes all studies and projects whose objective is to increase the welfare of children.

- 333 Youth.

  Includes all studies and projects whose objective is to increase the welfare of the youth.

- 334 Woman.

  Includes all studies and projects whose objective is to increase the welfare of woman.

- 335 Employment.

  Includes all studies and projects whose objective is to increase employment or ameliorate the problems of the unemployed.

340 Food and Nutrition

- 341 Food.

  This subsector would register all projects whose objective is to guarantee the availability of food for the jamaican population.

- 342 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 and construction of centers for the recovery of undernourished children.

350 Health

- 351 Prevention.

  This subsector should be used to classify all projects and studies aimed at prevention of illnesses. Examples of projects to be classified in this subsector are: programs to educate people on prevention of illnesses and vaccination campaigns.

- 352 Primary health care.

  This subsector should be used to classify all projects and studies aimed 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.

- 353 Secondary health care.

  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 and specialized hospitals.

360 Housing

- 361 Construction.

  This sector should be used to classify all projects and studies aimed at building houses for homeless people or

at increasing the stock of available housing units or improving the quality of that stock. 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.

- 362 Settlement upgrading.

    This sector includes all studies and projects whose objective is to improve existing settlements by solving ownership problems or providing them with drinking water, sanitary facilities and electricity.

- 363 Subsidies.

    This sector should be used for classifying projects aimed at providing subsidized financing for acquiring or building houses. Examples of projects to be included in this sector are: subsidies for the acquisition or improvement of houses or apartments and subsidies for the acquisition of building materials to be used in the construction or improvement of houses or apartments.

370 Justice

- 371 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 and acquisition of furniture or office equipment for courts.

- 372 Crime and drug prevention and control.

    This subsector should be used to classify all projects and studies aimed at preventing drug abuse and drug trafficking and at reducing crime rates.

- 373 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 and construction, improvement or maintenance of training centers for the indicted.

380 Sports and Recreation

- 381 Sport infrastructure.

    This subsector should be used to classify all projects and studies aimed at improving or creating infrastructure for the practice of sports. Examples of project to be included in this subsector are maintenance or construction of cricket or football grounds.

- 382 Sport support and promotion.

    This subsector should be used to classify all projects and studies aimed at supporting the practice of sports or encouraging a wider participation in sporting activities.

- 383 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 and construction of playing areas for children.

A N N E X 3

PDB DATA BANK CAPTURE FORMS AND EXPLANATIONS

JAMAICA PROJECT DATA BANK
FORM 1 : PROJECT SUMMARY

Initial registration: ___   Update: ___

1. PROJECT IDENTIFICATION

PDB CODE: OTHER PROJECT IDENTIFICATION CODE: FILE REFERENCE NUMBER:

PROJECT NAME: _____

_____

INSTITUTION PRESENTING PROJECT: _____

IMPLEMENTING INSTITUTION: _____ PRIORITY: _____

2. PROJECT CLASSIFICATION

PROJECT TYPE:_____ SECTOR/SUBSECTOR:_____

ACTUAL STAGE: _____ NEXT STAGE: _____

PROGRAMME: _____ INCLUDED IN FIVE-YEAR PLAN? (Y/N) _____

3. PROJECT LOCATION AND COST

PARISH	TOWN	COST
	TOTAL	

4. PROJECT OBJECTIVES

5. PROJECT DESCRIPTION

6. PROJECT SCOPE OF WORK

7. PROJECT JUSTIFICATION

8. PROJECT INDICATORS

INDICATOR	UNITS	VALUE

9. PARTICIPATING INSTITUTIONS

INSTITUTION	ROLE REGARDING PROJECT

10. RELATED PROJECTS

PROJECT NAME	PDB CODE	TYPE OF RELATION

Date of cost estimates :	Foreign Currency:	Exchange Rate:

11. PROJECT SCHEDULE AND COST BY STAGE

STAGE	ESTIMATED COST OF STAGE			ESTIMATED STARTING DATE		ESTIMATED ENDING DATE	
	Local	Foreign	Total	Month	Year	Month	Year

12. PROJECT CAPITAL COST ESTIMATES

TYPE OF COST	FY 199-/199-		FY 199-/199-		FY 199-/199-	
	Local	Foreign	Local	Foreign	Local	Foreign
TOTAL						

PROJECT CAPITAL COST ESTIMATES (cont.)

TYPE OF COST	FY 199-/199-		FY 199-/199-		TOTAL	
	Local	Foreign	Local	Foreign	Local	Foreign
TOTAL						

13. PROJECTED AVERAGE ANNUAL OPERATING COST

TYPE OF COST	AMOUNT
TOTAL	

┌─14. REMARKS──

┌─15. FORM FILLED BY:──

Name : _____

Position : _____

Institution : _____

Phone : _____

Date : _____

Signature : _____

┌─16. REGISTERED IN THE PDB BY:──

Name : _____

Position : _____

Institution : _____

Phone : _____

Date : _____

Signature : _____

JAMAICA PROJECT DATA BANK
FORM 1 : PROJECT SUMMARY

(Description and Explanation)

This form has been designed to summarize the most relevant information about a given project during the preinvestment phase of its life cycle. This is a four-page form which will constitute the basic input for the Preinvestment Module of the PDB. It contains 16 different sections explained below.

This form can be used for initially registering a capital investment in the PDB or for updating information about a previously registered project. This should be indicated in the top-right corner of the first page of the form.

> For example, if you are sending a new project to be registered in the PDB mark the first option at the top-right corner.

Section 1 - Project Identification. This section contains the project codes, the name of the project, the name of the institution that presents the project and the priority given to the project by this institution.

The **PDB Code** is assigned automatically to the project when it is registered in the PDB. Therefore it should be left in blank when the project is sent to the PDB for the first time. On later updates of the information, the code indicated should be the one assigned by the PDB and informed by PIOJ.

Other Project Identification Code refers to any other code assigned to the project by the institution presenting the project, a potential funding agency or any other related institution. If necessary, indicate this number.

The **File Reference Number** on the upper right corner of this Section should be left in blank by the institution presenting the project. It should be used by PIOJ to register the number assigned to the file that contains all additional information related to the project, such as the project profile, prefeasibility or feasibility studies and any other project-related documents.

The **Project Name** should convey as much information as possible without being too long. If names are assigned keeping in mind this objective, it is very easy to clearly identify projects in listings that do not include a description of each one. The name of a given project should start with the action that is going to be undertaken (What is going to be done?) 1/. After the action, the object on

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1/ Examples of possible actions are: maintenance, improvement, control, recovery, transfer, diagnostic, inventory, construction, repair, development, subsidy, analysis, exploration, prospecting, supply, training, prevention, protection, census, investigation, refurbishing.

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which this action is performed should be indicated (On what?).
Finally, the project name must include the specific location of the
project (Where?: (name of the parish, town, area, street or
building where the project is located). If the location cannot be
specifically identified or if the project encompasses all of
Jamaica, no location should be indicated.

Examples of project names based on this rules are:

ACTION	OBJECT	LOCATION
Construction	of a Health Center	in Portmore
Creation	of an Apiculture Unit	at the Min. of Agriculture
Construction	of Sewerage System	for Spanish Town

The **Institution Presenting the Project** is the Ministry or Agency
that submits the project to PIOJ. Usually it would also be the
institution that formulated the project, prepared the project
profile and filled the form. Write the complete name of said
institution.

The **Implementing Institution** is the agency that has the main
technical responsibility for the implementation of the project.

Finally, a **Priority** should be assigned by the institution that
presents the project (following the procedures suggested by PIOJ)
and registered in the space provided.

Section 2 - Project Classification. Is aimed at registering
information that will allow grouping projects by sector of economic
activity, by stage in the project cycle, by a government or agency
investment programme or based on its inclusion in the Five-Year
Plan.

First the **Project Type** should be used to classify the project
according to its main characteristics. Possible types of projects
are: capital investment project and basic study.

Then, the **Sector and Subsector** in which the project is
classified should be registered. It consist in defining to which
sector and subsector of the economic or social activities included
in the sectoral classification currently been used, the project
belongs.

Actual Stage refers to the stage of development the project has
already achieved. The stages of the project life cycle are: idea,
profile, prefeasibility, feasibility, design, implementation,
operation, postponed and abandoned. The project should be in one
of these stages.

For a project to move to a new stage it should have the approval
of the Technical Cooperation Division if the proposed next stage is
either profile, prefeasibility or feasibility. For moving to the

design or implementation stages it should have the approval of the Project Pre-Selection Committee.

> For example, if a project is presented to PIOJ supported by a project profile, it would be at the profile level and this should be indicated in this field.

Next Stage refers to the stage of its life cycle to which the project should proceed according to the institution presenting it.

> For example, if the project is actually at the profile level and information is enough to take a decision on its implementation, the proposed next stage could be design or implementation. If information is not enough for taking a definitive decision, then the proposed next stage could be prefeasibility.

In **Programme**, the name of the investment programme to which the project belongs should be indicated. It could be a government programme or a programme of a funding agency. If the project is not included in a programme this space should be left blank.

> For example, a road resurfacing project could be part of a road improvement programme from IDB. Or a project to properly equip a school could be part of a government programme to improve primary education.

Finally, space has been provided for registering if the project is **Included in Five-Year Plan.**

Section 3 - Project Location and Cost. This section should be used to indicate the **Parish**(es) and **Town**(s) in which the project is going to be implemented. Also the total estimated **Cost** for each parish should be indicated. If the project is going to be implemented in more than one town from the same parish, indicate the name of the towns and give the cost by parish. If the project is going to be implemented in more than one town from different parishes, indicate the name of the towns and parishes but give only the cost for each parish. If the project is located in most of the towns of a parish, only the parish name should be registered. If the project is going to affect the whole country, "Jamaica" should be written in the space reserved for Parishes. If the space provided is not enough, additional locations can be indicated in the space reserved for **Remarks.**

Example:	PARISH	TOWN	COST
	St. Catherine		32.555
		Spanish Town	
		Portmore	
		Linstead	
	St. Ann	Ocho Rios	65.788
	Trelawny		23.153
TOTAL			121.496

Section 4 - Project Objectives. Should define the achievement of a broad purpose or goal at the sub-sectoral or sectoral level to which the project is intended to contribute. Then, it should state what the project itself is expected to achieve in terms of specific changes in behavior, status or conditions which the project is intended to bring about. Care must be taken to state objectives which are realistic, in the sense that they fall within the range

of results which reasonably may be expected to be achieved within the limits of time, money and human resources of the project. The area for remarks on the last page of the form can be used to continue with the project objectives, in case the space provided is insufficient.

Section 5 - Project Description. Should be a brief but clear description of the project to be undertaken, its duration, main components and the expected principal outputs of the project including physical magnitudes. In general terms, this point should address the question: What is going to be done? The area for remarks on the last page of the form can be used to continue with the project description, in case the space provided is insufficient.

Section 6 - Scope of Work. Should define the activities that have to be undertaken to attain the objectives already defined and that will therefore be the main components of the project.

Section 7 - Project Justification. Should explain the reasons for undertaking the proposed project. It should answer the question: Why should the project be undertaken? Therefore, it must describe the problem to be addressed by the project and the expected situation at the end of the project. It should also state how and by whom the results of the project will be utilized. The area for remarks on the last page of the form can be used to continue with the project justification, in case the space provided is insufficient.

Section 8 - Project Indicators. Is reserved for registering project appraisal criteria such as Net Present Value, Internal Rate of Return, Equivalent Annual Cost, Value Added, Employment Generated, etc. The specific indicators to be used for a general type of project will be defined in project appraisal methodologies to be developed. Before those methodologies are completed any available indicator should be registered. For each indicator this section registers the name of the indicator, the units in which it is measured and its magnitude (its value expressed in the units indicated).

As an example of how this section should be used, let us consider the indicator "Employment Generated by the Project". This indicator registers the number of new employments that are going to be generated by the implementation of the project. Let us assume also that two labour categories have been included: employments for Jamaican nationals, classified as skilled or unskilled based on the level of training required for doing the jobs. But, for an efficient use of this information it is necessary that all data is registered in a common unit. Therefore, man-month could be the unit for measuring employment generated during construction 2/ and number of jobs for measuring employment created when the project goes into operation. Using this units and assuming that the construction phase lasts for two years, the indicators for employment generated would be registered as follows:

2/ One man-month is defined as the work done by one man working full time for one month. For example, 2 men full time over 6 months equals 12 man-months, 1 man full time over 1 year and 2 men half-day over 6 months equals 18 man-months.

INDICATOR	UNITS	AMOUNT
Employment unskilled year 1	man-month	130
Employment unskilled year 2	man-month	110
Employment skilled year 1	man-month	48
Employment skilled year 2	man-month	36
Employment unskilled operation	jobs	60
Employment skilled operation	jobs	20

Section 9 - Participating Institutions. Should be used to register the names of all **institutions** that are related to the project and the type of relation to it. Some possible types of **Roles Regarding the Project** are: Executing Agency, Associated Institution, Funding Agency, Operating Agency, etc.3/ If one institution is fulfilling more than one role it should be indicated using one line for each role.

Section 10 - Related Projects. Should be used to register the names and codes of projects that are related to the current project. Also the type of relation should be indicated. Examples of type of relation are: complementary, substitute, prerequisite, dependant, supporting technical cooperation, etc.4/

Example: For a street paving project it could be a prerequisite that the water company has completed the installation of a drinking water pipeline under the street. Building a road could be complementary with an agricultural project to make productive unused land.

Page 3 of the form is used for registering data regarding project costs and schedule. All values in these pages should be registered in J$ and should have been estimated for a common date. At the beginning of Page 3, a space has been provided for registering the date of cost estimates, the exchange rate and the foreign currency used. **Date of Cost Estimates** is the date for which all cost data were calculated. If the project includes components that imply cost in foreign currencies the **Exchange Rate** corresponding to the previous data should be indicated. The **Foreign Currency** is the currency on which foreign goods or services are going to be paid. If more than one foreign currency is going to be used, list them and the corresponding exchange rates in **Remarks.**

Section 11 - Project Schedule and Cost by Stage. Should be used to register the **Estimated Start and Completion Date** of the next stages through which the project must go, as well as the total

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3/ A description of these roles are: i) Executing is the agency that has the main technical responsibility for the implementation of the project; ii) Associated any other institution that undertakes technical activities within the framework of the project, without being the agency responsible for the project's overall management; iii) Funding makes the financial contribution (or a percentage of it) for implementing the project; iv) Operating the institution that is going to be in charge of the project during its operation.

4/ A description of these types of relations are: i) Complementary if the current project is to be undertaken together with the indicated project in order to maximize benefits; ii) Substitute if only one of the projects, the currently proposed or the one indicated should be undertaken because both of them solve the same problem; iii) Prerequisite if the indicated project must be completed before initiating the currently proposed project; iv) Dependant if the indicated project can be undertaken only if the currently proposed project has been previously completed; v) Supporting TC if the indicated Technical Cooperation Project is aimed at supporting the implementation of the current project.

estimated cost of those stages. Only direct cost should be estimated here. For the operation stage, only the project launching cost should be included, given that annual operating costs are requested in Section 13.

> Clearly, not all projects must go through all the stages. For example, if the information contained in the project profile is considered adequate to proceed to the project implementation phase, a project presented at the profile level could indicate estimates only for Design, Construction and Operation.

The **Estimated Total Cost of Each Stage** should be indicated, separating costs in **Jamaican Dollars** from costs in **Foreign Currencies** (expressed in J$).

> For example, in a multilateral or bilateral funded project, the foreign currencies used could be more than one. In such a case, -- after registration of the local cost -- all foreign currencies should be converted to US$ and then to Jamaican dollars before registering the information in the space provided (Foreign). Use the exchange rate corresponding to the data of the cost estimates. Finally, you must add both columns (local and foreign) to register the Total (in Jamaican dollars).

Section 12 - Project Capital Cost Estimates. Registers the estimated cost of the project classified by type of expense and by fiscal year. This table is based on the table currently included in the project profile format requested for all PSIP projects. It allows registering the information for the next five years as well as the total cost by type of currency: **Local** (Jamaican dollars) and **Foreign** (expressed in J$). All indicated cost should be direct cost in J$.

> Suggested categories are: Consultants/Engineering, Land/Site Development, Building and Civil Work, Machinery/Equipment, Pre-production Launching, Financial Cost, Other (Training, etc.)

Section 13 - Projected Average Annual Operating Cost. Should be used to register the estimated running cost of the project by type of cost. Some typical expenses to considerate are personnel, regular maintenance and periodic maintenance.

Section 14 - Remarks. Should be used to register any additional comments or information that the person filling the form deems important. It should also be used to continue with any of the previous sections if the space provided was insufficient.

Section 15 - Form filled by: Should be used to register the identification of the person who filled the form. Name, position, institution, phone number, date and signature should be included. It is important that this information is provided in order to facilitate locating the appropriate person if additional information about the project is required.

Finally, **Section 16 - Registered in the PDB by**: Should be completed by the person who registered the information in the PDB. The same data required in Section 15 is needed here.

After registering all the information contained in the form it should be filed in the same file used for the rest of the project information.

JAMAICA PROJECT DATA BANK
FORM 2 : PROGRAMME SUMMARY

Initial registration: ___   Update: ___

┌─1. PROGRAMME IDENTIFICATION─

PROGRAMME CODE: [ ][ ][ ] -- [ ][ ]   OTHER PROGRAMME IDENTIFICATION CODE: [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]   FILE REFERENCE NUMBER: [   ]

PROGRAMME NAME: _____

_____

┌─2. PROGRAMME CLASSIFICATION─

TYPE OF ASSISTANCE: _____   SECTOR/SUBSECTOR: _____

MAIN FUNCTION: _____   INCLUDED IN FIVE-YEAR PLAN? (Y/N): _____

┌─3. PROJECTS WITHIN THE PROGRAMME─

PROJECT NAME	PDB CODE:
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

┌─4. PROGRAMME DESCRIPTION─

5. PROGRAMME JUSTIFICATION

6. PROGRAMME OBJECTIVES

7. PARTICIPATING INSTITUTIONS

NAME	ROLE REGARDING PROGRAMME

8. OFFICIALS IN CHARGE OF PROGRAMME

ROLE	NAME	INSTITUTION	PHONE
Director			
Coordinator			

9. TYPE OF COST AND COMPOSITION OF MONETARY COSTS

COST ITEMS	IN KIND	MONETARY			TOTAL
		Local	Foreign	Total	
Projects					
Administrative					
Other					
TOTAL					

10. PROGRAMME COST BY YEAR

FIRST YEAR	SECOND YEAR	THIRD YEAR	FOURTH YEAR	FIFTH YEAR	TOTAL

Date of cost estimates:	Foreign Currency:	Exchange Rate:

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┌─11. REMARKS─────────────────────────────────────────────────────────────────
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┌─12. FORM FILLED BY:──────────────────────────────────────────────────────────
│ Name : _____    Phone:  _____
│ Position : _____    Date:   _____
│ Institution: _____    Signature : _____
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┌─13. REGISTERED IN THE PDB BY:────────────────────────────────────────────────
│ Name : _____    Phone:  _____
│ Position : _____    Date:   _____
│ Institution: _____    Signature : _____
└─────────────────────────────────────────────────────────────────────────────
```

JAMAICA PROJECT DATA BANK
FORM 2 : PROGRAMME SUMMARY

(Description and Explanation)

This form has been designed to summarize the most relevant information about a given programme. Programme is a group of planned and coordinated activities and/or projects aimed at achieving a given objective or objectives by producing certain results. The activities or projects may include technical assistance component. This is a four-page form that contains 13 different sections explained below.

This form can be used for initially registering a programme in the PDB or for updating information about a programme that has been previously registered. This should be indicated in the upper right corner of the first page of the form.

For example, if you are sending a new programme to be registered in the PDB mark the first option at the top right corner.

Section 1 - Programme Identification. This section of the first page contains the programme codes, the file reference number and the name of the programme.

The **Programme Code** is assigned automatically to the programme when it is registered in the PDB. It should be left in blank when the programme is sent to the PDB for the first time. On later updates of the information, the code should be the same informed by PIOJ.

Other Programme Identification Code refers to any other code assigned to the programme by the institution presenting the programme, a potential funding agency or any other related institution. If necessary, indicate this number.

The **File Reference Number** on the upper right corner of this Section should be left in blank by the institution presenting the project. It should be used by PIOJ to register the number assigned to the file that contains all additional information related to the project, such as the project profile, prefeasibility or feasibility studies and any other project related documents.

The **Programme Name** should convey as much information as possible without being too long.

Section 2 - Programme Classification. Is aimed at registering information that will allow grouping programmes by sector of economic activity, by being included in the Five-Year Plan, by main function or by type of assistance.

First, the **Type of Assistance** should be indicated. The following categories have been selected: i) free-standing technical cooperation; ii) investment related technical cooperation; iii) investment project assistance; iv) programme/budgetary aid or balance of payments support; v) food aid; and vi) emergency and relief assistance.

The **Sector and Subsector** classification of the programme should be registered. It consist in defining to which sector and subsector of the economic or social activities included in the sectoral classification currently been used, the programme belongs.

Main Function refers to the principal role or purpose of the programme. Some possible main functions are: <u>Capital Investment</u>, directly related with investment; <u>Institutional Assistance</u>, to establish, develop or strengthen institutional entities; <u>Direct Assistance</u>, to prepare studies or surveys on resources, plans, programmes and projects, or on other specific technical documents; <u>Training</u>, to upgrade knowledge or experiences of the participants through Seminars, working-groups or study-tours; <u>Experimental,</u> to determine, under operational conditions, the feasibility of a certain procedure, technology or system already tried with success under research stage.

Finally, space has been provided to register if the programme is **Included in the Five-Year Plan**.

Section 3 - Projects Within the Programme. Is aimed at registering information about the various projects which are part of the programme, their names and PDB code number should be indicated.

> For example, a project for developing project appraisal methodologies could be part of a management assistance programme in the area of planning and project cycle management.

Section 4 - Programme Description. Should be a brief but clear description of the programme including its duration, main components and the expected principal outcomes including physical magnitudes. In general terms, this point should address the question: What is going to be done? The area for remarks on the last page of the form can be used to continue with the programme description, in case the space provided is insufficient.

Section 5 - Programme Justification. Should explain the reasons for undertaking the proposed programme. It should answer the question: Why should the programme be undertaken? Therefore, it must describe the problem to be addressed and the expected situation at the end of the programme. It should also state how and by whom the results of the programme will be utilized and the particular strategy and implementation arrangements chosen. The area for remarks on the last page of the form can be used to continue with the programme justification, in case the space provided is insufficient.

Section 6 - Programme Objectives. This section should be used to define the general needs or broad purposes or goals -- at the subsectoral or sectoral level -- to which the programme is intended to contribute (development objectives). Then, it should state what the programme itself is expected to achieve in terms of specific changes in behavior, status or conditions (immediate objectives). Care must be taken to state objectives which are realistic, in the sense that they fall within the range of results which reasonable may be expected to be achieved within the limits of time, money and human resources available. The area for remarks on the last page of the form can be used to continue with the objectives, in case the space provided is insufficient.

> Example of development objectives might be: increase the health of the people, reduce population migration to urban areas, etc. More specific objectives are preferable, if appropriate.

Section 7 - Participating Institutions. Should be used to register the names of all **institutions** that are related to the

programme and the type of relation to it. Some possible types of **Roles Regarding the Programme** are: Executing Agency, Associated Institution, Funding Agency, etc.**5/** If one institution is fulfilling more than one role, all of them should be indicated using one line for each role.

Section 8 - Officials in Charge of Programme. Should be used to register the **name** of all persons responsible for the programme. The name of the **institution** where they work, their **role** on the programme and **phone** number should also be provided, in order to facilitate locating them if additional information is required.

Section 9 - Type of Cost and Composition of Monetary Costs. Provides space for registering the estimated total cost of the programme divided by items and type. **Cost Items** might be: cost of projects to be undertaken, administrative costs of the programme and other costs if necessary. For each cost category **In kind** and **Monetary** cost should be registered. Finally, the monetary cost should be broken down in **Local** and **Foreign** components - both columns expressed in millions of Jamaican Dollars. Only direct cost should be indicated here.

Section 10 - Programme Cost by Year. Should be used to register total cost of the programme broken down by year. Space has been provided for five years and for the total cost of the programme.

At the end of this page, a space has been provided for registering the date of cost estimates, the exchange rate and the foreign currency used. **Date of Cost Estimates** is the date for which all cost data were calculated. The **Exchange Rate,** is the exchange rate between the foreign currency indicated and the J$ at the date for which the cost was estimated. The **Foreign Currency** is the currency on which foreign goods or services are going to be paid. If more than one foreign currency is going to be used, list them and the corresponding exchange rates in **Remarks.**

Section 11 - Remarks. Should be used to register any additional comments or information that the person filling the form deems important. It should also be used to continue with any of the previous sections if the space provided was insufficient.

Section 12 - Form filled by: Should be used to register the identification of the person who filled the form. Name, position, institution, phone number, date and signature are required. It is important that this information is provided in order to facilitate locating the appropriate person if additional information about the programme is required.

Finally, **Section 13 - Registered in the PDB by:** Should be completed by the person who registered the information in the PDB. Name, position, institution, phone number, date and signature are required.

5/ A description of those institutions are: i) Executing Agency, have the main technical responsibility for the implementation of the programme; ii) Associated Institution, any other institution that undertakes technical activities within the framework of the programme, without being the agency responsible for the programme's overall management; and iii) Funding Agency, makes the financial contribution (or a percentage of it) for implementation of the programme, without participating directly in its implementation.

JAMAICA PROJECT DATA BANK
FORM 3: PROPOSED FINANCING

Initial request: ___   Additional request: ___

┌─ 1. PROJECT IDENTIFICATION ───┐

PDB CODE:

☐ ☐ ☐ ☐ ☐ -- ☐ ☐   OTHER PROJECT IDENTIFICATION CODE:

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

PROJECT NAME: _____

_____

INSTITUTION REQUESTING FINANCING: _____

_____

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┌─ 2. PROJECT FINANCING ─

FUNDING SOURCE	TYPE OF COST	FY 199 /199			FY 199 /199			FY 199 /199		
		Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total
	TOTAL									

┌─ PROJECT FINANCING (cont.) ─

FUNDING SOURCE	TYPE OF COST	FY 199 /199			FY 199 /199			TOTAL		
		Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total
	TOTAL									

Date of cost estimates :	Exchange rate :	Foreign Currency:

┌─ 3. STATUS OF CONTRIBUTION ──┐

Source 1: _____   Source 2: _____

Source 3: _____   Source 4: _____   Source 5: _____

└──┘

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4. REMARKS

5. FORM FILLED BY:

Name : _____   Phone : _____

Position : _____   Date : _____

Institution : _____   Signature : _____

6. REGISTERED IN THE PDB BY:

Name : _____   Phone : _____

Position : _____   Date : _____

Institution : _____   Signature : _____

JAMAICA PROJECT DATA BANK
FORM 3: PROPOSED FINANCING

(Description and explanation)

This is a two-page form designed for collecting information about financing requirements for a given project. It should be completed by the institution requesting funds for the project.

The form can be used for requesting financing for new or ongoing projects already registered in the PDB. It should be used by the institutions presenting the project when they request funds for a new budgetary period (**Initial request**) or when additional funds are required during a given budgetary period (**Additional request**). This should be indicated in the upper right corner of the first page of the form.

Technical assistance projects usually request financing from international agencies or donor countries, in which case they have to present the request in the format used by the potential lender or donor. However, PIOJ could enter the financial information provided in those forms into the PDB by previously filling this form.

It contains six different sections explained below.

Section 1 - Project Identification. Contains the project codes, the name of the project and the name of the institution requesting financing.

The **PDB Code** should correspond to the code assigned to the project when it was registered in the PDB by PIOJ (PDB Form 1).

Other Project Identification Code refers to any other code assigned to the project by the institution presenting the project, a potential funding agency or any other related institution. If necessary, indicate this number.

The **Project Name** should be the same name assigned to the project when it was sent to PIOJ for initial registration in the PDB.

The **Institution Requesting Financing** is the Ministry or Agency requesting funds for implementing the project.

Section 2 - Proposed Project Financing. Should be used to register how the project capital costs are going to be financed and the type of expense. Therefore, the contribution of each source of financing to the project should be registered separately. This table allows registering the information for the next five years, as well as the cost in local and foreign currencies. For foreign loans and grants the code of the loan or grant should be indicated.

Next, a space has been provided for registering the date of cost estimates, the exchange rate and the foreign currency used. **Date of Cost Estimates** is the date for which all cost data was

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calculated. The **Exchange Rate**, is the exchange rate between the foreign currency indicated and the J$ at the date for which the cost was estimated. The **Foreign Currency** is the currency in which foreign goods or services are going to be paid. If more than one foreign currency is going to be used, list them and the corresponding exchange rates in **Remarks**.

Section 3 - Status of Contribution. This section should be used to register the status of financing requested from each source: proposed, in negotiation or secured.

Section 4 - Remarks. Should be used to register any additional comments or information that the person filling the form deems important. It should also be used to continue with any of the previous sections if the space provided was insufficient.

Section 5 - Form filled by: Should be used to register the identification of the person who filled the form. Name, position, institution, phone number, date and signature should be included. It is important that this information is provided in order to facilitate locating the appropriate person if additional information about the project is required.

Finally, **Section 6 - Registered in the PDB by**: Should be completed by the person who registered the information in the PDB. Name, position, institution, phone number, date and signature should be included.

JAMAICA PROJECT DATA BANK
FORM 4 : EXTERNAL FINANCING AGREEMENTS

Initial registration:___ Update: ___

┌─1. AGREEMENT IDENTIFICATION─────────────────────────────────────

PDB CODE:

OTHER EXTERNAL FINANCING AGREEMENT CODE:

FILE REFERENCE NUMBER:

NAME OF AGREEMENT:_____

_____

COUNTRY OR INSTITUTION:_____

┌─2. TERMS AND CONDITIONS OF AGREEMENT─────────────────────────────

TYPE: STATUS: DATE STATUS ACHIEVED:

AMOUNT: CURRENCY: EQUIVALENT IN US$:

┌─3. SCHEDULE OF AGREEMENT─────

PERIOD OR EVENT	FROM			TO			DISBURSEMENTS OR REPAYMENTS	
	Day	Month	Year	Day	Month	Year	Type	Number
Fulfillment of first disbursement conditions	---	---	---				---	---
Disbursement Period								
Grace Period								
Repayment Period								

┌─4. FEES─────

Fee	Type	%	Amount	From	To	Number of Payments	TOTAL
Commitment							
Administration							
Supervision							

┌─5. INTEREST RATES─────

Period	FROM Day Month Year	TO Day Month Year	Base Rate	Spread	Rate
Grace					
Repayments					

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6. CONDITIONS FOR FIRST DISBURSEMENT

7. CONDITIONS FOR SUBSEQUENT DISBURSEMENTS

8. REMARKS

9. FORM FILLED BY:

Name : _____   Phone : _____

Position : _____   Date : _____

Institution : _____   Signature : _____

10. REGISTERED IN THE PDB BY:

Name : _____   Phone : _____

Position : _____   Date : _____

Institution : _____   Signature : _____

JAMAICA PROJECT DATA BANK
FORM 4 : EXTERNAL FINANCING AGREEMENTS

(Description and Explanation)

This form has been designed to summarize the most relevant information about all external financing agreements concluded with a Government, a Bank or any other international funding agency. One form should be used for each external financing agreement. This is a two-page form which contains ten different sections explained below.

Section 1 - Agreement Identification. Contains the external financing agreement codes, the file reference number, the name of the agreement and the name of the country or institution.

The **PDB Code** is assigned to the agreement when it is registered in the PDB for the first time. It should be left in blank by the institution filling the form for the initial registration. On late updates of the information it should be the code assigned by PIOJ.

Other Identification Code refers to any other code assigned to the external financing agreement by the institution signing the agreement or any other related institution. If necessary, indicate this number.

The **File Reference Number** on the upper right corner of this Section should be used by PIOJ to register the number assigned to the file that contains the documentation regarding the external financing agreement.

The **Name of the Agreement** is the complete name of the external financing agreement.

Country or Institution is the complete name of the country or institution that provides the funds.

Section 2 - Terms and Conditions of Agreement. Should be used to record the information relating to the conditions in which the external resources have been obtained.

In **Type** of agreement should be register whether it is a loan or a grant or both.

Status refers to the stage of the agreement: not started, bid preparation, bids called, assigned, signed, on-going, work completed, totally completed, no bid presented, not assigned, not signed, suspended, cancelled.

Date of Status Achieved is used to indicate the date of the status mentioned above.

Finally the total amount of the agreement, the currency and its equivalent in US$ should be indicated.

Section 3 - Schedule of Agreement. Should be used to register the estimated start and ending date as well as the estimated cost of each event of the agreement during its life period. For each event, indicate the type and number of disbursements or repayments made.

Section 4 - Fees. Should be used to register the type and amount of fees to be paid in relation to the loan or grant. Typical fees are commitment fees, administration fees and supervision fees. In the column "Type" indicate whether it is a fixed lump sum (FLS), a percentage of the agreement amount (%A), a number of fixed payments (NFP), a number of payments as percentage of the agreement (N%A) or any other type (OTH, explain in remarks). If the fee is a fixed amount or a number of fixed payments, indicate the amount of the lump sum of each payment in the column labeled "Amount". If the fee is based on a percentage indicate the corresponding figure in the column "%" and the best available estimate of the actual payment(s) in the column "Amount". Finally, if the fee is to be payed in various payments, indicate date of first and last payments ("From", "To"), number of payments and the best available estimate of the total fee.

Section 5 - Interest Rates. If the financial agreement is a loan, this section should be used to register the interest rates associated with the agreement. For each period where a different interest rate is set, indicate starting and ending dates of the period. Considering the fact that interest rates could be either fixed or floating, three columns have been provided for registering the structure of the rates: base rate, spread and rate.

If the loan agreement specifies a fixed rate for a given period indicate rate in the column **"rate"**. On the other hand, if floating rate is considered, indicate the **"base rate"** for calculating interests to be paid and the specified **"spread"**.

Example: If the loan agreement specifies that during the grace period a fixed interest of 8 % has to be paid on outstanding balance, and during the repayment period the interest to be paid for the outstanding balance it is going to be equal to the Libo rate plus 4 percent, indicate the starting and ending date of the repayment period in the first two columns. In the columns **base rate** write Libo and in the column **"spread"** write 4%.

Period	From	To	Base Rate	Spread	Rate
Grace	1.2.91	1.2.92			8%
Repayment	1.3.91	1.3.93	Libo	4%	

Section 6 - Conditions for first disbursement. This section should be used to register the conditions that the government or government agency should meet before the first disbursement of the loan is made. For example, the agreement could specify that the government should have some personnel in place and must present a work plan for the first year before the first disbursement is made. Earliest and latest dates for meeting requirements should be indicated whenever they are included in the agreement.

Section 7 - Conditions for subsequent disbursements. The information to be registered in this section is analogous to the previously described, but related to subsequent disbursements.

Section 8 - Remarks. Should be used to register any additional comments or information that the person filling the form deems important. It should also be used to continue with any of the previous sections if the space provided was insufficient.

Section 9 - Form filled by: Should be used to register the identification of the person who filled the form. Name, position, institution, phone number, date and signature should be included. It is important that this information is provided in order to facilitate locating the appropriate person if additional information about the project is required.

Finally, **Section 10 - Registered in the PDB by**: Should be completed by the person who registered the information in the PDB. Name, position, institution, phone number, date and signature should be included.

JAMAICA PROJECT DATA BANK
FORM 5 : IMPLEMENTATION SCHEDULE

Initial registration:___ Reprogramming: ___

┌─1. PROJECT IDENTIFICATION──

PDB CODE: OTHER PROJECT IDENTIFICATION CODE: FILE REFERENCE NUMBER:

[ ][ ][ ][ ][ ]--[ ][ ]   [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]   [   ]

PROJECT NAME: _____

_____

IMPLEMENTING INSTITUTION: _____

_____

┌─2. PROJECT SCHEDULE AND COST BY ACTIVITY───

ACTIVITY	ESTIMATED START DATE		ESTIMATED ENDING DATE		ESTIMATED COST OF ACTIVITY		MAGNITUDE	
	Month	Year	Month	Year	Local	Foreign	Amount	Unit
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
				TOTAL				

┌─3. CONTRACTS───

Name of Contracting Firm	Code of Contract	Status	AMOUNT OF CONTRACT		Activities Included
			Local	Foreign	
	TOTAL:				

Date of Cost Estimates:	Exchange Rate:	Foreign Currency:

4. PROJECT MANAGER IDENTIFICATION

Name : _____   Phone : _____

Position : _____

Institution : _____

5. REMARKS

_____
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6. FORM FILLED BY:

Name : _____   Phone : _____

Position : _____   Date : _____

Institution : _____   Signature : _____

7. REGISTERED IN THE PDB BY:

Name : _____   Phone : _____

Position : _____   Date : _____

Institution : _____   Signature : _____

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JAMAICA PROJECT DATA BANK
FORM 5 : IMPLEMENTATION SCHEDULE
(Description and Explanation)

The information collected in this form will constitute the basis for monitoring project progress. It should be completed and sent to the Ministry of Finance for each project when financing is assigned for the first time. There is no need to send a new form for an ongoing project every year. Only when serious unexpected problems (such as storms, hurricanes or bankruptcy of contractors) cause mayor deviations from the proposed schedule, a new form with the updated schedule should be submitted. (Indicate this fact in the upper right corner of the form.)

Section 1 - Project Identification. This section of the first page contains the project code, other project identification code, the name of the project and the name of the implementing institution.

The **PDB Code** should correspond to the code assigned to the project when it was registered in the PDB by PIOJ (PDB Form 1).

Other Project Identification Code refers to any other code assigned to the project by the institution presenting the project, a potential funding agency or any other related institution. If necessary, indicate this number.

The **File Reference Number** on the upper right corner of this Section should be used by PAMCO to register the number assigned to the file that contains all additional information about the project. This information can be collected by PAMCO's staff during their monitoring visits to the country or can be any other project related documents.

The **Project Name** should be the same name assigned to the project when it was sent to PIOJ for initial registration in the PDB.

The **Implementing Institution** is the institution that is going to have the main responsibility in managing project implementation.

Section 2 - Project Schedule and Estimated Cost by Activity. Should be used to register the estimated start and ending dates as well as the estimated cost of each activity to be undertaken within the project. For each activity, indicate the magnitude of the activity in units suitable for monitoring progress of the activity.

As an example, for a road construction project breakdown by activities and units of measure could be:

ACTIVITY	UNITS
Work camp setup	unit (progress measured in % of total)
Land clearing	square feet
Culverts	each (progress measured in # completed)
Sub-base	miles
Base	miles
Pavement	miles

Section 3 - Contracts.   If contracts have already been assigned, the first column should be used to enter the name of the contracting firm and the code of the contract, the status1/, amount and the activities included.   Activities should be identified by the corresponding numbers in the previous section. If no contracts have been assigned, only the forecasted breakdown of the activities and total estimated cost of each contract should be indicated.

Example: For a project with four activities

NAME OF CONTRACT	CODE	STATUS	AMOUNT Local	ACTIVITIES
Contract 1	-	No action taken	5.000.000	1,2,3
Contract 2	-	Bids called	1.500.000	4

At the end of this Section, a space has been provided for registering the date of cost estimates, the exchange rate and the foreign currency used.   **Date of Cost Estimates** is the date for which all cost data was calculated.   The **Exchange Rate**, is the exchange rate between the foreign currency indicated and the J$ at the date for which the cost was estimated.   The **Foreign Currency** is the currency on which foreign goods or services are going to be paid.

Section 4 - Project Manager Identification.   This section should be used to identify the person in charge of the execution of a given project, indicating name, position, organization and telephone number.

Section 5 - Remarks.   Should be used to register any additional comments or information that the person filling the form deems important.   It should also be used to continue with any of the previous sections if the space provided was insufficient.

Section 6 - Form filled by: Should be used to register the identification of the person who filled the form.   Name, position, institution, phone number, date and signature should be included. It is important that this information is provided in order to facilitate locating the appropriate person if additional information about the project is required.

Finally, **Section 7 - Registered in the PDB by**:   Should be completed by the person who registered the information in the PDB. Name, position, institution, phone number, date and signature should be included.

1/   Status could be: negotiations with contractor selected; signed; canceled, no action taken, bids called for, assignment being studied.

JAMAICA PROJECT DATA BANK
FORM 6 : PROJECT FOLLOW-UP

1. PROJECT IDENTIFICATION

PDB CODE:

| | | | | | | -- | | |

OTHER PROJECT CODE:

| | | | | | | | | | | | | | |

PROJECT NAME: _____

_____

IMPLEMENTING INSTITUTION: _____

_____

2. REPORTING PERIOD

FROM: TO:

3. PROJECT PROGRESS BY ACTIVITY

ACTIVITY	STATUS	STARTING DATE Month	Year	COMPLETION DATE Month	Year	PHYSICAL PROGRESS Amount	Units
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							

4. COST INCURRED

ACTIVITY	EXPENDITURE DURING PERIOD Local	Foreign	TOTAL
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

5. REMARKS

6. FORM FILLED BY:

Name : _____   Phone : _____

Position : _____   Date : _____

Institution : _____   Signature : _____

7. REGISTERED IN THE PDB BY:

Name : _____   Phone : _____

Position : _____   Date : _____

Institution : _____   Signature : _____

JAMAICA PROJECT DATA BANK
FORM 6 : PROJECT FOLLOW-UP

(Description and Explanation)

This form has been designed to capture information about implementation progress for a given project. This two-page form has seven different sections explained below.

The form should be completed by the project manager and sent to the Ministry of Finance on a quarterly basis. Forms should be prepared and sent to Finance for all projects included in the budget, regardless if they have not begun yet, they are being implemented, or they have been completed during the reporting period.

Section 1 - Project Identification. Contains the project code, other project identification code, the name of the project and the name of the implementing institution.

The **PDB Code** should correspond to the code assigned to the project when it was registered in the PDB by PIOJ (PDB Form 1).

Other Project Identification Code refers to any other code assigned to the project by the institution presenting the project, a potential funding agency or any other related institution. If necessary, indicate this number.

The **Project Name** should be the same name assigned to the project when it was sent to PIOJ for initial registration in the PDB.

The **Implementing Institution** is the institution that has the main responsibility in managing project implementation.

Section 2 - Reporting Period. Should be used to indicate the start and ending dates of the period for which information is being submitted in the form. Indicate month and year.

Section 3 - Status of Activities. Should be used to register status, the actual start and ending dates of the activities undertaken within the project and physical progress achieved.

Activities should be the same registered in PDB Form 4 Section 2.

Status could be tabulated as: i) not yet started; ii) ongoing; iii) completed; iv) canceled (activity is not going to be undertaken); and v) suspended (work on activity has been suspended for a given period). In these two last cases, inform the reasons in **Remarks.**

Starting Date and **Completion Date** for each activity should be reported according to the following rules: for i) not yet started, start date and ending date are estimated; ii) ongoing, starting

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List Institutional Papers

date actual and ending date estimated; iii) completed, both dates are actual dates; iv) canceled, no dates indicated; v) suspended, start date actual and ending date estimated.

Physical progress should be reported on an inception to date basis. Indicate total progress to date and units used to measure it. Those should be the same used previously in PDB Form 5: Implementation Schedule, for quantifying the magnitude of each activity.

Section 4 - Cost incurred. Should be used to register the actual local and foreign cost of the activities undertaken within the project. All values should be registered in Jamaican Dollars. Only direct cost should be registered here.

Cost incurred should be reported on a period basis. I.e. indicate expenditures incurred in the reporting period only.

Section 5 - Remarks. Should be used to register any additional comments or information that the person filling the form deems important. It should also be used to continue with any of the previous sections if the space provided was insufficient.

Section 6 - Form filled by: Should be used to register the identification of the person who filled the form. Name, position, institution, phone number, date and signature should be included. It is important that this information is provided in order to facilitate locating the appropriate person if additional information about the project is required.

Finally, **Section 7 - Registered in the PDB by:** Should be completed by the person who registered the information in the PDB. Name, position, institution, phone number, date and signature should be included.

JAMAICA PROJECT DATA BANK
FORM 7 : DONOR PROFILE

Initial registration: ___ Update: ___

1. DONOR IDENTIFICATION

DONOR CODE: [ ][ ][ ]   ACRONYM: [   ]   FILE REFERENCE NUMBER: [   ]

DONOR NAME: _____

COUNTRY: _____

2. GENERAL INFORMATION

	Y/N	DATE
DIPLOMATIC RELATIONS ESTABLISHED		
TECHNICAL ASSISTANCE TO JAMAICA BEGAN		
GENERAL COOPERATION AGREEMENT SIGNED		

SECTORS OF INTEREST TO DONOR

1.	4.
2.	5.
3.	6.

PLANNING CYCLE (Y/N): [ ]   STATUS: [   ]

COMMENCEMENT DATE: [   ]   YEARS: [ ]

TYPE OF ASSISTANCE

1.	4.
2.	5.
3.	6.

3. FOREIGN AGENCY/MISSION DETAILS

NAME OF AGENCY/MISSION ABROAD: _____

ADDRESS: _____

CONTACT PERSON: _____

POSITION: _____   PHONE: _____

4. LOCAL AGENCY/MISSION DETAILS

NAME OF AGENCY/MISSION IN JAMAICA: _____

ADDRESS: _____

CONTACT PERSON: _____

POSITION: _____   PHONE: _____

5. ESTIMATED AMOUNT OF ASSISTANCE

						TOTAL
FINANCIAL YEAR:	/	/	/	/	/	/
AMOUNT:						

Currency :	Exchange Rate:

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6. REMARKS

7. FORM FILLED BY:

Name : _____

Position : _____

Institution : _____

Phone : _____

Date : _____

Signature : _____

8. REGISTERED IN THE PDB BY:

Name : _____

Position : _____

Institution : _____

Phone : _____

Date : _____

Signature : _____

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JAMAICA PROJECT DATA BANK
FORM 7: DONOR PROFILE

(Description and explanation)

This form which should be filled by PIOJ completely, has been designed for collecting the most relevant information about **donor countries or donor agencies**. This is a two-page form which contains eight different sections explained below.

Note: This form is not intended to provide information on individual TA-Projects or Programmes financed by a given donor. Said information should be capture by Form 8 and Form 2.

This form can be used for initially registering a donor country/agency profile in the PDB or for updating information about a donor country/agency that has been previously registered. This should be indicated in the upper right corner of the first page of the form.

Section 1 - Donor Identification

This section of the first page contains the donor code, name, acronym and the file reference number.

The **Donor Code** is the number given authomatically by the PDB when the donor is registered for the first time.

Acronym is a short name usually used by institutions. For instance, UNDP, IDB, CIDA, etc.

The **File Reference Number** on the upper right corner of this Section should be used to register the number assigned by PIOJ to the file that contains the donor profile and any related information.

Donor Name is the complete name of the donor country or agency, not only its acronym.

Section 2 - General Information gives the general background on diplomatic and juridical aspects of technical assistance supplied: whether **Diplomatic Relations** have been established and since when; whether **Technical Assistance** to Jamaica has already begun and in which year; and whether a **General Co-operation Agreement** has been signed and when.

Sector Prioritization for donor agency should be also indicated using the sector/subsector classification valid for the PDB.

Type of Assistance should indicate if the donor provides Grants , Concessional Loans, Non-Concessional Loans or other type of assistance. If you need to add a brief description of the specific type of assistance provided, use point 6. Remarks.

Additionally, information about the status of the assistance and if a planning cycle exists, its duration in years and date of commencement is required.

The **Status** refers to the stage in the planning cycle at the date when the information is registered. If it is ongoing (projects or programmes are being implemented), negotiating (there are negotiations going on but no project is being executed), potential (there is no technical assistance being provided but it could be requested), or any other category to be defined.

Section 3 - Foreign Agency/Mission Details gives information on agencies or countries which provide technical assistance but are not directly represented in Jamaica. Indicate the **Name of Agency/Mission Abroad** which handles programme in behalf of donor. The address, contact person, position and phone number should be also indicated.

Section 4 - Local Agency/Mission Details gives information regarding agencies or countries which provide technical assistance and are directly represented in Jamaica. Indicate the **Name of Agency/Mission in Jamaica** which handles programme, the address, contact person, position and phone number.

Section 5 - Estimated Amount of Assistance This section should be used to indicate amount of assistance by financial-years (or fiscal years if appropriate) of the planing cycle. Additionally, a column for registering the estimated total amount of assistance and the period covered is provided. If more than one technical assistance agreement have been signed, the estimated total should be indicated.

For example, let us assume that three technical assistance agreements have been signed. The first one is for two years for a total amount of US$ 200.000 which will be disbursed US$ 150.000 the first year and US$ 50.000 the second year. The second agreement signed, is for five years for a total amount of US$1.000.000 and the third for four years for a total amount of US$ 600.000 which will be disbursed totally during the third year. To summarize the information needed to fill the form, when the agreement does not express in which year the disbursements are going to be made, you can assume that the same amount of money will be disbursed each year, so divide the amount of each agreement for the number of years. In our example after doing the following, copy only the total line to the form.

First	150.000	50.000			
Second	200.000	200.000	200.000	200.000	200.000
Third			600.000		
TOTAL	350.000	250.000	800.000	200.000	200.000

At the end of this Section, a space has been provided for registering the **Currency** in which goods or services are going to be paid and the **Exchange Rate** between the foreign currency indicated and the J$. The exchange rate indicated whould be the one established at the date in which the technical assistance agreement was signed.

Section 6 - Remarks should be used to register any additional comments or information that the person filling the form deems important. It should also be used to continue with any of the previous sections if the space provided was insufficient.

Section 7 - Form filled by: should be used to register the identification of the person who filled the form. Name, position, institution, phone number, date and signature should be included. It is important that this information is provided in order to facilitate locating the appropriate person if additional information about the donor country or agency is required.

Finally, **Section 8 - Registered in the PDB by:** should be used to identify the person who registers the information in the PDB. Name, position, institution, phone number, date and signature should be included.

JAMAICA PROJECT DATA BANK
FORM 8 : TA-PROJECT SUMMARY

Initial registraton: ___ Update: ___

1. TA-PROJECT IDENTIFICATION

PDB CODE:

OTHER TA-PROJECT IDENTIFICATION CODE:

FILE REFERENCE NUMBER:

TA-PROJECT NAME: _____

2. TA-PROJECT CLASSIFICATION

SECTOR/SUBSECTOR: _____

PROGRAMME: _____

INCLUDED IN FIVE YEAR PLAN? Y/N _____

3. TA-PROJECT SCHEDULE

STAGE	STARTING DATE Month	Year	ENDING DATE Month	Year

4. TYPE OF CONTRIBUTION

GRANT: _____

LOAN: _____

IN CASH: _____

IN KIND: _____

5. TA-PROJECT LOCATION

PARISH	TOWN

6. TA-PROJECT OBJECTIVES

7. TA-PROJECT DESCRIPTION

List Institutional Papers

┌─7. TA-PROJECT DESCRIPTION───┐
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┌─8. TA-PROJECT JUSTIFICATION───┐
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│   │
│   │
│   │
│   │
│   │
│   │
│   │
└──┘

┌─9. PARTICIPATING INSTITUTIONS───┐

NAME	ROLE REGARDING TA-PROJECT

┌─10. RELATED PROJECTS──┐

PROJECT NAME	PDB CODE								TYPE OF RELATION

┌─11. TRAINING──┐

SPECIALIZATION	TYPE	NUMBER	TOTAL M/M	COUNTRY

12. HUMAN RESOURCES

SPECIALIZATION	FOREIGN		LOCAL	
	NUMBER	TOTAL M/M	NUMBER	TOTAL M/M

13. ESTIMATED BUDGET

ITEM	AMOUNT		
	FOREIGN	LOCAL	TOTAL
TOTAL			

Date of Cost Estimates: Foreign Currency: Exchange Rate:

┌─14. PRE-REQUISITES FOR TA-PROJECT IMPLEMENTATION──────────────────────────────┐
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┌─15. REMARKS───┐
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┌─16. FORM FILLED BY:───┐
│   │
│   Name : _____   Phone : _____   │
│   │
│   Position : _____   Date : _____   │
│   │
│   Institution : _____   Signature : _____   │
│   │
└──┘

┌─17. REGISTERED IN THE PDB BY:───┐
│   │
│   Name : _____   Phone : _____   │
│   │
│   Position : _____   Date : _____   │
│   │
│   Institution : _____   Signature : _____   │
│   │
└──┘

JAMAICA PROJECT DATA BANK
FORM 8 : TA-PROJECT SUMMARY

(Description and Explanation)

This form has been designed to summarize the most relevant information about technical assistance projects whose main objective is the transfer of technology or knowledge to the country. These TA-projects do not generate physical infrastructure or acquisition of capital goods and they are not usually considered in the PSIP. Such is the case of assistance received through: i) institutional strengthening through advisory services and on-the-job training given by consultants to key government agencies; ii) awards of scholarships and fellowships to Jamaican to study in the country or abroad; iii) assignment of long-term experts to selected government agencies to transfer specific technologies; etc.

Note: <u>For technical co-operation projects which main objective is the construction or rehabilitation of physical infrastructure or the acquisition of capital goods, Data Capture Form 1 : Project Summary should be used.</u>

This four-page form will constitute one of the basic inputs for the Technical Co-operation Module of the PDB. It contains 17 different sections explained below and can be used for initially registering a technical assistance project in the PDB or for updating information about a previously registered one. This should be indicated in the top-right-corner of the first page of the form.

For example, if you are sending a new technical assistance project to be registered in the PDB mark the first option at the top right corner.

Section 1 - TA-Project Identification

This section contains the technical assistance project codes and its name.

The **PDB Code** is assigned automatically to the TA-project when it is registered in the PDB. Therefore it should be left in blank when the TA-project is sent to the PDB for the first time. On later updates of the information, the code indicated should be the one assigned by the PDB and informed by PIOJ.

Other TA-Project Identification Code refers to any other code assigned to the TA-project by the institution presenting it, by a potential funding agency or by any other related institution. If necessary, indicate this number.

The **File Reference Number** on the upper-right-corner of this section should be left in blank by the institution presenting the TA-project. It should be used by PIOJ to register the number assigned to the file that contains all additional information related to said TA-project, such as its profile, project document and any other related documents.

The **TA-Project Name** should convey as much information as possible without being too long. If names are assigned keeping in mind this objective, it is very easy to clearly identify projects in listings that do not include a description of each one. The name of a given project should start with the action that is going to be undertaken (What is going to be done) [1]. After the action, the object on which this action is performed should be indicated (On what?). Finally, the project name must include the specific location of the project (Where?: (name of the parish, town, area, street or building where the project is located). If the location cannot be specifically identified or if the project encompasses all of Jamaica, no location should be indicated.

Examples of project names based on this rules are:

PROCESS	OBJECT	LOCATION
Research	on new methodologies for project appraisal	in Kingston
Assistance	through awards of scholarships to Jamaican	in Hanover.
Transfer	of solar drying technology for export crops	in Jamaica

Section 2 - TA-Project Classification is aimed at registering information that will allow grouping TA-projects by sector or sub-sector of economic activity, by a government or agency investment programme or based on its inclusion in the Five Year Plan.

First, the **Sector and Sub-sector** in which the TA-project is classified should be registered. It consist in defining to which sector and sub-sector of the economic or social activities included in the sectoral classification currently been used, the technical assistance project belongs. See Appendix ?

In **Programme**, the name of the investment programme to which the technical assistance project belongs should be indicated. It could be a government programme or a programme of a funding agency. If the TA-project is not included in a programme this space should be left blank.

For example, a project for developing project appraisal methodologies could be part of a management assistance programme in the area of planning and project cycle management.

Finally, space have been provided for registering if the project is **Included in Five Year Plan.**

Section 3 - TA-Project Schedule should be used to register the estimated **Start and Ending Date** (month and year) of the next stages through which the technical assistance project must go. Stages considered are: project document, negotiation and implementation. Even "negotiation" is not really a "stage" in the TA-Project life cycle, due to the usually long period it takes between the project document and the implementation stage it was included here.

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[1] Examples of possible actions are: maintenance, improvement, control, recovery, transfer, diagnostic, inventory, development, subsidy, analysis, assistance, exploration, prospecting, supply, training, prevention, protection, census, research, etc.

Section 4 - Type of Contribution is based on the type of contributions currently included in TA-projects: **Loans** and **Grants**. The first corresponds to financial credits and the second one refers to non-reimbursable funds which can be either in cash or in kind contributions.

Section 5 - TA-Project Location should be used to indicate the **Parish**(es) and **Town**(s) in which the technical assistance project is going to be executed. If the TA-project is going to be implemented in more than one town from the same parish, indicate the name of the towns and give the cost by parish. If it is going to be developed in more than one Town from different Parishes, indicate the name of the Towns and Parishes. If the TA-project is located in most of the Towns of a Parish, only the parish name should be registered. If the TA-project is going to affect the whole country, "Jamaica" should be written in the space reserved for Parishes. If the space provided is not enough, additional locations can be indicated in the space reserved for **Remarks**.

Example:

PARISH	TOWN
St. Catherine	
	Spanish Town
	Portmore
	Linstead
St. Ann	Ocho Rios
Trelawny	

Section 6 - TA-Project Objectives should define the achievement of a broad purpose or goal at the subsectoral or sectoral level to which the technical assistance project is aimed to contribute. Then, it should state what the technical assistance project itself is expected to achieve in terms of specific changes in behaviour, status or conditions which it is intended to bring about. Care must be taken to state objectives which are realistic, in the sense that they fall within the range of results which reasonable may be expected to be achieved within the limits of time, money and human resources of said technical assistance project. The area for remarks on the last page of the form can be used to continue with the TA-project objectives, in case the space available is insufficient.

Section 7 - TA-Project Description should be a brief but clear description of the technical assistance project to be undertaken, its duration, main components and its expected principal outputs, including physical magnitudes. In general terms, this point should address the question: What is going to be done? The area for remarks on the last page of the form can be used to continue with the technical assistance project description, in case the space available is insufficient.

Section 8 - TA-Project Justification should explain the reasons for undertaking the proposed technical assistance project. It

should answer the question: Why should the TA-project be undertaken? Therefore, it must describe the problem to be addressed by the TA-project and the expected situation at the end of its execution. It should also state how and by whom the results of the TA-project will be utilized. The area for remarks on the last page of the form can be used to continue with the technical assistance project justification, in case the space available is not enough.

Section 9 - Participating Institutions should be used to register the **names** of all institutions that are related to the technical assistance project and the type of relation to it. Some possible types of **Roles Regarding TA-Project** are: Executing Agency, Associated Institution, Funding Agency, Operating Agency, etc.[2] If one institution is fulfilling more than one role it should be indicated using one line for each role.

Section 10 - Related Projects should be used to register the names and codes of projects that are related to the current technical assistance project. Also the type of relation should be indicated. Examples of type of relation are: complementary, substitute, prerequisite, dependant, supporting technical cooperation, etc. [3]

Section 11 - Training is aimed at registering the number of persons and man-months taught locally or abroad by area of specialization and type. Study-tours, seminars, workshops, courses, university degree, etc. are examples of training type.

Section 12 - Human Resources includes the number of personnel which will be needed by the technical assistance project by area of specialization (registers branch of knowledge needed) and by origin (foreign or local). Human resources should be expressed by **Number** of personnel and in **Total man/months** of work needed.

For example: one man-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 man full time over 1 year plus 2 men half-day over 6 months equals 18 men-month.

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[2] A description of these roles are: i) Executing, is the agency that has the main technical responsibility for the implementation of the project; ii) Associated, any other institution that undertakes technical activities within the framework of the project, without being the agency responsible for the project's overall management iii) Funding, makes the financial contribution (or a percentage of it) for implementing the project; iv) Operating, the institution that is going to be in charge of the project during its operation.

[3] A description of these type of relations are: i) Complementary if the current project is to be undertaken together with the indicated project in order to maximize benefits; ii) Substitute, if only one of the projects, the currently proposed or the one indicated should be undertaken because both of them solve the same problem; iii) Prerequisite, if the indicated project must be completed before initiating the currently proposed project; iv) Dependant, if the indicated project can be undertaken only if the currently proposed project has been previously completed; v) Supporting TC, if the indicated Technical Cooperation Project is aimed at supporting the implementation of the current project.

Section 13 - Detail by Budget Line and Item: registers the estimated cost of the project classified by Budget **Line** number and the name of the **Item** (type of expense). The total **Amount** is separated in **Foreign** and **Local** cost and it might be registered in the same currency in which the budget has been prepared. If more than one foreign currency is used, list them and the corresponding exchange rates in Section 13. Remarks.

If you use different currencies in columns "foreign" and "local" you will not able to add the total unless you convert those currencies to a common one. In such a case, all values should be estimated for a common date. A space has been provided at the end of this Section, for registering the date of cost estimates (day, month and year), the exchange rate and the foreign currency(ies) used.

Suggested type of expenses for items are: personnel, training, equipment, sundries, etc. It may explicitly mention if the contribution is in cash or in kind.

Section 14 - Pre-requisites for TA-Project Implementation should be used to register the conditions that the Government or government agency must meet before the project document is approved, the first disbursement of the loan or grant is made or any other requirement included in the agreement signed.

For example, the funding agency could specify that the Government should have some personnel in place and must present a work plan for the first year before the first disbursement is made.

Specific measures to be taken and earliest and latest dates for meeting requirements should be indicated whenever they are included in the financial agreement signed.

Section 15 - Remarks should be used to register any additional comments or information that the person filling the form deems important. It should also be used to continue with any of the previous sections if the space provided was insufficient.

Section 16 - Form filled by: should be used to register the identification of the person who filled the form. Name, position, institution, phone number, date and signature should be included. It is important that this information is provided in order to facilitate locating the appropriate person if additional information about the technical assistance project is required.

Finally, **Section 17 - Registered in the PDB by:** should be used to identify the person who registers the information in the PDB. The same data required in Section 15 is needed here.

After registering all the information contained in the form it should be filed in the same file used for the rest of the technical assistance project information.

JAMAICA PROJECT DATA BANK
FORM 9 : TECHNICAL ASSISTANCE PROJECT IMPLEMENTATION SCHEDULE

Initial Schedule: Update :

1. TA-PROJECT IDENTIFICATION

PDB CODE: OTHER TA-PROJECT IDENTIFICATION CODE: FILE REFERENCE NUMBER:

TA-PROJECT NAME: _____

_____

IMPLEMENTING INSTITUTION: _____

_____

2. TA-PROJECT SCHEDULE

Project Starting Date: Project Ending Date:

3. EXPECTED TA-PROJECT RESULTS

DESCRIPTION	ACTIVITIES REQUIRED TO ACHIEVE RESULTS

4. TA-PROJECT SCHEDULE AND COST BY ACTIVITY

ACTIVITY	STARTING DATE		ENDING DATE		ESTIMATED COST OF ACTIVITY		MAGNITUDE	
	Month	Year	Month	Year	Local	Foreign	Amount	Unit
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
			TOTAL					

5. TA-PROJECT BUDGET

LINE	ITEM	AMOUNT		
		Foreign	Local	TOTAL

Date of Cost Estimates: Foreign Currency: Exchange Rate:

144

6. REMARKS

7. PROJECT MANAGER IDENTIFICATION

Name : _____ Phone : _____

Position : _____

Institution : _____

8. FORM FILLED BY:

Name : _____ Phone: _____

Position : _____ Date: _____

Institution: _____ Signature : _____

9. REGISTERED IN THE PDB BY:

Name : _____ Phone: _____

Position : _____ Date: _____

Institution: _____ Signature : _____

JAMAICA PROJECT DATA BANK
FORM 9 : TECHNICAL ASSISTANCE PROJECT IMPLEMENTATION SCHEDULE
(Description and Explanation)

This form has been designed to register information for programming the implementation schedule of the different activities to be undertaken within a given TA-Project. This is a three-page form and has nine different sections which are explained below.

This form should be completed by the Project Manager of the TA-Project, indicating - in the top-right-corner of the first page of the form - if the information provided corresponds to the initial implementation schedule or to an update.

Section 1 - TA-Project Identification. Contains the technical assistance project codes, its name and the name of the implementing institution.

The **PDB Code** should correspond to the code assigned to the TA-Project when it was registered in the PDB by PIOJ. (PDB Form 8)

Other TA-Project Identification Code refers to any other code assigned to the TA-Project by the institution implementing the project, the funding agency or any related institution. If necessary, indicate this number.

The **File Reference Number** on the upper-right-corner of this section should be used by PIOJ to register the number assigned to the file that contains all additional information related to said TA-Project, such as its profile and project document.

The **TA-Project Name** should be the same name assigned to the TA-Project when it was send to PIOJ for initial registration in the PDB. (PDB Form 8)

The **Implementing Institution** is the institution that has the main responsibility in managing the TA-Project implementation.

Section 2 - TA- Project Schedule. Should be used to register the estimated starting and ending dates (month/year) of the TA-Project.

Section 3 - Expected TA-Project Results. Should be used to register which are the outputs that will be generated by the TA-Project. For each result indicate the name of the activity or activities required to achieve the result.

For example:

DESCRIPTION OF RESULT

100 public officials trained
in project appraisal

ACTIVITIES REQUIRED TO ACHIEVE RESULTS

Preparation of course material
5 one-week seminars

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Section 4 - TA-Project Schedule and Cost by Activity. Should be used to register the estimated start and ending dates as well as the estimated cost of each activity to be undertaken within the TA-Project. For each activity, indicate the estimated magnitude of the activity in units suitable for monitoring progress of the activity.

As an example, a training TA-Project breakdown by activities and units of measure could be as follows:

ACTIVITY	AMOUNT	UNITS
Methodologies	3	each
Software	5	modules
Training	100	man-months

Section 5 - TA-Project Budget. Should be used to register the programmed local and foreign cost of the activities to be undertaken within the TA-Project. Programmed cost should be reported by Budget **Line** number and type of expense (**Item**). The total cost by budget line should be broken down in **Foreign** and **Local**.

If you use different currencies in columns "foreign" and "local" you will not be able to add the total unless you convert those currencies to a common one. Therefore, all values should be converted to a common currency (J$) for the date the cost was estimated. A space has been provided at the end of this section, for registering the date of cost estimates (day, month and year), the foreign currency used and the exchange rate. If more than one foreign currency is to be used, list them and the corresponding exchange rates in Section 6. Remarks.

Section 6 - Remarks. Should be used to register any additional comments or information that the Project Manager or the person who is filling the form deems important. It should also be used to continue with any of the previous sections if the space provided was insufficient.

Section 7 - Project Manager Identification. Should be used to register the identification of the person who is responsible for the administration of the project. Name, position, institution and phone number, should be included. It is important that this information is provided in order to facilitate locating the appropriate person if additional information about the technical assistance project is required.

Section 8 - Form filled by: Should be used to register the identification of the person who filled the form. Name, position, institution, phone number, date and signature should be included.

Finally, **Section 9 - Registered in the PDB by:** Should be completed by the person who registered the information in the PDB. The same data required in Section 8 should be provided here.

JAMAICA PROJECT DATA BANK
FORM 10 : TECHNICAL ASSISTANCE PROJECT FOLLOW-UP

┌─1. TA-PROJECT IDENTIFICATION─────────────────────────────────────

PDB CODE:

OTHER TA-PROJECT IDENTIFICATION CODE:

FILE REFERENCE NUMBER:

TA-PROJECT NAME: _____

_____

IMPLEMENTING INSTITUTION: _____

_____

┌─2. REPORTING PERIOD──

From: To:

┌─3. TA-PROJECT PROGRESS AND COST BY ACTIVITY──────────────────────

ACTIVITY	STATUS	STARTING DATE		ENDING DATE		PHYSICAL PROGRESS		ACTUAL COST	
		Month	Year	Month	Year	Amount	Unit	Local	Foreign
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
							TOTAL		

Date of Cost Values: Foreign Currency: Exchange Rate:

┌─4. TRAINING PROVIDED───

SPECIALIZATION	TYPE	NUMBER	TOTAL M/M	COUNTRY

148

5. HUMAN RESOURCES UTILIZED

SPECIALIZATION	FOREIGN		LOCAL	
	Number	Total m/m	Number	Total m/m

6. COST INCURRED BY BUDGET LINE AND ITEM

LINE	ITEM	AMOUNT		
		Foreign	Local	TOTAL

Date of Cost Figures:	Foreign Currency:	Exchange Rate:

┌─ 7. REMARKS ───┐
│   │
│ _____ │
│ _____ │
│ _____ │
│ _____ │
│ _____ │
│ _____ │
│ _____ │
│   (blank lined area)   │
│ _____ │
└───┘

┌─ 8. FORM FILLED BY: ───┐
│   │
│ Name : _____   Phone : _____ │
│ Position : _____   Date : _____ │
│ Institution : _____   Signature : _____ │
│   │
└───┘

┌─ 9. REGISTERED IN THE PDB BY: ───────────────────────────────────────┐
│   │
│ Name : _____   Phone : _____ │
│ Position : _____   Date : _____ │
│ Institution : _____   Signature : _____ │
│   │
└───┘

JAMAICA PROJECT DATA BANK
FORM 10 : TECHNICAL ASSISTANCE PROJECT FOLLOW-UP

(Description and Explanation)

This form has been designed to capture information about implementation progress for a given technical assistance project. This is a three-page form and has nine different sections which are explained below.

This form should be completed by the Project Manager of the TA-Project for a given period.

Section 1 - TA-Project Identification. Contains the basic information for clearly identifying the TA-Project, namely the technical assistance project codes, its name and the name of the implementing institution.

The **PDB Code** should correspond to the code assigned to the TA-Project when it was registered in the PDB by PIOJ (PDB Form 8).

Other TA-Project Identification Code refers to any other code assigned to the TA-Project by the institution implementing the project, the funding agency or any related institution. If such a code exists, indicate it in the space provided.

The **File Reference Number** on the upper-right-corner of this section should be used by PIOJ to register the number assigned to the file that contains all additional information related to said TA-Project, such as its profile and project document.

The **TA-Project Name** should be the same name assigned to the TA-Project when it was send to PIOJ for initial registration in the PDB (PDB Form 8).

The **Implementing Institution** is the institution that has the main responsibility in managing the TA-Project implementation.

Section 2 - Reporting Period. Should be used to indicate the start and ending dates for which information is being submitted in the form. Indicate day, month and year.

Section 3 - TA-Project Progress and Cost by Activity. Should be used to register status, actual starting and ending dates as well as cost incurred and progress made for each of the activities undertaken within the TA-Project. **Status** of the activity refers to the current situation of said activity.

Example of project activities are: not yet started, ongoing, completed, canceled, suspended.

Actual start date and **Actual ending date** corresponds to the real initiation date and completion date of the activity. For each activity, indicate actual physical progress using the same units reported in section 4 of PDB Form 9. Finally, for each activity, indicate cost incurred broken down in local and foreign.

List Institutional Papers

A space has been provided at the end of this section, for registering the date of cost values (day, month and year), the foreign currency used and the exchange rate. If more than one foreign currency is needed, list them and the corresponding exchange rates in Section 7. **Remarks**.

Section 4 - Training should be used for registering the number of persons and man-months taught locally or abroad by specialization and type.

In the case of trainees, besides registering the number of persons and man-months taught locally or abroad by specialization, the type of training should be registered.

For example: Study-tours, seminars, workshops, courses, university degree, on-the-job training, etc. are examples of training type.

Section 5 - Human Resources Utilized. Includes the number of personnel (consultants, teachers, national coordinator, national counterparts, etc.) who have participated in the technical assistance project. These personnel will be registered by specialization (field of knowledge required), type (consultants, teachers, etc.) and country. As in PDB Form 9, said personnel will be registered by **Number** of persons and in **Total man/months** of work accomplished.

Section 6 - Cost Incurred by Budget Line and Item. Should be used to register the actual local and foreign cost incurred in each of the activities undertaken within the TA-Project. Cost incurred should be reported by Budget **Line** number and by **Item** (type of expense). The total **Amount** should be broken down in **Foreign** and **Local** cost.

If you use different currencies in columns "foreign" and "local" you will not able to add the total unless you convert those currencies to a common one. Therefore, all values should be converted to a common currency (J$) for the date the cost was incurred. A space has been provided at the end of this section, for registering the date of cost incurred (day, month and year), the foreign currency used and the exchange rate. If more than one foreign currency is needed, list them and the corresponding exchange rates in Section 7. Remarks.

Section 7 - Remarks. Should be used to register any additional comments or information that the Project Manager, or the person filling the form, deems important. It should also be used to continue with any of the previous sections if the space provided was insufficient.

Section 8 - Form filled by: Should be used to register the identification of the person who filled the form. Name, position, institution, phone number, date and signature should be included.

Finally, **Section 9 - Registered in the PDB by:** Should be completed by the person who registered the information in the PDB. The same data required in Section 8 is needed here.

MACRO-ECONOMIC MODEL OF JAMAICA

UNDP Project JAM/89/019
(National Development Plan)

FOREWORD

In order to establish an effective technical cooperation in critical areas, an agreement was reached between the Planning Institute of Jamaica and ECLAC/ILPES, that was materialized through the participation of the latter two institutions in the UNDP Project JAM/89/019 (National Development Plan).

Under the above mentioned project the services to be provided by the cooperating agency (ECLAC/ILPES) were the following:

i) To design a computerized Project Data Bank primary for collecting, organizing, handling, and analyzing information on public investment projects, in order to give efficient operational support to the project cycle management system.

ii) To formulate a short-term macro-economic model for monitoring and forecasting the performance of the economy.

iii) To develop a short term indicator system for the manufacturing sector, aimed at an efficient tracking of the economy.

iv) To implement in-service training to staff members in the manipulation of these instruments.

This document presents the general structure and the results of the macro-economic model of the Jamaican economy. The model includes six blocks: global balances; external sector; government sector; wages and employment; prices and the savings-investment block. The model has 110 equations, for the same number of endogenous variables, and 36 exogenous variables.

The model is solved simultaneously and has three basic uses: a) To make projections; b) to create analysis of policy measures; and c) to develop examination of scenarios by using external variables and internal economic and social policies.

In addition, for a better understanding of the model, the document includes the database used in its design and the corresponding computer programme developed for solving the equations. The programme was produced in LOTUS and for the econometric part of the model, the TSP was utilized.

I. INTRODUCTION

This document presents a macroeconomic model of the Jamaican economy, which includes 6 blocks: global balances, external sector, government sector of the economy, wages and employment, prices, and savings and investment.

The model has 110 equations, for the same number of endogenous variables. There are 36 exogenous variables. The model is solved simultaneously, and has 3 main uses: projections, analysis of policy measures with the multipliers, and analysis of scenarios with a defined set of external variables and internal economic and social policies.

There are several developments that should be analyzed for the use and continuation of this kind of models: a monetary block, an external debt block, an improvement of the statistical database, and as a very important aspect the continuation of the training of the PIOJ staff that will use this tool.

The database used for the model and the corresponding computer program developed for solving the present Jamaica macroeconomic model are presented as Annex 1 to this document. Both, the database and the programs are presented in LOTUS, so for running the model the instructions are those of the LOTUS program. For the econometric part of the model the TSP program was used.

II. A BRIEF SURVEY OF EXISTING MODELS

In order to build a new macro-economic model, the main features of the existing macro-economic models at the Planning Institute of Jamaica were analyzed. Two models were available, and another one was in the process of being developed, but has been stopped. The available models were "The Planning Institute of Jamaica Keynesian Model" and "The Jamaican Macro-economic Planning Model: A Mathematical Description". The model that is not available is the Bachue-Jamaican Model, which is still in process.

The main features of these models are the following:

(a) The Bachue-Jamaica is a large-scale long-term model (20 years) for projecting the population variables and its interaction with the economic variables. This model is not appropriate for the short- to medium-term economic projections.

(b) The Keynesian Model. It is a fairly simple model, and it has not an econometric estimate of the basic behavioral equations of the economy. In this model Investment is either exogenous or made endogenous if capital goods imports are exogenous, and for that function it could be better to have at least private investment as endogenous in the model, as it explains part of the fluctuations in the Jamaican economy.

Concerning the consumption function it is made a direct function of disposable income, but without allowing for a constant for it, and not introducing other elements that could account for consumption explanation as monetary variables (credit to the private sector, M_1 or rate of interest).

Price equations are not explicit in the model, and only GDP and investment are calculated in constant prices; while the rest of the variables are all at current prices.

(c) The Jamaican Macro-Economic Planning Model. This model is based in an input/output matrix of technological coefficients, which has 34 sectors of the economy. There are exogenous estimates of the demand aggregates; with a quantity model linking the input/output relationship with final demand and prices. Prices are determined for each of the 34 sectors, depending on the cost composition of each sector.

The input-output used for the model dates back to 1977; which was updated with the R.A.S. procedure for

1980 and then for 1983. However, this is not an up dated matrix. Moreover, it is of high cost in terms of information to have a new matrix.

Exports are exogenously determined, and imports are partly dependent on prices; but they are mostly determined by import coefficients for each sector, which are fixed. Substitution is thus limited in the case of imports.

The labour requirements are determined by fixed coefficients allowing for a change in productivity, but wages are not included as a variable influencing labour demand and thus, prices do not affect the labour market.

Monetary and financial variables are left outside the dynamics of the model; consequently, there is no interaction with the financial sector, which is separate from the real sector of the economy in this model.

(d) Concerning the Bank of Jamaica model, this is mainly a short-term model, and it ensures compatibility of the fiscal accounts, the balance of payments data and the monetary data. It is useful mainly for the purposes of financial projections for the Bank.

III. GENERAL CHARACTERISTICS OF THE MODEL

This study on macro-economic modelling of the Jamaican economy is based on the advances experienced in the theoretical and empirical research in applied macro-economics in the last decade, and mainly in its use in the Latin American region by ILPES, mostly by its Project RLA/86/029 which was completed during 1990.

In the case of Jamaica this model has benefited from the applied research on models and empirical studies carried out for Jamaica.

Another important element in this effort has been the development of microcomputers and of statistical and data processing packages, which allow to use, store, organize and process the statistical information in an orderly manner; and has meant a qualitative improvement in the design and analysis of economic policies.

The present macro-economic model of the Jamaican economy is based on the neo-keynesian tradition, taking into account the specific characteristics of the Jamaican economy.

This is a simultaneous model for the level of gross domestic product and of the rate of inflation. The level of gross product

is determined by the components of the aggregate demand. Among
those components, the private consumption level is a function of
the income distribution among wage earners and non-wage earners;
private investment is endogenous, dependent of the growth of gross
domestic product (accelerator effect), on the level of profits and
on the real rate of interest. Government investment and public
consumption are exogenous. The level of exports is exogenous to
the model; and the level of imports is determined endogenously,
depending mainly on the level of domestic economic activity.

Further developments for the same structure of the present
model could introduce the imports functions decomposed in its main
components: capital goods, consumer goods, intermediate goods.

This is also applicable to the exports structure: in the
present version, exports are exogenous, as determined in practice
by the projections carried out by the Bank of Jamaica on prices and
volumes of the main export items. This, however, limits the
effects of macro policies on the determinants of the exports level,
and mainly on the effect of exchange rate policies on the level and
composition of Jamaican exports.

Prices are determined by two main elements, the wage cost,
taking into account the productivity effect; and the import cost,
taking into account the exchange rate and import price index. Idle
capacity was not a factor in explaining the price behaviour in the
case of Jamaica. Exogenous to the model are current wages and
current rate of exchange. The level of current wages could not be
represented in terms of the past inflation, as there are wide
variations of current wages with past consumer price indices or
other price indices. In the end, the price level depends on the
level of current wage adjustment, on productivity increases, on
exchange rate policy and on international prices. Thus, through
productivity and import cost per unit of output, there is a feed-
back component which links the price determination and the gross
domestic product level.

The model specifies behavioral equations for the main tax
components, which are direct and indirect taxes. Government
expenditures are exogenous, and thus the level of public deficit is
endogenous to the model. The model also estimates the balance in
the current account of the balance of payments and estimates the
result in foreign exchange reserves with exogenously determined
levels of interests, profits and remittances abroad and other
components of the external capital account.

There is also a block on wages, employment and unemployment
which are determined through a feed-back with the other blocks of
the model. The level of employment is determined through an
aggregate function for the whole economy, thus, there is no
sectoral determination of the employment level. Employment depends
on the level of economic activity and on real average wage cost.

The level of employment jointly with the level of real wages will influence demand and the level of consumption; and thus, the level of economic activity.

In this version the monetary market has been omitted. Implicitly, it is assumed that the level of monetary supply will match with monetary demand for the level of gross domestic product, inflation and private credit. That equilibrium could be obtained via the rate of interest, which is exogenous in this version; or assuming that no additional pressures on price increases will come from the monetary sector. Our suggestion would be to develop a specific monetary block to check the overall consistency of this model.

Concerning the uses of the model, there are at least three main purposes for the present kind of models.

In the first place, this can be used for forecasting, depending on the levels of the associated exogenous variables for the model. These variables will be partly policy variables, mainly the level of government consumption and investment and the transfer to the private sector; and partly, external variables as the price of alumina, sugar, bauxite, oil, and interest rate. Also other policy variables will influence that forecasting such as the level of wage adjustment and exchange rate.

In the second place, the design of economic policies can be simplified through the calculation of multipliers; that is, of the net effect with respect to a base scenario of a unit change in an exogenous variable on the exogenous variables of the model.

Finally, a model can be used for the design of a policy package or economic plan, taking into account the main definitions for the policy variables. Thus, the task of calculating a macroeconomic consistency framework can be handled by using this kind of models, which could be of enormous difficulty when doing it by hand or with calculators.

IV. THE STRUCTURE OF THE MODEL

1. Global Balance

In the first group of equations (1) to (5), are defined the standard definitions of gross domestic product. It is also included the consumption function and the investment definitions.

Private consumption (CP) is a function of disposable income of wage earners (WD), disposable income of non-wage earners (PD), and on lagged private consumption (CP(-1)). This last variable may be interpreted as an element of the permanent income hypothesis:

$$(1) \quad CP = 156.3 + .52*WD + .30*PD + .47*CP(-1) - 101.6*D7783$$
$$(377.5) \quad (2.61) \quad (1.68) \quad (1.68) \quad (-2.53)$$
$$R2 = .87 \quad D-W = 1.39$$
$$ADJ.R2 = .82$$

The second equation gives a definition of total investment (I), which is the addition of private investment (IP) and government investment (IG):

$$(2) \quad I = IP + IG$$

The next equation gives the definition of gross domestic product (GDP) as the result of the addition of private consumption (CP), investment (I), government consumption (G), exports (X), statistical discrepancy (SD), less imports (M):

$$(3) \quad GDP = CP + I + G + X + SD - M$$

STRUCTURE OF THE MODEL

MAIN EQUATIONS IN EVERY BLOCK

1. Global Balance

(1) CP = a+b*WD+c*PD
(2) I = IP+IG
(3) GDP= CP+I+G+X+SD-M
(4) SP = TOTCR-TOTCD
(5) WD = W+COERW+OCTRW+SSB+SSG+CT+UEWB-CF-SSC-CT
(6) PD = DYP-WD
(7) TOTCD = WQCE+PIPP+DT+CF+SSC+CTR+CP

2. External Sector

(8)   M = RFUEL+MLF
(9)   ECF= EI*FPMI/100
(10) RFUEL= .a*GDP -bECF
(11) MLF= -a+b*DOM -.c*RER
(12) X= EXOGENOUS

3. Government Sector

(13) IT = -a+ b*GDP
(14) DT = a+ .b*P+

4. Wages, Income and Employment

(15) W = AVGW*EMP
(16) P = GDP+SUB-CK-IT-W
(17) CK = -a+ b*I(-1)+
(18) EMP = a+b*GDP + c*AVGW
(19) U = L-EMP

5.   <u>Prices Block</u>

(20)   DLCPI = a*DLCCM+b*DLCWN+
(21)   PD = XD(-1)*(EI/EI(-1))*((PX/PX(-1))
(22)   MD = MD(-1)*(EI/EI(-1))*(PM/PM(-1))

6.   <u>Savings and Investment Block</u>

(23)   IP = a*PD(-1)+ b*DGDP+.c*IP(-1)-d*BRR
(24)   GROSSAC = I+IS
(25)   S = SG+SP
(26)   EXTS = SNCA*(-1)

The symbols used in the equations are described in the text.

The statistical discrepancy is included in this equation to preserve the identity of the definitions computed by the model with the national accounts published by the Statistical Institute of Jamaica, which includes this statistical discrepancy for national accounts at constant prices.

In order to include the terms of trade effect, the standard ECLAC definition for terms of trade adjustment is used, allowing to register the gain or loss in national income derived from the evolution of import price vis-á-vis export price in a given economy.

This definition for terms of trade impact (Z) depends on the relative value of the export price index (PX) to the import price index (PM), and the exports volume (X):

(4) $Z = X*((PX/PM)-1)$

As may be seen with formula (4), if import prices grow higher than export prices, there will be a net loss.

Thus, gross income (GY) may be defined as the addition of gross domestic product (GDP) and terms of trade adjustment (Z):

(5) $GY = GDP+Z$

In the case of the consumption function several specifications were tried. It was left aside the permanent income hypothesis as the only explanatory theory, as that specification did not relate the current level of income to consumption, and consumption was wholly determined by previous consumption patterns and thus, 70% of total GDP was exogenous to the model.

To define the disposable income of wage earners (WD) were added to real wages (W) the compensation of employees from the rest of the world (COERW), other current transfers from the rest of the world (OCTRW), social security benefits (SSB), social assistance grants (SSG), current transfers (CT), and unfunded employee welfare benefits (UEWB), and deducted current transfers paid to the government (CTR), compulsory fees (CF) and social security contributions (SSC):

(6) $WD = W+COERW+OCTRW+SSB+SSG+CT+UEWB-CF-SSC-CTR$

In the case of private disposable income (DYP) this was defined as the total receipts (TOTCR) of the private sector minus withdrawals from quasi-corporate enterprises (WQCE), direct taxes (DT), compulsory fees (CF), social security contributions (SSC), and current transfers (CTR):

(7) $DYP = TOTCR-WQCE-DT-CF-SSC-CTR$

The next equation gives the accounting definition of total receipts of the private sector (TOTCR), which is the addition of the following items: social security benefits (SSB), social assistance grants (SSG), current transfers (CT), unfunded employee welfare benefits (UEWB), compensation of employees from the rest of the world (COERW), other current transfers from the rest of the world (OCTRW), compensation of employees (W), operating surplus (P), property an entrepreneurial income from the rest of the world (PEIRW), and property income payable to the private sector net (PIPP):

(8) TOTCR = SSB+SSG+CT+UEWB+COERW+OCTRW+W+P+PEIRW+PIPP

Total current disbursements of the private sector (TOTCD) are defined as the addition of the following items: withdrawals from quasi-corporate enterprises (WQCE), direct taxes (DT), compulsory fees (CF), social security contributions (SSC), current transfers paid to the government (CTR), private consumption (CP):

(9) TOTCD = WQCE+DT+CF+SSC+CTR+CP

The disposable income of the non-wage earners (PD), may be obtained as the residual of the disposable income of the private sector (DYP) and the disposable income of the wage earners (WD):

(10) PD = DYP-WD

In equations (11) to (20) the components of current receipts and current disbursements of the private sector are defined and made endogenous mostly with rates of growth or with accounting definitions from other blocks of the model.

In equation (11), the compensation of employees from the rest of the world net (COERW) is defined, which is the difference of compensation of employees from the rest of the world (COEFRW) with compensation of employees to the rest of the world (COETRW):

(11) COERW = COEFRW-COETRW

Similarly, in equation (12) Other current transfers from the rest of the world net (OCTRW) are defined as the difference of Other current transfers from the rest of the world (OCTFRW) and Other current transfers to the rest of the world (OCTTRW):

(12) OCTRW = OCTFRW-OCTTRW

In equation (13) the property income payable to the private sector net (PIPP) is defined as the difference of property income payable (PIP) minus property income receivable (PIR):

(13) PIPP = PIP-PIR

Equation (14) defines property and entrepreneurial income from the rest of the world net (PEIRW) as the difference of property and entrepreneurial income from the rest of the world (PEIFRW) and property and entrepreneurial income to the rest of the world (PEITRW):

(14) PEIRW = PEIFRW-PEITRW

Previous definitions allow to determine private savings (SP) as the difference of total current receipts (TOTCR) and total current disbursements (TOTCD):

(15) SP = TOTCR-TOTCD

The accounts of the private sector can also be expressed in current Jamaican dollars (nominal values) with the appropriate deflators and price indices which are calculated in the prices block of the model. Thus, we have the social security benefits in current values (SSBN) with the social security benefit in constant prices (SSB) and the GDP deflator (GDPD), and using the same convention for the rest of the variables, that is, adding a final N to the symbol of the variable in current values. It is possible to write equations (16) to (37) as follows:

(16) SSBN = SSB*GDPD/100

For social assistance grants in current values (SSGN):

(17) SSGN = SSG*GDPD/100

For current transfers in current values (CTN):

(18) CTN = CT*GDPD/100

For unfunded employee welfare benefit in current values (UEWBN):

(19) UEWBN = UEWB*GDPD/100

For compensation of employees from the rest of the world net in current values (COERWN) is the difference of compensation of employees from the rest of the world (COEFRWN) and compensation of employees to the rest of the world (COETRWN):

(20) COERWN = COEFRWN-COETRWN

The account of other current transfers net from the rest of the world in current values (OCTRWN) is the difference of other current transfers from the rest of the world in current values (OCTFRWN) and other current transfers to the rest of the world in current values (OCTTRWN):

List Institutional Papers

(21) OCTRWN = OCTFRWN-OCTTRWN

Total compensation to employees in current values (WN) is determined through employment level (EMP) which is derived from the wages and employment block of the model, and with the level of average current wages (AVGWN), as expressed in the following equation:

(22) WN = AVGWN*EMP

The level of operating surplus in current values (PN) is determined as a residual of gross domestic product in current prices (GDPN), current wages (WN), consumption of fixed capital in current values (CKN), indirect taxes in current values (ITN) and subsidies in current prices (SUBN):

(23) PN = GDPN-WN-CKN-ITN+SUBN

The level of property and entrepreneurial income net from the rest of the world in current values (PEIRWN) is determined as the difference between the property and entrepreneurial income from the rest of the world in current values (PEIFRWN) and the property and entrepreneurial income to the rest of the world in current prices (PEITRWN):

(24) PEIRWN = PEIFRWN-PEITRWN

The property income payable net to the private sector in current values (PIPPN) is determined as the difference of property income payable to the private sector in current values (PIPN) and the property income receivable by the private sector in current values (PIRN):

(25) PIPPN = PIPN-PIRN

As in the case of total current receipts in equation (8), total current receipts in nominal Jamaican $ (TOTCRN) is defined as the addition of social security benefits (SSBN), social assistance grants (SSGN), current transfers (CTN), unfunded employee welfare benefits (UEWBN), compensation of employees from the rest of the world net (COERWN), other current transfers from the rest of the world net (OCTRWN), wages (WN), operating surplus (PN), property income payable net to the private sector (PIPPN), and property and entrepreneurial income from the rest of the world net (PEIRWN), all variables in current terms:

(26) TOTCRN = SSBN+SSGN+CTN+UEWBN+COERWN+OCTRWN+WN+PN+PIPN+PEIRWN

In the next equations (27) to (37) the components of disbursements of the private sector are presented in current prices.

The withdrawals from quasi-corporate enterprises at current prices (WQCEN) are inflated with the GDP deflator (GDPD):

(27) WQCEN = WQCE*GDPD/100

This same deflator (GDP deflator) is used for direct taxes in current values (DTN), determined from the direct taxes (DT) obtained in the government block of the model.

(28) DTN = DT*GDPD/100

For compulsory fees in current prices (CFN), the deflator of gross domestic product is also used (GDPD):

(29) CFN = CF*GDPD/100

In the case of social security contributions in current values (SSCN), the social security contributions (SSC) are inflated with the GDP deflator (GDPD):

(30) SSCN = SSC*GDPD/100

This is also the case for obtaining the current transfers payable to government in current values (CTRN):

(31) CTRN = CTR*GDPD/100

The disposable income of the private sector at current prices (DYPN), as in equation (10), is the difference of total current receipts at current prices (TOTCRN) and withdrawals from quasi-corporate enterprises (WQCEN), direct taxes (DTN), compulsory fees (CFN), social security contributions (SSCN), and current transfers (CTRN), all at current prices:

(32) DYPN = TOTCRN-WQCEN-DTN-CFN-SSCN-CTRN

The disposable income of wage earners at current prices (WDN) is defined as in equation (6) changing the constant prices by current prices as follows:

(33) WDN = WN+COERWN+OCTRWN+SSBN+SSGN+CTN+UEWBN-CFN-SSCN-CTRN

The disposable income of non-wage earners at current prices (PDN) is defined as the total disposable income at current prices (DYP) less the disposable income of wage earners at current prices (WDN):

(34) PDN = DYPN-WDN

Private consumption in current values (CPN) is obtained with the private consumption deflator (CPD). The private consumption deflator is obtained in the prices block of the model:

(35) CPN = CP*CPD/100

Total current disbursements of the private sector at current prices (TOTCDN) is determined as the addition of withdrawals from quasi-corporate enterprises (WQCEN), property income payable net (PIPPN), direct taxes (DTN), compulsory fees (CFN), social security contributions (SSCN), current transfers payable to government (CTRN), and private consumption (CPN), all at current prices:

(36) TOTCDN = WQCEN+PIPPN+DTN+CFN+SSCN+CTRN+CPN

Private savings in current values (SPN) is defined as in equation (15) as the difference between total current receipts at current prices (TOTCRN) and total current disbursements at current prices (TOTCDN):

(37) SPN = TOTCRN-TOTCDN

2. External Sector

In the case of the foreign sector, this benefited from earlier work carried out for the Jamaican economy, and the results obtained should be looked as a first specification that can be developed in a more detailed manner, mainly doing the break-down of imports in consumption goods, intermediate goods, and capital goods. In the case of exports the break-down can easily be made for sugar, bananas, alumina, bauxite. Tourism should be detailed separately, because of the growing importance of the tourism sector for Jamaica.

Exports

In this case exports are exogenous to the model, and thus, the export volume is not related to the evolution of external prices or to the internal rate of exchange. This is a very strong limitation to the external sector policy simulations. Studies carried out for most Latin American countries do indicate that there is a positive elasticity of domestic exports to the parity rate of exchange, as has been the case for Brazil, Paraguay, Argentina, Nicaragua (García and Martner (1990), Figueroa and Gutierrez (1989), Moguillansky and Rodriguez (1989), García and Gutierrez (1988)). Some of those economies are of a similar size to the Jamaican economy. Studies carried out for some specific Jamaican industries, as bauxite, reveal that there is a substitution effect in the case of inputs; thus, when the import price of oil went up after the successive oil shocks since 1973, there has been a reduction in the oil component of bauxite production (Hughes (1990)). This result would suggest that the same rationale would apply to the price of the goods produced.

The unavailability of export price indices for a long period, as there were compatible indices only for the 1980-89 period,

restricted a more detailed research of this aspect in the case of Jamaican exports. It was therefore decided to keep exports as exogenous for the current presentation of this model.

In the model, exports of goods and services (X) in volume is determined exogenously in constant J$.

To obtain the exports in current US$ the format used was that of the International Monetary Fund, as published in the International Financial Statistics (see Table IX of this Chapter), and thus the exports of goods FOB in current US$ (XGUS) was obtained from the figure of the earlier year (XGUS(-1)) increased by the growth of export prices (PX/PX(-1)) and the growth of exports volume (X/X(-1)):

(38) $XGUS = XGUS(-1)*(PX/PX(-1))*(X/X(-1))$

The account of Other goods, services and income credits in current US$ (OGSICUS), is obtained with the same rate of growth as for the exports of goods (XGUS/XGUS(-1)):

(39) $OGSICUS = OGSICUS(-1)*(1+XGUS/XGUS(-1))$

Imports

Imports of goods and services in constant Jamaican $ (M) are made endogenous to the model. In this case the results for the aggregate imports function was made dependent on two variables: a) the parity rate of exchange for imports (TPM); and b) the level of economic activity as measured by the gross domestic product (GDP).

The parity rate of exchange (TPM) is defined as the real rate of exchange multiplied by the import price index in US$ (PM). The real exchange rate is the current exchange rate (E) divided by the gross domestic product deflator (GDPD):

$TPM = E*PM/GDPD$

For the parity rate of exchange it was used a proxy (RER), as information for PM was available for a limited period, and thus, it was used the United States consumer price index as the price index for imports:

(40) $RER= EI*USCPI/CPI$

Economic theory would indicate that the import elasticity to the parity rate of exchange would be negative and that there would be a positive elasticity to the gross domestic product.

Behaviour of imports in the Jamaican economy gave a good fitting for the parity rate of exchange as may be appreciated in

the following equations. The aggregate imports of goods and services in constant J$ (M) is defined as the addition of fuel imports (RFUEL) and of imports except fuel imports (MLF):

(41) M = RFUEL+MLF

The imports of fuel (RFUEL) are a function of the product of the mining and manufacturing industries (MMGDP), which are exogenous to the model; and of the cost of imports of fuel (ECF); and it shows a substitution effect, which is consistent with microeconomic studies of the bauxite and mining industry (Hughes (1989)). The cost of fuel imports (ECF) is defined as a composite index of the exchange rate (EI) and an index of the price of oil in US$ (FPMI):

(42) ECF= EI*FPMI/100

Thus, the function for oil imports is as follows:

(43) LRFUEL= .87*LMMGDP - .067*LECF- .63*D76
$\quad\quad\quad$ (27.3) $\quad\quad\quad$ (-2.14) $\quad\quad$ (-5.01) $\quad\quad$ R2=.75
$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad$ ADJ.R2=.71
$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad$ D-W=2.46

For the rest of the imports, that is, imports except fuel (MLF) are a function of the level of economic activity, as measured by domestic demand (DOM) (private consumption (CP), government consumption (G), and investment (I)), and on the level of the parity rate of exchange (RER), defined in equation (40):

(44) LMLF= -3.97+1.41*LDOM -.24*LRER -.38*D7483 $\quad\quad$ R2=.95
$\quad\quad\quad$ (-2.76) (7.56) $\quad\quad$ (-2.22) $\quad\quad$ (-11.1) $\quad\quad$ ADJ R2=.94
$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad$ D-W=2.02

In this case, the period 74-83 showed a very different behaviour from the one observed in 1984 onwards, and thus it was built a dummy variable (D7483), so as to separate the effect of the first period. The elasticity to domestic demand (1.41) of imports is very much in line with the values obtained for other developing countries, as the case of Argentina, Brazil or Paraguay; which have shown typical values of 1.6 for the imports elasticity (García (1989), García and Martner (1990), Moguillansky and Rodríguez (1990), Figueroa and Gutierrez (1989)).

Concerning the elasticity to the parity rate of exchange, the observed value has the appropriate sign, that is, when the parity exchange rate goes up, imports are reduced; and viceversa. Thus, a policy with a component of a "high" rate of exchange would help to control the non-fuel imports bill in the case of Jamaica.

The data for interest payments, profit remittances, and capital movements are made exogenous to the model, as a large

portion of these payments are defined in the debt rescheduling process and in the negotiations with the multilateral institutions concerning new loans, amortisations, interest rates, payments of arrears, and other conditions, so these are not the result of the internal solution of a macroeconomic model.

These payments are made exogenous in current values and are put in constant prices with the exports deflator (XD) of national accounts. The exports deflator of national accounts is determined in the prices block of the model.

The compensation of employees from the rest of the world (COEFRW) is determined with the compensation of employees from the rest of the world in current values (COEFRWN) and the exports deflator (XD):

(45) COEFRW = COEFRWN*100/XD

Also, for the property and entrepreneurial income from the rest of the world (PEIFRW) is obtained using the exports deflator (XD) for property and entrepreneurial income from the rest of the world in current values (PEIRWN):

(46) PEIFRW = PEIRWN*100/XD

Similarly, for other current transfers from the rest of the world (OCTFRW) it is also used the exports deflator:

(47) OCTFRW = OCTFRWN*100/XD

This is also the case for compensation of employees to the rest of the world (COETRW) which are obtained from the current value (COETRWN) and the exports deflator (XD):

(48) COETRW = COETRWN*100/XD

Also, for the case of property and entrepreneurial income to the rest of the world (PEITRW), this is obtained from the property and entrepreneurial income to the rest of the world in current values (COETRWN) and the exports deflator (XD):

(49) COETRW = COETRWN*100/XD

The same procedure is used for other current transfers to the rest of the world (OCTTRW), which are deflated with the exports deflator:

(50) OCTTRW = OCTTRWN*100/XD

Once all the variables of the foreign sector have been obtained, it is possible to define the surplus of the nation on current account (SNCA) which is the result of the addition of

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exports of goods and services (X), compensation of employees from the rest of the world (COEFRW), property and entrepreneurial income from the rest of the world (PEIFRW), and other current transfers from the rest of the world (OCTFRW) and the substraction of imports of goods and services (M), compensation of employees to the rest of the world (COETRW), property and entrepreneurial income to the rest of the world (PEITRW) and other current transfers to the rest of the world (OCTTRW):

(51) SNCA = X+COEFRW+PEIFRW+OCTFRW-M-COETRW-PEITRW-OCTTRW

To obtain the balance of payments values and the change in international reserves, the equations to be used are the following:

For imports of goods in current US\$ (MGUS), these are obtained from the imports level of the earlier period (MGUS(-1)) and the price increase of imports (PM/PM(-1)), and the implicit rate of growth of imports (M/M(-1)):

(52) MGUS = MGUS(-1)*(PM/PM(-1))*(M/M(-1))

For other goods and services and income debit in current US\$ (OGSIDUS), these are obtained from the previous year value (OGSIDUS(-1)) and the rate of growth of imports of goods (MGUS/MGUS(-1)):

(53) OGSIDUS = OGSIDUS(-1)*(MGUS/MGUS(-1))

The trade balance (TBUS) is obtained as the result of exports of goods (XGUS) and imports of goods (MGUS):

(54) TBUS = XGUS+MGUS

For private unrequited transfers (PUTUS), these are obtained from the earlier year value and the exports price index growth (PX/PX(-1). This account could also be left exogenous to the model.

(55) PUTUS = PUTUS(-1)*(PX/PX(-1))

The same rule is used to generate official unrequited transfers (OUTUS) even if these could be made totally exogenous to the model, as also could be for private transfers:

(56) OUTUS = OUTUS(-1)*(PX/PX(-1))

Thus, we would obtain the balance of the current account in current US\$ (CANIEUS):

(57) CANIEUS = XGUS+MGUS+OGSICUS+OGSIDUS+PUTUS+OUTUS

If the portfolio investment (PINIEUS) is defined with the value recorded for the earlier year, the equation is the following:

(58) PINIEUS = PINIEUS(-1)

For the flows of direct investment (DIUS) these were made endogenous depending on the previous year value and exports price (PX), but also might be left exogenous :

(59) DIUS = DIUS(-1)*(PX/PX(-1))

For other long term capital (OLTKUS), this is considered as an exogenous variable and with the earlier variables it is possible to obtain TOTAL1, which is the balance of current account (CANIEUS), plus direct investment (DIUS) and other long term capital (OLTKUS):

(60) TOTAL1 = CANIEUS+DIUS+OLTKUS

The variables other short term capital (OSTKUS) and net errors and omissions (NEOUS) are exogenous to the model, and those coupled with the TOTAL1 are defined to obtain the TOTAL2:

(61) TOTAL2 = TOTAL1+OSTKUS+NEOUS

With all the variables of the balance of payments in US$ it is possible to obtain the change in total reserves in current US$ (CHRUS) as the TOTAL2 account and the counterpart to valuation changes (CPARTUS), exceptional financing (EFUS), liabilities constituted Fgn. Auth. Reserves (LCAFRUS):

(62) CHRUS = TOTAL2+CPARTUS+EFUS+LCAFRUS

To obtain the external savings for national accounts in current values, it is necessary to define in current values exports (XN) and imports (MN), with the deflators for exports (XD) and for imports (MD), as follows:

(63) XN = X*XD/100

(64) MN = M*MD/100

The deflators for imports and for exports are obtained in the prices block of the model.

Thus, it is possible to obtain the surplus of the nation on current account in current J$ (SNCAN) as the addition of exports (XN), compensation of employees from the rest of the world (COEFRWN), property and entrepreneurial income from the rest of the world (PEIFRWN), other current transfers from the rest of the world (OCTFRWN) and subtracting imports (MN), compensation of employees to the rest of the world (COETRWN), property and entrepreneurial income to the rest of the world (PEITRWN) and other current

transfers to the rest of the world (OCTTRWN), all variables at current prices:

(65) SNCAN=XN+COEFRWN+PEIFRWN+OCTFRWN-MN-COETRWN-PEITRWN-OCTTRWN

3. Government Sector

In constant prices

In the government sector this is considered in a fairly simple version, including only the government sector as defined in national accounts; thus, there is no explicit break-down of the corporate public sector, or of decentralized agencies. These extensions would be necessary when analyzing policies for specific agencies or to consider a more detailed account of the public sector impact on the economy.

The variable of government consumption is considered as exogenous, and also public investment. Direct and indirect taxes, which depend on several income variables, are considered as endogenous, as will be seen in this block. In other specifications these might be made exogenous, but as tax modifications are not trivial policy changes, in this version it is assumed that tax rates will not significantly vary in the projection period. All other variables are made exogenous in the government sector block; and, as a result, it is endogenously obtained the level of public saving. There is also an implicit level for public sector deficit taking into account the current saving and the exogenously determined public investment level.

The equation for indirect taxes (IT) is dependent on gross domestic product (GDP) and on the lagged variable (IT(-1)):

$$(66)\ IT = -251.3+\ .14*GDP +\ .89*IT(-1)+\ 129.6*D86 \qquad R2=.84$$
$$(-1.83)\quad (1.88)\qquad (5.71)\qquad\qquad (5.1)\quad ADJ.R2=.80$$
$$D-W=2.09$$

In the case of direct taxes (DT), the equation is dependent on the level of operating surplus of the private sector (P) and on the lagged variable (DT(-1)) with dummy variables for several abnormal years, as may be seen in the following equation:

$$(67)\ DT = 163.4+\ .066*P+\ .21*DT(-1)+\ 20.7*d78-27.4*d83-62.5*d85$$
$$(5.1)\qquad (3.65)\qquad (2.11)\qquad (2.34)\qquad (-3.21)\qquad (-7.0)$$
$$R2=.87$$
$$ADJ.R2=.80$$
$$D-W=2.23$$

Having defined the variables for the public sector it is possible to define the total current receipts of the public sector (TOTCRG) as the addition of the following items: withdrawals from quasi corporate enterprises (WQCE), property income receivable

(PIR), indirect taxes (IT), direct taxes (DT), compulsory fees (CF), social security contributions (SSC), current transfers receivable from resident sectors (CTR):

(68) TOTCRG = WQCE+PIR+IT+DT+CF+SSC+CTR

It is also defined the total outlays of the government sector (TOTCDG) as the addition of final consumption expenditure (G), property income payable (PIP), subsidies (SUB), social security benefits (SSB), social assistance grants (SSG), current transfers (CT) and unfunded employee welfare benefit (UEWB):

(69) TOTCDG = G+PIP+SUB+SSB+SSG+CT+UEWB

Having determined the level of total current receipts of the public sector (TOTCRG) and of total current disbursements (TOTCDG), is defined the government savings account (SG) as the difference of both items:

(70) SG = TOTCRG-TOTCDG

At current prices

In equations (71) to (77) are defined the variables of the government sector at current prices, using mostly as deflator the gross domestic product deflator, as follows:

For property income receivable at current prices (PIRN) is used the gross domestic product deflator (GDPD):

(71) PIRN = PIR*GDPD/100

To obtain indirect taxes at current prices (ITN) from the indirect taxes (IT) is used the same deflator of equation (67):

(72) ITN = IT*GDPD/100

Total current receipts of the government sector at current prices (TOTCRGN), is obtained as the addition of withdrawals from quasicorporate enterprises (WQCEN), property income receivable (PIRN), indirect taxes (ITN), direct taxes (DTN), compulsory fees (CFN), social security contributions (SSCN) and current transfers receivable from resident sector (CTRN), all at current prices:

(73) TOTCRGN = WQCEN+PIRN+ITN+DTN+CFN+SSCN+CTRN

In the case of government consumption at current prices (GN), is used its deflator (GD). The government consumption deflator (GD) is calculated in the prices block of the model, as also is the gross domestic product deflator:

(74) GN = G*GD/100

For property income payable in current values (PIPN), the gross domestic product deflator (GDPD) is used:

(75) PIPN = PIP*GDPD/100

This same deflator is used to obtain subsidies in current prices (SUBN) from subsidies (SUB):

(76) SUBN = SUB*GDPD/100

The total outlays of the government sector at current prices (TOTCDGN) is obtained from the addition of the following items: government consumption (GN), property income payable (PIPN), subsidies (SUBN), social security benefits (SSBN), social assistance grants (SSGN), current transfers (CTN), and unfunded employee welfare benefit (UEWBN), all at current prices:

(77) TOTCDGN = GN+PIPN+SUBN+SSBN+SSGN+CTN+UEWBN

Savings of the government sector at current prices (SGN) is defined as the difference between total current receipts (TOTCRGN) and total current disbursements (TOTCDGN), all at current prices:

(78) SGN = TOTCRGN-TOTCDGN

4.   Wages, Income and Employment

In this block are estimated the level of employment, wages, operating surplus, unemployment and national income. As has been mentioned above, the average wage at current prices (AVGWN) is assumed to the exogenous to the model; and this was based on the behavior of wages in the Jamaican economy, for which it was not possible to establish an indexation rule with the level of past inflation, as has been the case in several Latin American econometric models.

Total wages (W) are determined with the level of average wage (AVGW) and employment, as follows:

(79) W = AVGW*EMP

Operating surplus (P) is defined as the residual of the income account, given the level of gross domestic product (GDP) determined in the global balances block, consumption of fixed capital (CK), determined in this block, indirect taxes (IT), coming from the government block, subsidies (SUB), also from the government block, and wages (W) from equation (75):

(80) P = GDP+SUB-CK-IT-W

Consumption of fixed capital (CK) is dependent on the level of investment with a lag (I(-1)) and on lagged depreciation (CK(-1)):

(81) CK = -3.53+ .11*I(-1)+   .74*CK(-1)   R2=.91 ADJ.R2=.89
      (-.25) (2.25)   (7.22)   D-W=1.89

To obtain gross national product (GNP), it is used the definition of gross domestic product (GDP) and net factor payments from the rest of the world (NFPRW):

(82) GNP = GDP+NFPRW

Net factor payments from the rest of the world (NFPRW) is determined from its components, compensation of employees from the rest of the world (COEFRW), property and entrepreneurial income from the rest of the world (PEIFRW), compensation of employees to the rest of the world (COETRW), property and entrepreneurial income to the rest of the world (PEITRW), all coming from the external sector block:

(83) NFPRW = COEFRW+PEIFRW-COETRW-PEITRW

Employment (EMP) level is a function that has neoclassical and Keynesian elements, that is, having the level of gross domestic product (GDP) and of average wage (AVGW) as explanatory variables. The value of the coefficient for employment/output elasticity was limited to be one in the long run, as in Jamaica has been observed a trend to reduce overall productivity, that gave an implicit employment/output elasticity higher than one:

(84) LEMP = 3.67+ .39*LGDP + (1-.39)*LEMP(-1)-.186*LAVGW
      (2.38)   (2.23)   (2.23)   (-2.54)
   R2=.94 ADJ R2=.93   D-W=2.29

Unemployment (U) is determined with the labor force (L), exogenous to the model and the level of employment (EMP) as determined in equation (81):

(85) U = L-EMP

It is also defined the rate of unemployment (URATE) with the unemployment level (U), and the labour force (L):

(86) URATE = U*100/L

The average wage (AVGW) is determined as the average wage in current values (AVGW), which is exogenous to the model; and the consumer price index (CPI), which comes from the prices block:

(87) AVGW = AVGWN*100/CPI

In the case of the employment block, there is simultaneity with the global balances and with the prices block, as the level of

gross domestic product is partly determined by private consumption, and consumption in turn is determined by the level of disposable income of wage earners, and disposable income of wage earners is determined by average wage and employment. The same reasoning applies to prices determination: the consumer price index will determine the level of real average wage, and the cost elements of the consumer price index are influenced by the level of gross domestic product, which depend on the consumption function. This characteristic of the model, as had been emphasized above, makes necessary a simultaneous solution for it, as equations depend on each other, and is not a recursive model.

5. Prices Block

In this block several price indices are determined to be used in other blocks of the model in order to obtain real values, or, in other cases, to obtain current values.

As there is no wholesale price index, the basic index which has been used to be estimated is the consumer price index (CPI). Two main cost elements are included to determine the level of the CPI: imported costs and labor costs. The level of idle capacity did not give good results for the price behaviour of the economy, and thus, was left aside as an explanatory element of the price behaviour. Also, the level of unemployment was not an explanatory variable for the rate of inflation, and thus were left only the cost elements mentioned above.

The equation for consumer price index (CPI) is in logarithmic differences and depends on the imported cost index (CCM), and on the wage cost index (CWN) as follows:

(88) DLCPI = (1-.43)*(.31*DLCCM+(1-.31)*DLCWN)+.43*DLCP(-1)
             (5.4)   (4.0)   (4.0)   (5.4)
             R2=.93   ADJ R2=.90   D-W=2.31

It was assumed that private consumption deflator (CPD), would change in the same rate as the CPI(CPI/CPI(-1)):

(89) CPD = CPD(-1)*(CPI/CPI(-1))

For government consumption deflator (GD), it was made the same assumption than for equation (89):

(90) GD = GD(-1)*(CPI/CPI(-1))

In the case of the gross fixed investment deflator (ID), it was assumed that this would depend on the increase in the CPI (CPI/CPI(-1)):

(91) ID = ID(-1)*(CPI/CPI(-1))

For the increase in stocks deflator (ISD) it was assumed that it would have the same growth rate as the gross fixed investment deflator:

(92) ISD = ISD(-1)*(CPI/CPI(-1))

With reference to the exports deflator of national accounts (XD), it depends on two main elements: the rate of exchange index (EI/EI(-1)) and the rate of exports prices in US$ (PX/PX(-1)):

(93) XD = XD(-1)*(EI/EI(-1))*((PX/PX(-1))

In the case of the imports deflator of national accounts (MD), it was calculated with the same definition as the exports deflator, but using the price index of imports (PM/PM(-1)), instead of export prices:

(94) MD = MD(-1)*(EI/EI(-1))*(PM/PM(-1))

All the deflators for the components of GDP are already defined with equations (89) to (94); gross domestic product deflator (GDPD) can be obtained dividing the components of GDP at constant prices (private consumption (CP), government consumption (G), gross fixed investment (I), increase in stocks (IS), exports (X) and imports (M)) by gross domestic product at constant prices (GDP); and multiplying every component by the corresponding deflator:

(95) GDPD = (CP*CPD+G*GD+I*ID+IS*ISD+X*XD-M*MD)/GDP

The exchange rate index (EI) is defined as 100 for the base year (1974), being the exchange rate exogenous to the model:

(96) EI = (E*100/.9091)

Also the imported cost index (CCM) is defined as the product of the exchange rate index (EI) and the imports price index in US$ (PM):

(97) CCM = EI*PM/100

To define the wage cost index (CWN), this is adjusted by productivity increases, making it 100 for the base year (1974); depending thus on current average wage (AVGWN), employment level(EMP), and gross domestic product (GDP):

(98) CWN = (WN*100/GDP)/.54196

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6. Savings and Investment Block

Savings are determined in the global, external and government blocks. Consumption of fixed capital is defined in the wages, income and employment block. The increase in stocks is exogenous to the model, as is also government investment, leaving private investment (IP) and gross accumulation (GROSSAC) to be determined later on. The overall consistency of the model, which is to be determined through the discrepancy between savings and investment, should be zero.

Two were the main determinants for private investment in the case of Jamaica: the accelerator element and the operating surplus. Other variables, such as credit, did not show a relationship with private investment. Thus, the private investment (IP) is made a linear function of the increase in gross domestic product (DGDP) and of disposable income of non-wage earners lagged in one period (PD(-1)), which is determined in the global balances block, and also on the past level of private investment (IP(-1)). The real rate of interest, measured by the Treasury Bill rate of interest in real terms (BRR), which is exogenous to the model, has also an impact on the level of investment, with a negative sign:

$$(99)\quad IP = .08*PD(-1) + .87*DGDP + .80*IP(-1) - 3.2*BRR \quad R2=.74$$
$$(1.43)(3.5)(6.7)(-1.95)\quad ADJ.R2=.67$$
$$D-W=2.11$$

Gross accumulation (GROSSAC) is defined as the addition of gross fixed capital formation (I) and increase in stocks (IS):

(100) GROSSAC = I+IS

Savings (S) are defined as the addition of private savings (SP), determined in the global balances block, and public savings (SG), defined in the government sector block:

(101) S = SG+SP

External savings (EXTS) are determined from the surplus of the nation on current account (SNCA) from the external sector block:

(102) EXTS = SNCA*(-1)

The discrepancy (DISCR) is defined as the difference of total savings and investment:

(103) DISCR = GROSSAC-(CK+S+EXTS)

In equations (104) to (112), all the savings and investment variables determined in the above equations are calculated at

current prices, with the price indices computed from the prices block of the model.

Increase in stocks at current values (ISN) is inflated with the increase in stocks deflator (ISD):

(104) ISN = IS*ISD/100

Gross fixed capital formation at current prices (IN) equals private investment at current prices (IPN) plus public investment at current prices (IGN):

(105) IN = IPN+IGN

Private investment at current prices (IP) and government investment at current prices are obtained from the constant figures and the gross fixed capital formation deflator (ID):

(106) IPN = IP*ID/100

(107) IGN = IG*ID/100

Gross accumulation at current prices (GROSSACN) is the addition of gross fixed capital formation (IN) and the increase in stocks (ISN), all at current prices:

(108) GROSSACN = IN+ISN

Total savings at current prices (SN) is defined as the addition of private savings (SPN) and public savings (SGN), all at current prices:

(109) SN = SPN+SGN

Consumption of fixed capital at current prices (CKN) is obtained with the gross fixed capital formation deflator (ID):

(110) CKN = CK*ID/100

External savings at current prices (EXTSN) are determined from the surplus of the nation on current account at current prices (SNCAN) obtained in the external sector block:

(111) EXTSN = SNCAN*(-1)

As in equation (103), the discrepancy at current prices (DISCRN) is the difference between savings and investment, both at current prices:

(112) DISCR = GROSSACN-(SN+CKN+EXTSN)

V. RESULTS AND MULTIPLIERS

1. How the Model is Solved

This model has Keynesian characteristics, and the real sector of the economy is solved simultaneously with prices, wages and external sector blocks.

The level of economic activity is determined by the components of aggregate demand, assuming that there is no full employment of productive resources (labour and capital), and that it is possible to increase production when there are increases in demand. The production process will feed back the demand through the income stream.

Equilibrium in the real sector is obtained through four exogenous agents (exports of goods and services X, government consumption G, government investment IG, and increase in stocks IS) and three endogenous agents (private consumption CP, private investment IP, and imports of goods and services M). The behaviour of these three variables is estimated through econometric functions.

From the income point of view, the model computes endogenously an employment equation (EMP), that jointly to the average real wage per employee (AVGW) determine the amount of total real wages (W).

Disposable income of non-wage earners (PD) is determined as a residual starting with the total income of the economy, and obtaining the private disposable income (DYP) once deducted taxes, contributions to social security and other payments.

Private consumption is determined with three main components: disposable income of wage earners (WD), disposable income of non-wage earners (PD), and past consumption (CPI(-1)). When wages or profits are reduced, private consumption is reduced.

Private investment (IP) is determined through an accelerator effect measured with the variation of GDP (DGDP) and disposable income of non-wage earners lagged in one period (PD(-1)), and on the real rate of interest (BRR). When the rate of interest goes up, private investment is reduced.

Exports are determined exogenously, but this should be thoroughly analyzed at a more detailed level.

Imports other than fuel (MLF) are determined endogenously as depending on the level of economic activity, measured by the gross domestic product. For the aggregate imports function, it was also established a link with the parity rate of exchange (RER), as was

analyzed above. This was also the case for fuel imports (RFUEL), which are dependent on the price of oil, the rate of exchange and the level of production of mining and manufacturing.

Thus, there is an interaction of the external sector block of the model, where the imports level is determined and the global balances, in which the gross domestic product is solved. Imports are a factor in the solution of GDP, and thus they are simultaneously solved.

In the public sector block the components of expenditure are determined exogenously to the model: government investment and government consumption, while the income components (taxes) are determined depending mainly on the level of economic activity. The main interaction of the model is with the level of aggregate demand, as there is no analysis of the monetary sector in the present version of the model, which might be linked to the public sector deficit. Government saving is determined in this block as a source to finance investment in the economy, as is taken into account in the savings and investment block.

In the prices block, the main variable is the consumer price index (CPI), which is determined by two elements: cost of imports (CCM) and wage costs (CWN). In this case an econometric estimate is carried out for the price formation and it confirms the cost theory as determinant of price behavior.

2. Exogenous Variables

The model has 36 exogenous variables in which there are 16 policy variables, that can be managed or influenced by government decisions and are the following: government consumption, subsidies, average current wage, social security benefits, social assistance grants, current transfers, unfunded employee welfare benefit, withdrawals from quasi-corporate enterprises, compulsory fees, social security contributions, property income payable by the government, property income receivable by the government, property and entrepreneurial income to the rest of the world (here are included foreign debt interest paid), rate of exchange policy, government investment and the real rate of interest.

Of the other 20 variables there are two groups:

(a) Exogenous variables which are the result of demographic evolution, as the labor force, or which are not controlled by policy decisions, as the increase in stocks or statistical discrepancy.

(b) Variables associated to the external sector, as the price of exports, imports, transfers from the rest of the world, capital movements, exceptional financing for

balance of payments, for which several assumptions are to be made, or that are determined by international markets.

3. Results

The model was estimated taking into account information for the 1974-1989 period for all the variables included in it, with good results for the last year of observation. The model was calibrated for 1989; thus, having results obtained through calculations carried out by the model and that reproduce the reality. This year is used as the base year for the projections and for policy simulations.

These results are shown in Tables I to IX in the second column corresponding to the year 1989. In the first two columns of the table are reproduced the national accounts, fiscal accounts, balance of payments accounts, and other statistical information concerning the years 1988 and 1989.

The results of the years 1990 to 1995 are presented as a projection exercise, based on assumptions for the exogenous variables, which follow the recent evolution for most variables, even if for some variables there was no accurate information available. The assumptions are shown in Table X.

It should be emphasized that the nature of the projections carried out were intended to run the model, and not trying to predict the future of the Jamaican economy. Thus, with other assumptions on the exogenous variables the outcome of the model will undoubtfully be different. The run of the model with other assumptions is part of the task to be carried out by the PIOJ when using the model.

Thus, the results shown are hypothetical, and are dependent on the assumptions made concerning the exogenous variables of the model. For instance, it is assumed in the base projection that there would be an indexation rule for wages, that would mean an 85% increase of the past inflation, as measured by the CPI. In this scenario, the real wages show a reduction in the first year, but are kept constant since the second year of the simulation.

The tables presented are the following:

I. GROSS DOMESTIC PRODUCT IN PURCHASERS VALUES CONSTANT PRICES 1989-1995

Including private consumption, government consumption, gross fixed capital formation, increase in stocks, exports of goods and services, imports of goods and services, statistical discrepancy, gross domestic product, terms of trade adjustment, gross income.

II. COST STRUCTURE OF GROSS DOMESTIC PRODUCT IN PURCHASERS VALUES, 1989-95, CONSTANT PRICES

Includes the following variables: compensation of employees, operating surplus, consumption of fixed capital, indirect taxes, subsidies, gross domestic product, net factor payment from the rest of the world, gross national product in purchasers values.

III. WAGES AND EMPLOYMENT CONSTANT PRICES, 1989-1995

Average current wage, employment, unemployment, unemployment rate, average real wage and labour force.

IV. PRIVATE SECTOR ACCOUNT, CURRENT PRICES, 1989-1995

This table includes the detail of private sector receipts and private sector outlays, including private disposable income, disposable income of wage earners and disposable income of non-wage earners, private savings.

This table is also presented at constant prices (Table IV-1).

V. INCOME AND OUTLAY OF GENERAL GOVERNMENT CURRENT PRICES

This table presents current receipts and current disbursements of government, including taxes and government consumption, and government savings. Table V-I presents the same variables at constant prices.

VI. EXTERNAL TRANSACTIONS CONSTANT PRICES 1989-1995

This table includes exports, imports, factor payments and current transfers and external savings. Table VI-I presents the results at current prices.

VII. SAVINGS AND INVESTMENT AT CURRENT PRICES 1989-1995

This table includes increase in stocks, total investment, private investment, government investment, gross accumulation, consumption of fixed capital, savings, external savings and the discrepancy account. This is also presented at constant prices in Table VII-1.

VIII. PRICE INDICES AND PRIVATE CREDIT 1989-1995

The consumer price index, gross domestic product deflator, deflators for private consumption, government consumption, gross fixed investment, increase in stocks, exports, imports, are presented in this table.

IX. BALANCE OF PAYMENTS, CURRENT US$ MILLION, 1989-1995

This table is presented in the format published by the International Financial Statistics of the IMF, but it could be presented in another format, provided the information is available.

This includes imports of goods, exports of goods, imports of services, exports of services, trade balance, private unrequited transfers, official unrequited transfers, direct investment, portfolio investment, other long term capital, other short term capital, net errors and omissions, counterpart to valuation changes, exceptional financing, total change in international reserves.

There is also a Table with the main results of the model, which present the level of GDP, private consumption, private investment, real wages, employment, the rate of inflation measured by the CPI, the nominal and real exchange rate; the government deficit, tax rate of the economy, and government expenditure as ratios to GDP; the level of exports, imports and international reserves in US$.

4. Multipliers

Multipliers are an extremely useful tool in policy analysis, as they can give in a synthetic way the "costs" and "benefits" of some policy measures. If a devaluation is being considered, which would be the effect of a devaluation in terms of price increases, of exports expansion, of imports reduction, of improvement of the balance of payments, of reduction in real wages? Thus, with the multiplier comparing a scenario with devaluation with a scenario without a devaluation, one could rapidly highlight the pluses and minuses of such a policy.

The definition of the multiplier used for this model considers in most cases the differences in percentage (this is specified in the Table XI in the software). A base scenario is the first step to obtain a multiplier. Against this base scenario the changes in policy or in the external setting variables will be measured.

The multiplier of a variable in percentage values (MULT) is the difference of the result of that variable in the base scenario

(BASE) as compared to that obtained in the new scenario (NEW), as follows:

MULT = (NEW-BASE)*100/BASE

This definition is the one used in the model to generate the tables for multipliers.

As an illustration for the use of this tool is presented the impact of a one percent increase of exports over the base scenario, on the main variables of the model, and these are presented in Table X of this document.

Run with a new base scenario and simulations against that scenario were developed during the mission in March 1991.

VI. THE DATABASE

The database used for the model is presented in 22 tables in Annex 1 of this document (Tables 1 to 22). The basic source for information comes from the balance of payments and national accounts data, and from monetary accounts for credit and money.

There are adjustments that were carried out in order to generate some data needed for the macroeconomic model, which are presented in each of the tables from the database.

The criteria for those adjustments was discussed in most cases with the Statistical Institute of Jamaica, and with the Planning Institute of Jamaica.

The main adjustments have been the following:

(a) The cost structure of gross domestic product is presented only at current values in national accounts. To have it at constant 1974 prices, the criteria used was: For consumption of fixed capital, use the same deflator as for gross fixed investment.

For compensation of employees, the consumer price index; for indirect taxes and subsidies, the same deflator as for gross domestic product. The operating surplus is computed as a residual. The deflator for net factor payments from the rest of the world is the same one than for exports.

These variables are presented in Table 6.

(b) Terms of trade adjustment. This was calculated in Table 2, from the price index of imports in US$, and the price index of imports in US$ that are presented in

Table 4. The base year of the index was moved from 1980 to 1974, to have the same year as for national accounts.

(c)   External transactions at constant prices.

In this case compensation of employees from the rest of the world, property and entrepreneurial income from the rest of the world and other current transfers from the rest of the world are deflated using the exports deflator for national accounts (Table 11).

(d)   To get income and outlays of general government at constant prices, all items were deflated with the gross domestic product deflator, except government consumption, which is computed at constant prices. These results are presented in Table 13 of this document.

(e)   Capital stock, unused capacity and potential GDP.

This was used to estimate whether the idle capacity would have an impact on price formation, which was not the case in the end. To get an estimate of the capital stock, it was used the estimate by Donald Harris (1970) "Savings and Foreign Trade as constraints to Economic Growth: A Study of Jamaica", Social and Economic Studies, Vol. 19, No.2, June 1970. Institute of Economic and Social Research, University of the West Indies, Jamaica.

The capital output ratio estimated for the base year was 2.23; and this was applied to the data of the first year of the series, 1960. To get the capital stock (K), the following definition was then used: The capital stock would be the capital stock of last year (K(-1)) plus the gross fixed capital formation (I) less consumption of fixed capital (CK):

$$K = K(-1) + I - CK$$

Concerning the potential GDP (Q), this was estimated to be equal to actual GDP when the capital output ratio was not too different to the values of the first years of the series (which in fact is fairly constant in the first 10 or so years), that was up to 1976. After 1976, the potential GDP (Q) is the capital stock (K) divided by the capital product (CAPROD) ratio of 1976, that is:

$$Q = K/CAPROD76$$

And the index of capacity utilization (CAPUT) is defined as the gross domestic product (GDP) as compared to potential GDP (Q):

CAPUT = GDP*100/Q

The values for these variables for the period 1960-1989 are presented in Table 17 of Annex 2.

(f) A series for private investment. In this case, the figures for the period 1974-84 were supplied by the Bank of Jamaica. For the period 1984-88, an estimate was carried out from the data in fiscal years from IBRD (1989) "Jamaica: Adjustment under Changing Economic Conditions", Report No. 7753-JM, April 26,1989, Washington, D.C. and for 1989/90 from PIOJ(1990) "Economic and Social Survey of Jamaica 1989". PIOJ, Kingston 5, Jamaica.

These series are presented in Table 21 of Annex 1.

VII. FURTHER SUGGESTIONS AND POSSIBLE DEVELOPMENTS

Several aspects are to be improved for this kind of models, in order to have a better picture of the functioning of the Jamaican economy. One area is the development of a detailed block for the imports account, with a break-down for consumer goods, capital goods, intermediate goods other than fuel, and fuel.

For that purpose, the observations for which data on prices was available was very limited, only the 1980-1989 period, as for the period 1974-1979 was available information on prices for the total imports bill, so it is not an adequate indicator of price movements in every category (i.e., consumer goods, capital goods, intermediate goods other than fuel). Thus, price sensitivity was only tested for fuel imports and total imports except fuel for the 1974-89 period.

In this area more than a matter of model design is the question of data availability that is needed to have a better picture of the imports sector.

The monetary sector is to be developed so as to analyze its compatibility with the balance of payments, fiscal accounts and national accounts. In the case of Jamaica a crucial area for the imbalances in the economy are the Bank of Jamaica losses, a monetary model is very important to have a better picture of the interactions of the monetary sector and the real variables in the economy.

Another important aspect to be included in the future is a detailed treatment of an external debt block, that should include the main variables influencing its composition and level, the use of the options of the Brady Plan, the swaps, the debt rescheduling obligations, the negotiations with the Paris Club, etc.

On the external sector it should be attempted to have a study of the main industries, beginning with the bauxite-alumina, and with tourism, so as to have endogenous functions for exports, or at least for analyzing the impact of the parity exchange rate in those industries, as well as in the non-traditional exports.

To keep using these kind of tools it is essential to continue training the Planning Institute of Jamaica staff in these activities, as well as to work with the Statistical Institute on the data availability concerning prices, the compatibility of national accounts with other sources of information and in particular, information on prices for imports and exports.

A crucial area of concern for the development of the macroeconomic analysis of the Jamaican economy is the lack of data in some very important areas, as is the case of the wholesale price index, a wages cost index, and the national accounts at constant prices for several accounts, particularly for compensation of employees and other income variables. Also for fiscal accounts, budget, and several government expenditure, indebtness, income and other fiscal variables are presented for fiscal years (April 1 to March 31), while national accounts are in calendar years.

This aspect does not have an easy solution, but efforts should be made by the PIOJ jointly with the Statistical Institute of Jamaica, and other institutions involved in the production of economic information so as to have better statistical information.

VIII. COMPUTER INSTRUCTIONS AND FILES

This model is built with the LOTUS 1-2-3 program, so the general instructions to operate the model are those of the LOTUS program. For a general description of models using the LOTUS program the reader is referred to Jiménez, F.(1990).

To run the model, in its present version, use instructions: /F(ile) R(ecalculation) I(teration). It will then appear in the screen the number of iterations, and in the present version it is read "25". It is possible to change the number of iterations between 1 and 50. The model converges after 25 iterations.

After one has set the number of iterations, then press the key "Enter".

Then the key "F9", and the computer will give the new solution for running the model.

To test that the model is converging, go to the position A209, and to look at the DISCREPANCY variable in the years of projection. If 4 zeros appear in the 4 decimal points for every year, then the

model has converged, and no further iterations would be necessary for it.

If there are still values non-zero in the discrepancy, repeat the iterations, and after several runs of the model, it should be converging. If that were not the case, after looking at the values of the parameters, or to the loops that may be created with some simultaneous equations the model could be redefined.

To modify the model, the behavioral equations should be considered, and those might need to be changed. For that purpose the TSP instructions are the ones to follow, and the TSP manual should be used.

If one endogenous variable is modified, check that still the number of endogenous variables calculated from the model is the same one than the number of equations of the model.

The macroeconomic model is the file "JAM3.wk1" in LOTUS, and is also in the hard disk of the computer of the Macroeconomic Division under the name "ELAC/JAM3.wk1".

To get new runs of the model look in Table X of the file JAM3 at the values of the exogenous variables. This table is in position A262 of that file. 36 exogenous variables for the model are presented. In order to have a complete new scenario, data for the 36 variables should be introduced which would generate a new scenario for the Jamaican economy, based on the assumptions made in those 36 exogenous variables. The modifications in Table X will change the exogenous variables in the whole model, so it is necessary to introduce only once the changes in the exogenous variables, and only in that Table.

To get the values of the multipliers, refer to Section VI of the present document and to Table XI of the file JAM3. This Table XI is in position A602 of the file JAM3. The reading there are only zeros with 2 decimal points in the Table.

The purpose of the multiplier is to calculate the differences with respect to the base scenario of a change in ONE exogenous variable.

For instance, let us assume that it is to be calculated the impact of a 1 percent increase of the exports in 1991 for the results of the model.

In this case one goes to cell K272 and there one will read "+J272*(1+0.05)", which means that it was assumed an increase of 5% over the earlier year of the projection. In cell K272, one will change the formula for the following :

"+J272*(1+0.05)*(1+0.01)", which means that the figure for exports has increased by 1% over the figure that had been included in the base scenario.

Then, proceed to the new run with 25 iterations, and thus a new solution for the model will be found. With this objective, key "F9" should be pressed.

To look at the multipliers, select position A602, where the values of the multipliers are to be found. In the case of the example, a column filled with zeros for the years 1989 and 1990 will be found, as nothing has been changed for those years, but differences in Exports, Imports, Gross domestic product, etc. for the years 1991 onwards will be found. Say, that is observed what happens with GDP in Table XI, and there the figure "0.83%" for the year 1991 will be found. This means that the solution of the model was giving for GDP a value that was .83% higher with a one percent increase in exports as compared with the other case.

After having obtained the values with the multipliers, the results should be printed but not saved, in order to keep the solution of the model for the base scenario.

The files kept in LOTUS are the following:

FILE	**CONTENT**
JADATA	Tables 1 to 17, database.
JAMOD10	Table 18, database.
JAMOD11	Tables 19 & 20, database
JAMOD8	Tables 21 & 22, database
JAM3	Tables I to XI, Macroeconomic Model

The files kept in TSP are the following:

FILE	**CONTENT**
JAM	Macroeconomic information
JAPRICE	Prices functions
JAMIMP	Imports data
JAMEMP	Employment and wages data
JAMGOV	Government and taxes
JAMCAP	Investment, capital stock and potential GDP

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SELECTING INVESTMENT PROJECTS AND POLICY REFORMS: THE NEED FOR AN INTEGRATED APPROACH

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SECTION ONE

Overview

From the early post-war years until the second petroleum price shock, augmenting capital accumulation was considered the central challenge for accelerating growth. Public sector investment accounted for a large share of total gross domestic investment, and hence, exercised a decisive impact on the efficient disposition of savings, domestic and foreign. Widespread market imperfections implied a need to develop shadow pricing rules to guide efficient allocation of public sector resources. Project investment constituted the cutting edge of development, and a copious literature on project evaluation emerged.

In the train of the international debt crisis, the policy focus naturally shifted from public sector investment projects to policy reforms, as heavy and prolonged external shocks obliged countries to undergo draconian adjustments --especially if they were heavily indebted and riddled with substantial price distortions. At first, these adjustments usually were left to market forces without major changes in policies; only later did policy reforms impinge on the process. In any case, the adjustment process invariably witnessed a sharp drop in investment, public as well as private. Internal and external financial constraints suggest that in the future, restoration of developing country growth to potential will hinge mainly on private investment. In this case, priority should attach to investment in policy reforms. Investment public investment in projects that complement private capital formation also is needed.

Against this background, the relationship between policy reforms and shadow prices needs to be explicitly considered. Shadow pricing rules depend on prevailing policies --and policy changes alter shadow prices. Policy reforms enhance the social profitability of investment projects, especially those which mitigate economy-wide price distortions. In turn, investment projects that complement policy reforms and raise supply elasticities curtail the adjustment costs and augment the adjustment benefits associated with policy reforms.

In the project evaluation literature, price distortions and policies usually are taken as given, according as a project's output constitutes, or is assumed to constitute, a marginal increment in domestic supply. The project officer's role generally does not include policy analysis. Altering shadow prices to take

account of eventual policy reforms or the impact of large investments complicates project evaluation, an seldom is done. In short, project decision-making normally is divorced from policy decision-making, sectoral as well as macro. This dichotomy is, at best, a welfare-neutral one and all too frequently, a costly one. Witness the great number of state investment projects undertaken to compensate for the adverse impact of policy-induced price distortions (e.g., to offset the modification of adverse domestic terms of trade on the profitability of agriculture). Such public investment substituted for private investment, swelled the external debt --and perpetuated the distortions.

Taxes must be raised, or government expenditure reduced, to finance public sector investments. Virtually all taxes and most of those in use introduce some degree of distortion in one or more markets. These distortions traditionally have been overlooked in project analysis, with the result that project benefits frequently are overestimated. This phenomenon may account, in some measure, for the notorious bias in favor of public sector investment and against policy reforms that obtained until the advent of the debt crisis. In any case, this bias persists, notwithstanding the severe resource constraints and considerable policy-induced price distortions affecting most developing countries.

Investment in policy reform likely is insufficient relative to that required to minimize the costs of adjustment to secular external shocks and the legacy of policy failures. First, the cost of policy-induced price distortions are dispersed throughout society, and hence, difficult to trade, whereas the advantages of price distortions are highly concentrated. Recipients of rents created by price distortions naturally will combat measures aimed at removing those distortions. In contrast, organizing the atomized victims of price distortions is difficult.

By the same token, the benefits of policy reform also are broadly diffused, albeit they rarely accrue directly to the government. Tracing such widely disseminated benefits in a systematic fashion is problematic; taxing them to finance the cost of policy reforms neither feasible nor especially desirable. Hence, the government will be obliged to pay for policy reforms through general revenues or by reducing expenditures (World Bank, 1990). Note, however, that these complications do not imply that rates of return to policy reform cannot be calculated. Indeed, they are shared by most infrastructure projects, for which social profitability is routinely measured (Kanbur, 1990).

Third, the costs of policy reform often appear to be underestimated, with the result that under-investment in any given

policy reform --i.e., a failure to provision adequately for adjustment costs-- endangers the sustaintability and benefits of policy reform. This, in turn, tends to discourage adoption of reform measures. Fourth, investment projects usually augment output without changing prices, even in the short run; whereas policy reforms usually set in train short run output reductions.

Policy reform --if avoided-- usually is accompanied by an intertemporal redistribution of income. In the short run, resources are left unemployed and income is depressed in the medium to long run, output is greater than it would have been in the absence of policy reform. The income foregone, or the cost of policy reform, is analogous to the up-front capital costs of a project. In addition, policy reform normally occasions an intratemporal redistribution of income: policy reforms benefit those harmed by price distortions and harm those who benefit from them. The losers may thwart, reverse or gut a policy reform, unless they are compensated. This represents an additional up-front cost of policy reform. (The greater the price distortions and institutional imperfections, the greater the likelihood that the rate of return to policy reform would exceed the rate of return to a project).

This note considers interrelationships between shadow prices, project investment and policy reforms, to highlight issues for public choice between project investment and policy reforms. It also explores the issue of whether the development process would be better served if evaluation and selection of projects and policies were carried out in a common analytical framework. The interrelationship between shadow prices and policy reforms strongly suggests that the selection of projects and policies should be informed by a common analytical framework.

In the first section, investment and project evaluation is briefly reviewed; in the second, the link between policies and shadow prices is considered. In the next one, an analytical framework for integrating shadow prices, investments and policy reforms is explored. In the forth section, stylized applications of such a framework are considered. In the fifth, current practice in respect of shadow prices and project evaluation is discussed. In the sixth, the rationale for assessing policy reforms in the same framework as investment projects is further explored. In the final section, some of the issues involved in the application of the proposed framework are addressed.

SECTION TWO

Shadow Prices and the Policy Framework

Shadow prices provide a partial correction for the distortions natural market failure or policy failure generate. Natural market failure can be engendered by monopolistic elements, external economies and paradoxes and fallacies. Natural market failure provides the rationale for two classes of government interventions: (i) macroeconomic interventions designed to augment growth rates, stabilize prices and ensure external balance; and ii) sector and market-level interventions designed to correct for specific market failures.

Shadow prices also correct for distortions caused by policy interventions which disrupt otherwise efficiently functioning markets. In all cases involving the use of shadow prices, a more desirable alternative would be to design an optimal intervention to correct for the underlying market failure that led to the need for the use of a shadow price in the first place. Since optimal interventions frequently prove elusive, the need for the use of shadow prices remains. And shadow prices constitute the crucial link between projects and policies.

Taxation, price distortions and shadow prices are closely related. The welfare theoretic literature on taxation evolved in both the partial and general equilibrium frameworks. Partial equilibrium analysis is conducted in terms of demand and supply functions in a commodity market in which distortionary taxes drive a wedge between demand and supply prices. When the analysis of the impact of a distortion in one market is extended to other markets, a general equilibrium approach became necessary. In this context, Harberger (1971) proposed that welfare effects of policy change be measured by the sum of all induced changes multiplied by the degree of distortion (tax or subsidy) in each market.

Partial and general equilibrium analysis of taxes and tariffs usually is based on the assumption that lump-sum transfers are available to ensure fiscal balance. This assumption is convenient because lump-sum transfers do not distort prices, i.e. they do not insert a wedge between demand and supply price. However, lump-sum taxes are not feasible in practice; governments normally secure revenues through taxes which are more or less distortionary. The corresponding welfare effects need to be assessed.

If shadow prices are to be good measures of the net impact on social welfare of a unit increase in the supply of a good, general equilibrium implications will need to be incorporated in the analysis. However, if general equilibrium considerations have to be routinely incorporated in shadow pricing rules, then shadow pricing for project evaluation will cease to be operational. A via media needs to be found between partial and general equilibrium approaches such that the more important repercussions are incorporated in the design of shadow pricing rules.

Harberger's measure of welfare change provides insights. The set of activities with significant distortions is a subset of all activities. The set of activities whose level are affected perceptibly by a project and/or policy reform is another subset of all activities. Only the intersection is germane for the analysis of the effects of a project and/or policy reform. For example, those situations in which the product of the difference between a shadow price and a market price and the size of an input or output is significant will need to be identified. The difference between a shadow price and a market price represents the extent of distortions; the input or output represents the impact of the project or policy reform. If the number of elements affected are manageable, the Harberger approach can be operationalized.

These considerations on shadow prices and the policy framework raise a number of issues. First, the partial equilibrium shadow prices, in some cases, may need to be extended to incorporate the more important general equilibrium implications. The fiscal effect of a project warrants careful consideration. Second, when lump-sum transfers are not possible, the welfare effects of using distortionary taxes to maintain fiscal balance must be incorporated in the shadow prices. In light of the above, public utility pricing policy and project evaluation are inseparable. Third, given the excessive budget deficits that affect many developing countries and the constraints on the resources available for public investment, the integration of shadow pricing with policy reforms is both necessary and highly relevant.

There is a need to derive a set of shadow pricing rules in a framework that incorporates traded and nontraded goods, primary factors, tax distortions, no lump-sum transfers and the existence of both private sector consumption and production as well as public sector production. This framework would necessarily be a general equilibrium one. While complexity is a drawback, advantages would obtain from the integration of shadow pricing rules and policy reforms.

SECTION THREE

Analytical Framework for Integrating Shadow Prices and Policies

Gauging the total effect of a project involves a comparison of the evolution of the economy with and without the project. The policy framework will condition substantially the total impact of a project. The shadow prices employed in project evaluation cannot be properly defined without specifying a policy framework. Shadow pricing rules depend on existing policies. Therefore, the choice of projects and the choice of policies should be examined in the same analytical framework. Given the need to predict the total effect of a project and the importance of assessing the resource allocation impact of policy reforms, the analytical framework would necessarily be general equilibrium in nature.

A small open economy is considered. The small country assumption implies that international prices are given. A representative consumer maximizes utility subject to a budget constraint; in this case impacts on income distribution are abstracted from. The private sector takes producer prices as given and determines supplies that will maximize profits. According as returns to scale are constant, private profits are nil at competitive equilibrium. The public sector supplies commodities and demands factors.

Public sector policies condition prices. These policies may correct or partially correct for natural market failure, with or without affecting other variables. In the former, and empirically more frequent case, policy interventions may augment or reduce welfare. Policy interventions also may introduce distortions without mitigating market failure. The other class of policies are usually subsumed under the rubric of structural adjustment policies and are designed to remove price distortions by reversing previous policy interventions. Government policy failures, or policy interventions that the establishment of competitive prices, drive a wedge between demand and supply prices.

Equilibrium in this small, open economy is specified by market clearing for nontradeables and primary factors through price adjustments. The market for tradeables clears by means of variations in the resource balance. This equilibrium assumes a given level of public production, taxes and subsidies. Public sector production is assumed to be exogenous. At equilibrium, welfare will be determined by the exogenous variables in the system-factor endowments, border prices for tradeables and the

government's policy instruments: in this model, public output (X) and the desired budget surplus (Z). Assuming factor endowments and border prices are fixed, welfare at equilibrium can be expressed as depending on public production (X) and the desired budget outcome (Z), which are thus the control variables. The budget target will be influenced by taxes (t) and subsidies, which are the policy parameters. In that sense, (Z) the target for the overall fiscal balance is a proxy for policy change.

Defining an "infinitesimal shock" as a slight variation in the pattern of public production and desired budget surplus, a comparative static exercise will solve for the new general equilibrium of the economy. The new quantities and prices are determined such that all markets clear and the budget constraints for both the private and public sector are met. The change in welfare would be equal to the impact of the policy change plus that of the project.

The change in tax revenue captures the production and consumption occurring in other markets as a result of the project. If lump-sum transfers exist can policy changes associated with the need to balance the government budget arising from project induced changes be disregarded. This balancing is solely related to the project's impact on the government budget. But lump-sum taxes generally are not available to finance the deficit generated by a project. Consequently, the marginal social cost of equilibrating the budget would have to be accounted for in estimating the shadow price.

Such a shadow price explicitly incorporates the general equilibrium implications of the effects of the existing policy environment on tax revenue and the effects of policy changes which are distortionary in nature and are needed to finance a project in the absence of lump sum taxes. The introduction of a project results in additional distortionary, welfare-reducing taxes; these would have to be traced to gauge the total effect of a project.

The relative shadow prices for nontradeables and factors depend on producer prices and marginal product, tax revenue changes triggered by existing distortions in all markets and the way in which the government budget is balanced. The shadow pricing rule for nontradeables and factors differ from the partial equilibrium shadow prices recommended by Little and Mirrlees in two significant ways. First, the inclusion of change in tax revenue incorporates the consumption and production losses and gains emanating from the total impact of a project. Second, an equilibrating mechanism, used by the government in the absence of lump-sum transfers, is included. Different policies correspond to different rules for

shadow pricing. Given that the government budget has emerged as one of the most important constraints in many developing countries, the importance of the equilibrating mechanism in determining shadow prices cannot be overemphasized.

A welfare improvement is possible without a project inasmuch as policy changes per se can improve welfare. Also, a project which is not worthwhile on its own merits, given the policy framework, may become so if carried out in tandem with policy reforms. Welfare improvements associated with policy change hinge on resource reallocation. Under certain circumstances, this reallocation could be facilitated by projects. The higher the supply elasticities brought about by government investment projects, the greater the welfare improvements associated with policy reforms. On the other hand, a desirable policy change will lead to a decline in the distortionary cost of taxation, increasing the shadow price of the good and thereby improving the economic viability of that activity or project. At the same time, the investment project would generate value added, raise national income, and if financed from abroad, augment domestic absorption. This should further raise welfare by indirectly stimulating private investment.

SECTION FOUR

Projects, Shadow Prices and Policies: Some Applications

Consideration of a few stylized cases will indicate the applicability of the approach and provide additional insights. Analysis of an industrial project which has a large tradeable component in terms of both inputs and outputs is fairly straightforward. All production would occur in the public sector and border pricing of the main inputs and outputs apply. Interaction with the private sector will consist mainly of factor and nontradeable input purchases. In this situation, the tradeable components of a project will dominate and minor changes in the shadow prices of nontradeables due to changes in the distortionary costs of taxation will not influence appraisal. The indirect effects will not be important in determining the economic viability of such a project. The shadow prices derived from a partial equilibrium framework are likely to be adequate in determining welfare-improving industrial projects with a large tradeable component --as Little and Mirrlees (1969).

In the case of an infrastructure project like a road, a transfer from the state to the private sector takes place as long as user-charges are below price. Such transfers or subsidies could

be very large both in absolute terms and relative to the net benefits from such a project. The welfare costs of generating (the potentially substantial) revenue to pay for the subsidy would have to be incorporated in the shadow pricing rules. Assume that an infrastructure project leads to an increase of private sector net output of tradeables alone. The shadow price of such a project would equal the value of induced private sector output at border prices less the cost of paying for the subsidy. In this context, policy reforms could include an overhaul of the tax regime designed to minimize tax-related distortions would enhance the viability of infrastructure projects.

In the case of public utility projects, prices often are set below those required to clear markets. As in the case of infrastructure projects, in the first instance, the costs thus generally are borne by the public sector while most of the benefits accrue to the private sector. According as these welfare costs are ignored, the shadow price will be overestimated. This result clearly indicates that public utility pricing policy, public investment in this subsector and tax policy are inseparable. Tax and pricing reform would diminish the welfare costs of distortionary taxation. A reduction in the electricity subsidy also would increase the shadow price. Both reforms would therefore raise the economic profitability of the project.

Consider a simple example. If the subsidy attaching to the output of a project is equal to 60% of its total cost and the marginal social cost of tax financing amounts to 80% of tax revenue, additional costs equal to 48% of total project costs would be incurred. Clearly, these additional, policy-induced, costs would condition heavily the economic viability of the project. Consequently, there obtains a clear need to account for these welfare costs; in particular, the fiscal effects of projects --including the revenue required to finance the operations and maintenance expenditures that will be required if the capital created by public investment is to be productive --should be analyzed. Second, public utility pricing policy and project appraisal results are inseparable.

In the 1990s, the economic viability of projects will depend on the pursuit of a project-cum-policy approach. While the general equilibrium implications of policy reforms will need to be considered, the problems of measurement need not be insuperable. Only the most important general equilibrium effects are germane for assessing welfare change associated with a project-cum-policy reform; a full scale general equilibrium approach may not be necessary. In the case of a project, the direct and indirect effects of will be captured by the decomposition recommended by

Little and Mirrlees (1969). In the case of a policy change, these will have to be captured through the use of input-output tables focusing on the more important aspects, as implied by the Harberger approach.

In terms of the practical problems of identifying, quantifying and valuing costs and benefits, the substantive issues in analyzing infrastructure projects and policy changes are identical. The methods may differ in some respects, but the approaches will need to capture the direct and indirect effects. The common characteristics shared by both infrastructure projects and policy reforms is that while costs are borne by the public sector, the widely dispersed benefits flow to the private sector. Therefore, if rates of return can be calculated for infrastructure projects, they also can be calculated for policy reforms that reduce the wedge between demand and supply price (Kanbur, 1990).

SECTION FIVE

Shadow Prices in Practice

Simple shadow pricing rules can be derived with partial equilibrium techniques, and when analytical techniques are utilized to evaluate projects, they are partial equilibrium ones (Little and Mirrlees, 1990). With the Little-Mirrlees methodology, specific, group and standard conversion factors are used for valuing costs and benefits of nontraded goods and services in border prices or economic costs. This approach to investment analysis could have led to the use of three broad adjustments for valuing nontraded goods in border prices.

First, the impact of price distortions arising from market imperfections and government interventions could have been removed from market prices. In practice, only taxes and transfers were netted out from market prices to account for government intervention. Second, the impact of foreign trade distortions could have been removed through disaggregation. In practice, a standard conversion factor generally has been employed for all nontraded output regardless of their share in total costs and benefits. Third, shadow wage rates are rarely estimated. In short, partial rather than complete border pricing rules are used even in a partial equilibrium framework.

Desegregated conversion factors frequently are difficult to estimate, and hence, the cost of estimating them may outstrip the benefits. In any case, beginning in the early 1980s, estimates of

shadow prices and conversion factors no longer were updated in many countries --shadow prices currently in use in such countries frequently date from those years or earlier. This phenomenon probably reflects the impact of the international economic crisis, which brought about a dramatic shift in emphasis from investment projects to policy reforms, from capital outlays to current expenditure, from the formation of tangible to human capital. In these areas, decisions were generally not based on explicit cost-benefit analysis. Shadow prices and cost-benefit analysis are inseparable. With a decline in interest in cost-benefit analysis, a decline in interest in shadow prices ensued.

This result was unfortunate. Shadow prices are fundamental to assessing the need for policy changes as well as for investment projects. It could be argued that policy changes which rendered prices right make it less crucial to calculate shadow prices. However, getting the prices right presupposes knowledge of shadow prices. In that sense, estimating shadow prices and getting prices right are different sides of the same coin.

SECTION SIX

Project and Policy Selection

While some sort (e.g. least cost, most cost-effective or cost-benefit) of quantitative approach has been utilized to evaluate investment projects, adjustment programs have been subjected to a qualitative analysis, rooted in theoretical considerations about the welfare gains from the mitigation or removal of price distortions. To be sure, macroeconomic projections normally are prepared and purport to demonstrate that welfare would be greater with, than without, policy reforms, but the functional links between policies and growth performance rarely are specified and rates of return not calculated. Policy reforms generally are not assessed in terms of a comparison of costs and benefits. One argument is that their benefits are widely dispersed over time and people, and that it is not possible for the government to gauge these benefits nor is it possible to make the beneficiaries pay for the costs of policy reforms.

Policy reforms may be viewed as a means of narrowing the wedge between demand and supply price, and hence, of increasing efficiency through resource reallocation and thereby moving the economy to or along the frontier of a production possibility schedule. Project investment augments the supply of capital, and hence, displaces the frontier outward, provided it is complementary

to private investment. By correcting for market failure, it also can enhance the efficiency of resource allocation.

A salient feature of project investment is the time lag between input and output streams. The time lag is an important determinant of rates of return. The process of policy reform is analogous. Policy reforms typically present major implications for the intra- and intertemporal distribution of income. Provided a policy reform augments welfare, total gains of beneficiaries will surpass total losses of losers. However, the difficulty of persuading winners to compensate losers (e.g. through taxes) makes it necessary to explicitly recognize that a policy reform may require substantial budgetary outlays to mitigate the adverse impact, or redistribution of income, that policy reform entails.

As long as winners cannot (or should not) be taxed, compensation of losers will require the expenditure of real resources. The adjustment cost is an economic cost rather than a transfer payment. In addition, it is a capital rather than a consumption cost. That cost has to be "financed", whether by a reduction in the consumption of losers, a reduction in unproductive government expenditures, or a donation or loan from abroad. Furthermore, even if the winners could be taxed, any tax levy other than a lump-sum tax would introduce distortions elsewhere in the economy and offset, if not completely neutralize, the benefits of reform. This, of course, is analogous to the analysis of distortionary taxes in project analysis.

Adjustment costs to policy reform arising from factor immobility and/or the irreversibility of investment could, in the short run, depress national income, the long run benefits of policy reform notwithstanding. (Note, however, that this would only be the case if the distorted pattern of output could be sustained through access to the international capital market, a possibility which, since the early 1980s, has been closed to most developing countries). It may be necessary to alleviate the costs of adjustment to policy reform caused by this intertemporal redistribution of income to "produce" policy reform. Private investment is strongly associated with national income, and hence, may constitute another short run "victim", or cost, of policy reform that should be accounted for and financed.

In most instances of policy reform, both intra- and intertemporal redistribution effects obtain- to the detriment of either implementing or sustaining policy reform. Although not the objective of policy reform, these redistributive effects are, at the same time, necessary to the success of policy reform. For example, in order to augment social welfare, trade reform must

enlarge the returns to those factors of production which produce tradeable goods and services, and initially, at least, this will occur at the expense of factors of production engaged in the production of nontraded items.

The adjustment costs associated with the intratemporal and intertemporal redistribution of income resulting from policy reform could and probably should be treated explicitly as the up-front cost required to "produce" the benefits of policy reform. The adjustment costs of reform, including both those borne by losers and those financed through the budget or borrowing, constitute the counterpart of the investment costs of projects (Kanbur, 1990). Note, also, that the treatment of sources of financing and their repercussions would be uniform as between projects and policy reforms, albeit the costs which are financed by the reduction of the consumption of losers would fail to take account of the additional or second round costs inflicted by activities (rent-seeking or strikes) undertaken in opposition to reform. Finally, the benefits of improved resource allocation brought about by the removal of price distortions constitute the counterpart to output from projects.

In short, an investment is required to ensure that policy reforms generate the expected benefits issuing from the removal of price distortions. Policy reforms without such an investment usually fail. This, together with the severe resource constraints with which developing countries have had to cope since the early 1980s, probably constitute the main rationale for policy-based lending and borrowing, i.e., for structural adjustment loans.

We have come full circle: too many public sector investment projects failed -at considerable cost to developing countries- because too much time was devoted to developing methods to evaluate projects at the expense of removing price distortions. Contrariwise, too many policy reforms have been derailed, gutted or been slow to produce positive results because too much time has been spent singing their praises and scarcely any on evaluating their costs and, until more recently, financing these costs. This author expects, however, that until an adequate effort is made to conduct a quantitative analysis of costs and benefits of policy reform, the costs -and financing needs- will continue to be implicitly underestimated, to the great detriment of policy reform and welfare in developing countries.

Investment programs and policy reforms should be designed according to the same criterion -enhancement of social welfare. The economic viability of a project depends on the policy framework, and reversal of distortionary policies naturally

exercises an effect on the social profitability of investment projects. The impact of policy reform on social welfare depends partly on supply response; and supply response hinges on supply elasticities -elasticities which could be affected by projects. Indeed, the rationale for policy reform-cum-investment project packages, or hybrid operations, stems from these considerations.

Structural adjustment policies, i.e., policies designed to reverse past government policy failures or accommodate secular external shocks, should be evaluated in the same framework as public investment projects. Such an approach could serve as a powerful educational tool, and hence, facilitate adoption of policies that will enable economies to recover and eventually grow at their potential expansion rates of. As a first step in that direction, foreign-supported investment projects and policy reforms should be subjected to comparative quantitative analysis. The policy decision-making process and welfare would be enhanced if investment and policy decisions were coordinated by an economic policy council.

SECTION SEVEN

Applied Research Issues

Against the backdrop of severe internal and external imbalances, the pace of economic recovery will hinge on the optimal allocation of resources between projects and policy reforms. But practical approaches for implementing an analytical framework which integrates projects and policy reforms will need to be developed. In the absence of research leading to more rigorous cost-benefit analysis of both projects and policy reforms, it is more likely that most countries will continue to under-invest in policy reform as well as misallocate the resources devoted to investment.

The practical application of a common analytical framework for project and policy analysis will turn on devising simple procedures for estimating the major direct and indirect effects of projects and policy reforms and estimating the relevant shadow prices. Considerable information regarding government policies is contained in shadow prices, and an analyst may gain valuable policy insights by simply comparing particular conversion factors with each other and with unity. In consequence, a major research initiative to estimate desegregated conversion factors is warranted, both to improve valuation methods used in the economic analysis of projects and to provide indicators of the extent of distortions. At a minimum, partial equilibrium shadow prices should be updated. Sources of distortions also need to be isolated.

Related to the estimation of shadow prices is the issue of tracking the effects of projects and policies. In terms of input use, the semi input-output decomposition method advocated by Little and Mirrlees to account for linkage effects remains valid and relevant for projects and policies. But, again empirical research is called for. On the output side, tracing the effects of distortions demands close scrutiny. In principle, good project analysis should routinely do this. Since this had not been done in most cases, adoption of this practice will go a long way in improving the empirical and analytical content of project and policy evaluation. In terms of the framework used here, tracing the effects on inputs and outputs will help determine the accompanying change in revenue used in estimating the shadow prices for nontraded goods and services.

Tracing the direct and indirect repercussions on inputs and outputs amounts to the adoption of the Harberger framework, where an element of welfare change associated with a project policy reform is represented by the sum of all induced changes multiplied by the degree of distortion in each market. This appears to be a promising via-media between partial and general equilibrium frameworks for integrating project and policy analysis.

BUDGETARY PROGRAMMING AND EFFICIENT PUBLIC EXPENDITURE MANAGEMENT

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INTRODUCTION: THE NATURE OF BUDGETING

For those concerned with public sector investment planning, the budget is central. As a policy instrument it implements structural adjustment planning, which should set the framework for public investment plans. As the instrument which allocates annual expenditure, it is critical to the realization of those plans.

Budgeting may be defined in many ways. In its broadest sense it encompasses the revenue system, the macroplanning system, the annual decision making cycle determining expenditure priorities, capital budgeting, the financial management system (budget execution, disbursement, cash flow management, internal control), and the accounting and auditing systems. For our purposes, a narrower definition seems more appropriate. Budgeting may be seen as the annual process for determining revenues and expenditures, including decisions made throughout the year and their monitoring and evaluation.

The relevance of budgeting for effective public investment planning is clear. The budget is the legitimate source for all expenditures including those for investment. It is the primary mechanism for expenditure control, governing disbursement, monitoring and audit of funds. As a tool of management, the budget programs and allocates expenditures. As an instrument of planning, it makes policy for expenditures and revenues over an extended period of time, relating efficiency and effectiveness to spending policies. All budget systems share to some degree the functions of control, management and planning, and balance them according to capacity and circumstances. But where budgeting does not fulfil its allotted functions effectively, public purposes, including public investment plans, will be frustrated.

Public investment plans rely on effective budget systems for their implementation, but budgetary programming differs from public sector investment planning in important respects. Essentially, the tasks of budgeting are different and more varied. Budgeting is broader in scope, including not only development, capital and investment expenditures, but also recurrent or operating expenditures. It is also broader in purpose, since it has to coordinate macroeconomic with program and project management both in the long- and short-term. The budget process involves more and varied participants, including not only those in the executive administration, but also legislators, officials of the central bank, managers of state enterprises, interest groups, the media and the general public; but it is the particular concern of the

officials of the ministries of finance. All these participants have different backgrounds, training, outlook and objectives.

Although it is a rather straightforward mechanism, budgeting may fulfil a variety of purposes, and it is necessary to choose and prioritize those purposes to fit the environment. Some of the purposes of budgeting are as follows:

Program Information, Efficiency, and Effectiveness. The budget process enables oversight of programs. The effort to retain or increase funding provides incentive and sanction for efficient and effective performance.

Choice. Because all expenditures are placed together in a single budget, it is possible to assess the relative worth of proposed expenditures.

Direction. The budget directs allocation of revenues in advance, and any discrepancies are exceptional and illegal. Thus the budget is a plan or prediction for the year.

Policy. The budget constitutes a forum for annual policy review and forecast. In addition to balancing revenues and expenditures, it is the primary mechanism for control of government fiscal policy.

Comparison. The regular production of annual accounts allows comparisons from one year to the next, also constituting measures of performance over time.

Does the budget fulfil these purposes in Caribbean countries? What kind of budgeting is useful for them? What features of the environment impinge on budget processes, and thus on public sector investment planning?

BUDGETING TO MANAGE THE ENVIRONMENT

Effective budgeting is appropriate budgeting. Budgeting needs to be designed to support an approach to public sector investment planning which, rather than implementing isolated projects, focuses on long-term sustained and integrated investment efforts directly tied to an investment strategy related to national objectives. To do so, it is necessary to work through and improve existing institutions, such as the budget process, rather than simply imposing assistance from outside. Those involved in planning and managing public investment need to take into account the

characteristics and problems of the budget process, which are related to the management environment.

The environment of many developing countries, including those of the Caribbean, is characterized by complexity, change and uncertainty, with limited resources available to deal with them. Derick Brinkerhoff in a recent book, <u>Improving Development Program Performance: Guidelines for Managers</u> (Boulder, Colorado: Lynn Rienner, 1991) suggests that in such an environment, where ability to control outcomes is limited and unpredictable, managers have three tasks: to look out at the environment, to look in to the program and its operation, and to look ahead to outputs and performance.

<u>Managing the environment</u>. Traditionally budgeting functions have been handled through direction and control. But in uncertain and constrained environments, more effective management requires consideration of the bureaucratic setting and an array of institutional actors, the policy context, the client groups, and a variety of stakeholders, as well as the general features of the environment. It is necessary to manage through negotiation, exchange, compromise and coalition building.

<u>Managing budgetary programming</u>. Where conditions are uncertain and resources are constrained, prediction is difficult and budget plans easily break down during the current budget year with serious effects on programs. In particular capital or investment projects are likely to be cut back, or existing projects cannot operate because of lack of allocation for operating expenses. It is therefore necessary to choose, design and adapt an institutional network that will respond positively to change and uncertainty, and will enable commitments to be made and kept. Elements to be considered include information flows and interactions, the allocation of authority and responsibility, the channelling of cooperation, the nature of incentives, and the levels of formality and complexity.

<u>Managing budgetary performance</u>. In order for budgetary processes to support program performance, particularly in public investment programs, a two fold approach is desirable. First, it is necessary to establish methods for assessing performance and to operationalize them in the budget process. Second the system of performance assessment should contribute to a longer term capacity to sustain program performance.

PROBLEMS WITH EXISTING BUDGET SYSTEMS

Traditionally budget systems do not fit the environment of developing countries well. While the formal processes seem to fulfil some objectives, more searching analysis reveals that they have serious deficiencies. At a minimum, budgets should reflect the elements of unity, annuality, appropriation and audit. In practice, there has been considerable difficulty in making budgeting work according to these principles.

Unity. Unity means that all expenditures are included in a single budget. In many developing countries, it is usual for many expenditures to be "off-budget" in special or earmarked funds. This is particularly the case where donor funds are involved. The results of this practice are often dysfunctional; budgetary control over off-budget funds is lost; the central budgetary authority has less room to maneuver; the budget is no longer a complete source of information about expenditures; decision makers cannot compare expenditure proposals on an even basis.

Annuality. Annuality means that decisions are made to determine expenditures on an annual basis. In practice, given uncertainties, it has been very difficult to predict revenues and expenditures for even one year. The quality of budget estimating is often poor, leading to unrealistic funding projections, underfunding of some projects and underspending in others, and changes during the budget year. In particular, the practice of "repetitive budgeting" appears to be widespread i.e., the initial budget allocation is only a starting point, and in reality the budget is made throughout the year. Budgeters, both in central finance authorities and in agencies, have adapted to uncertainties in estimating through the use of incrementalism i.e., using last year's expenditure as a base and adding an increment, rather than approaching their needs in an analytical or realistic fashion.

Appropriation. Appropriation is a primary budget control, since it stipulates that monies may only be expended accordingly to the amounts allocated in the budget. But where the budget is late, or is changed during the course of the year, or allocations are unrealistic, or many expenditures are not in the budget at all, budgetary control, management or planning even for one year are impossible. In addition, slow disbursements and rigid cash management systems disrupt smooth allocation of funds and add to costs.

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Audit. Audit checks that expenditures have been made in accordance with budgetary allocations. In practice, accounting systems are often weak, accounts are subject to delays, accounting and budgeting categories are not aligned with one another, and audit findings are not followed up.

These budget problems result in poor and inaccurate information flows, problems in relating programs and funding over time, underspending, lack of counterpart funds, adversarial relationships and lack of trust. Too little attention has been given to support systems for budgeting, particularly accounting and cash flow management. Often budgeting has appeared as an obstacle to effective program management, and particularly public investment planning.

Past critics have traced difficulties in achieving effective budgeting in developing countries to the type of classification used in the budget. Typically, most budgets in industrialized, as well as developing countries, use a line item or object classification, which lists inputs (such as personnel, or materials) according to their cost, without regard to the users or effects of these inputs. Reformers have advocated reforms such as performance or program budgeting.

Performance budgeting classifies the budget according to activities, and costs out those activities. It makes it possible to set up standard costs for each unit of activity (e.g. student-teacher ratios, nurse-patient ratios) and to assess performance of a given organization according to the standard criteria. Performance budgeting also enables budgets to be constructed on the basis of anticipated workload, and allows managers to work toward greater efficiency by relating the performance of their organizations to cost of activity accomplishment.

Program budgeting classifies the budget according to programs, and allocates resources according to the effectiveness of those programs. It incorporates a more analytical and planning approach to the budget, based on the outcomes of government programs. Program budgeting aims for optimal allocation of resources, and allows comparison of all programs to ensure maximum effectiveness.

Although performance and program budgeting have remained popular reform proposals, they have not been very effective in practice. Countries which have undertaken ambitious restructuring of their budgets have frequently been disappointed with the results. One set of problems has related to implementation, in particular lack of commitment and understanding by staff, and a

short time span for achievement of across the board reform. More intrinsic difficulties have arisen because of the hierarchical nature of the reforms, which rely to a large extent on centralized decision making, while lower level participation is confined to provision of complex information. Information demands have been too onerous, and often impractical where programs cut across organizational lines. It has been difficult to make comparisons among unlike programs, and even the establishment of programs themselves on any clear logic has proven an obstacle. It has been charged that the analytical emphasis of these methods, based in the bureaucracy, ignores the political element. In any case, budget execution has required use of line items, resulting in additional complexity because it has been necessary to construct "crosswalks" from one system to another. Perhaps the most important problem has been that these complex and expensive systems have failed to elicit the necessary commitment needed to implement them properly because they have failed to provide an answer to the most pressing questions of budgeters in developing countries. They have not aided budgeters in coping with issues arising from constraint and uncertainty, or given sufficient emphasis to the causes of poor budget performance.

What then are the objectives of budgetary programming? The following are suggested as useful points of departure:

Support for public sector investment planning. It should be remembered that budgets serve broader purposes, and need to take a variety of purposes into account. However, budgets may support public sector investment planning in a number of ways. For example, they may employ a multi-year perspective which tries to forecast resources over a period longer than a year; budget execution processes may support program monitoring; budget authorities may cooperate in joint screening of projects at flexible intervals; the budget may lend legitimacy to the public sector investment plan; operational (recurrent) funding may be coordinated with investment or development spending.

Responsiveness to stakeholders within and outside the bureaucracy. Where budgets are imposed without meaningful participation, distortions in priorities often occur, needs are neglected, and breakdowns occur. Budget processes should allow for explication and participation. Particularly where public sector investment planning is involved, consultation outside the bureaucracy should be built into the process. At the same time, regular and open budget processes should discourage corruption, irregularity and fraud, as well as ad hoc decisionmaking. In other words, budgeting should strengthen planning.

List Institutional Papers-

Efficiency, economy, effectiveness, and productivity. Budget processes should incorporate analytical techniques where appropriate to evaluate expenditures and aid decisionmaking. The experiences of several industrialized countries in attempting to redirect expenditures in accordance with a changed role for the state may be of interest in this regard.

Honesty, particularly the prevention of fraud, waste, abuse and corruption. Budget documents should be transparent, easy to read, and incorporate useful information. They should be backed by timely and accurate accounts, which reflect correctly the activities of government. Budget processes should incorporate checks and encourage law-abiding conduct (as opposed to "getting around" or blatantly disregarding the rules).

Multi-year perspective. Since it has proven difficult for many countries even to implement a budget for one year, it may be unrealistic to expect multi-year budgets. Nevertheless, most public investment requires a long-term sustained effort, which requires the assurance that resources will be forthcoming over a number of years. Several governments have experimented with rolling budgets over a period of two or three years. It is important to realize that long-term commitments of funds involve a trade-off in short-term flexibility, and that activities protected in this way gain priority over those requiring annual approval.

Accountability. Any budget system should incorporate elements of accountability, and this is particularly the case with public sector investment planning, where accountability should be required throughout the process.

What experiences may be useful to Caribbean countries in assessing and possibly redesigning their budget systems? Several industrialized countries, including Canada, Britain, Australia, New Zealand and Sweden, have made radical changes in their budgeting methods. While approaches differ somewhat according to context, and in their depth, certain common elements may be discerned.

Management decentralization. Instead of departments working to detailed line item budgets, agency managers are provided with resources which they may use with considerable freedom to achieve stipulated results for which they are held accountable. All the examples above utilize management decentralization to some degree.

Continuity. Sweden and Australia work within a three-year planning system, though they retain annual budgets. In Sweden agencies may transfer resources within limits from one year to another within the three-year period.

Use of information systems. Information systems are used to enable calculation of budgetary parameters and continuous monitoring of transactions. They are also used to hold managers to specific results.

Emphasis on efficiency. There is an emphasis on efficiency in the achievement of set objectives, constant scrutiny of activities and flexibility in the use of resources.

Emphasis on privatization. In addition to considerable privatization of public activities, including contracting out, agencies are treated as cost centers, responsible for achieving results at given costs. New Zealand has gone the furthest in this direction, and has adapted its accounting system accordingly.

This public management model of budgeting might be summarized as follows: Policies are set at the center related to wider economic trends and adjusted according to economic movements. Agency managers are set objectives and made responsible for achieving them with allotted resources and in the most efficient manner possible at their discretion. The system is held together through the flow of information that transmits data regarding costs and results, enabling impacts to be assessed, priorities to be set, program adjustments to be made, and value-for-money audits to be conducted. Efficiency is achieved <u>through</u> managerial flexibility, which rewards managers for results and penalizes them where they fall short. Accountability is improved because of the availability of accurate and relevant information, and the capacity to enforce priorities. Resources and activities, income and expenditure, are considered together as a simultaneous equation.

Another approach of interest is that of the Integrated Financial Management and Control System, which is in the process of being implemented in Bolivia. The system, known by its Spanish initials, SAFCO, has involved the following elements:

Law. Numerous antiquated, conflictive and inadequate laws have been replaced by a single law providing a systems-based framework for financial management, integrated with public sector management as a whole.

Budget. An inoperative and chaotic budget has been replaced with modern participative provisions and guidelines which will permit the formulation of a realistic financial plan by those responsible for its implementation.

Accounting system. The complete absence of reliable financial data has been replaced by a new integrated accounting system to provide information needed by managers at all levels.

Cash flow management. Disbursements based wholly upon availability of cash to pay only the most obstinate or influential creditors have been replaced by a true cash management system in which the treasury has the function of managing budget execution.

Audit. A compromised and corrupted supreme audit institution has been replaced by an independently managed and financed institution with the potential to perform professional audits.

Training. Training courses have been initiated for financial managers and audits, and comprehensive career path training programs have been planned.

Processes. Complex processes for payment of creditors, payroll, and pensions have been simplified.

(This account of the Bolivian reform has been drawn from James P. Wesberry Jr., Report on Participation in World Bank's Bolivia Public Financial Management Operation II Pre-Appraisal Mission, November 1-8, 1990, pp. 4-5).

Such reforms are not easy to achieve. Jamaica's experience in introducing performance budgeting in 1984 is a case in point. Implementation suffered from a lack of consistent political commitment, insufficient participation by the managers and staff of the departments concerned, and from technical problems in the design of the project. In addition, it failed to develop clear program classifications and to address over centralization of financial resource management. Thus, over six years later, the budget did not provide full and adequate information on resource allocation; the quality of budget estimates, particularly in capital expenditures, was poor; many changes are introduced to the budget during the year because of inadequate forecasting of funding constraints; there is no multi-year planning framework; accounting reports are delayed, slowing down disbursements; and the cash management system is rigid and overly centralized. A new Financial and Program Management Improvements Project is expected to address these problems.

There are thus a number of questions regarding the relationship of the budgeting and public sector investment planning systems. How may budgeting be strengthened to support public sector investment planning? What resources are needed and what steps should be taken?

THE ROLE OF CAPACITY BUILDING IN
PUBLIC INVESTMENT PROGRAMMING

Katrina Sharkey *

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*   Public Sector Management Specialist, EDI/World Bank.

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┌─────────────────────────────────────┐
│     ROLE  OF CAPACITY BUILDING       │
│              IN PIP                  │
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PART 1   PART 2   PART 3

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┌──────────────┐   ┌──────────────┐   ┌──────────────┐
│              │   │              │   │ HOW DO YOU BUILD │
│ DEFINITIONS  │   │   COUNTRY    │   │  CAPACITY ?  │
│      &       │   │              │   │              │
│  BENEFITS    │   │   CASES      │   │  NEXT STEPS  │
│              │   │              │   │              │
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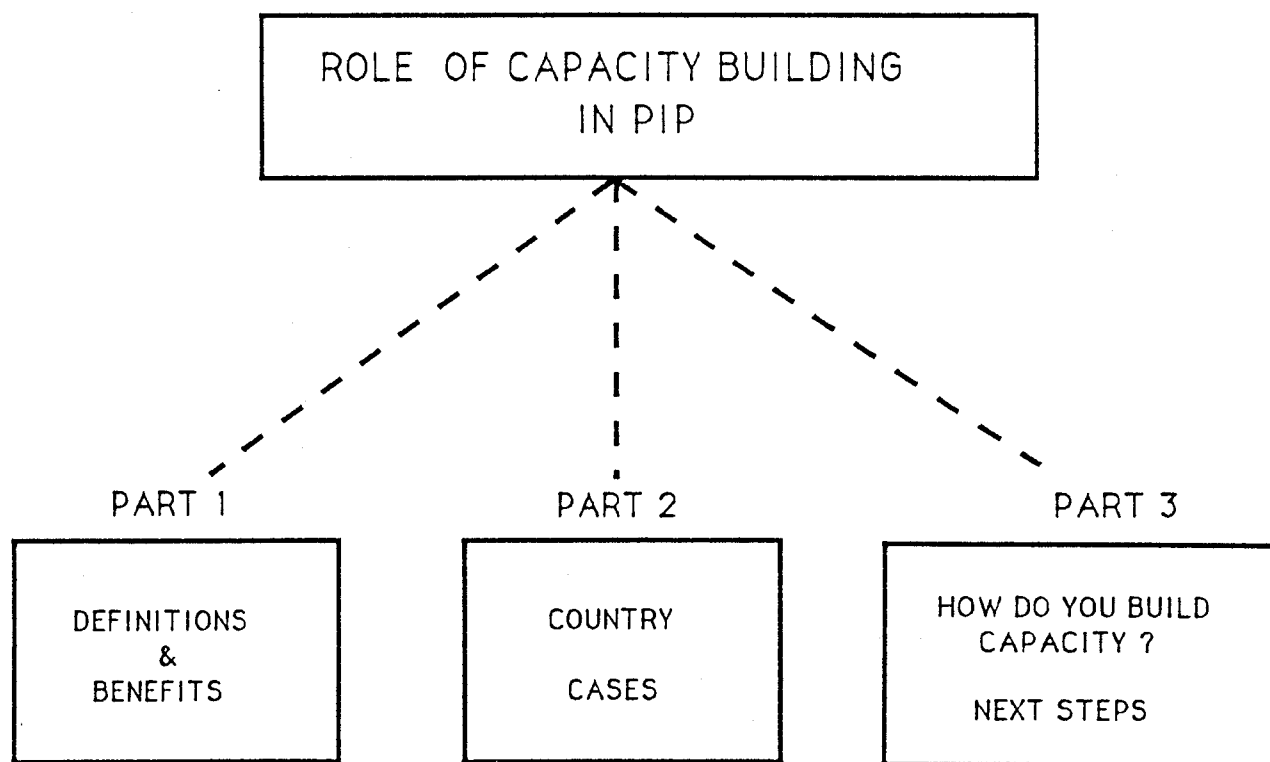
CAPACITY BUILDING:

- Institutional Development

- Human Resource Development

HUMAN RESOURCE DEVELOPMENT

STRENGTHENING CAPACITY TO:

a. Design and Implement Effective Policies

b. Improve Management of Technical Cooperation

c. Ensure Transparency of Information and Accountability

INSTITUTIONAL DEVELOPMENT

STRENGTHENING OF PUBLIC INSTITUTIONS TO:

a. Implement Sound Economic Policies and Projects

b. Enable Development of Private Sector

List Institutional Papers

HOW TO BUILD CAPACITY

FOCUS ON:

1. Political Commitment to Change

2. Core and Line Ministry Linkages

3. Bicycles
   - involve staff in project cycle

4. Training and Twinning

5. Reduction of Technical Assistance

BENEFITS OF CAPACITY BUILDING TO YOUR PIP

1. Comprehensive and Effective PIP

2. Better Management of Resources and Priorities

3. Appropriate Sectoral Allocation

4. Timely Response to Unpredictability

5. Motivated Staff

List Institutional Papers–

MOROCCO

TIP PREPARATION AND IMPLEMENTATION CAPACITY

KEY FACTORS	BEFORE 1985	AFTER 1985	OUTCOME
1. POLITICAL COMMITMENT	Prestigious, Competent Civil Service	Consistent	Productive Civil Service. Active Private Sector
2. INSTITUTIONAL REFORM	-	Min. of Finance Investment. Management Unit. Coordination Committees	All Core and Line Ministries Integrated.
3. LEGAL STATUS OF TIP	Poor Investment Programming and Budget Implementation. No Force of Law.	Pluriannual Plans, Including Tip Projects. Force of Law	High Priority and Economically Justified Projects.
4. CIVIL SERVICES SALARIES	-	Below Private Sector. Tradition and Perquisites Compensate.	Stable Work Force.
5. BICYCLES	-	Initiated as Part of Decentralization.	Enhanced Familiarity with Project Realities.
6. TRAINING	By Individual Ministry.	Comprehensive Program Across Ministries.	Increased Efficiency and Productivity.
7. TECHNICAL ASSISTANCE	Moderate.	Moderate.	No Dependance on Expatriate T.A.
8. MIS	-	PDB and Monitoring for Budget Office, Comptrollers and Treasury General.	Enhanced Accountability. Transparency of Information.

COLOMBIA

PIP PREPARATION AND IMPLEMENTATION CAPACITY

KEY FACTORS	BEFORE 1988	AFTER 1988	OUTCOME
1. POLITICAL COMMITMENT	Prevention of Fraud.	Promotion of Development.	Improved Public Sector Performance. Flourishing Private Sector.
2. INSTITUTIONAL REFORM AND COORDINATION	Little Change Since 20'S. Poor Planning Coordination Control.	High Level Fiscal Council. Pluriannual Plan Across Ministries. Treasury's Powers Expanded.	Minor Improvement Planning and Coordination. Improved Cash Management.
3. LEGAL STATUS OF PIP	Laws Evolved Since 20'S. Many Contradictions.	Organic Law of '88. Elimination of Supplementary Budgets.	Macroeconomic Planning Formalized.
4. CIVIL SERVICES SALARIES	Poor	Significant Gap with Private Sector.	Brain Drain. Moonlighting.
5. BICYCLES	–	–	–
6. TRAINING	Legalistic	Under Reform. High National Priority.	Increased Efficiency (Effectiveness).
7. TECHNICAL ASSISTANCE	–	Donor Community Support.	–
8. MIS	–	PBD.	Comprehensive Screening of PIP Projects.

ZAIRE

PIP PREPARATION AND IMPLEMENTATION CAPACITY

KEY FACTORS	BEFORE 1983	AFTER 1983	OUTCOME
1. POLITICAL COMMITMENT	None.	None. Political Imperatives.	No Discipline. Deliberate Mis-Management of Resources.
2. INSTITUTIONAL REFORM AND COORDINATION	Pre-Investment Studies Fund. Min. Plan Reorganized 1979.	Min. Plan/Finance and External Resources Coordination Committees.	Limited Impact on Performance.
3. LEGAL STATUS OF PIP	No Legal Status.	No Legal Status.	"Black Boxes". Extra-Budgetary Expenditures. Earmarking.
4. CIVIL SERVICES SALARIES	–	$35 Per Month	Rent Seeking. Corruption. Poor Motivation. High Turnover.
5. BICYCLES	–	–	Poor Knowledge of Projects. No Learning by Experience.
6. TRAINING	–	SAL 1988 Program. Control, Line and Regional Planning Units.	Brain Drain to Private Sector and Abroad.
7. TECHNICAL ASSISTANCE	–	Major Input, Including Parastatals and Line Ministries.	Limited.
8. MIS	–	PIP Monitoring System. Government Blocked in 1988.	Incomplete and Unreliable Data.

HOW TO BUILD CAPACITY?
NEXT STEPS

1. Strengthen Political Commitment and Capacity

2. Build Institutional Capacity in Line and Core Ministries

3. Keep Civil Service Salaries Competitive

4. Streamline Commitments/Programs/Projects

5. Build Sound Accounting System

6. Emphasize Training and "Bicycles" (On-the-Job)

7. Improve Aid Management and Reduce Technical Assistance

DONOR – DRIVEN AID MANAGEMENT

GOVERNMENT PROGRAM

AID MANAGEMENT

PIP

DONORS

ECONOMIC DEVELOPMENT

PROJECT CYCLE
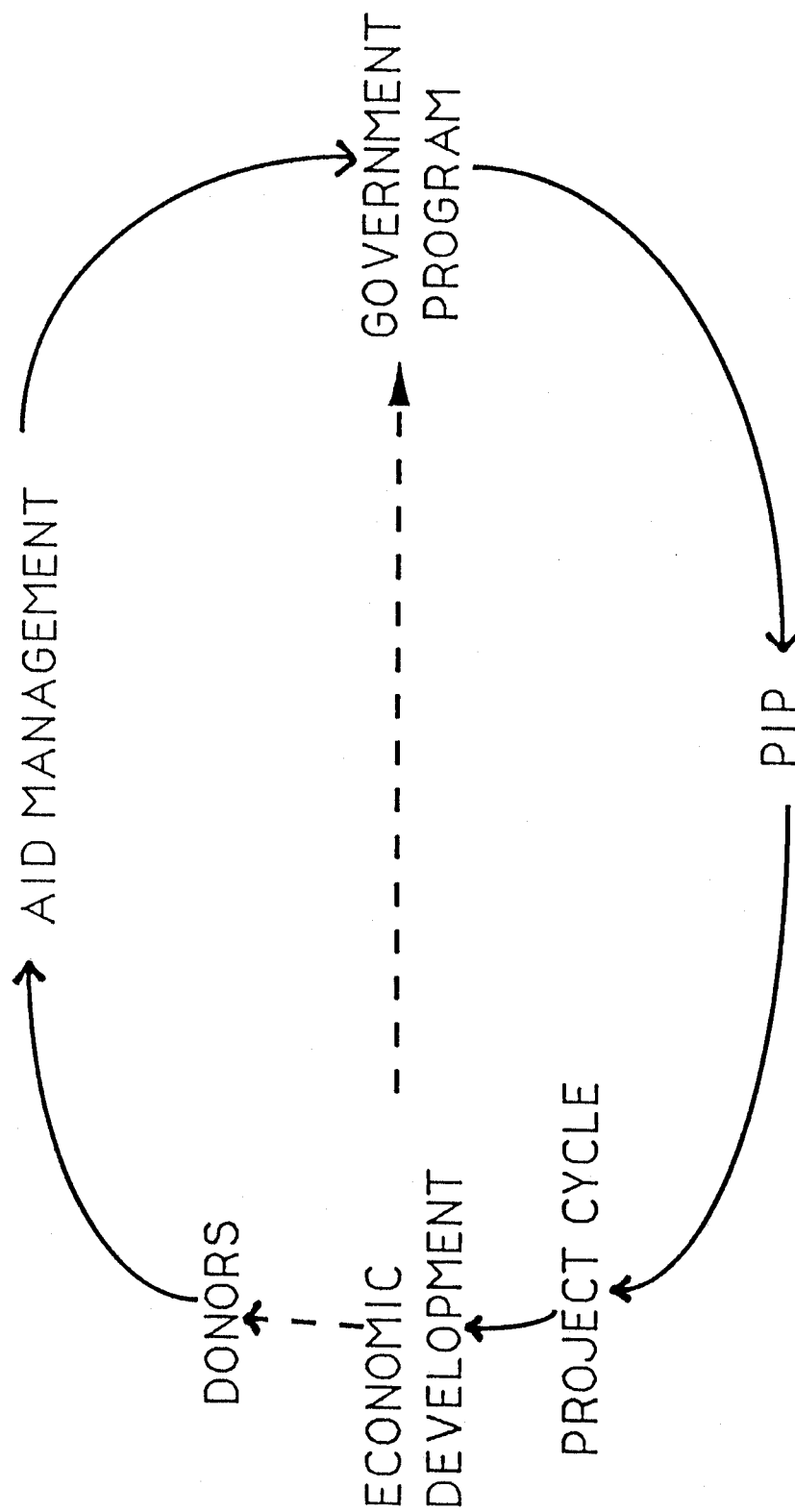
COUNTRY – DRIVEN AID MANAGEMENT

GOVERNMENT
STRATEGY

AID MANAGEMENT

PIP

DONORS

ECONOMIC
DEVELOPMENT

PROJECT CYCLE
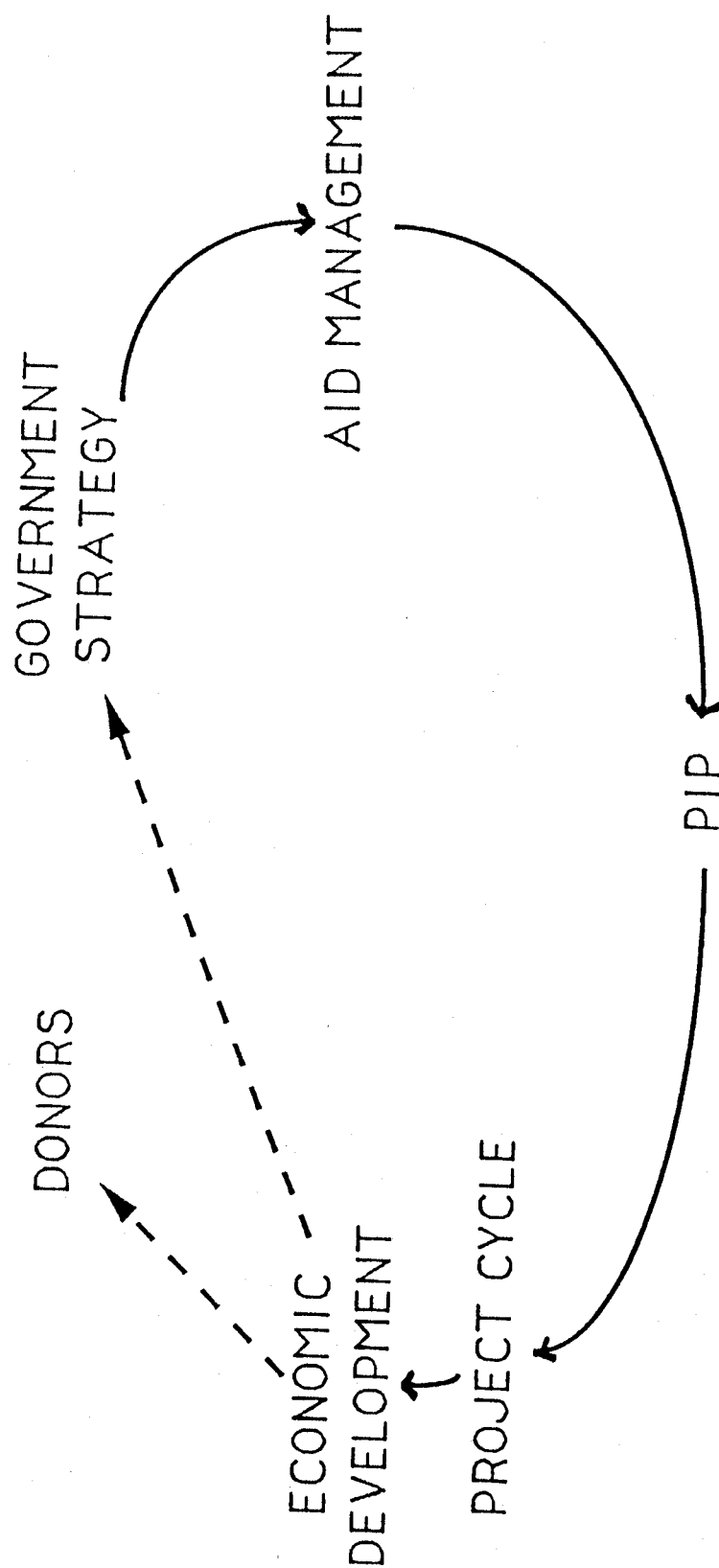
CONCLUDING REMARK

"ONE CANNOT MAKE A TREE GROW
FASTER BY PULLING IT FROM OUTSIDE; IT
HAS TO GROW FROM ITS ROOTS".

THE PROJECT DATA BANK APPROACH TO AN EFFICIENT PUBLIC INVESTMENT MANAGEMENT SYSTEM

Eduardo Aldunate *

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* Expert, Project and Advisory Assistance Programme, ILPES.

1. Introduction

Nowadays it is a well demonstrated fact that the growth rate of a country depends, among other factors, on a good assignment of the Public Sector Investment Resources. Therefore, if a greater economical growth rate is desired, a step toward achieving it would be to improve the efficiency in public investment management (PIM).

a) Problems in Public Investment Management

The implementation of an efficient PIM system is not an easy task. According to experience, the most typical problems that arise related to capital investment budget, are the following:

- Delays and cost overruns during implementation.
- Inadequate financing for operation.
- Lack of projects ready for implementation
- Over-investment in some sectors.
- Low investment in the social sectors.

i) Delays and cost overruns

Delays and cost overruns during implementation are the most recurrent problems in public sector investment programmes. However, real delays or cost overruns must be distinguished from too optimistic forecasts during the preinvestment stage. A project might present delays or cost overruns due to factors such as lack of timely funding, poor planning of the implementation, strikes, lack of materials and natural disasters. However, a project can also be showing cost overruns or delays when compared with forecasted figures while in fact it is being implemented at an optimum rate. This would happen if those forecasts were too optimistic or were manipulated in order to make the project more attractive.

ii) Inadequate financing for operation

It is also quite common that no provisions are made for financing the operation of a project or that funds allocated are insufficient. Usually the budget is approved taking into consideration only the capital cost of the project and not considering that later it will be necessary to finance operation and maintenance. As a consequence infrastructure is not adequately maintained, is sub-utilized or is not utilized at all. Many reasons may explain this problem, including: not considering operational cost during the preinvestment phase, poor

coordination among institutions in charge of building and operating and the fact that it is politically more attractive to inaugurate new projects than to operate the existing infrastructure.

iii) Lack of projects ready for financing

A typical situation when a team of a financial institution visits a country is to see officials either from the national planning office or from the ministry of finance working overtime to prepare a set of projects for which financing can be requested. This reflects a poor or nonexistent preinvestment process. Projects are prepared only when financing is likely to be available and not as a regular activity within the government. As a consequence, when financing becomes available it does not necessarily go to the most prioritary sectors, but to those that have more projects (or high investment projects) ready for financing.

iv) Over-investment in some sectors

The consequence of the previous situation is reflected in over-investment in some sectors or emphasis on big infrastructure projects. This is a common situation in many countries and stems from the fact that those institutions that have traditionally managed large amounts of money have teams of engineers and economists that can do an efficient work in project appraisal and design. Therefore, when funds are available it is highly likely that the Government will select projects that are ready and can go immediately into implementation. Once a big project has been started, for example an hydro-electrical facility, an airport or a port, it is almost impossible to stop it.

v) Low investment in the social sectors

When budget cuts must be made it is unlikely that big projects are going to be stopped. Of course, there may be no economic reason for stopping them due to the high sunk cost. However, this is not the typical consideration. More likely, a big project is not going to be stopped due to the high political cost and the presence of pressure groups that benefit from it (building companies as well as labor unions). It is also highly unlikely that the current budget will be cut because it would imply firing public sector employees; a high political cost alternative. Therefore, the most common way out (given that printing money and therefore financing the deficit trough inflation is fortunately sufficiently discredited) is to delay small projects, which are typically social sector projects. Therefore, it is common that in

times of crisis those sectors that would need more money are postponed, basically education, health and manpower development.

b) Common Limitations to Efficient Public Investment Management

All this inefficiency in the management of public sector investments are the outcome of deficiencies in the government body; among them:

- Inadequate training in project appraisal and implementation
- Non standardized procedures for collecting and analyzing data
- Lack of timely information
- Inadequate institutional framework
- No accountability for mistakes or inefficiencies
- Lack of political support to improve efficiency

i) Inadequate training

Inadequate training in project formulation, appraisal and implementation is a major reason for inefficient management of public sector investment has been a long recognized fact. Therefore, it may seem unlikely that there be still a problem of lack of training, considering the large number of courses given each year by different national, bilateral or multilateral agencies. However, the impact of all these courses has been less than expected due to factors such as:

- Many courses have been aimed at providing advanced training in project appraisal (6 months to two year programmes). The result is a small group of highly qualified public officials. Unfortunately, their high qualifications make them attractive for private sector companies, which can pay better wages than the public sector.
- Other courses provide medium level training in appraising projects of specific sectors. This is the typical case of one to three month courses given by multilateral agencies. Officials receiving this kind of training are not so likely to move to the private sector. However, almost each agency has its own approach to project appraisal. Therefore officials that attend different courses will not agree on how to evaluate a project. Moreover, if the same official attends two different courses he will probably become confused. In fact, people are mostly trained by some multilateral agencies on how to presents projects for financing by the agency that in social and economical project appraisal.
- Not always are the best officials enrolled in the project

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appraisal courses. Sometimes the head of the institution or department selects a second level official because he is not willing to release key people for more than a couple of days.

- If there is no institutional framework or political support for doing project appraisal, a trained official may become frustrated and cease appraising projects, or even leave.

ii) Non standardized procedures

Not using standardized project appraisal methodologies and procedures for selecting and implementing projects is also a problem. When methodologies for appraising projects are not standardized, it is impossible to select the best projects, even within one economic sector, because project indicators are not comparable. It is also impossible to have a team of public officials well trained in appraising projects because it would be necessary to train them in all the different methodological approaches to project appraisal.

A similar situation occurs if no standardized procedures are used for project follow-up and control during implementation. Such a situation would make it impossible to compare the efficiency of different institutions in implementing their respective investment programmes.

iii) Inadequate institutional framework

Another common problem is an inadequate institutional framework. Usually, the tasks of planning public investment, financing it and doing project follow-up are undertaken by different institutions, which, in some instances, overlap in their responsibilities and work. Therefore, they start requesting the same data from line ministries over and over.

iv) Lack of timely information

Inefficient public investment management is also due to a lack of timely information, especially during project implementation. Frequently high level decision makers are not aware of problems in the implementation of projects until it is too late. They may even be informed of the problem only when it is publicly highlighted by the press. The consequences of most problems during the implementation of a project can be minimized if corrective measures are taken at an early stage. However, if no periodic follow-up of the projects being implemented is done, it is highly likely that problems will seriously compromise their economic viability.

v) No accountability for inefficiencies

There is also a problem of non accountability for inefficiency. Public resources are everybody's money which is the same as saying that it is nobody's money. Therefore no major attention is paid by managers to how this money is being invested. Public officials are not rewarded for being efficient in selecting or implementing projects, neither are they penalized for selecting bad projects or wasting resources during their implementation. They earn the same wages if they are efficient or if they are not, which makes a big difference with the incentives perceived by managers in the private sector.

vi) Lack of political support to improve efficiency

Sometimes resistance to developing an efficient public investment management system is found among politicians. This happens because if efficiency criteria are employed in selecting project for implementation, their leeway for lobbying for specific projects or even directly selecting projects to be implemented will be reduced.

2. Methodological Framework

To tackle the above mentioned problems ILPES has developed a theoretical framework to serve as guideline in assisting member governments in developing and implementing efficient public investment management systems. The approach is based on considering investment management as a function that must be developed by the Government.

a) The public investment management function

This function controls a process through which resources are transformed into specific products. For example, pre-investment is a process that consumes manpower and capital to produce studies that support planning future investments. The capital investment process uses capital (in the form of various inputs) and produces physical infrastructure. In a similar

PUBLIC INVESTMENT MANAGEMENT FUNCTION

RESOURCES	PREINVESTMENT	STUDIES
	CAPITAL INVESTMENT	PHYSICAL CAPITAL
	SOCIAL EXPENDITURE	HUMAN CAPITAL

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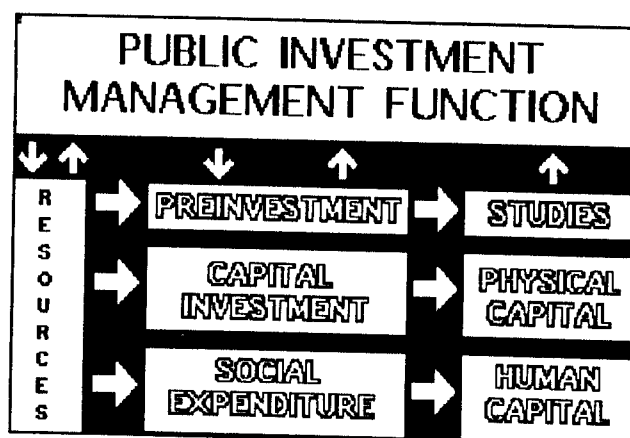
fashion, social expenditures uses public sector resources to increase the human capital of the country.[1]

The public investment function manages data about the resources and decides how they are allocated. It gets information about the production process (preinvestment, capital investment and social expenditure) in order to know how the resources are being employed, and, if necessary, adopts corrective measures.

b) Components of the Public Investment Management Function

To achieve this goal, the public investment function must have some very specific components. A key element of such a function would be a budgetary control and follow-up system. This element of the function would report on how resources are being spent and if the objectives are being achieved within the established time-frame and at the forecasted cost. Information about all ongoing public investment projects should be collected on a regular basis. Using this data, different reports can be prepared and distributed to decision makers.

Also a way of doing macroeconomic projections is required in order to know how much resources will be available in the coming years. The information provided by such a model is critical to the management of public investment in order not to include in the budget more projects than those that can be financed. Or, in the opposite case, forecasted resources may be excessive for the requirements of the public sector investment programme. Therefore, more projects may be included, or, better yet, taxes could be reduced to alleviate the burden on the private sector. In either case, estimates of the income that the government is going to have from taxes or from loans in the coming years are required.

It is necessary to know which institutions have been efficient in implementing the projects and which have resources assigned but have not been able to spend those resources as it was planned. This information can be feed back into the system in order to adjust the distribution of resources for the next budgetary period.

Then a way of allocating and distributing the current budget is required, as well as a system for allocating social expenditures

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[1] Obviously, resources must also be assigned to the current budget, but our analysis will concentrate on public investment in physical capital.

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in order to know how it has
been spent and if it has
reached the targeted
population groups.

Also a system for developing
investment programmes is
required for preparing the
capital budget. Such a system
should support the analysis
of alternative investment
programmes, facilitating to
determine which one allows
achieving the pursued
objectives in the most efficient way.

PUBLIC INVESTMENT MANAGEMENT FUNCTION

MACROECONOMIC PROJECTIONS SYSTEM	←	FOLLOW-UP AND BUDGETARY CONTROL SYSTEM

SYSTEM FOR ALLOCATING THE CURRENT BUDGET	SYSTEM FOR ALLOCATING SOCIAL EXPENDITURE	SYSTEM FOR DEVELOPING INVESTMENT PROGRAMMES
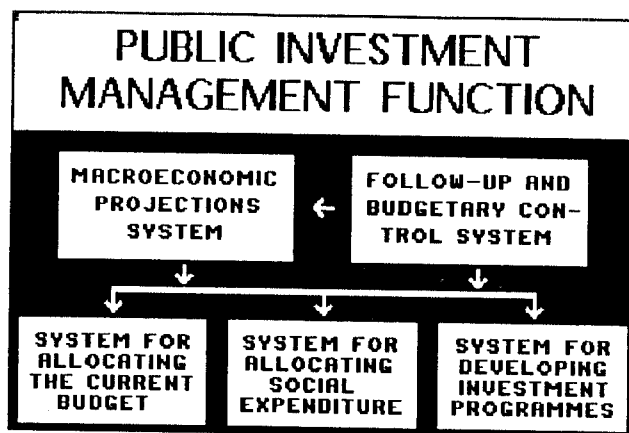
All these components make up what we call the Public Investment
Management Function. For achieving a higher level of efficiency
in public investment management (PIM), all this elements must be
present and should be responsibility of one or more public
entities.

c) The Project Data Bank Approach to Supporting PIM

The rest of this paper presents one specific approach towards
improving the efficiency in allocating and managing public
investment. This approach is based on the use of a Project Data
Bank (PDB).

A Project Data Bank is an information system aimed at improving
public sector investment management by providing timely
information on proposed and ongoing projects. Within the
framework previously presented, a Project Data Bank supports the
tasks of project follow-up and budgetary control, allocation of
the capital budget, planning of public sector investment and, to
some extent, the allocation of social expenditures.

However, given that the quality on the results obtained with an
information system depends on the quality of the information
received, there is a need to complement a Project Data Bank with
additional tools and elements that ensure the timeliness and
quality of the information received. This additional elements
are:

- Methodologies to facilitate and standardize project appraisal
at the profile level and project control and follow-up.
- Training on the use of the methodologies and the information
system (Project Data Bank).

- An appropriate institutional and legal framework that guaranties the timely collection of comprehensive information.

In the following sections, this approach based on a Project Data Bank is analyzed in greater detail. Its main elements, the PDB, the methodologies, the training programme and the institutional and legal framework are discussed in sections 3 to 6. Based on the experience ILPES has accumulated on the subject, section 7 presents the way in which such a public investment management system should be implemented in order to maximize the probability of success. Finally, section 8 lists some of the expected achievements of implementing a PSIP management system based on a PDB.

3. The Project Data Bank

As was already mentioned, a Project Data Bank is an information system whose main purpose is to provide decision makers with up-to-date information on proposed and ongoing projects. It does not imply the use of specific software or hardware, but is based on a specific approach on how to store and manage the information collected. This specific approach, which constitutes the basic framework of a Project Data Bank, is known as the logical structure of the system and is presented in the following paragraphs.

a) The Logical Structure of a Project Data Bank

The logical structure of a Project Data Bank is based upon the "project life cycle". The basic building block in the information system is the project. That implies that data is registered and managed in relation to specific projects. However, for the purpose of managing more detailed information about components of a big project, it can usually be divided into sub-projects. Also, for controlling the physical and financial progress of a project (or a subproject), it can be divided into activities. Finally, it is also possibly to aggregate information from various projects in order to obtain reports for specific investment programmes,
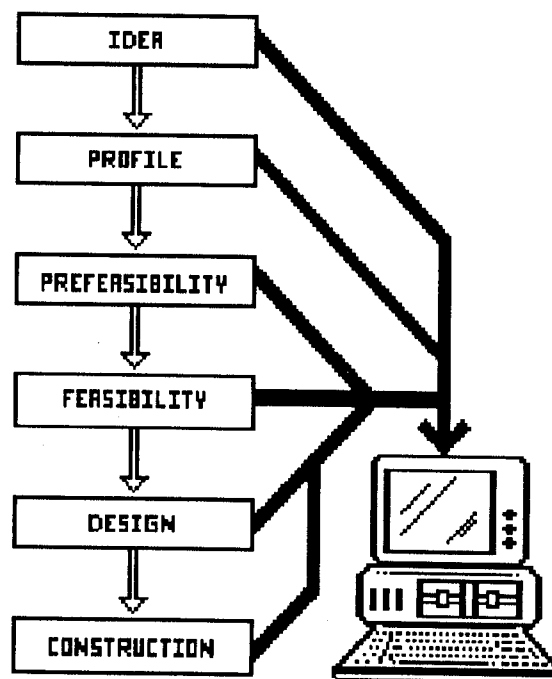
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institutions, economical sectors or geographical regions. Still, the basic elements around which the information is grouped are specific projects.

Consequently, for the proper operation of a Project Data Bank a key aspect is to have a consistent and standardized definition of what is a project. Given that the main objective of a PDB is to improve efficiency in the use of public sector investment resources it is convenient to define a project from an economic standpoint. Therefore, the usual definition for a project within the framework of a PDB is: "A set of actions or activities aimed at satisfying an identified need and requiring resources for which it competes with other projects".

The Project Data Bank first registers a project when it is an idea[2] and then follows it along all the stages of the life cycle. Only summarized information useful for decision making purposes is collected, stored and managed by the system.

The amount of information registered increases when the project proceeds along its life cycle. For example, at the idea stage only the name, description and justification of a project may be registered. In contrast, at the implementation stage a great deal of data about the project will be registered, including the implementation schedule, contracts for project execution and quarterly reports about project progress.

For managing all this data appropriate hardware and software is required. Designing and developing the software as well as selecting adequate hardware are important tasks in assuring the success of the PDB. This issues are examined in the next section.

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┌──────────────────┐
│       IDEA       │
└──────────────────┘
          ⇩
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│     PROFILE      │
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│  PREFEASIBILITY  │
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│   CONSTRUCTION   │
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2 In some cases a decision is made to register a project only when it has reached the profile stage. This is done in order to avoid that too many unchecked project ideas burden the system.

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b) System architecture

From the standpoint of hardware and software, the Project Data Bank can be structured as a Centralized or as a Decentralized Information System. The basic characteristics of these architectures are presented in the following paragraphs.

i) Centralized architecture

In a Centralized Information System one main computer in the institution in charge of the operation of the Project Data Bank registers all data. Other institutions can access this database through terminals or personal computers connected through dedicated lines to the main computer. Therefore, any requests for consulting modifying or registering information are handled by the main computer.
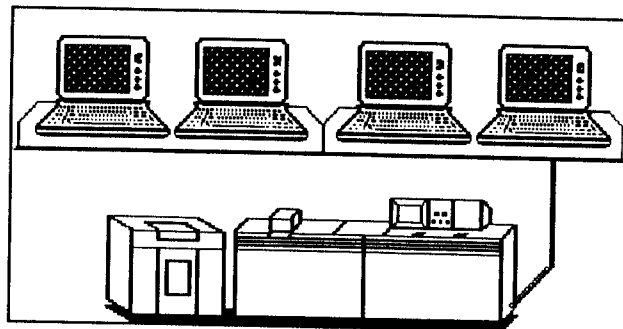
This approach has the advantage of a greater control over the information that is registered. There is only one institution that is responsible for the information. There is no need to go from one institution to the other to obtain the latest figures. Therefore, access to all data registered is straightforward. Also, given that the information is stored in only one computer, no duplication of data exist.

However, this approach has some disadvantages that have made it unpopular in recent national experiences. First, the cost of a mainframe computer is very high, specially when considering all related costs, like the provision of specially conditioned rooms in the institution in which the mainframe is going to be installed. The running cost of having dedicated telephone lines for accessing the mainframe is high, and so is the repair cost of a mainframe or minicomputer. Finally, any failure affects the entire system, leaving all related institutions without access to project related information.

A system based on a central computer is also likely to be unpopular among line ministries. Officials of the ministry might feel that information (and therefore power) is being taken away from them, and that the institution in charge of the PDB is intervening in processes and decisions that are the exclusive responsibility of the ministry.

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ii) Decentralized architecture

A more modern approach is a Decentralized Information System in which one institution still has a database with all the information. However, every institution associated to the PDB has also a local database that registers and manages all the data regarding projects under the responsibility of the institution.
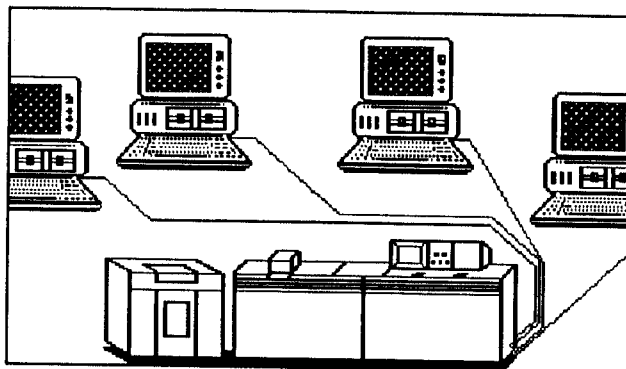
This approach has the advantage of a lower investment cost and a lower running cost. It is also much easier for the institutions to accept a system with a decentralized structure, given that they will be responsible for their own database. Finally, failures will affect only one institution, which can resort to accessing the central database through another computer. Should the main database fail, it will be possible to request the required information from the sectoral or regional databases.

The main problem of this structure is that data is not updated simultaneously in all databases. So if one ministry has updated the information in its database and has not sent the diskette (or a file using a modem) to the central database, any request of information regarding the ministry from the central database is not going to provide the user with the latest data. Therefore, procedures for updating the databases must be established and should be rigorously followed.[3]

c) Selection and Dimensioning of Hardware and Software

For selecting the hardware and software for a Project Data Bank different factors must be considered, the two main ones being the amount of information to be managed and the architecture chosen for the system, that is, if a centralized or a decentralized Project Data Bank is going to be instituted.

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[3]   Another disadvantage of this architecture, the duplication of information, was a major problem some years ago because of the cost of storage media. However, given the actual cost of personal computers and the drastic increase in their capabilities, it is no longer of concern.

If a centralized architecture is selected the work load of simultaneously handling requests from multiple terminals would require at least a minicomputer. Terminals or personal computers emulating terminals would be installed in all institutions to which access to the PDB is granted. Dedicated communication lines, modems, and eventually multiplexers would be required.

If a decentralized architecture is preferred, a high-end personal computer would be selected for the main database at the institution managing the Project Data Bank. This computer could be part of a Local Area Network (LAN) which could include dedicated file and communications servers, high speed printers and personal computers for the different sections related to the PDB. Line ministries and regional entities would be provided with personal computers and modems to access, over regular telephone lines, the central database for uploading or downloading information.

The volume of data to be stored would condition the dimensioning of the hard disks, which could be in the gigabyte range for the main database. The number of terminals or personal computers accessing this main database would define the characteristics of the communication network. For example, a large number of remote accesses would imply the need of a dedicated communication servers and even multiplexers.

As can be seen, the alternatives go from a mainframe to a personal computer. But, basically due to the lower investment cost, greater acceptance of the system and to a greater flexibility in expanding it, most Project Data Banks are nowadays implemented as networks of personal computers.

Together with choosing hardware, software for the Project Data Bank must be selected. It must be stressed that the choice of hardware and software are closely related, given that not all software packages run in all hardware platforms.

A basic consideration in choosing the software is how user-friendly the application to be developed can be. The reason being that if it is very user-friendly less training will be required and it will be easier to get the different institutions to accept working with the Project Data Bank. Other critical aspects to consider are the ability of the software to operate in a multi-user environment and its performance with databases of the size that the PDB is expected to have in a few years. Finally, it is important to verify that enough experience exists in the country with the software to be employed. Otherwise, future development and maintenance of the system could be difficult.

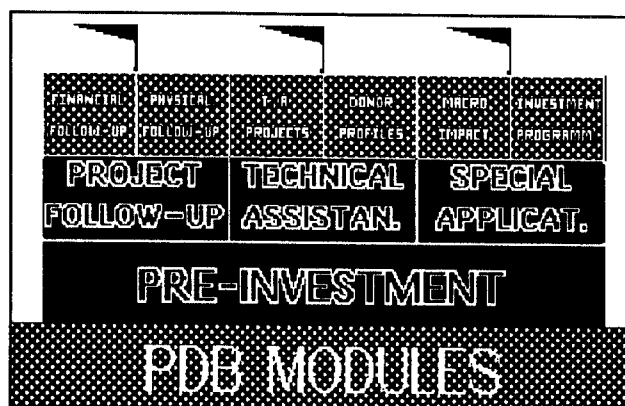## d) Modules of a Project Data Bank

Once a software has been selected for developing the PDB, the second problem to tackle is how the application is going to be structured. The PDB can be built in a modular way, having different modules aimed at managing particular categories of information.

i) Preinvestment Module

The basic module of a Project Data Bank is the Preinvestment Module which registers all information that is generated during the preinvestment stage. Data registered in this module includes name, description, justification, estimated cost, location, implementing institution and indicators of the project.

ii) Follow-Up Module

After this basic module, another module that can be implemented, and which is key for the success of a Project Data Bank is the Follow-Up Module. The purpose of this module is registering and managing information which allows controlling the implementation of projects from a physical and a financial standpoint.

iii) Technical Assistance Module

A third module that has been included into the Project Data Bank in some national experiences is the Technical Assistance Module. Its purpose is to register information about technical assistance projects and bilateral and multilateral agencies that provide or may provide technical assistance (TA) to the country. However, only those projects whose main purpose is the transfer of knowledge to the country would be considered technical assistance projects. Capital investment projects funded by technical assistance resources should be registered as such and managed in the same way as other capital investment projects.

One major use of this TA module is to register information about potential donors or agencies that have provided or may provide funds for TA or capital investment projects. This information can prove very useful for analyzing alternative ways of financing

projects that could not be financed by regular budgetary resources.

iv) Other modules

Finally, one or more modules can be added with the purpose of using the information contained in the Project Data Bank for special applications. A module can be developed for assisting in preparing alternative investment programmes and analyzing its likely impact on selected macroeconomic variables. For example, how much employment is going to be generated by different alternative investment programmes, or how much foreign funds will be required for financing different investment programmes.

The information in the preinvestment module can be used by another module for project ranking based on registered indicators like net present value (NPV), internal rate of return (IRR), ratio NPV to investment (NPV/I) or cost - benefit ratio (C/B), and criteria provided by the user (ex. NPV>0 or IRR>12%). If desired, combinations of criteria could also be used.

4. Methodologies

To fulfill its objectives, the PDB must be fed with standardized and reliable information. However, project appraisal is more the exception than the rule in many countries. Quite frequently, only those projects that are candidates for external financing are appraised. Moreover, appraisal is sometimes done by the agency providing the funds or by consultants hired by it. In this case, appraisals not always address the issue of the convenience of the project to the country, but give great attention to the ability of the favoured institution to repay the loan.

Bilateral aid is also frequently conditioned to acquiring products or services from companies of the donor country. In such cases, it may be cheaper for the beneficiary country to request non subsidized funding from another country or multilateral institutions and buy the services or products through public bidding. However, if no regular project appraisal process exists, alternatives like the one suggested may never be considered.

By using standardized methodologies, projects, or alternatives for a given project, can be easily analyzed and its convenience to the country judged on a common and consistent base, using criteria such as NPV/I or IRR.

The main goal in developing the methodologies is to provide project evaluators with a tool that is simple to use yet powerful enough for improving project selection. Therefore, unnecessary theoretical complexities should be avoided, adopting a pragmatic and practical approach. The ideal structure of the methodologies, at least at the start of the system, is that of manuals or data capture forms that guide the evaluator step by step in appraising a projects.

For developing the methodologies, a good approach is to start with a common framework in the form of a general project appraisal methodology. Afterwards, and based on this general methodology, specific methodologies are developed for those types of projects where their number justifies the effort involved. Typically these include: roads, health, education, water and sewerage. For projects for which no specific methodology exists, the general methodology should be applied.

For doing a social appraisal of the proposed projects using the methodologies developed, it is necessary to estimate the shadow

prices of some basic inputs (social prices). These include at least labor, capital (social discount rate) and foreign currency. However, if the shadow prices are close to market prices, it may be convenient, at a first stage and for project profiles, to use market prices, therefore simplifying the methodologies.

It is also useful to have methodologies for doing pre-investment planning and ex-post evaluation. A methodology for pre-investment planning would institutionalize the process of analyzing the progress of projects along the project life cycle in order to adjust the resources and effort being spent in preparing them with the probability that those projects are going to be financed in the near future.

A methodology for ex-post project evaluation, would provide information for adjusting the ex-ante project appraisal methodologies so that future project appraisals forecast, with a greater degree of accuracy, project costs and benefits.

5. The Training Programme

One of the main activities in implementing a Public Investment Management System based on a Project Data Bank is the training programme. This is a key component and if a good training programme is not developed, it is very difficult to achieve the expected benefits.

Basically, personnel trained in project identification, formulation, appraisal and project management is required. Officials should also be trained in the use the Project Data Bank.

Based on the results obtained by different training programmes in the area of project appraisal, ILPES recommends that the training programme comprehends three levels: basic, intermediate and advanced.

a) Basic level training

Training at the basic level is aimed at a large number of people. The main purpose of these courses is to train, in the shortest possible period, all officials involved in public investment management. The areas in which they should be trained are appraisal of projects at the profile level, procedures of the system including the supervision of on going projects, management of the implementation stage of projects and use of the Project Data Bank.

This basic training should be given in courses of one or two weeks with 20 to 30 participants in each. They should be very practical emphasizing real project preparation and appraisal work over theory. An alternative to this type of courses is to develop a "Train the Trainer" programme in which selected professionals from different public sector institutions are prepared for training in project identification, preparation and appraisal. In this case, institutions participating in the programme assume a compromise in order to developed a given number of courses in the same topics. If this approach is selected, a greater number of public sectors officials can be trained in a shorter period. However, the level of training provided is somewhat lower. Still, this last approach is the best for creating in a short timeframe a "project appraisal culture" within the public sector.

As a result of this basic training programme, a capacity to operate the system will be generated within the government.

b) Intermediate level training

Training at an intermediate level is aimed at a smaller group of persons. A few representatives of each institution in the public sector are trained in two to three month courses to act as monitors in project appraisal or in project management. After completing their training, they should be able to do project appraisal at the prefeasibility level; or be prepared to act as good counterparts for consultants that are contracted to do prefeasibility studies. Alternatively, they should be prepared to program and control the implementation of projects. They also receive more detailed training in the use and operation of the PDB and would be prepared for solving minor problems that arise with the software or hardware. Finally, they should be prepared to act as monitors in basic level courses.

The goal of this intermediate level training is to generate a back-up capacity for persons that attended basic level courses. A multiplier effect will also be generated, given that people trained at this level could act as monitors in shorter courses, facilitating the training of a large number of persons in a brief period.

c) Advanced level training

Finally, a small group of people should be trained at an advanced level in these same topics. The training should prepare them for developing or updating project appraisal methodologies,

calculating or updating shadow prices, continue developing the software of the Project Data Bank or solve major problems that arise with its operation.

The purpose of this level of training is to generate a local capacity to further develop the Project Data Bank, so that the country does not need to rely on technical assistance for a longer period than the implementation of the system takes.

This training should be given mainly by universities. The role of the Government would be to provide fellowships for studies abroad or sign agreements with local universities to provide this kind of training. The government should also be willing to release top level professionals for long periods, in order to attend such courses.

6. Institutional and Legal Framework

For the successful implementation of the Project Data Bank it is necessary to have an appropriate institutional and legal framework. Unique responsibilities must be assigned to institutions to avoid overlaps and potential conflicts.

One institution should have the responsibility for developing and updating project appraisal methodologies and estimating social prices. That same institution, or may be another, could have the responsibility of administering the hardware and software of the Project Data Bank. Similarly, one institution should be responsible for controlling project progress during implementation. Also one entity should be responsible of the coordination of the training programme (not necessarily giving all the courses).

Procedures should be established for a periodic update of the information. They must define who should fill the data capture forms, to whom should those forms be sent, if the forms are to be completed on a quarterly or on a yearly basis and who will get reports from the Project Data Bank and what kind of reports. For example, summarized reports of potentially problematic areas could be prepared on a regular basis for high ranking officials and more detailed reports for people working in specific areas.

It is also necessary to establish rules and privileges for accessing the information in the PDB. For example, it is important to specify who (which institutions) will be allowed to consult the databases of the system, who can enter or modify data and who can delete data from the PDB.

Finally, a legal framework that enforces these institutional responsibilities is necessary. It should support the operation of the Project Data Bank by making compliance with its procedures obligatory for all public sector institutions. If the Planning Office or the Ministry of Finance has the authority to leave a project out of the PSIP if it has not complied with the procedures of the PDB, it is much easier to have complete and up-to-date information about all proposed and on-going projects.

7. Implementation

A common misconception about Project Data Banks is that all current problems in preparing the PSIP and managing its implementation will be solved by buying hardware and installing the PDB software. Two critical aspects are overlooked when such an approach is taken. First: the information system has to receive timely and reliable data. Second: the institutional structure is different from one country to another and therefore software developed for a specific country is unlikely to be directly suitable to satisfy the needs of another country. Cases can be shown in which one or both of the previously mentioned aspects have been overlooked and therefore the PDB never worked.

Consequently, it is necessary to spend time and effort in developing a structure for the PDB that is suited to the particular institutional environment in which it is going to operate, as well as in implementing the training, methodological and institutional components.

a) Activities during the implementation

When the implementation of a Public Investment Management System based on a Project Data Bank starts, the first major activity that should be undertaken is preparing a diagnosis of the current situation in the country. Aspects to analyze include: a) how public investment is managed (institutional responsibilities), b) how many officials have been trained in project appraisal and management, c) which are the current procedures for preparing and controlling the PSIP, d) if project appraisal methodologies are available and are being applied, e) the type and number of project appraisal and project management courses offered in the country, f) the type and number of projects proposed and implemented each year, and g) the type, number and characteristics of computer equipment available for public investment management purposes.

The information collected allows planning and dimensioning the work to be done. Key aspects influenced by the results of the diagnosis are the type and number of courses to be included in the training programme, the type and number of methodologies to develop, the procedures of the system, the institutional responsibilities to be assigned and the type of information to be collected. In the following paragraphs, the main activities for implementing each component of the PDB are briefly outlined.

It is necessary to design data capture forms as well as the procedures for filling the forms and exchanging information between institutions. Once the data capture forms have been defined, the design of the databases and development of the software required for managing all data can be undertaken. Later, after the databases have been designed, the definition of what hardware will be required can be done. Based on this definition, the procedures for the acquisition of that hardware can be initiated.

Project appraisal methodologies must be prepared in conjunction with specialists from the line ministries. For their application, shadow prices need to be calculated.

The training programme that is going to be developed together with the implementation of the Project Data Bank must also be designed. It can be developed directly by the government for the most basic courses or through agreements with local universities. For the courses to be given, manuals have to be developed. A procedure manual would tell the institutions how they should use the data capture forms, to whom they should send the forms and when they should send them. A manual on the use of the software of the PDB and a technical reference manual are also required.

Together with developing the PDB software, the project appraisal methodologies and the procedures of the system, a comprehensive study of the legal framework regarding public investment must be done. As a result, a proposal should be made to modify (if necessary) the current legal framework in order to fully support the PDB.

Finally, the initial loading of information into the Project Data Bank must be done. This activity is required because when the system begins operation, many projects will already be at the implementation stage and all data that is available about them will have to be registered.

b) Conditions for success

For the successful implementation of a Public Investment Management System based on a Project Data Bank some other conditions have to be fulfilled. The most critical condition for success is Political Support. If no support is given at the top level to the changes that have to be implemented, it is very unlikely that the expected results can be achieved.

A critical component that is likely to require the greatest resources and effort is the training programme. In the first two years most of the people which are going to be involved in using and operating the new system should be trained.

It is also highly convenient, if not critical, that assignment of resources is tied to compliance with Project Data Bank procedures, so that no project is assigned financing, if it is not registered as a viable project in it. Conditions like this have been set in Chile and Colombia. However, there will always be exceptions and some projects will bypass the entire system.

Adequate funding and staffing for implementing and operating the Project Data Bank is also required. At least one person should be in charge of the operation of the Project Data Bank in each public sector institution. Entities playing a major role in the system (eg. Ministry of Finance or Ministry of Planning) should have teams of well trained professionals assigned to the operation and maintenance of the system.

It is also convenient to involve the final users of the system at an early stage. This allows building on the experience of the people that are actually working with projects in the country. It has also the advantage of reducing resistance to the new system.

c) Cost and time required

Even if all the previously mentioned activities are completed and all conditions met, implementing a Project Data Bank and achieving its full operation is not easy and may take a few years. One year will be spent in designing the system and starting its implementation. Hopefully, project registration will begin in the second year and in the third year some results may be obtained. So, it is unrealistic to expect a miracle solution to actual problems; the implementation of a Public Investment Management System based on a PDB is a medium term solution.

Also, resistance to change will be encountered at all levels in line ministries, the Ministry of Finance and the Ministry of Planning. Officials in line ministries will feel that they are being controlled by Finance or Planning. Resistance from people that have to fill the data capture forms will also be found. They will say that they have too many other important things to do, to spend time filling data capture forms.

Another important factor to consider is the cost of implementing a Public Investment Management System based on a Project Data Bank. The total cost involved is high, because funds will be required for developing the training programme, acquiring equipment and hiring consultants for developing software, project appraisal methodologies and assisting in modifying the institutional and legal framework. Experience has shown that the total cost of implementing a system like this is at least of one million US dollars for a medium size country.

A final problem to consider is that during the implementation stage, the work load is going to increase in line ministries because they will have to continue using their own procedures and, on top of that, start with the procedures of the Project Data Bank. Only once both systems have been running in parallel for at least a year, the old system can be scraped and the new one based on the Project Data Bank definitively adopted. This fact will make it more difficult to convince public sector institutions and officials about the usefulness of the new Public Investment Management System.

8. Expected Achievements

The process of developing and installing a Public Investment Management System based on a Project Data Bank is difficult and costly. However, the results it can provide greatly outweigh the cost and effort invested. Some of the expected results are:

i) Preinvestment planning

Having a Project Data Bank will facilitate pre-investment planning. It will be possible to know at each moment in time which projects are ready to be financed in the coming years. Therefore, if by comparing that figure with forecasted public revenues available for investment (from a macroeconomic model) it is realized that not enough projects will be ready to proceed to the implementation stage, more resources will need to be assigned to preinvestment studies. Such studies would include profiles, prefeasibility studies and feasibility studies depending on the

characteristics of the projects and their stage in the project life cycle.

In a similar fashion, the information in the PDB can be used to forecast investment by sector of economic activity or by regions based on the number of projects being studied and their expected costs. If those projections do not agree with the desired distribution of investment (as stated in a development plan or other policy documents), it will be necessary to increase project preparation and appraisal work in the deficitary sectors and regions, and reduce it in those sectors or regions where an excess number of projects is being prepared.

ii) Investment programming

The Project Data Bank also supports investment programming. If enough projects have been prepared and evaluated at a level sufficient for adopting the decision of proceeding with its implementation, and standardized indicators have been estimated for them (ex. NPV, IRR), it is very easy to prepare alternative investment programmes and evaluate their impact on selected macroeconomic variables.

For example, it would be easy to know the number of employments to be created by all projects to be included in the PSIP, both during their implementation and during their operation. Therefore, if employment generation is a major goal, the alternative PSIP that generates the highest number of employments could be identified and selected.

Using the information in the PDB the distribution of the PSIP by regions, economic sectors or institutions can also be easily studied. Therefore, if the distribution obtained does not match a desired pattern, projects can be excluded from the PSIP and replaced by other viable projects that contribute to achieving the desired distribution of the resources.

iii) Project control and follow-up

A major contribution of a Public Investment Management System based on a PDB is a substantive improvement in project control and follow-up. Once the PDB is collecting information on a regular basis on all projects being implemented, it will be possible to have timely warnings about deviations from the implementation schedule or forecasted costs for any project being monitored.

To facilitate the identification of problems and adoption of corrective measures, the system can report on an exception basis, that is, it can generate reports only for those projects that show delays or cost overruns. For example, a report could be requested listing all projects being implemented for which the cost overrun is greater than 20%. Furthermore, the information in the PDB can be used to estimate delays or cost overruns at the end of the implementation stage if the project continues being implemented at the current rate. This type of reports would allow detecting potentially big problems when they are just starting to show up.

Another useful application of the information collected is to estimate the efficiency for implementing projects at the institutional level. By requesting a report of average cost overruns and delays by institutions, it is possible to identify those entities which require a greater support in order to be efficient in project implementation.

iv) Project ranking

The PDB can also support project ranking. Since it has information about groups of projects evaluated with common methodologies, it is possible to rank them by selected parameters. For example, projects in education could be ranked by cost per student; or projects in health care could be selected based on minimizing cost by attention given; or road construction project could be ranked by net present value (NPV).

Computer programs can be developed that facilitate the work of selecting projects that are candidates for being included in the PSIP. For example, a filter condition can be established so that only projects with a positive NPV are selected.

It is also possible to develop programs that assist in preparing alternative PSIP. Such a program would take a set of ranked projects and assign financing to them based on requested figures and available resources by funding source, until all resources are exhausted.

v) Ex-post evaluation

After some years of operation, the PDB can also be a useful tool for ex-post project evaluation by being the source of information about the ex-ante estimates of project costs (implementation and operation) and benefits. When doing ex-post project evaluation, it is usually not difficult to measure the actual benefits being generated by the project. However, the main problem is finding

information about the estimates that were made before the project was implemented, as well as the actual cost that its implementation implied. If at least a summary of that data can be provided by the Project Data Bank, a great deal of time and effort can be saved.

vi) Analysis of scenarios

The system will facilitate analysis of alternative scenarios. In the computer it is easy to select a group of projects based on certain conditions and see how much money is required to finance them, or how much foreign resources or employment is going to be generated.

vii) Relations among projects

Another interesting application of a Public Investment Management System based on a PDB is the identification of relations between projects. Projects can be complementary, substitutes on dependent on the previous or later execution of one or more other projects. Complementary projects are projects that must be implemented together in order to fully obtain the expected benefits (example: extending an airport runway for receiving bigger cargo planes and building an adjacent cold storage area). Substitute projects are projects such that if one is undertaken it rips off all benefits of implementing the second one. Therefore, any one is economically feasible if built first, but none is economically feasible if implemented after the other one is completed (example: building a new market versus remodeling and improving the existing one). Projects can also have a father-son relation, in which case one must be built first for the second to have a positive NPV (example: the sewerage system for a community is useless if a water system is not in place or built concurrently).

If these relations among projects are registered in a Project Data Bank, checks can be established to ensure the inclusion (or exclusion) of related projects in the PSIP. Therefore, it will be less frequent to see bridges without access roads (or a road without bridges), a sewerage system where no water distribution system exists, or a road to a school that was never built.

vi)   Inter-institutional coordination

A Public Investment Management System based on a Project Data Bank also improves inter-institutional coordination. If the different institutions that take part in implementing public projects have access to a common database describing all projects, either proposed or being undertaken, costly mistakes can be avoided.

It is not uncommon to see one public sector entity, for example a local government, pave a street only for a second public entity (for example the Water Company) to come two weeks later, break the pavement and dig the street to install a new pipeline, leaving the new pavement broken in the middle. If a PDB could be accessed by those institutions, the local government could delay paving the street until the pipeline is in place.

vii) Loan negotiation

The Project Data Bank also supports the negotiation of loans and grants to public agencies. The common situation when a mission from the World Bank or IDB visits a country to negotiate a loan is that public sector officials start running in Planning and in the sectoral institutions to set up, in a hurry, a list of projects that can be presented to the mission. However, when the country is using a Project Data Bank, the burden is put into the representatives of the lending institution, because they can be easily provided with detailed information about projects at different stages of the preinvestment phase, that are candidates for being included in the loan.

viii) Programme control and follow-up

The Project Data Bank will facilitate the control and follow-up of multiple project programmes. Given that the Project Data Bank is based on projects which can be associated by programmes, it is possibly to control the progress of a programme just by adding the information registered for all individual projects included in it.

ix) Decentralization support

Finally the Project Data Bank can support decentralization initiatives, or initiatives to give more autonomy to the line ministries. If decision making power delegated to sectoral or regional institutions, still all information about how investment is being managed in those institutions will be readily available

to Finance or Planning, allowing them to adopt or suggest timely corrective measures to problems. Therefore, it is possible to decentralize and still not loose too much in efficiency.

9. Ongoing experiences

In collaboration with the IDB and UNDP, ILPES has been providing technical assistance to several countries in Latin-America and the Caribbean. In this regard, it is worth mentioning some national experiences.

i) Colombia

Since 1989 the Government of Colombia has been implementing a public investment management system based on a Project Data Bank (Banco de Proyectos de Inversión Nacional - BPIN). Funding has been provided by the government and IDB and ILPES have been acting as specialized agencies giving technical support.

This project has shown very good results due to the commitment of the government and the inclusion of all four basic components (training, information systems, methodologies and institutional and legal reform). The training programme has covered the entire country and more than 1500 officials have already been trained. A network of computers manages the information in the national planning office (Departamento Nacional de Planeación - DNP) and secondary databases have been established in many sectoral and regional institutions. Methodologies for project appraissal at the profile level have been developed and more are currently being prepared. Finally, two special units were created within DNP to manage the system and a complete legal framework supports the operation of the Project Data Bank.

As an example of the results obtained, it is worth mentioning that all project requesting funding for the 1993 bugdet (almost 7.000) were evaluated using the methodologies prepared and were registered in the Project Data Bank.

ii) Chile

The "Banco de Proyectos de Inversion" (Investment Project Bank) of Chile was the pioner in the field of Project Data Banks. Its development begun in 1978 and it was fully operative by 1983. Numerous methodologies have been developed for appraissing projects of different sectors at the profile level. Thousands of public sector officials have been trained since the seventies in advanced, intermediate and basic courses (part of this training programme is being developed by ILPES with funding from an IDB

loan). The information system is based on a mainframe computer and terminals are installed in all regions and some ministries (work is currently being done for modernizing the system).

All public sector investment projects in Chile must have been appraissed using the existing methodologies and must comply with all procedures of the "Banco de Proyectos de Inversión" to be eligible for financing. A specialized department in the national planning office is in charge of operating the PDB and recommending which projects are candidates for being included in the capital investment budget.

iii) **Jamaica**

Establishment of the Jamaican PDB was begun in 1990 with financing from UNDP and technical support from ILPES. Due to different reasons, work has been concentrated on the system component, which will be completed by mid 1992. The other components are expected to be developed under an IDB project currently being negotiated.

Due to this asimetrical development of the components, great difficulty has been faced in collecting information about on-going and proposed projects. Still, the Jamaican PDB is beginning to show results and it is expected that once the IDB project develops the remaining components (training, methodologies and legal and institutional framework) it will become fully operative.

iv) Other national experiences
Other countries that have worked in the implementation of PIM systems based on Project Data Banks include Belize, Bolivia, Dominican Republic, Guatemala, Venezuela, Trinidad and Tobago, and recently Guyana.

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