

6.5.3 Operation and Maintenance (O/M) Cost for Closing Dike and Revetment

Major components of annual operation and maintenance costs for Closing Dike and Revetment is composed of two items; 1). administrative expenses for officials for routine inspection and survey works, 2). materials, labor and equipment expenses for structural maintenance of the Closing Dike and Revetment. This cost is assumed at 0.5 % of direct construction cost and calculated at 218 million Bs (US \$ 0.38 million).

6.6 Institution and Organization Study

6.6.1 Introduction

The scope of this chapter is to present the current institutional and legal framework related to the study on channel improvement and waterway transportation and also to identify the required improvements. Moreover, the recent reformation of the Central Administration organization, relevant to this Master Plan, is also incorporated.

The reformation of the ministerial organization of Venezuelan Government has been initiated since August 1999¹. However the relevant basic institutions and their functions are still under a process of transformation. The government organization related to waterway transportation is quite complicated and therefore the approach presented in this chapter is the result of the Study Team's best understanding of the current situation including the recent ministerial reformation dealt with in the following section.

6.6.2 Ministerial Reformation

The reformation of governmental ministries of Venezuela has been initiated in August 1999. With this reformation the total number of ministries has decreased from a total of 18 to 14. In fact, from an institutional viewpoint the total reduction is from 19 to 14 institutions. CORDIPLAN (Central Bureau of Coordination and Planning), an office at the service of the Presidency until August 1999, is transformed into the Ministry of Planning and Development (MPyD).

The total ministerial reformation and the relevant relationship of Ministries before and after the reformation are summarized in Table 6.6.1.

The most significant reformation concerned to this Master Plan, the Navigation Axis of Apure-Orinoco, is the creation of the new Ministry of Infrastructure (MINFRA) with the integration of the old Ministry of Transportation and Communications (MTC) and Ministry of Urban Development (MINDUR). Before August 1999 MTC was in charge of the navigation aspects in Orinoco River.

¹ Decree-Law No. 253 dated August 30, 1999.

Other relevant ministries concerned to this Master Plan as foremost responsible institutions are the Ministry of Environment and Natural Resources (MARN), known as the Ministry of Environment and Renewable Natural Resources (MARNR) before the reformation in August 1999, and the Ministry of Planning and Development (MPyD). Basically the MARN remains the same as that prior to the reformation. MPyD is a new ministry that incorporates the former CORDIPLAN (Table 6.6.1).

It is noted that the ongoing institutional reformation of Venezuela, in particular the recently accomplished ministerial reformation in August 1999, is basically aimed at enhancing the functional efficiency and coordination as well as decentralization of operational functions of ministries.

Table 6.6.1 Relationship of Ministries Before and After August 1999

PAST MINISTRIES (Until July 1999)	PRESENT MINISTRIES (Since August 1999)
a) Government Ministry	Government Ministry
Ministry of Internal Affairs (MRI)	Ministry of the Interior and Justice (MIyJ)
Ministry of Justice (MDJ)	
Ministry of Foreign Affairs (MRE)	Ministry of Foreign Affairs (MRE)
Ministry of the Treasury (MDH)	Ministry of Finance (MF)
Ministry of Defense (MD)	Ministry of Defense (MD)
Ministry of Industry and Commerce (MIC)	
Ministry of Agriculture and Breeding (MAC)	Ministry of Production and Commerce (MPyC)
Ministry of Tourism	
Ministry of Education (ME)	Ministry of Education, Culture and Sports (MECyD)
Ministry of Health and Social Assistance (MSAS)	Ministry of Health and Social Development (MSDS)
Ministry of Labour (MDT)	Ministry of Labour (MDT)
Ministry of Transportation and Communications (MTC)	Ministry of Infrastructure (MINFRA)
Ministry of Urban Development (MINDUR)	
Ministry of Energy and Mines (MEM)	Ministry of Energy and Mines (MEM)
Ministry of the Environment and Renewable Natural Resources (MARNR)	Ministry of the Environment and Natural Resources (MARN)
Ministry of the Secretariat for the Presidency (MSP)	Ministry of the Secretariat for the Presidency (MSP)
Ministry of Information (MI)	- Dissolved -
Ministry of Youth (MDLJ)	- Dissolved -
-	Ministry of Science and Technology (MCT)
b) Central Presidential Office	
Central Bureau of Coordination and Planning (CORDIPLAN)	Ministry of Planning and Development (MPyD)

Note:  Ministries directly related to the Master Plan

MCT is a new ministry

6.6.3 Institutions Related with the Study

At present the main institutions related with transportation in the Orinoco axis are the General Sectorial Directorate for the Orinoco-Apure Program (DG-PROA), MINFRA (MTC prior to August

1999), National Institute of Canalization (INC) and Port Captaincy. These institutions are basically responsible for planning, development and operation of the channel navigation and its facilities. The Venezuelan Corporation of Guayana (CVG) and CVG enterprises are the main users of the navigation facilities. CVG and its enterprises are under the supervision of MPyD (CORDIPLAN prior August 1999).

A brief description of these institutions is included hereinafter.

(1) General Sectorial Directorate for the Orinoco-Apure Program (DG-PROA), Ministry of Environment and Natural Resources (MARN)

DG-PROA (Fig. 6-6-1) was established in 1990 as a Directorate of the Ministry of Environment and Renewable Natural Resources (MARNR, since August 1999 MARN). It is one of the key agencies for the development of the Study Area. The main aims of DG-PROA are: to promote the social and economic development of the Orinoco-Apure region; to act as the Technical Assistant of the Inter-institutional Commission; and to support the international committees established with the Republic of Colombia related to the preservation, management, and exploitation of the basins along both country's boundaries. The Inter-institutional Commission is integrated with the Ministry of Environment and Natural Resources (MARN), Ministry of Energy and Mining (MEM), National Institute of Canalization (INC), and Venezuelan Corporation of Guayana (CVG). Its specific aims of DG-PROA are:

- To direct and conduct studies and research as well as to formulate development programs and projects in the Orinoco-Apure river basin;
- To promote the exploitation of the existing potential of the Orinoco and Apure rivers and its adjacent areas;
- To promote the social and economic development of these regions; and
- To formulate a system of urban centers within the framework of the National Plan for the Territorial Organization.

In order to achieve these goals, DG-PROA is:

- Developing projects in the Orinoco river basin with due consideration of the environment;
- Encouraging the fluvial navigation; and
- Carrying out studies and research.

Accordingly, this Master Plan and Feasibility Study targeting the integrated river improvement of the Orinoco river was conducted in co-ordination with DG-PROA.

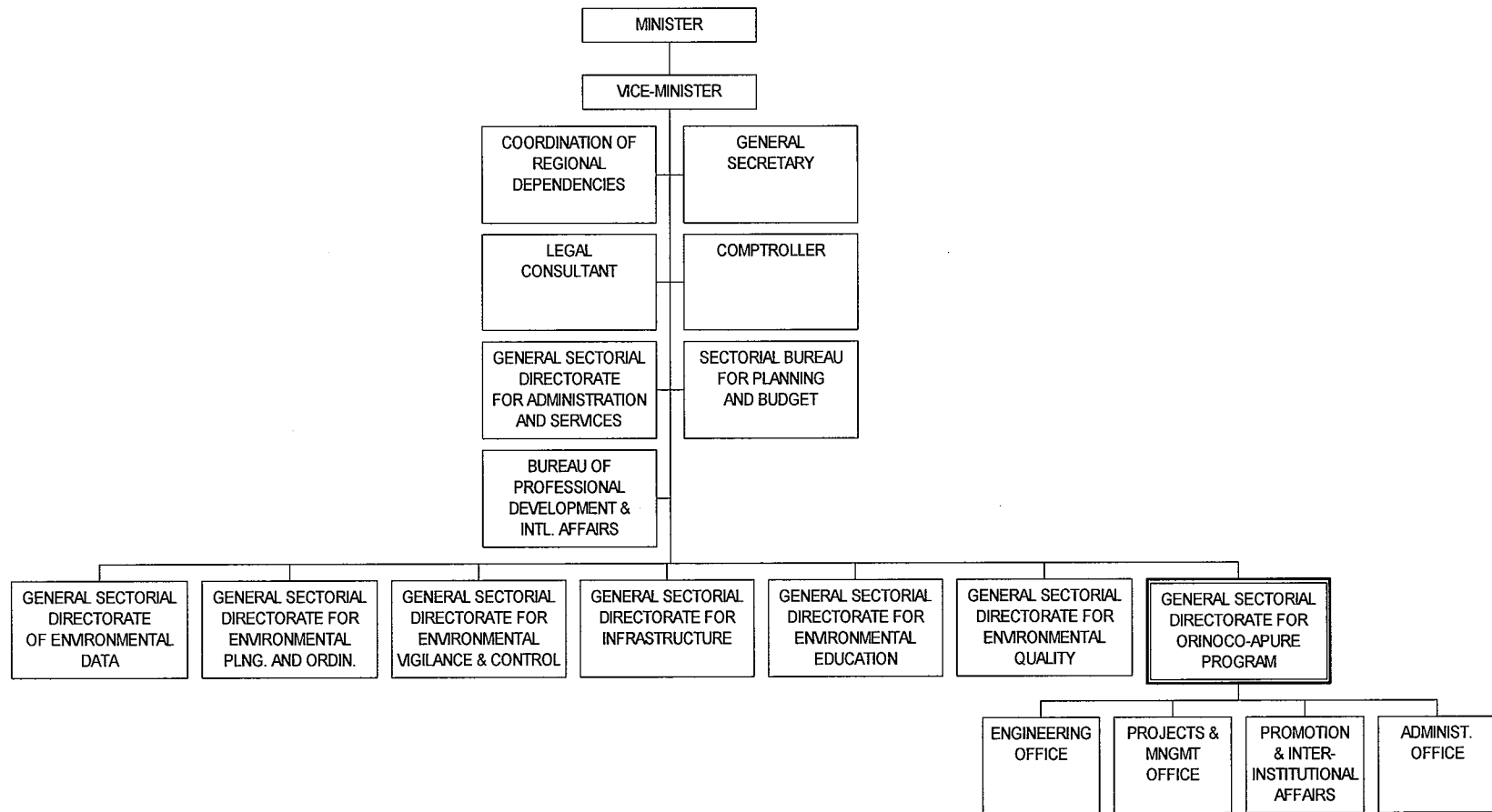


Fig. 6-6-1 Organizational Chart of PROA

(2) Ministry of Infrastructure (MINFRA)

The MINFRA, recently formed following the reformation with the combination of the Ministry of Transportation and Communications (MTC) and the Ministry of Urban Development (MINDUR) as dealt with in the foregone section (ref. also Table 6.6.1), is the foremost central governmental organization responsible for the planning and execution of the Executive policies of infrastructure development including transportation and communication as well as the regulation and control of navigation. Its attributions are defined in the Central Administration Organic Law.

As part of the Venezuelan Government decentralization policy, MINFRA is in the process of delegating the management of all Venezuelan ports other than the ports in Puerto Ordaz to State governments. Some ports have been transferred to autonomous enterprises that are in charge of the port management. However, the ports in Puerto Ordaz are managed by CVG and its enterprises.

The main attributions of MINFRA regarding water transportation are:

- Planning, construction, operation and maintenance of the ports, berths, quays, navigation channels and other related facilities as well as the related services to the ships entering the ports;
- Regulation of the shipping policies and control of the navigation and water transportation;
- Establishment of the rates and freights for services; and
- Provision and regulation of the services of water transportation.

Currently, the functions of MINFRA in Orinoco Axis have mainly been concentrated in its last attribution, oriented to the design of an institutional and regulatory organization focused in the provision of water transportation services.

The internal organization of MINFRA related with water transportation is as follows:

- Planning Department: In charge of the elaboration of intermediate and long term plans related with the water transportation services;
- Water Transportation Department: In charge of the regulation of water transportation services;

- Water Navigation Control Department: In charge of the establishment of the regulations and procedures for navigation according to the international agreements, as well as the supervision of the Port Captaincies;
- Water Infrastructure Department: In charge of the planning of the development of the navigation infrastructure system. In this sense, it develops regulations and criteria for: construction of facilities and navigation aids, maintenance, optimization of the facilities usage, granting of authorization for the execution of works in the operation areas, among others; and
- Port Department: This is the department through which the National Port Authority is exerted. It functions as a link between MTC and the National Port Council and verifies that the national and international port regulations are followed.

Port Captaincy is an important department in the above mentioned organization relating to the water transportation system in Venezuela.

(3) Port Captaincy

The Port Captaincies are departments within the organization of MINFRA. They are in charge of control and surveillance of the territorial and interior waters, coasts, ports and related facilities providing safety to the navigation activities. For this purpose, Venezuela has been divided into 12 regions. The Port Captaincy within the Study Area is located in Puerto Ordaz and its area of influence extends from Boca Grande to 215 miles upstream of the Orinoco River. Its main activities are:

- To guard and control the territorial waters, coasts and related facilities;
- To acknowledge any significant activity by the vessels, such as: entrance and leaving from the port, fuel and water supply, and shipyards use among others;
- Surveillance of the quays, waterfronts, berths, shipyards, oil or other combustible storage facilities; and
- To organize navigation activities in order to make them proceed safely and smoothly.

Port Captaincy provides navigation pilot service from Boca Grande to Puerto Ordaz and vice versa.

(4) National Institute of Canalization (INC)

The INC (Fig. 6-6-2) was established in 1952 by Decree No. 41 as an institute affiliated to MTC (Ministry of Transportation and Communications, but currently MINFRA). It was assigned to supervise the work conducted by OMC (Orinoco Mining Company) at that time. In 1979, it was constituted by law as an autonomous entity under the jurisdiction of the MTC. Its main function was the development of navigation ways that existed in Venezuela, especially those related with the Maracaibo Lake and the Orinoco axis.

The INC board is composed of representatives of the Ministries of Defense (MD), Environment and Natural Resources (MARN), Energy and Mining (MEM), and Infrastructure (MINFRA). INC's main functions are:

- Study, financing, construction, maintenance, inspection, improvement and management of the navigation routes, especially those having access of large draft ships to the Orinoco route;
- Development of auxiliary facilities required for the construction, use, service and maintenance of the above mentioned routes;
- Dredging of the navigable river beds, directly or in association with private, public, local or foreign organization; and
- Acquisition of shares or participation on governmental, private or joined (governmental & private) companies that contribute directly to the execution and improvement of the dredging related works.

At present, INC's activities in the Study Area are related to the assurance of the navigability of large vessels through Rio Grande canal by conducting necessary dredging operations, the appropriate signaling and provision of navigation aids. INC's budget is supported by tariffs paid by the users of the navigation channels.

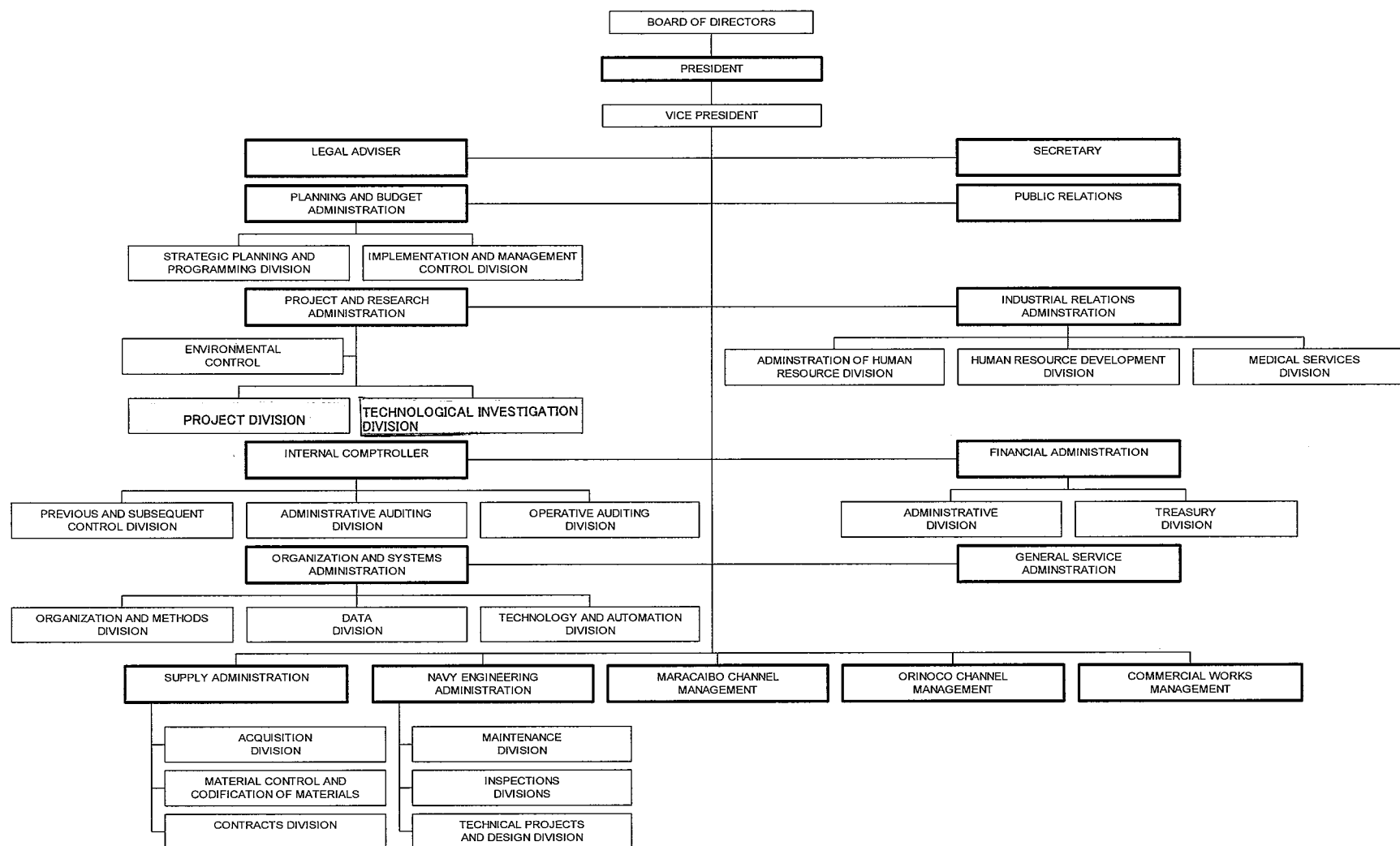


Fig. 6-6-2 Organizational Chart of INC

(5) Venezuelan Corporation of Guayana (CVG)

The Venezuelan Corporation of Guayana is an autonomous institution that was entrusted with the overall development of Guayana region of the Orinoco river basin in 1960. The development programs of CVG encompassed a variety of activities as diverse as hydro-electric power generation, direct exploitation of iron ore and other cargo for export via the Orinoco river using its own berths.

At present, most of the cargo handling activities directly executed by CVG has been delegated to its own subsidiaries, namely CVG enterprises. In consequence, cargo-handling berths previously owned entirely by CVG in Puerto Ordaz are essentially distributed among the CVG subsidiaries, resulting in independent ownership of the berths and absence of an integrated Port Authority. The only port still under CVG's direct operation is San Felix Port as a general cargo terminal for public use.

The role of CVG as direct producer is changing toward a new goal that is to promote and support private investment in the region. This may be achieved through:

- Opening opportunities for private investment, local and foreign;
- Development of strategic actions to expand the trade and integrate the trade areas;
- Encourage and advise the public organizations in order to create efficient procedures and to formulate investor friendly regulations; and
- Support the transformation of small and medium industries in order to incorporate them to the regional and national development.

(6) Committee on the Authority of the Orinoco River (CEARO)

The CEARO was constituted in 1986 (modified in 1990 by the Decree No. 910) as an attempt to create an integrated Port Authority in the Study Area. It was entrusted with management of the ports and navigation. Its budget was provided by the MTC, however its administrative offices were located in CVG.

The CEARO was presided by the General Director of Aquatic Transportation (MTC) and representatives of MARNR, Ministry of Foreign Affairs (MRE), Ministry of Internal Affairs (MRI), CVG, INC and the Corporations for Development of Los Llanos and Suroeste Andino were among the members.

The aims of CEARO were:

- Elaboration and evaluation of programs and projects for the signaling and dredging of the Orinoco river;
- Elaboration of the piloting regulations;
- Management of the port facilities;
- Establishment of the tariff policies for the support services in the river; and
- Development of necessary activities to support the projects related with the integral development of the area.

It has been recognized that CEARO's activities were fundamental for the development of an integrated Port Authority in the Study Area and the consolidation of the independent terminal functions. Nevertheless, in 1992, its activities have been suspended. At present, these related facilities are under self-control of CVG and its enterprises.

6.6.4 Laws and Regulations Related with the Study

The laws and regulations related to water navigation are varied in the fields such as natural resources management, navigation procedures, administrative procedures, environment, land use, privatization, concession etc. It is important to highlight that in principle the MARN is the institution pointed out as the agency in charge of water management.

Among the laws related with the Study, the most important ones are given below.

- Forest, Land and Water Law: Regulates through the National Executive and the relevant ministries, the water usage and the conditions and requirements for the water exploitation concession.
- Navigation Law: Regulates the navigation procedures as well as defines the functions of the Port Captaincies.
- Central Administration Organic Law: Regulates the functions and attributions of the Governmental Agencies, such as the Ministry of Foreign Affairs (MRE), the Ministry of Infrastructure (MINFRA), etc.
- Environment Organic Law: Regulates the environmental issues, encouraging an accelerated development process on the basis of the environmental values.

- Territorial Organization Organic Law: Regulates the land use as well as the exploitation of the natural resources. Together with the environment organic law, it constitutes the basic pillars of the Venezuelan environmental legislation.
- Others: Piloting Law, Merchant Marine Law, Organic Law for Public Works and Public Services Concession, Privatization Law etc.

6.6.5 Management Institution

The Venezuelan government ministries have been reformed in August 1999, as illustrated in Section 6.6.2. Still the establishment of a legal and institutional framework that allows the sustained consolidation of the Orinoco River axis remains an important issue to be resolved. With the recent Venezuelan government ministerial reformation change toward decentralization and delegation of public functions to the regions is expected to be expedited.

The Venezuelan government has already established a legal framework to regulate the development of the process of concessions and privatization. Moreover, some of such projects have already been implemented. They are: the Project-Construction-Maintenance-Operation of the Puente Mixto bridge over the Orinoco river in the Guarampo sector; the Project-Construction-Maintenance-Operation of the railroad Matanzas-Puente Mixto-Maturin-Guacarapo, and the Project-Construction-Maintenance-Operation of a port in Guacarapo.

The significant institutional and management issues concerned to the port management and river (Rio Grande) navigation in the Study area and the respective institutional improvement measures are identified below.

(1) Overall Port Management

Prior to the delegation and formation of CVG enterprises, CVG was responsible for overall port management. However, at present, the formation of various independent subsidiary companies of CVG and their independent berth ownership has led to an institutional vacuum concerned to the overall port management. The lack of a Port Authority to develop and manage the entire port function in the Orinoco river basin is also pointed out in Chapter 5.

Venezuela is now in the middle of the age of decentralization and privatization, and Venezuelan ports were handed over to the State governments, among which there are several cases of State-owned autonomous enterprises taking charge of the port management body.

Accordingly, it is recommended to establish a Port Authority similar to the ones exist in other regions of the country. The Port Authority may be established as an organ of the MINFRA and

may be responsible for the co-ordination of the port berth operation as well as the development of future port expansion based on forecasted cargo demand. This is required to achieve a sustainable economic growth in the Orinoco river basin.

(2) Dredging in the Navigation Channel.

As pointed out previously one of the key points to guarantee the navigability of the Navigation Channel is its maintenance through an efficient dredging service. Currently, INC is in charge of this activity as one of its important functions.

In order to increase the efficiency of dredging works and to follow the government policy of decentralization, a scheme of private companies to carry out the dredging works under the planning, management and supervision of INC is recommended to be considered. Under this system, INC will play the role of planner and regulator, leaving the actual execution role to third parties in the form of “outsourcing”. The proposed system will allow INC to select from a number of private companies the ones that offer the best services in terms of cost and efficiency.

(3) Long-term Institutional Improvement

The recent government ministerial reformation at central level as delineated in Section 6.6.2 has given the momentum for subsequent institutional reformation at state and municipal levels. Accordingly, the institutional reformation of responsible organizations managing the navigation axis of the Orinoco River, in particular INC, need to be studied. Based on the study results the appropriate institutional modality could be instituted.

The basic institutional issues as dealt with under items (1), and (2) of above, establish the requirement of a port authority, the reformation of INC to ensure the provision of sustained design navigation depth, will be the target items for the long-term institutional improvement study. This is in fact the basis for the institutional improvement proposed for this Master Plan as well.

It is recommended to establish an ad-hoc institutional reformation committee to study and determine the appropriate modality of modern institutions within a set (definite) time frame (2 - 3 years). The ad-hoc committee may be formed comprising of representatives from all relevant institutions currently involved in Orinoco river basin and navigation management. These institutions are as follows:

- Ministry of Infrastructure (MINFRA);

- Ministry of Environment and Natural Resources and the relevant sub-ordinates (MARN/PROA);
- Ministry of Planning and Development (MPyD);
- National Institute of Canalization (INC); and
- Venezuelan Corporation of Guayana (CVG) and its enterprises

The reformation issues to be addressed are basically the determination of appropriate legal and administration modalities of the reformed institutions with due consideration to decentralization, financial sustainability and public nature of navigation service. The legal modality would be the clear distinction between an operational agency and the relevant planning/supervisory/regulatory agency. As far as the administrative modality is concerned, it needs to be determined conforming the policy of Central Government. A comparative evaluation of alternative administrative modalities and their relevant features proposed to be studied are illustrated in Table 6.6.2.

(4) Project Implementation Agency

INC is proposed as the agency responsible for implementation of the feasibility projects of this Master Plan at least in the short-term. The required institutional reformation to INC could be instituted based on the *ad-hoc* committee study results as dealt with under item (3) of above in future. The feasibility project related organization system is dealt with further in Section 7.5 of subsequent Chapter 7 on Feasibility Study.

Table 6.6.2 Administration Models for Public Services

MODEL	GENERAL CHARACTERISTICS	INCENTIVES	RISKS
<i>DIRECT PUBLIC MANAGEMENT</i>			
Simple	<p>The service is rendered by the organization (from Central Power) of the competent authority in the area.</p> <p>The investments are financed directly (national budget), or from contribution of the Central Power.</p>	<p>The Institution budget is confused with the Service budget, usually preventing a control of adequate costs.</p> <p>Few incentives for efficiency.</p> <p>Tendency to give priority to socio-political objectives.</p>	<p>Political interference.</p> <p>Uncertainty and reduced continuity in the direction of the service direction.</p>
Complex	<p>The service is rendered through a decentralized organ.</p> <p>Financing is partially covered by the decentralized organ.</p> <p>There is a tendency to obtaining financing means from the Central Power.</p>	<p>The incentives for the efficiency (technical and economical) depend on the service tradition.</p> <p>Tendency to give priority to social and justness objectives.</p>	<p>Tendency to privilege political decisions.</p> <p>Risks of bureaucratization and over-employment.</p>
<i>INDIRECT PUBLIC MANAGEMENT</i>			
Out-sourcing	<p>The service is rendered under one of the two modes of direct administration.</p> <p>Certain service activities are contracted with an external outfitter (e.g.. dredging, signaling, bathymetry, tele-communication, etc.).</p> <p>Its financing is usually similar to the direct administration.</p>	<p>Generally higher technical efficiency is generated.</p> <p>Risk of increasing inefficiency if the remuneration of the contractor is not associated to the execution of goals.</p> <p>Advantages of specialization for the execution of complex activities.</p>	<p>Complexity on the coordination and supervision process of the contracts</p>
Integrated Management	<p>Integrated management for the service is contracted to an Operator.</p> <p>Its remuneration is associated to improvements of operative efficiency.</p> <p>The terms are generally for 5 years.</p> <p>The investment regimen is the same as the others.</p>	<p>Increase of technical and operative efficiency.</p> <p>The level of improvement will rely on the contract incentives.</p>	<p>Due to the terms, usually the privileged objectives are short termed.</p> <p>Difficulties to adapt to changes in the conditions not foreseen in the contracts.</p>

Mixed Company	<p>Mixed company is constituted by public and private capital that undertakes the rendering of the Service.</p> <p>Usually the technical-operative decisions are delegated to the private associate.</p> <p>The investment is public, with company participation.</p>	<p>Generates important incentives for technical and financing improvement.</p> <p>Improves the efficiency and rationality of the investments.</p> <p>Facilitates obtaining new financial sources.</p> <p>Some decisions could override managerial interests over the service.</p>	<p>Requires the pre-existence of a regulatory frame.</p> <p>Financing continues being basically a public responsibility.</p>
Rental Leasing	<p>It translates as a short term concession contract.</p> <p>The goods for the service are leased.</p> <p>The lessee assumes the risks of the administration.</p> <p>Allows the participation of the Contractor in the investment.</p>	<p>High incentives to the technical and financial efficiency of the Service.</p> <p>Inefficiencies in the investments could persist, depending on the contract conformation.</p>	<p>It requires previous promulgation of regulatory frame.</p> <p>It requires control and specific follow up mechanisms.</p> <p>The investment responsibility lies on the public sector.</p>
Concession	<p>Constitutes the maximum way of delegating the administration of a public service.</p> <p>Usually it is for periods of over 25 years.</p> <p>The concession company is in charge of the investment decisions.</p> <p>The public organ only intervenes with the regulation of the service based on pre-established rules.</p> <p>The assets are public and revert to the service at the end of the concession.</p>	<p>Long term high incentives to the integrated efficiency.</p> <p>Difficulties foreseeing complex situations.</p> <p>Problems in the tax regimen.</p>	<p>Need to develop a regulatory frame.</p> <p>Need to establish control and follow-up mechanisms for the contracts and tax regulation (social and economical)</p> <p>Monopolistic risks.</p>
BOT (Construct, Operate and Transfer)	<p>It constitutes a financing formula with private funds.</p> <p>The private recuperates its investment through the total or partial development of the service during a determined period, after which the works revert back to the service.</p> <p>It is employed in specific susceptible activities to be isolated within the context of the Service</p>	<p>It increases the operative efficiency of the contracted area</p> <p>It maintains the risk of inefficiencies in the decision making process and investment scale.</p> <p>The financial efficiency relies on the terms of the contract.</p>	<p>It privileges the operative efficiency against the financial.</p> <p>Low risk in the operative stage.</p>