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INSTITUTIONAL ANALYSIS

MINISTRY OF HOUSING AND
PUBLIC UTILITIES

AND

NATIONAL ORGANIZATION FOR POTABLE
WATER AND SANITARY DRAINAGE

July 1985

Office of Urban
Administration & Development
Tarek Selim

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Institutional Analysis

A. Background

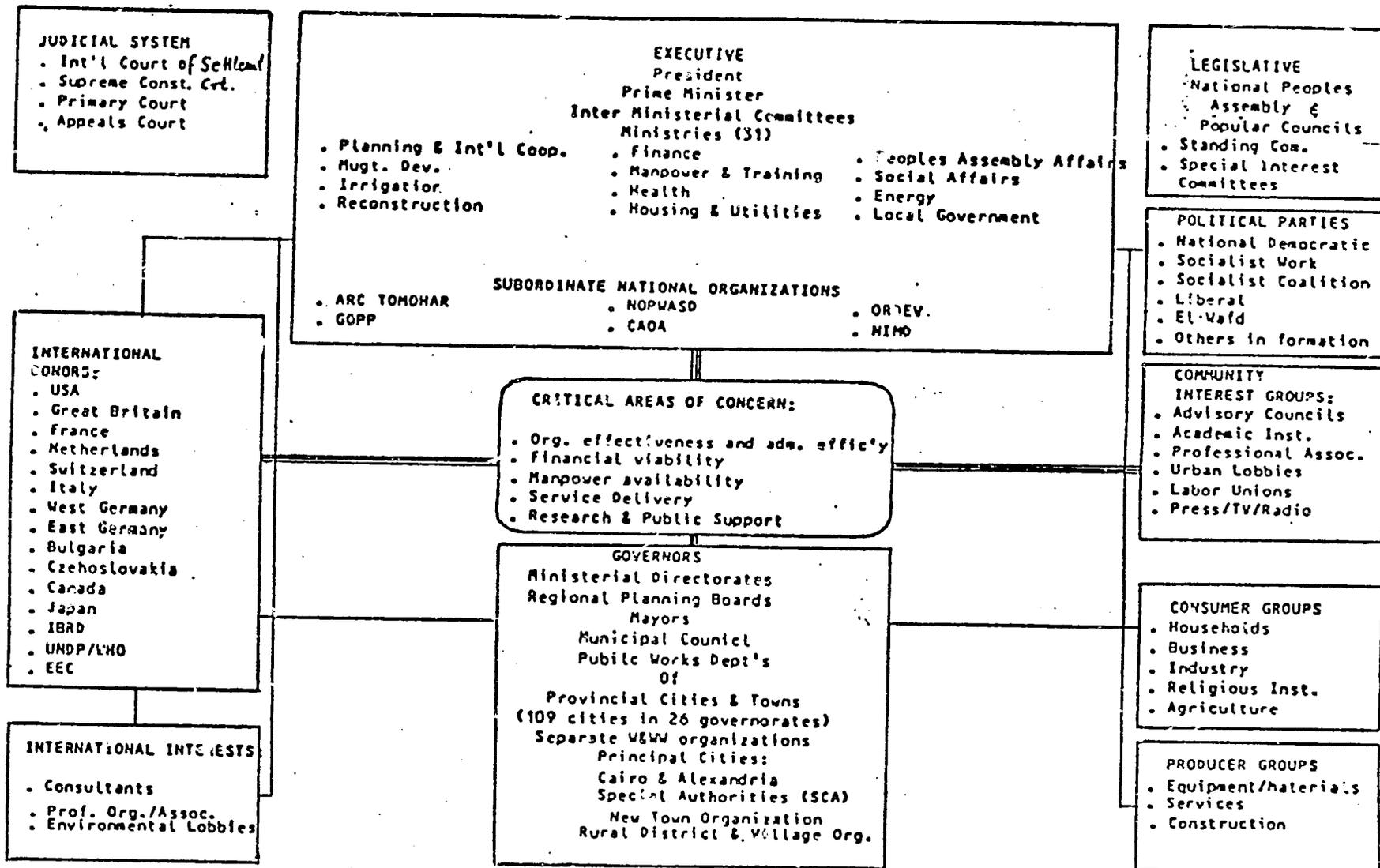
Water and Wastewater facilities and services in Egypt operate in a complex framework of central and local governmental authority. The system is comprehensive in that authority, responsibility, forms of organization and managerial/administrative procedures are prescribed in national legislation which is applied uniformly throughout the country. In other respects, the system is highly diffuse, in that it spreads formal authority and responsibility over several levels of government and a variety of different agencies.

Following a period of extensive centralization, Egypt has since the early 1970's been moving toward a decentralized decision-making process. The extent of decentralization and the ultimate form it will take is still uncertain. This uncertainty and the ambiguity in the decision process has led to tension, to ambivalence and inaction. In the midst of this evolutionary climate Egyptian water and wastewater organizations have been caught in a quandary, exacerbated by the international donor community, which has recognized Egypt's desperate need for improved water and wastewater facilities and rushed to implement a massive capital and technical assistance program within a relatively short period of time.

Figure 1 indicates the interrelationship between the various public and private sector interest groups which play a direct or indirect role in the decision process.

USAID funded projects interface with the primary interest groups at a number of points and in a variety of ways. The project portfolio involves governmental entities in all of the 26 governorates, primarily through the 'Decentralization Support Program', in six (6) of the Nation's secondary cities and in the primary cities, Cairo and Alexandria. It also involves central governmental agencies with direct responsibility for sector affairs, such as the Ministries of Housing and Public Utilities and the National Organization for Potable Water and Sanitary Drainage, as well as several Ministries and Agencies whose decisions indirectly affect the sector as whole, namely the Ministry of Planning and International Cooperation, Ministry of Finance, Ministry of Health, Ministry of Irrigation, Ministry of Manpower, Central Agency for Organization and Administration and others.

Figure 1
INSTITUTIONAL FRAMEWORK
WATER & WASTEWATER SECTOR OF EGYPT



B. Sector Organizations

The active water and wastewater organizations which interface with USAID are:

1. Greater Cairo (including urbanized areas of Giza and Qalyubia)

- a. General Organization for Greater Cairo Water Supply (GOGCWS): This organization plans, designs, constructs, operates and maintains water supply systems in Cairo. The source of its capital funds is the Ministry of Planning and the source of its O&M funds is the Ministry of Finance.
- b. Cairo Wastewater Organization (CWO): Established by Ministerial Decree No. 497/1981, the CWO plans, designs, and constructs wastewater projects in the Greater Cairo area involving donor funding. The source of its capital funds is the Ministry of Housing.
- c. Cairo General Organization for Sanitary Drainage (C/GOSD): This organization is involved with the operation and maintenance of wastewater activities in the Greater Cairo area. It also is involved in the development of various wastewater projects of a limited scale. The source of its O&M funds is the Ministry of Finance.

2. Alexandria

- a. Alexandria Water General Authority (AWGA) - The Authority is responsible for the planning, development, operation, and maintenance of all water activities in the Alexandria Governorate including northern portions of the Beheira Governorate. It receives its capital investment budget from the Ministry of Planning and its O&M budget from the Ministry of Finance.
- b. Alexandria General Organization for Sanitary Drainage (A/GOSD): Responsible for the planning, development, operation, and maintenance of all wastewater activities in the Alexandria Governorate. It receives its capital investment budget from the Ministry of Planning and its O&M budget from the Ministry of Finance.

3. Canal Cities

- a. The Suez Canal Authority (SCA): Responsible for the planning, development, operation and maintenance of all water activities in the three Canal Cities of Suez, Ismailia and Port Said. The funds for the capital investment and for O&M services are obtained through the SCA budget. (The development of water activities outside of Ismailia city, i.e., in the Governorate of Ismailia is handled by NOPWASD.)
- b. The National Organization for Potable Water and Sanitary Drainage (NOPWASD): Responsible for all wastewater capital investment activities in the Canal Cities.
- c. The various governorates are individually responsible for O&M activities in the wastewater area.

An organizational environment table indicating responsibilities and areas of funding for each of the above entities follows. The legal instruments setting up several of these entities follows in Figures 2-6.

4. Other Cities

- a. The various governorates are responsible for both capital development and O&M activities in both water and wastewater activities. They receive their funds for capital development from the Ministry of Planning and for O&M from the Ministry of Finance.
- b. The National Organization for Potable Water and Sanitary Drainage (NOPWASD): Responsible for planning for capital investment in both water and wastewater reporting directly to the Ministry of Housing and Utilities. It is also responsible for carrying out these investments in governorates that request it. In such cases it draws on development funds of the governorate. In case of projects serving more than one governorate, NOPWASD finances projects from its own budget and then delivers them to the appropriate governorate who is then responsible for O&M.

5. Overall

- a. The Ministry of Housing and Public Utilities (MHPU): Responsible for representing the sector with the central government. Through its Central Department for Public Utilities (CDPU) it plans and coordinates sector activities. Through its Advisory Committee for Public Utilities it reviews sector policies and makes policy recommendations.

C. Organizational Environment

| <u>Areas & Entities</u> | <u>Area of Responsibility</u> | | <u>Source of Funding</u> | |
|---|-------------------------------|----------------|-------------------------------------|---------------------------------------|
| | <u>Cap Invest Auth</u> | <u>O&M</u> | <u>Source of Cap. Funds BAB III</u> | <u>Source of O&M Funds BAB II</u> |
| <u>Greater Cairo (incl. urbanized areas of Giza and Qalyabia)</u> | | | | |
| Water - GOGCWS | x | x | Min. Plng. | Min. Fin. |
| Sewer - CWO -C/GOSD | x | x | Min. Hsg. | Min. Fin. |
| <u>Alexandria</u> | | | | |
| Water - AWGA | x | x | Min. Plng. | Min. Fin. |
| Sewer - A/GOSD | x | x | Min. Plng. | Min. Fin. |
| <u>Canal Cities</u> | | | | |
| Water - Suez Canal Authority (SCA) | x | x | SCA Bdgt. | SCA Bdgt. |
| Sewer - NOPWASD - Governorates | x | (x) x | Min. Plng. | Gov. Bdgt. |
| <u>Other Cities</u> | | | | |
| Water - Governorates NOPWASD | (x) x | x | Min. Plng. | Min. Fin. |
| Sewer - Governorates NOPWASD | (x) x | x | Min. Plng. | Min. Fin. |

O&M - Operation and Maintenance

C/GOSD - Cairo Gen. Org. for Sanitary Drainage

AWGA - Alexandria Water General Authority

A/GOSD - Alexandria Gen. Org. for Sanitary Drainage

SCA - Suez Canal Authority

NOPWASD - National Org. for Potable Water and Sanitary Drainage

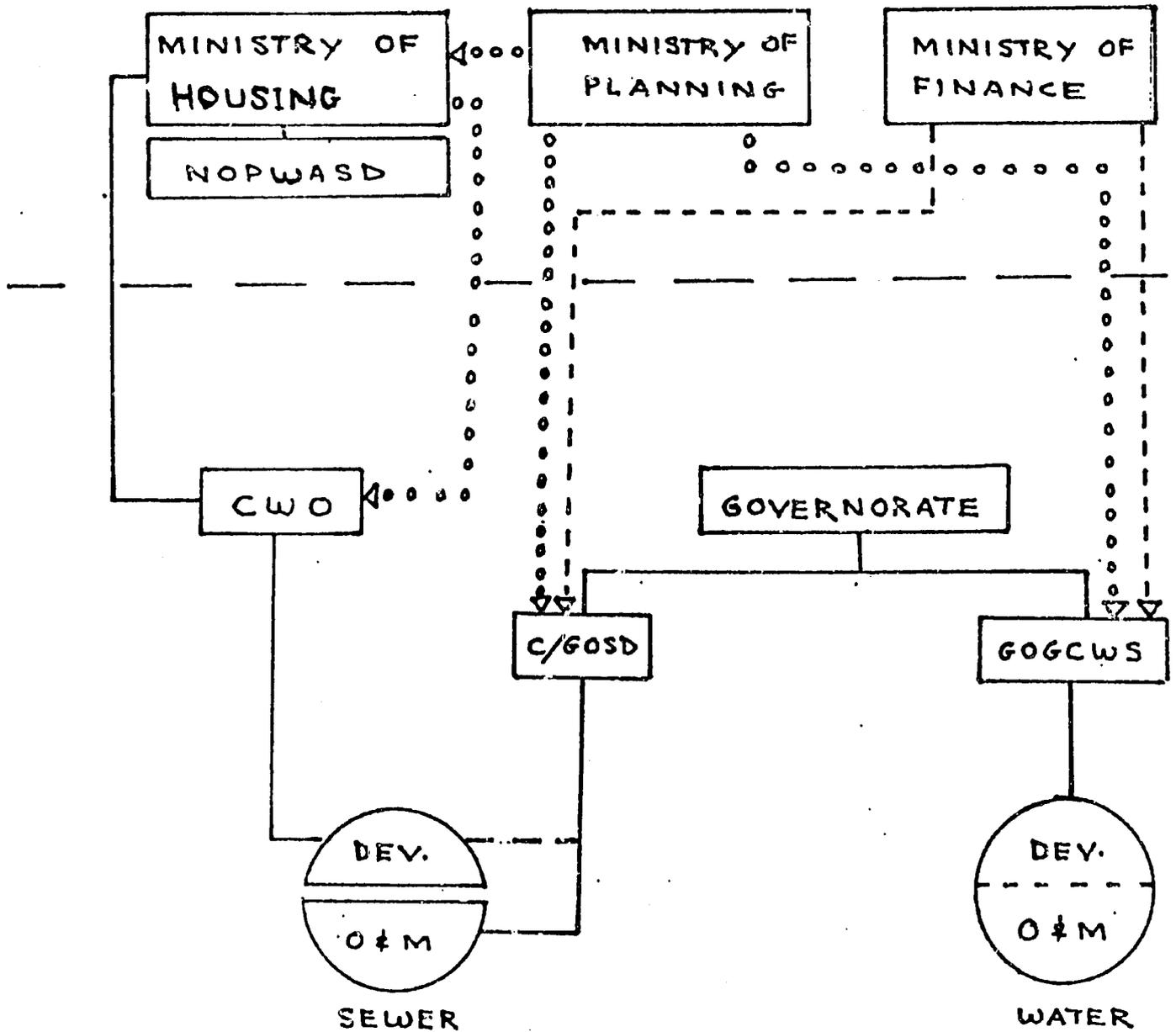
GOVs - Governorates

GOGCWS - General Org. for Greater Cairo Water Supply

Figure 2

CAIRO ORGANIZATIONAL ENVIRONMENT CHART

NATIONAL LEVEL:



LOCAL LEVEL:

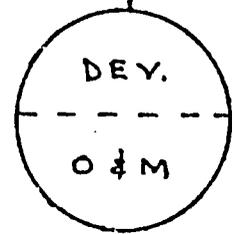
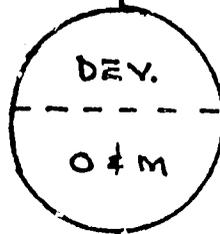
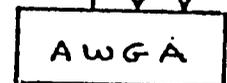
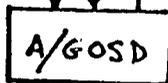
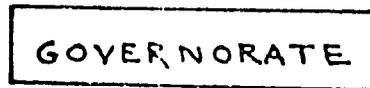
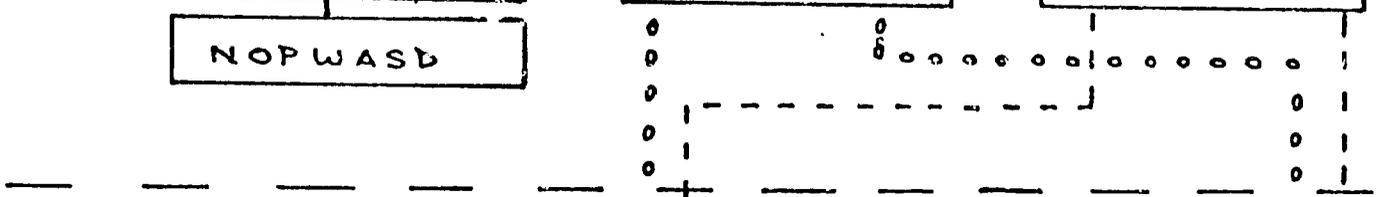
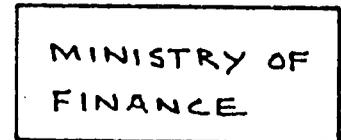
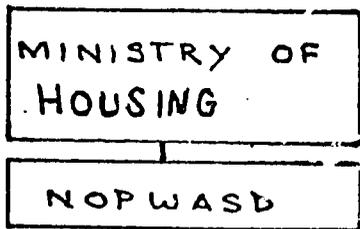
- ADMIN. AUTHORITY
- CAPITAL FUNDS
- O&M FUNDS

Figure 3

ALEXANDRIA

ORGANIZATIONAL ENVIRONMENT CHART

NATIONAL LEVEL :



SEWER

WATER

LOCAL LEVEL :

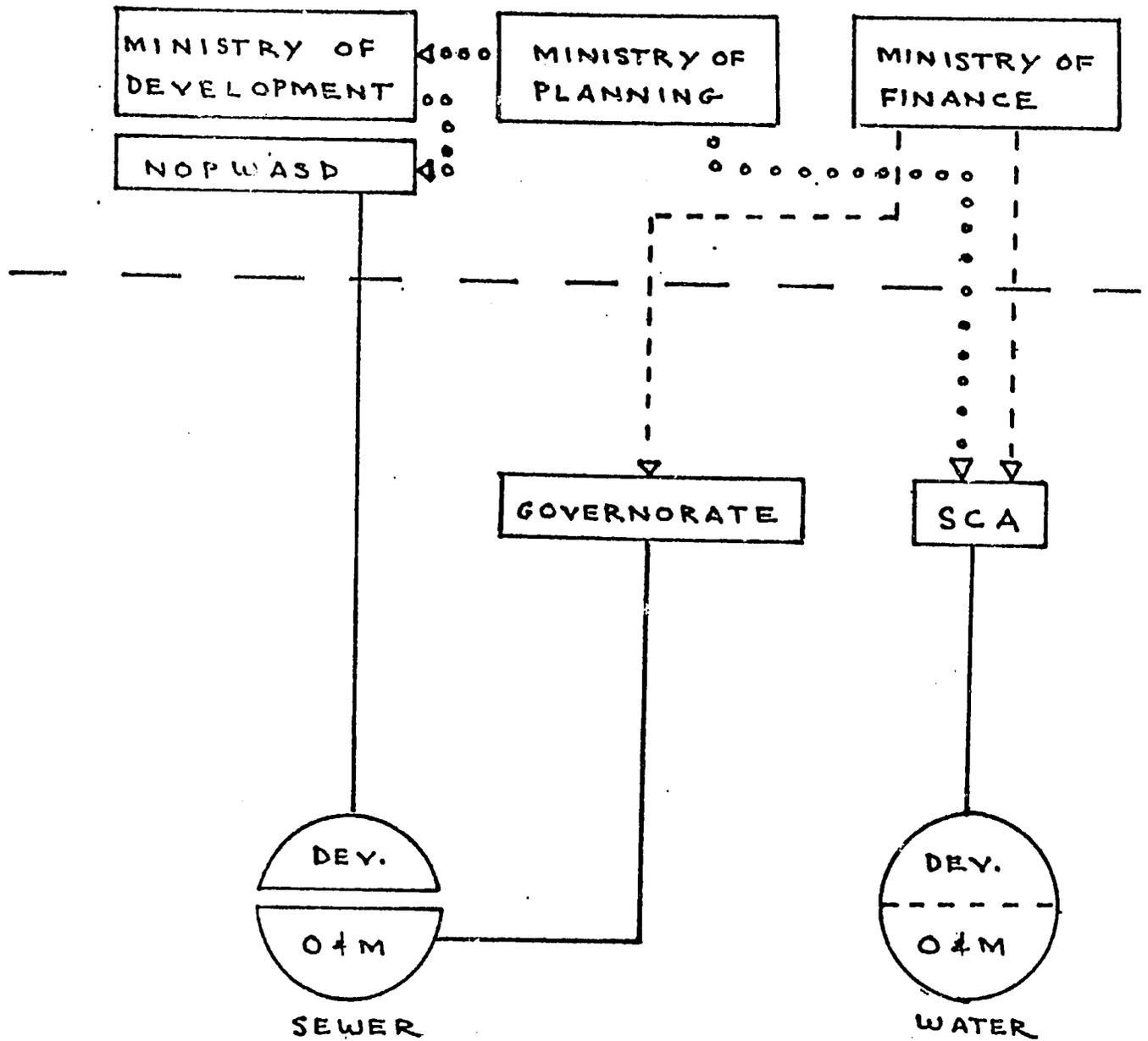
- ADMIN. AUTHORITY
- oooooo CAPITAL FUNDS
- O & M FUNDS

Figure 4

CANAL CITIES

ORGANIZATIONAL ENVIRONMENT CHART

NATIONAL LEVEL:



LOCAL LEVEL:

- ADMIN. AUTHORITY
-> CAPITAL FUNDS
- - - -> O&M FUNDS

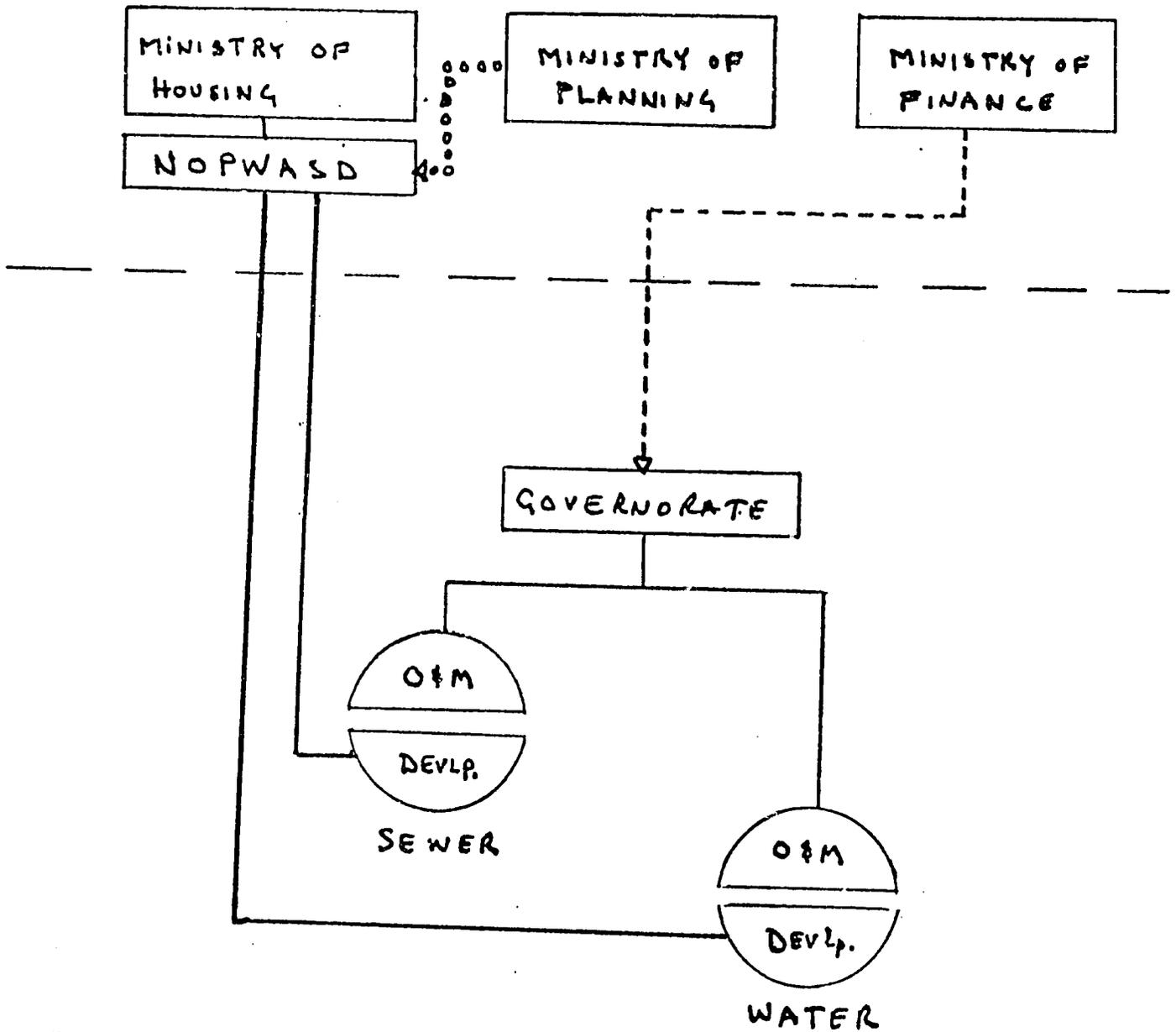
Figure 5

OTHER CITIES

ORGANIZATIONAL ENVIRONMENT CHART

PROJECTS STARTED BEFORE 1981

NATIONAL LEVEL



LOCAL LEVEL

- ADMIN AUTHORITY
- CAPITAL FUNDS
- O&M FUNDS

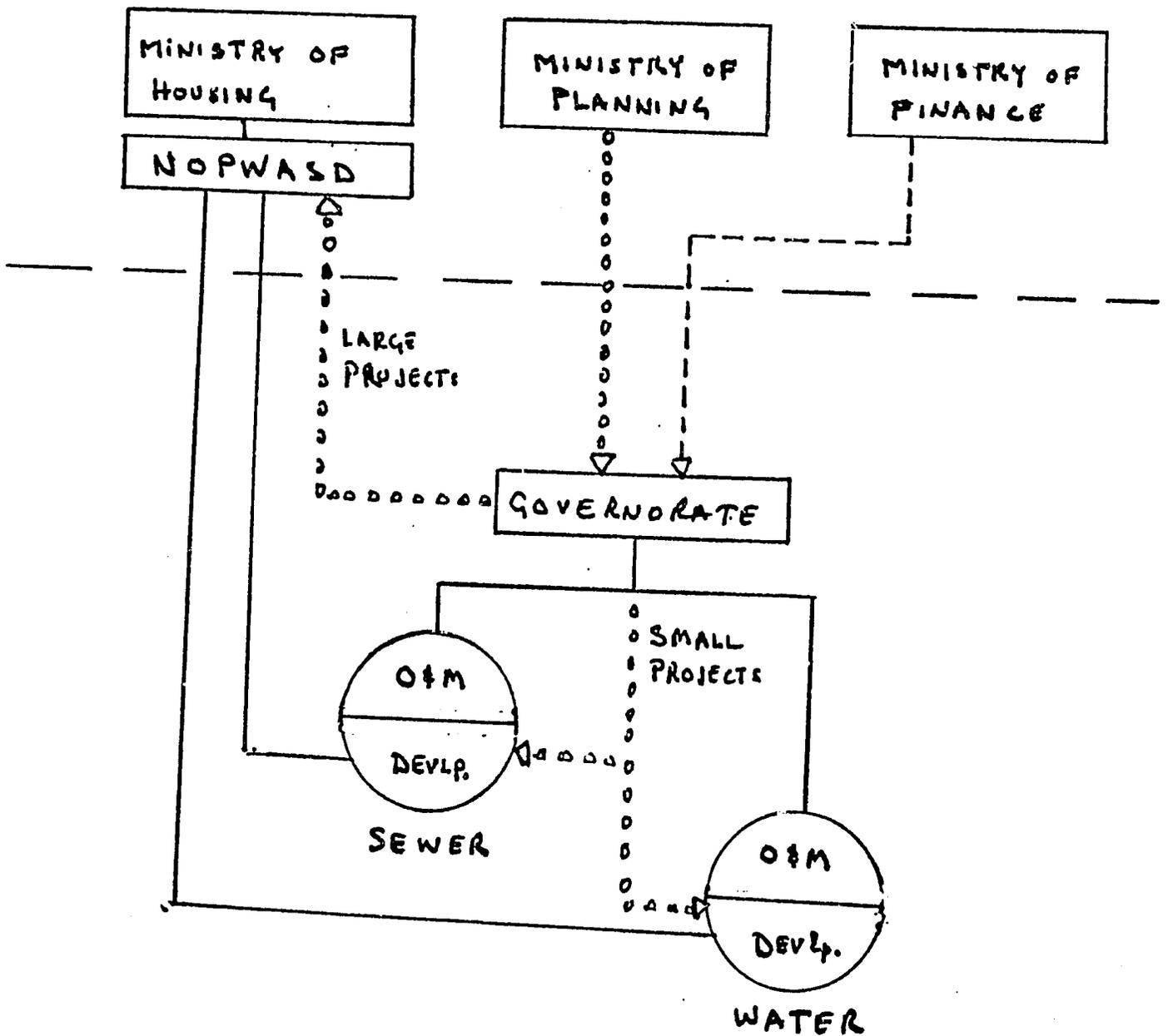
Figure 6

OTHER CITIES

ORGANIZATIONAL ENVIRONMENT CHART

PROJECTS STARTED AFTER 1981

NATIONAL LEVEL:



LOCAL LEVEL:

- ADMIN AUTHORITY
- CAPITAL FUNDS
- > O&M FUNDS

D. Administrative Capability Analysis of MHPU & NOPWASD

The water and wastewater sector institutional support project focuses its assistance on the two central agencies in the sector and supports them in performing their functions, which include national policy and direction as well as support to the local authorities in the governorates. Therefore, this analysis concentrates on the two agencies: the Ministry of Housing and Public Utilities (MHPU) with special emphasis on the Central Department of Public Utilities (CDPU), and the National Organization for Potable Water and Sanitary Drainage (NOPWASD). The analysis relies on the existing mandates, functions, organizational structures, staffing, and the views of the various managers responsible for planning, monitoring, training, design and construction supervision in the two agencies. The analysis covers both the formal and informal roles and functions of the organization, as written in the official charts and as perceived or actually performed by the staff interviewed. It also tries to identify the future role and function of these two organizations as perceived by their staff.

1. The Ministry of Housing and Public Utilities (MHPU)

Since the mid-seventies both the Ministry of Housing and the Ministry of Development have undergone a series of reorganizations that involved combining and separating them several times. The last such action happened in the spring of 1984. Presidential Decree 281 for 1984 formed the new government with a separate Ministry of Housing and Public Utilities with the objective to "give a strong push to the activity of Housing and utilities to realize the general policies of the nation in that area."

The Minister has spent the last year organizing the Ministry and has prepared a draft presidential decree to state the Ministry's roles, responsibilities and organization. The following description is based mainly on that draft, and the detailed analysis of the Ministry as prepared by the management development sector and its consultants - who are mainly drawn from the armed forces organization and management department.

The decree organizing the Ministry has not been issued yet, principally because many of the changes in reporting that are requested require shifting numerous agencies from the Ministry of Development to the Ministry of Housing. Regardless of how this issue is settled finally, the basic approach to the reorganization will still be valid. Furthermore, the issue does not directly bear on the public utilities organizations. These are all reporting to the Minister of Housing now. The debate really impacts both the urban planning activities and the training. The resolution of this point will have one major impact on the public utilities sector: it will have easier access to training facilities and also possibly to trainers and urban planners to assist the sector in those two activities.

The reorganization efforts have attempted to maintain central planning through the Ministries central departments for Housing, Utilities, Construction, and Building Material. It has also tried to maintain decentralized execution of the plans through the subordinate agencies and the governorates. Control over the execution is provided by the Minister's direct or technical control over the various executing agencies.

a) MHPU Tasks and Objectives

The objective of MHPU is to execute the general policies and plan of the nation in the field of housing, public utilities, construction, building, and building materials, MHPU is also responsible for monitoring implementation in both the public and private sector so as to realize the socio-economic plan for the nation in cooperation with the rest of the ministries and bodies concerned. To achieve this MHPU has the following tasks and responsibilities:

- 1) Undertake development studies and research in the fields of housing, utilities, construction and building in cooperation with the rest of the ministries, organizations, and bodies concerned.
- 2) Propose general policies, develop plans, and approve the execution schedules for both public and private housing projects, to achieve the targets of the national plan for housing and public utilities within the framework of the nation's urban policy.
- 3) Set standards, types, and norms (rates) in the housing field, as well as the design principles and execution conditions of structural and building works according to the stipulations of the laws and decrees issued in that concern.
- 4) Work to stimulate the cooperative sector, and to develop it to achieve the goals set for it in the housing and construction fields. This includes the provision of technical, financial, and administrative assistance to cooperative societies for housing and affirm control over them through the bodies belonging to the Ministry.
- 5) Develop plans and designs for public and housing buildings and oversee their execution. It also formulates the general policy for maintenance of public buildings and housing.
- 6) Execute construction projects required for developing the national economy such as civil works, utilities projects, public buildings, housing with all its levels and so forth for contracting work inside and outside the republic.
- 7) Make available basic building requirements and materials and provide for the needs of the construction and utilities sectors in cooperation with the ministries and organization concerned.

- 8) Encourage, develop and direct the private sector in the field of contracting to achieve the targets of the nation's general policy.
- 9) Develop plans and rules that would guide the execution of projects in terms of the policies of mechanization of building and the rationalization of production in the field of construction, and provide organizations and individuals with information and technical consultation in this field.
- 10) Develop the general plans and execution schedules for the potable water and sanitary drainage projects, as well as their designs, technical specification and conditions. In addition it monitors and supervises their execution.
- 11) Undertake studies needed for foreign investment in the fields of responsibility of the Ministry according to the legal regulations.
- 12) Raise the standard of public utilities in greater Cairo and Alexandria (except for transport, communication and electricity) and in other cities as determined by presidential decree.
- 13) Provide appropriate support for Egyptian contracting companies whose activities extend outside the Arab republic of Egypt, provide them with the required physical and technical resources and assist them in dealing with local or foreign authorities. It also suggests the protocol for the operation of these companies abroad.
- 14) Develop and monitor the execution of laws and decrees regulating the activities of construction, building, commercial and industrial shops and other shops that are potentially stressful, unhealthy and dangerous. This also includes other systems such as water and wastewater, local establishments, vacant lots, general cleanliness, road congestion, and others actions aiming at improving the environment.
- 15) Prepare, execute and monitor employee training in the fields of responsibility of the Ministry with the objective of making available technical resources in the fields of building, housing, utilities and construction, in cooperation with the Ministry's organizations as well as local and foreign bodies concerned with achieving increased productivity in those fields.
- 16) Organize local and international conferences, meetings, study circles in fields related to the work of the Ministry, and participate in those that are held abroad.
- 17) Provide technical assistance to the local government units in the fields of activity of the Ministry, and provide technical supervision and monitoring according to the stipulations of the governing laws.

18) Recommend, study and comment on the issuance of legislative developments regulating the activities and responsibilities of the Ministry.

b) Organization and Management

To perform the functions listed above the Ministry proposes that headquarters be composed of ten central departments as shown in Figure 7. These are:

- . Minister's Office
- . Research and Development
- . Planning and Monitoring
- . Housing
- . Public Utilities (water and wastewater)
- . Construction
- . Requirements (building materials)
- . Governorates and General Organization Affairs
- . Financing and International Cooperations
- . Management Development

The figure also shows the 13 organizations that report directly to the Minister, as well as the five that report only technically, such as the local directorates.

All the central departments should be headed by Undersecretaries. Currently all these departments, with the exception of Research and Development, are operating. However, not all are headed by Undersecretaries. Both the Local Organizations and the Planning Departments are headed by general directors only. It is anticipated that as soon as the presidential decree is approved and signed these two positions will be upgraded.

As soon as the presidential decree is approved, Minister Sedki is planning to issue an internal decree to organize MHPU internally. The ten central departments proposed for the MHPU structure are further regrouped under five sectors as proposed in Figure 8. This regrouping has not yet been cleared with the Central Agency for Administration and Organization, because it involves the creation of five sector head positions.

The major responsibilities for each sector follow. These are still in draft format and thus will require further specification.

* Central Department for Minister's Affairs:

- . Collection, study and presentation of subjects related to information, press conferences, exhibits and visits in collaboration with responsible parties.
- . Organization of meetings of delegations and preparation of schedules of visits.
- . Receipt of complaints and their follow up.

Figure 7

MHPU
Organization Chart

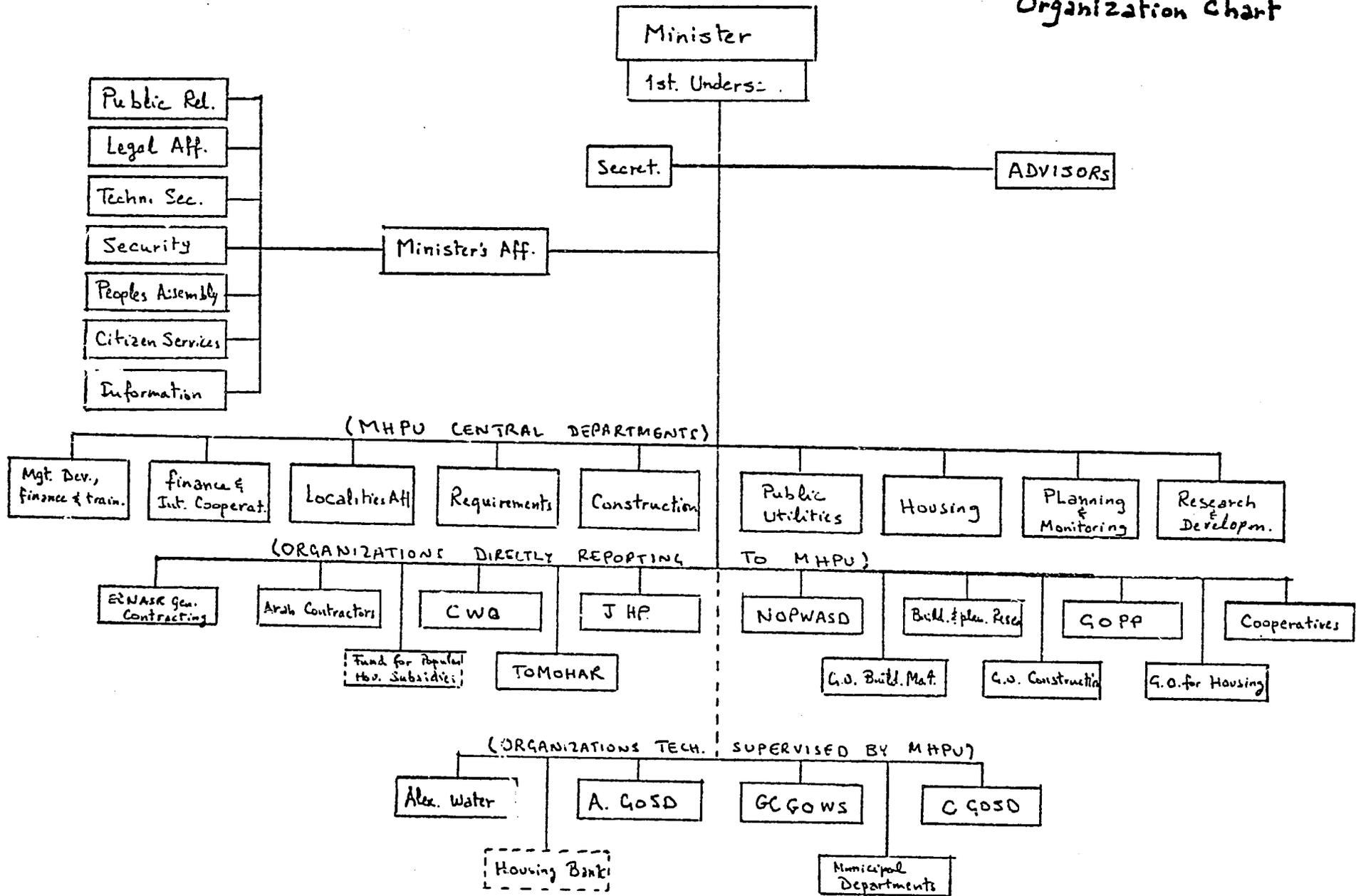
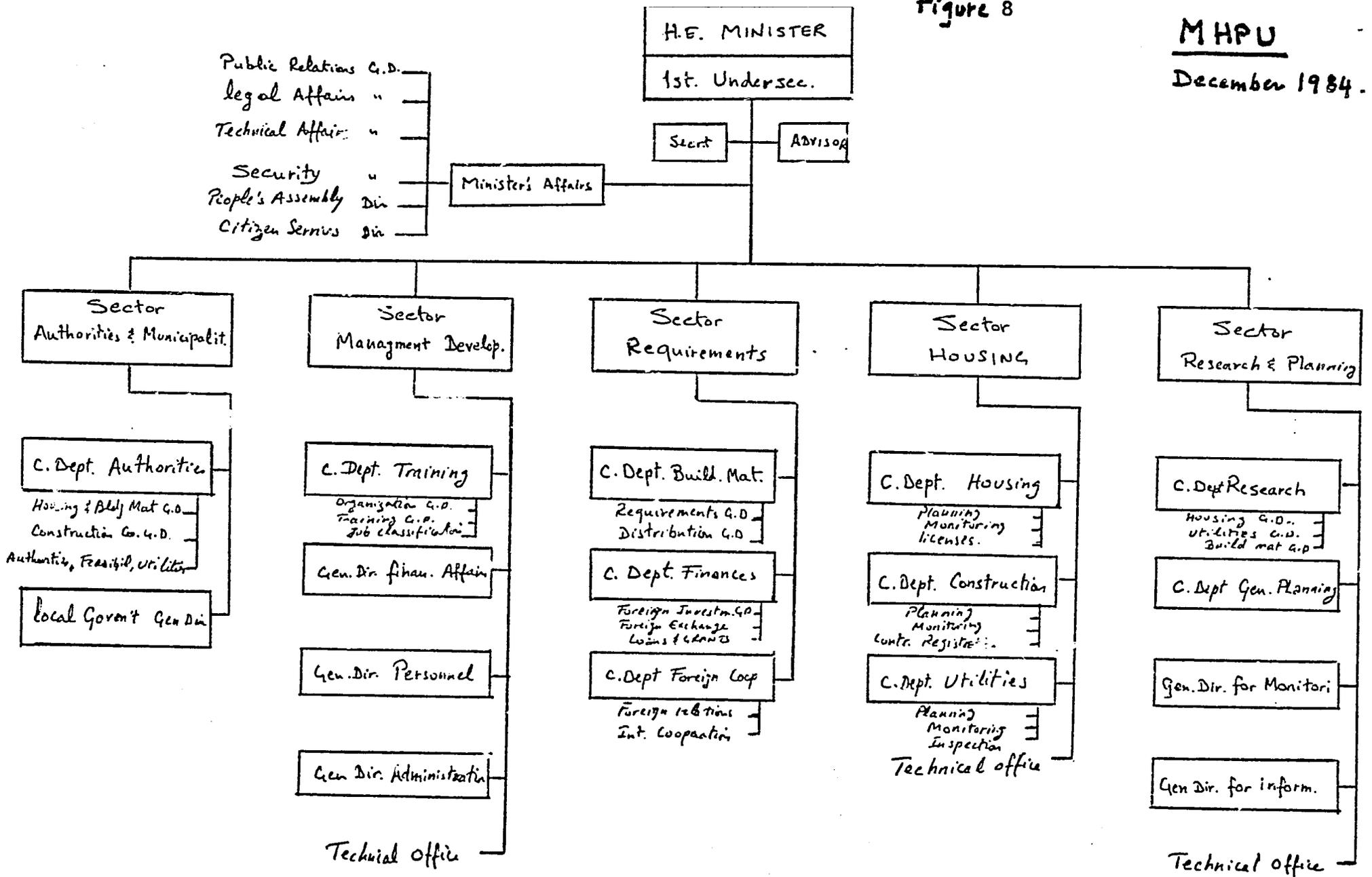


Figure 8

MHPU
December 1984.



Notes.

- G.D. = General Directorate.
- C.D = Central Department

- . Security of the MHPU compound.
- . Study of technical subjects referred by H.E.
- . Study of legislative subjects and comment on their contents.
- . Followup and presentation of subjects relating to the Peoples Assembly and Ministerial Council in the field of the Ministry.

* Research and Planning Sector

- . Plan and manage R & D efforts
- . Participate with other sectors in MHPU in preparation of plans.
- . Monitor the execution of plans by agencies.
- . Coordinate between agencies and sectors in joint efforts
- . Collect and analyze data concerning MHPU activities
- . Update and automate a management information system for MHPU.

* Housing Sector

- . Participate in formulating general policies and plan regarding activities of housing, construction and utilities in cooperation with other agencies involved.
- . Study and suggest detailed plans for the fields of housing, construction and utilities and send them for approval
- . Monitor the execution of Housing, Construction and Utility projects being implemented by the various agencies belonging to MHPU.
- . Suggest and monitor implementation of legislation in the fields of Housing, Construction and Utility.
- . Suggest and set standards for building and construction in collaboration with agencies concerned.

* Procurement Sector

- . Estimate budgetary requirements for MHPU activities
- . Suggest funding sources
- . Suggest the distribution of available resources to implement plans.
- . Monitor the implementation of the plan, procure the material requirements and suggest their utilization.
- . Furnish statistics regarding human and other resources needed to prepare future plans for the Ministry.

* Management Development Sector

- . Study Organization and work simplification.
- . Analyze, evaluate and classify MHPU jobs
- . Plan and manage manpower in MHPU
- . Plan and supervise employee training and monitor relevant TOMOHAR activities
- . Manage all activities relating to Administration and Finance
- . Oversee working conditions in MHPU.

* Organizations and Local Authority Affairs Sector

- . Study Board of Directors meeting reports for various organizations and brief H.E.
- . Study and nominate staff for top management in organizations.
- . Study organization proposals with Organization Departmental Agencies and Companies.
- . Monitor local housing directorates and coordinate their activities with MHPU, and provide assistance for them to carry out their tasks.
- . Study Central Agency for Audit reports on agencies.
- . Coordinate the dates of annual reviews for all companies.

c) Existing Systems at MHPU

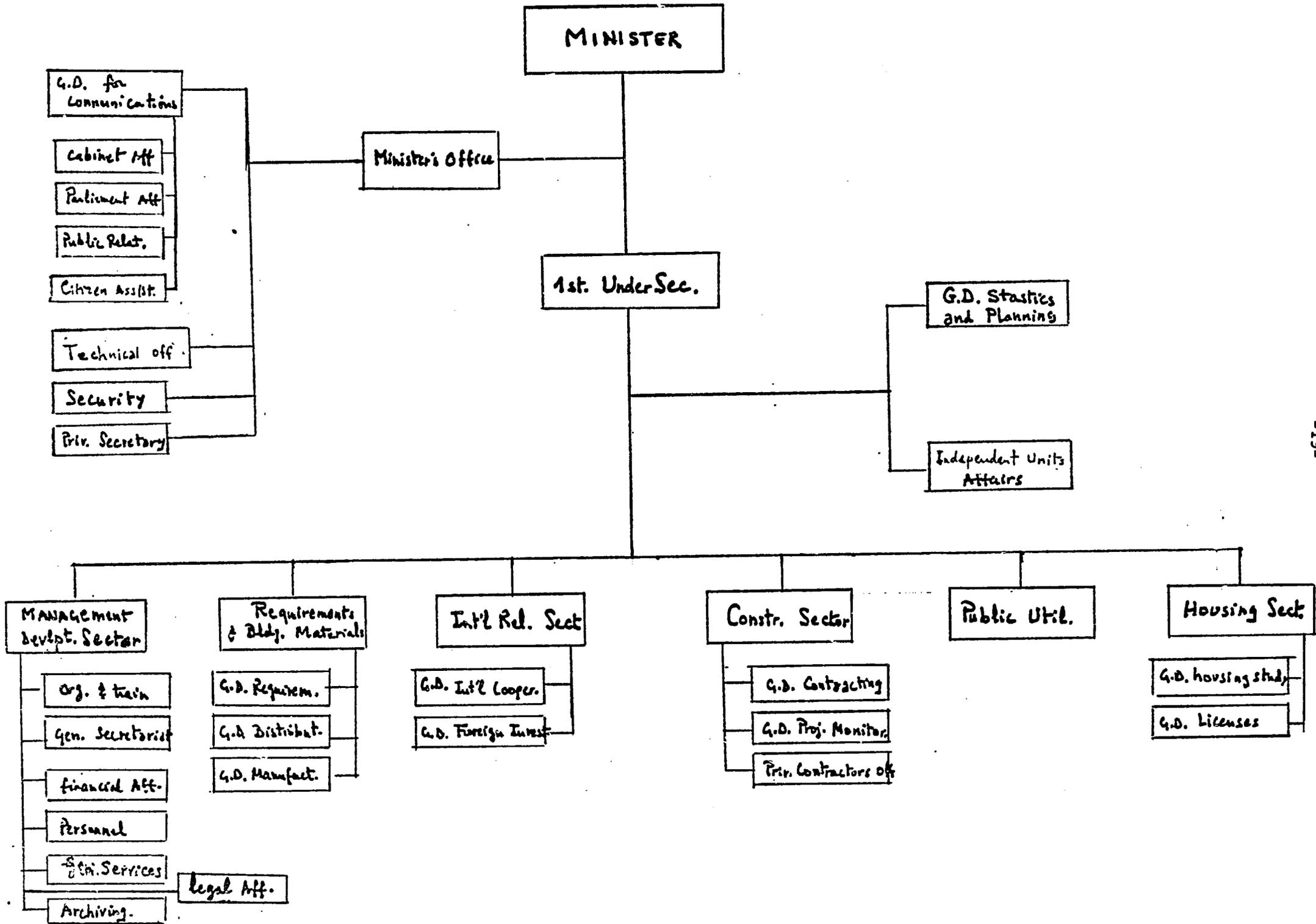
Reviewing the policy, planning and regulating functions currently performed by the Ministry today will serve to determine the likelihood and the difficulties in implementing the reorganization plans as described in the previous section. Figure 9 shows the existing organization structure of the Ministry.

A few general remarks are in order before we review specific functions. Public services, media and cabinet affairs are the functions of the offices traditionally reporting to the Minister. These offices refer the inquiries and questions from the cabinet, the people's assembly, or individuals to the relevant central department and monitor the preparation of replies to be signed by the Minister. They do not usually prepare any of the replies themselves. The public utility function, although it is a separate sector, has always been part of the Housing sector at a general directorate level, at least for the past 10 to 15 years. Although management by committee is also prevalent in the working of the Ministry, especially when preparing to launch new projects or programs, the only standing committees responsible for planning are advisory in nature. One is the Advisory Committee for Public Utilities, the other is the Advisory Committee for Housing. These committees do not include working staff from the Ministry, as they are mostly composed of advisors.

(1) General Directorate for Planning and Monitoring

This Directorate is responsible for preparing the Ministry plans, both the five year and yearly budgets for investment requirements. It does carry out the contacts with the Ministry of Planning to put the plan in its final shape for all the Ministry activities. While in theory its role should only involve compiling and integrating sectoral plans, especially in the field of public utilities. Actually prepares the sectoral plans itself, and coordinates with the Ministry of Planning to finalize the plan for all Ministry activities.

Figure 9



The Department monitors the execution of the yearly plan, especially in the housing domain in terms of units and investments by governorate. In other areas, monitoring of project execution consists only of tracking down expenditures. It also monitors company investments and building material production of the companies reporting to the Ministry.

Most of the efforts of the department are dissipated in the monitoring task due to the difficulties of collecting and updating information. There is no formal system organizing the planning and monitoring roles at all in the Ministry. Therefore, the present staff in the department is barely able to handle the tasks of collating plans and monitoring performance of all projects. The department only has two engineers and six with financial and accounting backgrounds, working on the four major areas of responsibility of the Ministry. One of the engineers handles housing and the other handles public utilities, while construction and building materials are handled by the accountants.

Another important task performed by the Department is the handling of foreign exchange requirements, both for capital investment and for imports. The Department collects the requirements of all agencies, organizations and companies reporting to the Ministry. It then prepares a foreign exchange budget and discusses it with the Ministries of Planning and Economy for investment and import needs respectively. The Department informs all agencies of their final allocations for the year. Furthermore, it reviews their requests for drawing on these allocations to insure compliance with Ministry of Economy regulations. Finally, it monitors the status of foreign exchange expenditure and reports to both the Ministry of Planning and the Ministry of Economy.

2) Independent Units Affairs Section:

The Ministry monitors performance of public sector companies in all activities:

- (a) reviews and comments on company final accounts before each shareholders' meeting.
- (b) Monitors and tracks company litigation either between employees and companies or between companies and other agencies.
- (c) Reviews some administrative affairs for companies, such as board appointments, organizational structure changes, staffing considerations and policies.

If the public companies model for utilities is pursued, the Ministry would probably keep similar information on these too. Presently the department does not interact with NOPWASD in any way other than on administrative and less so on legal matters.

3) Housing Central Department

The main functions of this Department are to study housing, direct building, monitor licenses, and answer inquiries with respect to housing regulations and laws. The central department now has two general directorates, one for housing studies, and the other for licenses and regulation. Until 1981 a Department for Government Owned Lands and Properties used to belong to that sector. This department used to monitor the status of these government properties, but this responsibility now has been shifted to the governorates.

The Department for Housing Studies and Direction of Building collects information on the governorates' requests for investment for housing. It participates in preparing and directing the investment plans nationwide for both public and private sector involvement in housing. To date this function does not follow a national urban policy. Furthermore, all these plans are not necessarily coordinated with those of public utilities prepared by NOPWASD or the Cairo and Alexandria authorities. This department also monitors the number of building permits issued and those executed nationwide. It relies entirely on the governorates' housing departments for such information. It also participates in studying the effectiveness of current housing laws and regulations, as well as inquiries concerning housing that are referred by the Minister.

The department for licenses and regulations deals mainly with those for shop and public facilities. These licenses are issued locally but this department monitors the execution of the various laws governing such activities. It provides legal advice in the disputes between individuals and local government on such matters as regulating building demolitions, eminent domain expropriation, installation of electric elevators, cemeteries, road blocking by buildings, and so forth.

4) Public Utilities Central Department

This department is newly created, and does not have any directorates reporting to it yet. It is anticipated that the department will participate in preparing the plans for public utilities and monitor their execution. Presently, the department acts as a secretariat for the Advisory Committee on Public Utilities and responds to inquiries concerning public utilities that are referred by the Minister. The Undersecretary is continuously worried about the inadequacy of the data base at the Ministry concerning Public Utilities. This makes it very difficult to coordinate the housing and public utilities national plans.

The Department presently has no engineers or staff. Two general directors assist the underscretary and write letters and memos themselves. One of these is, however, only working in the Public Utilities Department on a part time basis. He also heads the department of general services in the Ministry. The other is supposed to fill a position as Head of Housing directorate in Marsa Mattrouh. Staffing this department is critical if it is to play any role in the sector direction.

5) Construction Central Department

Although two general departments report to the undersecretary in addition to the private sector contractor registration office, no general directors fill these two positions. The contracting department is responsible for issuing direct order contracts that are requested by government agencies or governorates. It also appoints the price setting committees for all direct contracts between public sector contractors and government clients. It is supposed to keep track of contractor capacities, present contracts, and prices. It is suspected that such functions are performed at best marginally. It does interact with the housing and public utilities departments in nominating public contractors for direct order jobs. The project monitoring department only monitors special projects usually involving projects designated by the Ministry.

The private sector contractors office is supposed to register and monitor private firms working on government projects. Its actual role in the 60's was to make certain that private firms remained within the ceiling then imposed on each firm's total contracts from government. Since the ceiling was lifted in 1977 this office's records are not up to date. Each government agency registers and tracks private contractors independently. Furthermore, the registration procedures is just a formality, and it does not really indicate or classify firm capability.

6) International Relations Central Department

The department is composed of two general directorates, one for international cooperation and loans, and the other for foreign investment. The directorate for foreign investment in building housing is presently not functioning because the government has stopped building permits for luxury and administrative buildings which were open for foreign investments.

The International Cooperation Directorate collects from the various agencies of the Ministry the projects that require foreign assistance. It prepares cooperation agreements with foreign donors, prepares studies with the Planning Department on the projects and programs requiring assistance to be presented to the High Committee for Policies and Economic Affairs, and contacts the legislative branch of the cabinet to prepare the draft laws for the approved loans. Finally, it monitors the execution of the loans being implemented and keeps MPIC informed quarterly.

7) Requirements and Building Materials Central Department

This department is composed of three general directorates, one for estimating requirements, one for distribution, and one for monitoring production of building materials in Egypt. The department estimates the building material requirements according to the plans for Housing and Utilities for both public and private sectors. It assesses local production and then decides on the balance to be imported to meet local needs. It distributes the materials among the governorates and companies and undertakes studies to upgrade and develop local production of building materials.

The Production Directorate tries to keep information on the local production of all materials, but the emphasis is on installed materials (cement, bricks, steel). The Requirements Directorate translates Ministry plans into building materials consumption using standard consumption rates, and decides on importation requirements. The Distribution Directorate monitors the actual distribution of materials to the governorates and also the list of materials that are not controlled by the government.

d) Public Utilities Activities

The organization task forces for the Ministry adopted the approach of central planning and monitoring and decentralized execution for the public utilities sector of the Ministry. They assigned to the undersecretary responsible for the CDPU two major functions, utility planning, and utility monitoring. In addition they added a minimal evaluation function. The CDPU undersecretary receives guidance and advice from several sources in addition to the Minister, and the First Undersecretary:

- The Advisory committee for Public Utilities
- The Board of Directors of NOPWASD.

The Advisory Committee for Public Utilities (ACPU) established by the Minister comprises seven former chairmen of water and wastewater organizations. In addition the current chairman of NOPWASD and the chairmen of the major Cairo and Alexandria Water and Wastewater organizations are also members of the ACPU. This Advisory Committee meets on a bi-monthly basis to advise the Minister on items referred, including specific policy recommendations and also proposals made by any water or wastewater organization to the MHPU.

The Undersecretary for Utilities of MHPU acts as coordinator to the ACPU, bringing total membership of the Committee to 14, in order to ensure that the views of the ACPU are incorporated into national policy. He also serves on the board of Directors of NOPWASD for the

same reason. It is composed of 19 members in total. The chairman of NOPWASD is the board chairman. Four of the Organization's top managers are also on the board, as well as the chairmen of the major Cairo, Alexandria and Canal Cities water and wastewater organizations. Four Undersecretaries, from the Ministries of Housing, Planning, Irrigation, and Health, chosen by their Ministries, also sit on the board. These are complemented by the Ministry of Housing legal advisor, and four water and wastewater experts nominated by the Minister of Housing. The Board meets monthly and is the ultimate authority on all NOPWASD's affairs. The Board decisions are submitted to the Minister of Housing who has thirty days to approve them before they become final.

The other functions required to complement the MHPU role in the operation of the sector have to be performed in collaboration and cooperation with several other departments, directly reporting to the Minister. These functions are:

- community affairs
- management information
- manpower development
- financing
- interagency affairs
- setting standards and regulations
- administrative policies

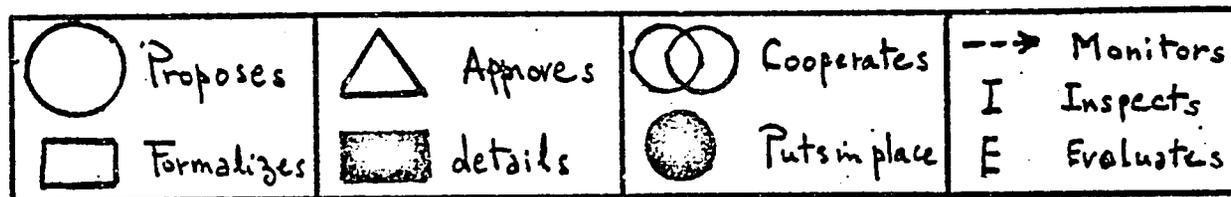
Figure 10 shows the extent of cooperation and coordination involved in carrying out the various functions. It reflects the Ministry's preference for management by task force, or matrix management approach. It implies that the CDPU will take the lead role in many of the above functions and that the other departments will be adequately equipped to deal with the issue to be addressed by the task forces.

The Ministry organization team estimated the number of staff required to perform the various functions implied by the MHPU role as the spokesman for the sector and its chief planner. Their estimates are shown by type of qualification and by department in Table 1. Overall the staffing of the Ministry appears adequate. Eighty-five percent of the engineers exist on the rolls of the Ministry, 66.9 percent of the accountants. There seems to be an excess of lawyers. Only the administrative specialists show a considerable shortage as only 33 percent are employed by MHPU.

Public UTILITIES Activities

Figure 10

| Activity | Activity | | | | | | | | | | | | | |
|----------------------|-------------------------|----------------------|----------------------|-----------------------|-----------------------|---------------------|---------------------|-------------------|-----------|-------------------------|--------------------------|-------------|----------------------|--------------|
| | Research Publications | Policy & legislative | Regulating Standards | Planning & Monitoring | Inspection Evaluating | Information Systems | Interagency Affairs | Community Affairs | Financing | Intl Donor Coordination | Local Govt. Coordination | Administrat | Manpower Development | Construction |
| Ministry Departments | Minister's Office | △ | △ | △ | △ | | △ | □ | △ | △ | △ | △ | △ | △ |
| | Research Sector | □ I&E | ∞ | ∞ | | | ∞ | | ∞ | | | | | |
| | Planning Sector | ---> | ∞ | ---> | □ | ---> | □ | ---> | ---> | ∞ | ---> | ---> | ---> | ---> |
| | HOUSING SECTOR | | □ | □ | ∞ | ∞ | | □ | □ | | | | | |
| | Utilities Central Dept. | ○ | ○, I&E | ○, I&E | ○ | □ | ∞, I&E | ○ | ○ | ∞ ---> | ∞ | ○ | ○ | ○ |
| | Housings " " | | | ∞ | ∞ | | ∞ | | | | | | | |
| | Construction " " | | | ∞ | ∞ | | ∞ | | | | | | | ○ |
| | Requirements Sector | | | | ∞ | | | | | □ | ○ I&E | | | |
| | Mgt. Develop. Sector | | | | | | ∞ | | | | | □ I&E | □ I&E | |
| Localities Sector | | | | | | | ∞ | | | | □ I&E | | | |
| Other Agencies | Governorate Directorate | ∞ | ● | ● | ■ | ● | ∞ | ○ | ∞ | ■ | ○ | ∞ | | ■ I&E |
| | NOPWAS D | ∞ | ∞ | I&E | ■ | ■ | ● | ∞ | ■ | ---> | ∞ | ■ | ● | ■ I&E |
| | CWO | ∞ | | | ■ | ● | ∞ | | | ■ | | ∞ | | ■ I&E |
| | Cairo & Alex Organ. | ∞ | ● | I&E | ■ | ● | ∞ | ○ | ∞ | ■ | ○ | ∞ | | ■ I&E |



25

TABLE 1
MHPU DISTRIBUTION OF PERSONNEL EXCLUDING TOP MANAGEMENT

| | Engineers | | Lawyers | | Finance | | Admin. | |
|------------------------|-----------|--------|---------|-------|---------|-------|--------|-------|
| | Plan | Exist* | Plan | Exist | Plan | Exist | Plan | Exist |
| Planning Sector | 41 | | 6 | | 9 | | 24 | |
| Research | 13 | | - | | | | | |
| Planning | 17 | 2** | 6 | 0 | 6 | 6** | 6 | 0 |
| Monitoring | 11 | | - | | 3 | | 3 | |
| Info Center | - | | - | | - | | 15 | 0 |
| Housing Sector | | | | | | | | |
| Housing C.D. | 30 | | - | | 9 | | 9 | |
| Construction | 27 | | - | | 9 | | 9 | |
| Public Utilities | 27 | 2** | - | | 6 | 0 | - | |
| P.U. Planning | 13 | | - | | 3 | | - | |
| P.U. Monitoring | 10 | | - | | 3 | | - | |
| Inspection | 4 | | | | | | | |
| Requirements Sector | 28 | | 4 | | 41 | | 19 | |
| Management Development | - | | - | | - | | 30 | |
| Organization Devt. | - | | - | | - | | 10 | |
| Personnel | - | | - | | - | | 10 | |
| Training | - | | - | | - | | 10 | |
| Local Organ. Sector | - | | - | | 47 | | 13 | |
| Minister's Office | | | | | | | | |
| Sector | na | | na | | na | | na | |
| Total | 136 | 116 | 10 | 29 | 121 | 78 | 90 | 33 |
| % | | 85 | | 290 | | 64 | | 37 |

** physically present in this department.

* includes those present as well as those on temporary leave.

na not available

At a closer look however, two problems seem to exist at MHPU. First, is the great shortage of engineers at the two most critical utilities-related departments. Only two out of 27 engineers exist at the CDPU; and only two out of 28 engineers exist at the planning central department. Second, the apparent lack of existence of some of the various functions at the Ministry today. For example, information management does not exist as a function at all, neither does manpower development. Those two problems put a physical constraint on the ability of MHPU to implement a full fledged integrated policy guidance and monitoring program for the utilities sector.

Even though the Ministry plans to recruit more qualified individuals in the future, the Egyptian realities in terms of inadequate pay will inevitably slow down such efforts. It is thus appropriate to initiate support for the Ministry's role in the sector slowly. The first priority items that have thus far been identified by the Ministry are:

- . Planning activities
- . Monitoring, supervising
- . Information - data base

For planning activities, CDPU currently relies entirely on NOPWASD and the Cairo and Alexandria agencies and the Planning department of MHPU. The assistance required by CDPU would not strip the MHPU's planning department from its role, but rather it would be to provide guidance to the existing personnel in preparing plans, training in setting priorities and planning standards, and linking and integrating financial and physical plans.

In monitoring, the CDPU should participate in efforts to initiate integrated planning, monitoring and control systems for Ministry programs both in housing and public utilities. However, since at present no system really exists, the medium term should only involve study and identification of such a system for monitoring implementation. A vital component of such a system will be the data. Information needs, methods and handling issues will be analyzed in detail.

Presently, information systems both at the Ministry and NOPWASD are in a state of chaos. The rudimentary information system presently in place governs only some financial information in the sector. In addition the data - bases in both places are incomplete and outdated. There are no information centers in either organization, and no trained personnel in data management and information systems.

The Ministry for its own purposes has started to analyze its information needs for the housing, construction, building materials, and public utilities activities. A committee has analyzed the present systems and formulated a preliminary plan to establish a central information center in the Ministry that would have a two mega bytes computer for data processing and microfiching and communications networks for data storage and dissemination. The cost estimate for such a scheme was in the order of US\$ 4 to 5 Million. Detailed analysis is required before embarking on the purchase of such equipment.

Implementation of planning or information systems will be a function of adequate training of Ministry personnel. It may be more effective in the medium term to identify and select some of the existing staff and train them in the functions that will require trained personnel. This will allow lateral and internal transfers, which may prove more useful than addition of staff. Table 2 indicates the suggested development of the MHPU/CDPU role in the sector over time based on gradual implementation of central planning and monitoring.

TABLE 2
DEVELOPMENT OF CDPU/MHPU FUNCTIONS

| AT PRESENT | MEDIUM TERM | LONG TERM |
|-------------------------------------|--|--|
| Policy & Planning | <ul style="list-style-type: none"> - Review sector plans, integrates investment programs. - Assigns priorities to sector needs. - Advocates the sector needs. - Studies utility policies including: training, studies and research | <ul style="list-style-type: none"> - Set sector planning approach, strategy and system. - Adopts consistent methodology to analyze sector policies. |
| Supervision & regulating | <ul style="list-style-type: none"> - Monitors enforcement of existing regulations sporadically. | <ul style="list-style-type: none"> - Analyze existing standards and regulations. - Set system of continuous monitoring and control. |
| | | <ul style="list-style-type: none"> - Sets general targets for utilities sector. - Coordinate utilities policies, investment programs, training and studies activities. |
| | | <ul style="list-style-type: none"> - Specify legal enforcement and other machinery need to implement policies. - Set the standards for operation staff sector utilities. - Monitors enforcements. |

2. The National Organization for Potable Water and Sanitary Drainage (NOPWASD)

a) Mission and Objective

In April 1981 Presidential decree # 197 was issued creating NOPWASD, as a general organization to prepare national policies and plans for potable water and sanitary drainage. It also performs the necessary studies and program design, and supervises the construction of national projects which exceed the capacity of the local authorities or serve more than one governorate. The decree specified NOPWASD's responsibilities as follows:

- (1) Prepare national general plans for water supply and sanitary drainage works including the preparation of implementation schedules to be included in the general plan of the nation and monitoring of the execution of these works.
- (2) Coordinate the plans for water supply with those for sanitary drainage.
- (3) Conduct required studies and applied research in the field of potable water for home and general use and sanitary drainage. Participate in establishing quality standards for drinking water and wastewater disposal.
- (4) Establish conditions and standards, and technical specifications for sewerage, sanitary drainage and water supply projects.
- (5) Provide technical advice in the field of sanitary drainage and potable water.
- (6) Establish training centers to improve the productive efficiency and quality of design, construction, and operation and maintenance of water and sanitary drainage utilities.
- (7) Help governorates perform the necessary research and prepare designs for large or specialized projects and supervise their construction when this is required. NOPWASD will be reimbursed for these services, with fees determined by the Board of Directors in a special ordinance.
- (8) Help governorates prepare contracts for large projects (Item 7), tender them locally or internationally, and evaluate bids. The organization has the right to utilize the services of local and international consultants for these activities.

b) Existing Organization

NOPWASD's official organizational structure is depicted in Figure 11. The following description will concentrate on several central departments that have major impact on the organization's operation, namely:

- . Central Department for Training
- . Central Department for Research
- . Planning and Follow Up
- . Design
- . Execution
- . Administration and Finance
- . Some staff departments serving the chairman

This brief description concentrates on the respective roles and staffing of key central departments, and highlights differences between the official organization chart and the actual conduct of day to day operations at NOPWASD. In our description of staffing we relied entirely on information gathered from the general department of Organization and Administration which does not include top management positions, i.e. General Directors, Undersecretaries, and Vice Chairmen for the organization.

Before discussing the roles of each department and its staffing a few general notes are in order:

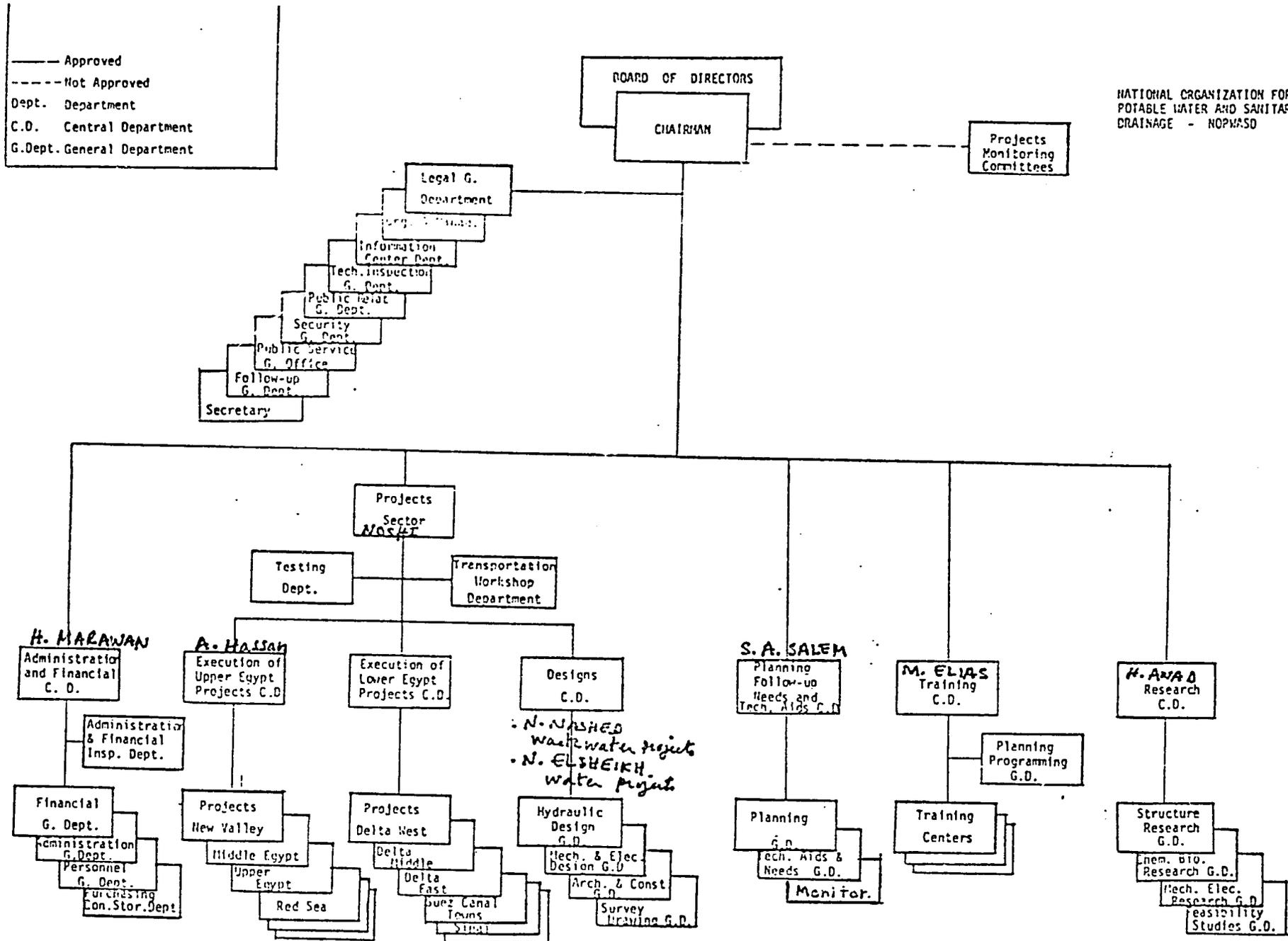
1. NOPWASD was created in 1981 by amalgamating two independent general organizations, namely the General Organization for Potable Water (GOPW), and the General Organization for Sanitary Drainage (GOSD). Each of these organizations was responsible for planning and operating facilities all over Egypt in its respective field. After amalgamation the operation component was relegated to the local governments and the new organization tried to keep its most experienced operation and maintenance specialists, while leaving the less experienced to the governorates.
2. Despite the formal amalgamation of the two organization into NOPWASD in 1981, informally they continue to exist, with considerable autonomy prevailing especially within the projects sector between the water staff and the wastewater staff.
3. The main form of conduct of business in NOPWASD is through interdepartmental committees. This includes such functions as:

- . Setting the yearly investment budget
- . The five year investment plan
- . Individual project planning and design
- . Setting up new water companies
- . Implementing the provincial water master plan
- . Purchases for NOPWASD's projects both internal and external
- . Hiring of new personal, and promotions, or penalties for existing personnel
- . Any other administrative or financial change in the organization.

Many of the good engineers and accountants from NOPWASD's various departments work, at least part time after 3 pm, in the permanent committee for the water master plans and in the water companies assistance schemes. This is in addition to top management involvement in those committees.

Figure 11

NATIONAL ORGANIZATION FOR
POTABLE WATER AND SANITARY
DRAINAGE - NOPWASD



4. NOPWASD's headquarters, including the technical and financial departments, are in the Mogamma Building at Tahrir Square occupying 3/4 of the sixth floor in addition to 1/4 of the fifth floor. The Organization and Management Department as well as part of the Warehousing Department are in temporary locations in Manial, at Cairo GOSD's syphon by the University Bridge. The rest of the Warehousing Department is located in Mattaria and Abbassia neighborhoods of Cairo, where NOPWASD maintains central warehouses. In addition, the Department of Internal Audit and part of the archives are located on Mazloun Street, in downtown Cairo. Finally, the central garage and workshop are at the Abbassia warehouse site.

Last year the organization intended to purchase a new building by the Pyramid Road in Giza where they could consolidate most of their offices. However, these plans were abandoned due to the GOE's plans for reducing expenditures. It is not very clear how long it will take to obtain suitable working space. NOPWASD has written to the Ministry of Housing asking help in solving the problem. This means that during the first phase of the proposed institutional support it is highly unlikely that NOPWASD will move into new quarters.

5. The presidential decree creating NOPWASD has given it the right to determine a fee to charge the governorates when providing technical assistance in planning, designing or supervising construction of the large projects in their jurisdiction. To date, NOPWASD's board has not adopted a fee structure for such services. Furthermore, it is not quite clear to NOPWASD how to account for such income and whether it can be retained or should be forwarded to the Ministry of Finance, since the agency is now a services organization rather than a financially productive one.

As in many other institutions in Egypt, the talented people tend to be overloaded, especially those that have any foreign language capability. This is especially true of the engineers, who are one of the scarce resources in NOPWASD.

(1) Central Department for Research

The Central Department of Research is responsible for setting general policies for research and studies and setting the acceptable levels of services and priority standards for the general master plans for the water and wastewater sector. Generally, its objectives are:

- a. Carry out technical and scientific research concerning the production and distribution of potable water and disposal of liquid waste.
- b. Carry out technical and economic feasibility studies for projects.
- c. Set and develop standards for potable water and its sources and for liquid wastes before their disposal to the waterways.
- d. Make technical recommendations relating to potable water and sanitary drainage laws.
- e. Benefit from international studies and research in NOPWASD's areas of responsibility.
- f. Prepare studies for local and international conferences as well as organize such meetings in the areas of NOPWASD's responsibilities.

The Central Department for Research is not in actuality broken down in to the general directorates as shown on the chart. Furthermore, the general directors filling those positions are working in NOPWASD's other departments, mostly Execution. Three of the Department engineers work full time on setting up water companies in Beheira, Kafr El Sheikh, Sharkia, and possibly more to follow. This leaves five or six engineers to work on the other functions of the Department. The Central Department for Research also has the lead role in monitoring the water master plan prepared in 1980 by Binnie & Taylor, Abdel El Warith consortium, and informally adopted informally by the General Organization for Potable Water. However, the Department does not take the leading role in setting the acceptable levels of service and priorities, with the Design Department doing this on a project by project basis. The department does participate in the planning committee.

(2) Central Department for Training

With responsibility for all training in the organization, its objectives are:

- a. Delineate general policies for guidance and training of all kinds and at all levels.
- b. Prepare detailed plans for all types of training.
- c. Prepare plans for developing training technology in NOPWASD.
- d. Monitor current developments in training.
- e. Evaluate training related technical assistance received by NOPWASD, or given to other countries, in the water and wastewater sector.

- f. Select and send trainees abroad and monitor their progress.
- g. Prepare plans for developing and equipping training centers.
- h. Prepare plans and facilities for the training of trainers.
- i. Publicize training in the sector.
- j. Prepare plans and compile sources for the financing of training.
- k. Participate in studying performance indicators with other departments and agencies.
- l. Provide technical assistance in training matters.
- m. Prepare and maintain training records for the employees.

The department now has only two rooms for training purposes seating some 30-40 people. It conducts periodic training for engineers and operators in the sector but relies on other department heads and visiting lecturers to deliver the training. Due to the lack of a functioning training center, all Central Training Department engineers are assigned to project activities. It is not clear whether the department has the technical personnel indicated in the organization chart. Even the position of the General Manager for the Training center has been filled by an engineer from Execution who still heads a department in that section. The department relies on whatever material has been developed during the water master plan, as well as that prepared by the lecturers to train the trainees. The central department therefore does not have any functioning general directorates reporting to it, neither for planning nor for delivering training.

(3) Central Department for Planning

Carries out the activity of developing general and detailed national plans for water and wastewater within the framework of the general plan set for the nation. It also monitors those plans, and participates in acquiring materials and provides technical assistance to the governorates. It is responsible for the following:

- a. Setting policies, as well as general and detailed plans and priorities nationwide.
- b. Studying and preparing basic development plans for water and wastewater works that fall within the framework of the national general plans.
- c. Preparing the execution plans and programs for the water and wastewater works being implemented.
- d. Setting the plan for the utilities requirements from materials and equipment.
- e. Preparing technical assistance to water and wastewater utilities.
- f. Monitoring execution of the plans to evaluate them and to improve the planning capability of NCPWASD.

The Central Department of Planning is divided into three general directorates: one for planning, one for monitoring and one for requirements. According to the Department head, only two or three professionals in those departments have any experience with planning, as conducted by NOPWASD and the Ministry of Planning.

The Department coordinates closely with the Ministry of Planning. It is involved in the preparation of the yearly budgets submitted to the National Bank for Investments and the Ministry of Finance, but does not take the lead role. Rather the departments of Finance and Projects set the detailed budget requirements. With respect to monitoring plans, NOPWASD monitors only its own projects and relies on the Execution Department to monitor progress. For any other projects in the governorates NOPWASD relies on what the governorate reports as progress. Program planning in NOPWASD still suffers from many problems:

- The current five year plan gives priority to water and wastewater activities, but still makes no explicit statements commitment on levels service in terms of basic targets to be achieved or the time frame for their achievement.
- Although coordination between water and wastewater programs has improved since the amalgamation of GOPW and GOSSD, coordination with the planning of housing and the provision of potable water for non-domestic purposes still needs to be improved.
- Current planning procedures do not make long-term forecasts reflecting population and income growth, target service levels for domestic consumers, or estimated industrial and commercial demands. They are also not coupled with basic information on existing supply systems, in order to determine accurately how to best serve the population on a long-term basis.

The GOE has devoted major efforts to improve planning capabilities in the past five years. The Provincial Water Supplies Project, which provided a starting point and a framework on which to build, developed a long-term program of water supply investment and identified the regions of highest priority. The National Urban Policy Study has also provided basic information for population and income growth in the various regions of Egypt. NOPWASD has been created to improve coordination and planning in the sector. However, within NOPWASD today there still are not enough qualified multi-disciplinary teams with engineering, financial and economic skills that can effectively carry out the planning functions as described above.

The water master plan needs to be periodically updated. A similar effort is required for the wastewater sector and they both need to be integrated into a more comprehensive urban plan. Assistance in the form of some expatriate personnel and a structured training program for NOPWASD staff would enable the organization to complete better plans and programs for the sector.

As far as commodities procurement is concerned the department tries to act as a central purchasing agency on behalf of the local utilities for some strategic materials (i.e. alum). However, it is not quite clear how successful this activity is. In some cases the cost of allum through NOPWASD is higher than if imported by Cairo Water (GOGCWS). This prevents some local utilities from purchasing through NOPWASD. Furthermore, it is not clear how the department estimates local utilities' requirements or even checks the numbers submitted by these agencies. This is especially the case since NOPWASD has no control over Operation and Maintenance activities in the governorates:

As for technical assistance to local utilities, although this is an important function due to the limited experience of the localities it is not really concentrated in any one NOPWASD department, even though theoretically it is the responsibility of the planning department. As it stands now, assistance is performed on a case by case basis by pulling together two or three of the top managers and dispatching them to the local utility in cases of emergency. Furthermore, the activity has not been formalized by the board of directors since it has not agreed on a fee schedule to be charged for such services. It is not quite clear at this point if any records are being kept on the numbers or type of assistance requested by the local utilities, in order to judge the extent of that service.

(4) The Projects Sector

The Project's Sector supervises all water and wastewater projects from design, through construction, to delivery. This is carried out for projects built for NOPWASD or for the governorates. It also undertakes all activities for the transportation workshops and the Testing Departments. This sector has most of the engineers in NOPWASD and is composed of:

- Central Department for Design
- Central Department for Lower Egypt and Canal Execution
- Central Department for Lower Egypt and Red Sea Execution
- General Directorate for Mechanical Fleet and Workshops
- Directorates for Testing

a. Central Department for Design

This department is responsible for preparing the necessary designs for water and wastewater projects nationwide except Cairo and Alexandria. These designs are for projects undertaken by NOPWASD for its own account or for others. Included are site and paths selection, design calculations, general and detailed drawings, specification, bills of quantities as well as all documents necessary for bidding. It is also responsible for land acquisition, surveying, and drawing works. Furthermore, it reviews and approves calculations, drawings and reports prepared by engineering consulting offices.

The department is composed of four general directorates responsible for hydraulic design, mechanical and electrical designs, structural designs and survey land acquisition and drawings. Its staff is grouped by product (that is, those working on water projects as opposed to those working on wastewater projects) rather than technical specialization.

The chairman of NOPWASD is under the impression that the department relies too much on Egyptian consulting organizations for design works, and is thus underutilizing its internal capacity. It is not clear at this point how true that is for both water and wastewater projects. It can be expected however, that the reason for his attitude may be financial. The same engineers working in NOPWASD "moonlight" in consulting offices where they are better paid.

It is not possible at this time to determine how much of departmental resources are directed to land acquisition problems. Also, it was not also possible to judge first hand the quality of the designs prepared by the department, or the filing and handling of project documents. All that is known now is the distribution of the engineers in design among the various grades. This is not necessarily a good indicator of quality but reflects years of experience. Of the 41 engineers in the Design Central Department 12 are in grade I implying experience of at least 14 years, while 23 are in grade III implying experience of not more than six to eight years. USAID's general impression is that most of the designs prepared by NOPWASD are technically sound but that they usually lack the level of detail necessary for their proper implementation. In many instances however, those designs do not reflect adequate consideration for appropriate technologies especially with respect to economic operation and maintenance.

b. Departments for Execution

Both departments have similar responsibilities in their respective geographical areas:

- Supervise the construction of all projects undertaken by NOPWASD.
- Participate in preparation and approval of construction schedules and periodic inspection of all projects.
- Measure quantities and prepare payment documents for contractors.
- Prepare and update estimates of project requirements, approve them from Design Department and dispatch them to procurement departments.
- Participate in price setting committee for direct order work.
- Participate in committees for preliminary and final hand-over of projects.

NOPWASD has no regional offices, so all construction supervision is carried out from Cairo. The quality of the projects supervised by NOPWASD provides the final judgement on the performance of this department. To date it is USAID's impression that supervision of construction is very weak, virtually non-existent. This is attributed to two main causes: (1) lack of incentive to supervise closely public sector firms that have prepared the working drawings themselves, and (2) the limited experience of the engineers themselves.

It was not possible to assess the quality of 60 engineers assigned to Execution. Some inference can be made from their distribution by rank mainly based on years of experience. Only four of the engineers are grade I implying experience of more than 12 to 15 years, while 32 are in grade III implying experience of not more than six to eight years. Taking into consideration the fact that promotion in the lower grades are easier than the higher ones, this tends to confirm the lack of experience of the engineers in supervision.

In terms of lack of incentives and inadequacy of control mechanisms to supervise public sector firms, this is a national phenomenon and not unique to NOPWASD. Some exposure to better contract management and reporting can definitely help, but is no substitute for an environment that clarifies the relationship between client and contractor.

c. Testing Department

This department does not operate a laboratory. Its functions, as stated by NOPWASD, revolve around the testing and verification of pipe qualities and their fittings:

- Studying international pipe specifications
- Reviewing Egyptian recommendations for local pipes
- Monitoring pipe production and their bottlenecks and constraints
- Conducting technical, mechanical, and hydraulic tests on project requirements from pipes and fittings
- Issuing testing certificates for the pipes and fittings
- Testing pipes that would be required for use by Egyptian contractors abroad

It was not possible at this time to ascertain what other tests this department performed. NOPWASD has three chemists on its staff, but they are located at the technical assistance/technical inspection department reporting to the chairman. The laboratory belongs to that department.

d. Mechanical fleet and workshop

This department is responsible for the operation and maintenance of NOPWASD's mechanical fleet and operates from the garages in Abbassia, with a dispatch office in Tahrir square.

(5) Central Department for Finance and Administration

This department is responsible for:

- Setting general policy for financial and administrative affairs and planning work programs and their schedules.
- Economic feasibility of projects.
- Setting the rules of work for the general directorates reporting to it and monitoring the preparation and execution of budgets, final accounts, tenders, and financial and administrative inspection.
- Monitoring the execution of civil service systems, and the written administrative and financial material that are presented to the board.

The department is composed of the following organizational sections:

- Financial Affairs
- Administrative Affairs
- Personnel
- Contracts, Purchasing and Inventory
- Financial and Administrative Inspection.

Following is a brief highlight of the roles of each section and its operation.

a. Financial Affairs Directorate

Theoretically this directorate plays three roles in NOPWASD:

- . Budgeting and funding
- . Expense auditing
- . Cost control

In actuality there is at present no cost control section or function in NOPWASD at all.

As far as budgeting is concerned the directorate participates in preparing yearly budgets, together with the Planning & Control Department, and prepares cash flow requirements. In the yearly budget process NOPWASD directly interacts with the Ministry of Finance and the Ministry of Planning for allocations. The Ministry of Housing role involves only the foreign exchange budget that is controlled and allocated by the Ministry of Economy.

As far as expense tracking is concerned, NOPWASD now follows the government services organization system; that is the Governmental Cash Accounting System. This system is based on cash accounting receipts and payment principles and does not include a balance sheet. This is different from the better known Standard Accounting System (SAS). SAS is based on the principle of accrual accounting, which distinguishes between assets and liabilities and recognizes that assets have limited life. It allows the units to produce income and expenditure accounts and a balance sheet. It also features an account coding system, which uses up to seven digits to identify the type of income and expenditure. It is however biased towards economic principles, and geared toward national economic planning requirements rather than the specific needs of the user organization.

The accounting systems were studied in great detail by the "Provincial Water Supplies Project", before the formation of NOPWASD. They identified the weaknesses of the systems and suggested improvements. The study reviewed the procedures and systems used by both the General Organization for Potable Water (GOPW), the Standard Accounting System (SAS), and the Municipalities and Governorates, Governments Accounting for the following activities:

- the SAS accounting codes and ledger systems do not have adequate provision for analyzing expenditure to individual areas where costs have been incurred;
- many of the present accounting policies, particularly those relating to fixed assets, depreciation, accruals, bad debts and inventory issues have limitations which undermine the meaningfulness of the accounting information produced.

Little attempt is made to consolidate existing information and it was apparent throughout our review that the separate sections of the accounting department do not have a clear understanding of each other's functions and activities. In many instances useful information could be produced if management co-ordinated and integrated the accounting activities more effectively.

It is very important to investigate the issue in terms of what has been adopted from the study's recommendations and what should be done further. This is especially important since NOPWASD is now heavily involved in creating new water companies in several governorates in Egypt. Several of the employees in the department have participated in the study as GOPW employees, but it is expected that many of them need to be trained in basic accounting principles, as they have not worked with accrual accounting systems before either in the private or public sector of the economy.

b. Administrative Affairs Directorate

This directorate performs two main functions:

- Archiving and Central Secretariat
- Internal Services.

In addition this department should work to develop administrative procedures for NOPWASD. At present it does not do that, rather the organization and administration department is expected to carry out that function. This point will be investigated further when looking at the role and function of that department.

As far as archiving and information dissemination within NOPWASD, the system is primitive at best. Knowledge is disseminated through the informal "grape vine". Most departments do not rely on the general secretariat, either for filling or for circulating information within the organization.

Internal Services is responsible for:

- Maintenance and cleaning of headquarters, and buildings
- Health care for employees

- Employees' social services in terms of trips, housing, and financial assistance
- Cultural affairs and communication among employees
- Telecommunications affairs for NOPWASD
- Printing of documents, administrative orders and the like, necessary for conduct of business

It is not quite clear how this department will carry out both functions, with the quality of the present staff. The only person with a bachelor in administration is grade III i.e. with probably 10 years experience, while of the 27 clerks, one is grade I, seven are grade II and eight are grade III. This makes the staff more biased towards following traditional practices. It is also not quite clear how effective any administrative training would be in achieving breakthroughs in their performance.

c. Personnel Affairs Directorate

This directorate is responsible for implementing the civil service law with respect to salary, incentives, pension and social security; salary raises and promotion; recruitment, transfers and loans; and finally record keeping and leaves.

At present NOPWASD has some 1337 authorized and funded positions excluding 30 top management ones. At the latest count 890 of these are occupied as shown in Table 3. The relatively low manning level in the lower grades is a reflection of the low pay. This is especially apparent at the technical positions, either engineers, technicians or technical workers. But if the pay is low why do staff remain in the higher positions? The answer may be complex:

First, for the high positions the pay may not be as low compared to that in the private sector. Second, government provides security of employment. Third, some employees have a second source of income. Fourth, some staff are loyal and dedicated.

This loyalty however, is being stretched by the continued situation of low pay and inequity of the payment structures.

Figure 12 shows the distribution of the filled positions by department. It is not very clear at this point how many of these 890 position filled are actually working and how many are on long leaves.

The personnel and pay policies in NOPWASD and in other government institutions are certainly one of the major constraints on performance. These were studied in the "Provincial Water Supplies Project" in 1980. Although a lot of changes occurred, both to the civil service law and the organization working in the water and wastewater field, the major constraints identified seem to be still in existence, with respect to all aspects of personnel policies, These were:

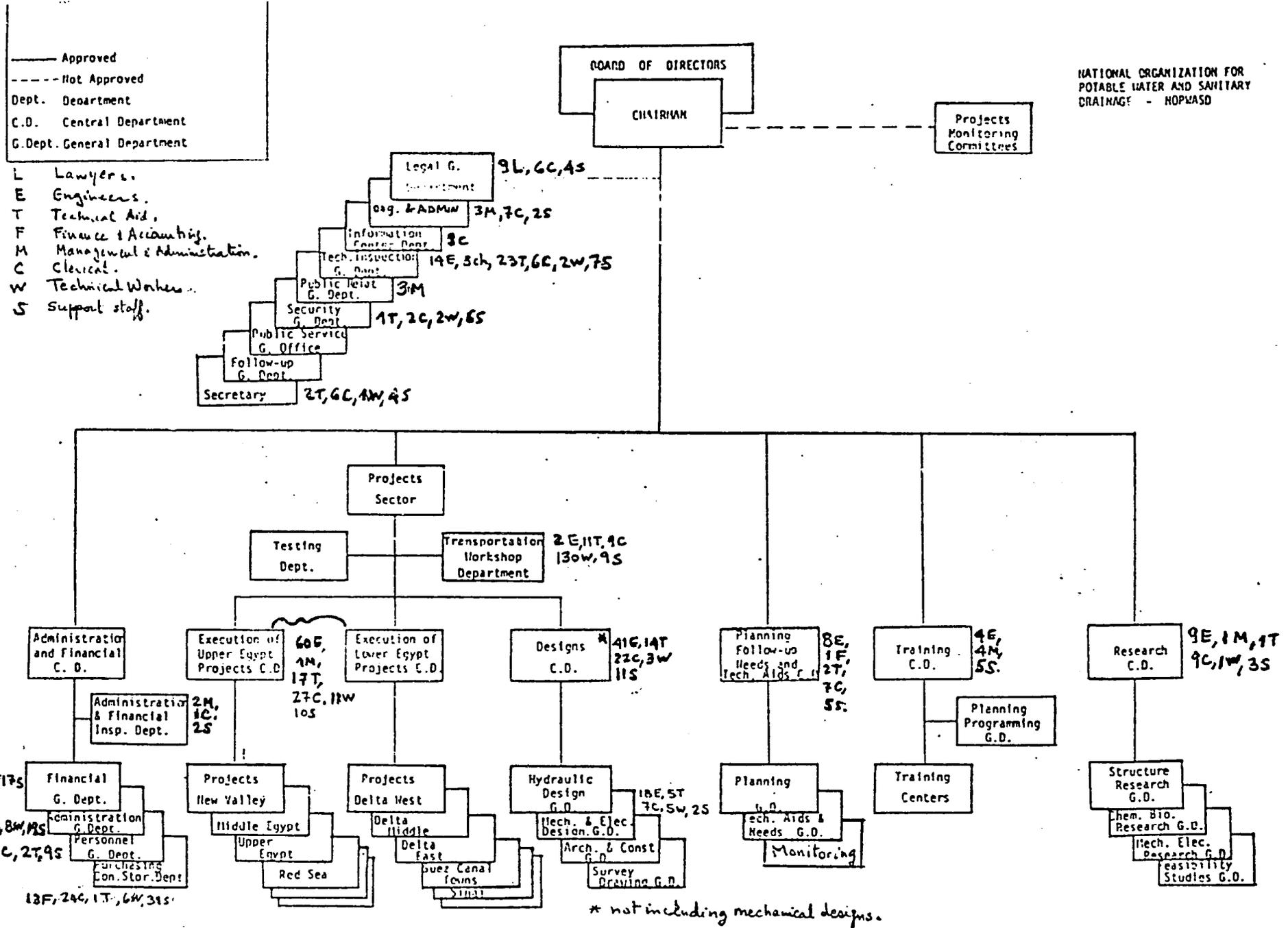
TABLE 3
NUMBER OF AUTHORIZED AND FILLED POSITION IN NOPWASD
BY GRADE AS OF 6/30/84

| Grade Job Category | I | | II | | III | | IV | | V | | VI | | TOTAL | |
|-------------------------|------|----|-------|-----|-------|-----|------|-----|------|----|------|-----|-------|-----|
| | A | F | A | F | A | F | A | F | A | F | A | F | A | F |
| Legal | 2 | - | 4 | 4 | 9 | 5 | | | | | | | 15 | 9 |
| % | 0 | | 100 | | 55.6 | | | | | | | | 60.0 | |
| Engineering | 33 | 26 | 57 | 60 | 155 | 70 | | | | | | | 245 | 156 |
| % | 78.3 | | 105.3 | | 45.2 | | | | | | | | 63.7 | |
| Science | | | 2 | 2 | 2 | 1 | | | | | | | 4 | 3 |
| % | | | 100 | | 50.0 | | | | | | | | 75.0 | |
| Finance & Accounting | 7 | 7 | 13 | 13 | 28 | 17 | | | | | | | 48 | 37 |
| % | 100 | | 100 | | 60.7 | | | | | | | | 77.1 | |
| Administrative | 7 | 7 | 15 | 8 | 29 | 17 | | | | | | | 51 | 32 |
| % | 100 | | 53.3 | | 58.6 | | | | | | | | 62.7 | |
| Technician | 13 | 13 | 44 | 39 | 44 | 19 | 56 | 11 | | | | | 157 | 82 |
| % | 100 | | 88.6 | | 43.2 | | 19.6 | | | | | | 52.2 | |
| Clerical | 12 | 12 | 52 | 51 | 90 | 92 | 163 | 99 | 16 | 4 | | | 333 | 258 |
| % | 100 | | 98.1 | | 102.2 | | 60.7 | | 25.0 | | | | 77.5 | |
| Tech. Workers | | | 39 | 38 | 76 | 64 | 56 | 25 | 71 | 29 | 33 | 11 | 275 | 167 |
| % | | | 97.4 | | 84.2 | | 44.6 | | 40.8 | | 33.3 | | 60.7 | |
| Support Services | | | | 20 | 15 | 48 | 46 | 60 | 57 | 81 | 28 | 209 | 146 | |
| % | | | | | 75.0 | | 95.8 | | 95.0 | | 34.6 | | 69.9 | |
| TOTAL 890 | 74 | 65 | 226 | 215 | 453 | 300 | 323 | 181 | 147 | 90 | 114 | 39 | 1337 | |
| % | 87.8 | | 95.1 | | 66.2 | | 56.0 | | 61.2 | | 34.2 | | 66.7 | |

Notes: A = Authorized, F = Filled
 % filled to authorized

Figure 12

NATIONAL ORGANIZATION FOR
POTABLE WATER AND SANITARY
DRAINAGE - NOPWASD



- Recruitment

- . shortage of adequately trained skilled manpower
- . high proportion of skilled staff due to retire
- . little recruitment of young skilled personnel.

Difficulty in filling posts stems from:

- . competition from private sector
- . low pay
- . poor promotion prospects
- . lack of career development
- . unattractive location of work

Selection procedures are cumbersome and waste managerial time:

- . the first objective is to fill vacancies from within the organization, by promotion or reassignment
- . vacancies must be advertised in two newspapers
- . tests are often used in the selection
- . all applicants satisfying the basic requirements are interviewed by a selection committee appointed by decree from the Chairman

Pay

Still after passing of law 26 for 1984 increasing wastewater workers salaries, pay in the sector is:

- . drastically uncompetitive;
- . bound by law
- . unfair to good workers
- . providing no incentive for improved performance

- Promotion

The system although not entirely linked to seniority and education level is restrictive.

The major weaknesses are:

- employees have to wait a long time for promotion. The worst case is in grade three in which graduate engineers are recruited. They must wait eight years and even then only 25 percent of the group will receive promotions.
- less importance is attached to skills and knowledge than to seniority;
- employees are sometimes given greater responsibility but no extra reward;

- the quality of supervision and management tend to decrease if the best staff are not promoted.

- Career development

There is little evidence that NOPWASD actively promotes the careers of individuals. This is partly caused by the use of seniority as basis for advancement and partly due to the lack of any system to identify staff with potential.

- Performance review

Many regard this as a paper exercise and waste of time, because the results do not accurately reflect performance and are not used to determine bonuses.

- Discipline and dismissal

The law assigns to the "concerned authority", the task of listing contravention, disciplinary measures and inquiry formalities.

NOPWASD has developed its own discipline procedures and has prepared a list of sanctions that can be applied, but cases of dismissal or forced retirement must be referred to a disciplinary court. This involves lengthy legal proceedings and may explain why the sanctions applied are lenient and fall short of recommendations for dismissal.

- Personnel administration and records.

A personnel affairs committee consisting of the chairman and selected senior managers reviews all personnel affairs. The final authority for any action whether it be appointments, transfers, or secondments rests with the chairman. The personnel affairs section therefore carries out instructions and does not make decisions.

Furthermore, the department is not effectively involved with human resource development, or welfare functions. Both are carried out by other departments.

- Environment

The working conditions for many staff at NOPWASD are inadequate, being characterized by:

- . overcrowding and congestion
- . shortage of filing space
- . buildings in need of repair
- . safety and fire hazards

It is vital that the recommendations and conclusions of the 1980 study be reviewed in light of the more recent changes both in NOPWASD and the water company concept. If movement toward alleviating the constraints on personnel is not achieved, no institutional or training effort will achieve its target. Steps at various levels of government should be followed to bring about change in that situation.

d. Contracting, Purchasing and Inventory Directorate

This directorate performs three main functions:

- . local and foreign purchasing
- . contracting
- . inventory

In purchasing and contracting the department applies the regulations for purchasing and bidding to insure fairness and correctness of procedures for both local and foreign purchase. It contacts the shipping, insurance and transport companies to ensure the delivery of the goods to NOPWASD's warehouses. It contacts banks for letters of credit and other financial matters related to contract administration, and participates in receipt of goods. It also maintains suppliers and agents records and data and maintains contact with the state council, tax authorities and other regulatory and central agencies.

In actuality contracting and purchasing are all done by special committees appointed by the chairman and all authority is usually vested in him. The Directorate involvement in those committees is complementary to that of design, execution, finance and planning. All procedures are supervised by the special committee which tenders, reviews, selects and prepares contracts for NOPWASD's purchases.

NOPWASD's warehouses are dispersed. The main warehouse is in Cairo-in Mattaria-with smaller ones all over Egypt. The warehousing department is responsible for maintaining and applying inventory and financial regulations. The department applies standard government procedures for record keeping and inspection. It is believed that such rules are so rigid that they penalize storekeepers for trivial errors, and do not allow for disposing of unused items.

(6) Departments in Staff to Chairman

Reporting directly to the chairman are some support departments. Figure 11 shows nine departments in total, in actuality three of these departments do not exist at all; these are:

The Information Center
Public Service Office
The Follow-up Department

The remaining six departments are small and perform staff support functions. The chairman's secretariat handles appointments and board correspondence. Security is responsible for just that including safety and fire protection. Public relations is responsible for NOPWASD's image in the public eye, preparing brochures and monitoring the press. Presently this department does paper clippings for the chairman and arranges for VIP travel and meetings.

The Legal Department has three roles. It handles complaints and investigations of contraventions. It handles cases on behalf of NOPWASD. These first two roles usually overtake the more important last role of the department. The department's intervention in day to day activity of NOPWASD is by no means a routine procedure; it is the exception rather than the rule.

The Organization and Management Department is headed by NOPWASD's "institutional memory". It is to assist in the areas of work organization and manpower planning. The department is not located in Tahrir square but in Manial. It keeps records on manpower and on organizational responsibilities and has been instrumental in this analysis. However, it is not quite clear how effective it is in bringing about change in NOPWASD's activities.

Finally, the Technical Inspection Department - better known in NOPWASD as the Technical Assistance Department - has the role of periodic inspection of NOPWASD's site activities to ensure that the execution is performed according to the standards of quality and time. From the staffing pattern it is quite clear that it is the department that does the testing for water samples, since it is the only department in NOPWASD that employs chemists. It is not clear at this time whether this Department's staff is composed mainly from previous GOPW and GOSD operators that have remained with NOPWASD after operation and maintenance has become a governorates activity.

Lastly, a short note on information. The present information system in NOPWASD is by no means integrated. Very little summary information is collected and presented to management at any level for control purposes. Attention is focused, as was shown from the analysis of accounting systems, on observing regulations and presenting annual budgeting information to the central government. Even on projects supervised by NOPWASD, little is done to present information on performance monitoring.

The existing system cannot on a regular basis supply the various levels of the industry with the relevant information required. With the exception of one individual presently attending a course in information handling at the American University in Cairo, no one in NOPWASD has any experience in information management. A statistics department does exist in NOPWASD's structure presently but it is manned by three clerks and the organization has no trained statistician on board.

b) Role of NOPWASD in the future

NOPWASD presently does not perform all its prescribed functions as specified in Presidential Decree 197 for 1981. In setting the general plans for water and wastewater it lacks the expertise for preparing comprehensive financial and physical plans that integrate water, wastewater and other urban activities. In conducting applied research and studies it has concentrated on participating in feasibility studies for setting up provincial water companies and has spent little time on modifications of water and wastewater quality standards, or on policy studies. Regarding technical specifications and standards for projects, these are presently being set, as on most Egyptian projects, by the project designers usually following tradition. Up to the present time NOPWASD has not embarked on developing new standards and procedures. NOPWASD's involvement in training is embryonic, and with no training centers it concentrates on municipal engineers. It does not cover the various aspects of design, construction, and operation and maintenance of water and wastewater facilities. The agency does assist the municipalities at present in designing, contracting and supervising construction of large projects according to the specifications set by NOPWASD. The agency does not yet charge for its services.

In the medium term, both the Ministry of Housing and NOPWASD do not envision any legislative changes to the role of NOPWASD in the sector. Rather it is intended that any assistance be used to help the agency extend its present role and ensure that it can properly fulfill the responsibilities defined in the presidential decree. The agency is presently intended to perform planning and technical assistance roles for both the central and local governments in the sector. In the long term some changes in this role may be necessary, especially as governorates requirements for technical assistance diminish. At that point in time, some legislative changes in the NOPWASD mandate may be required. Table 4 depicts the various functions and responsibilities of NOPWASD now and in the medium and long term future.

Development of NOPWASD Functions

| Functions | AT Present | Medium Term | Long Term Future |
|-----------------------------------|---|---|---|
| <u>Policy&Planning</u> | <ul style="list-style-type: none"> - Preparing sector investment Program based on existing sector master plans and governorates requests. - Liaison with governorates or capital budgeting. - Design major capital works on behalf of governorates. - Participate in assigning foreign assistance to sector priorities. | <ul style="list-style-type: none"> - Preparing and updating sector master plans based on guidelines discussed and approved with MHPU. their own work. - Liaison with governorates on planning and budgeting issues. - Advising on physical&financial objectives and policies for water and wastewater supply. - Developing relevant design and operational standards&criteria. - Providing technical advice and specialist services on agency basis for design of major capital works. - Coordinate financial planning and funding of sector projects including foreign assistance. | <ul style="list-style-type: none"> - Setting targets and guidelines for levels of service and tariff policies for governorates to plan - Setting relevant design and operational criteria for capital projects in the sector. - governorates capital programs agent standards. - Negotiating central government capital funds to the governorates. For both local and foreign funds. - Reviewing governorates manpower plans and monitoring quality of personnels. |
| <u>Supervisory and regulatory</u> | <ul style="list-style-type: none"> - Advising on regulatory workings of the sector. | <ul style="list-style-type: none"> - Advising on appropriate re-regulations governing financial, Administrative and technical procedures of governorate utilities. - Advising on planning&operating standards of governorate utilities. | <ul style="list-style-type: none"> - Physical and financial supervision of planning and operating standards of governorate utilities (including quality of water produced and discharged). |
| <u>Operational</u> | <ul style="list-style-type: none"> - Construction supervision of major capital works on behalf of governorates. - Bulk procurement on behalf of governorates of some items as required. | <ul style="list-style-type: none"> - Technical assistance&advice to governorates on some of the following: <ul style="list-style-type: none"> . construction supervision manuals and procedures. . operational systems of: <ul style="list-style-type: none"> . billing and collection . financial operation . personal . support service . Design manuals and standards | <ul style="list-style-type: none"> - Emergency assistance&trouble shooting capability only. - Maintaining the operational standards in terms of approval and dessimination of systems on: <ul style="list-style-type: none"> billing and collection financial operations personnel procedures. personnel procedures. support services |
| <u>Non-Operational Services</u> | <ul style="list-style-type: none"> - Attempts at developing manpower development and training programmers to meet meet sector needs. - Preparing feasibility studies as part of implementation of existing master plan. | <ul style="list-style-type: none"> - Development of comprehensive manpower development and training programs for sector. - Conduct some training programs for management,&middle grade staff. - Arranging external management training and advanced training of specialists. - identify areas for applied research. | <ul style="list-style-type: none"> - Dessiminate training materials for use in industry. - Funding of research activities. |

E. MHPU and NOPWASD Support Needs

To help both the MHPU and NOPWASD achieve their respective roles and functions in the water and wastewater sector a combination of possible assistance is recommended by USAID. It includes, long-term, (i.e. 30 months) and short-term technical assistance, pilot plant start-up and O&M services; training support through participant training, publications and equipment; and general support in terms of logistics information management and the funding of applied research. Based on the analysis of administrative capacity of the two organizations, this section attempts to answer the following questions: (a) What kind of assistance is required by the agencies; (b) How much can they absorb; and (c) How well can the agencies manage the assistance?

1. Ministry Capability

Three priority areas can be identified for support to enable MHPU to set policies and regulations, and to monitor and supervise the sector. These include: policy guidance, plan review and finance, management and coordination. The bulk of the expected assistance will be in the form of technical assistance. It would be supplemented by some minor logistics and data management, as well as participant training support.

Technical assistance absorptive capacity could be identified in terms of the ability to provide adequate counterparts, the ability to pay for local experts, and the ability to implement and use the assistance provided.

At present, the MHPU can easily provide approximately four or five, full-time staff professionals to work on the three areas identified above. This is not counting the time devoted by the Undersecretaries and top-level officials. This would provide for some 150 man months of effort. Although the MHPU has the intention to expand, (as discussed in the administrative capability analysis section) it can not be expected that the MHPU would be able to provide 20 or 25 staff professionals to work on the project in the near future. It is reasonable to assume though that MHPU can identify and add two or three more staff members to work on the project, making the total manmonths of staff time between 210 and 240 over the 30 month technical assistance period. The problem with language must be addressed rapidly however, as most of MHPU staff neither speak nor read English. Testing and training for English communication should start immediately, if not for everybody, at least for the key staff targeted to work on the project.

As far as paying for Egyptian experts in this fiscal year, MHPU has a total of LE 500,000 budgeted for studies and research. This money can be used to finance expert advisors for water and wastewater. Currently, the funding is being used to fund the Ministry's reorganization studies, as no other technical studies are underway. At a cost of \$2,500 per manmonth for Egyptian experts, the MHPU can easily fund up to 200

man-months per year with LE 500,000. It should be possible under the present conditions for the MHPU to allocate 30 to 40 percent of such a sum per year during the 30 months of technical assistance, amounting to approximately LE 400,000 to LE 500,000. This should fund 160 to 200 man months of Egyptian expert efforts.

In terms of the potential use and implementation of the results of the assistance provided to the MHPU, it is difficult to assess. As far as the technical assistance is concerned, MHPU shall implement the management and policy advice if it is presented in a "camouflaged manner", that is if the advice is cast as "technical" versus "managerial" advice. Planning and policy guidance should be used as vehicles for management and organizational changes advice through the clarification of relationships and roles of the various sector organizations, and their potential impact on sectorwide goals and strategies.

Neither the long-range planning capacity or capability presently exists in the Ministry, nor the attitude for setting standards and systematic impact analyses. The capability may be developed through training both by interacting with advisors on-the-job, and by attending technical training in U.S. Ten to fifteen individual trips over the 30 months of technical assistance can easily be maintained for visitational travel and training in the U.S. from the MHPU in both the policy and planning areas.

Information handling at both the CDPU and MHPU in general is a major problem. At the present time MHPU does not have staff specializing in information handling or management. Training of such individuals is imperative if the design of a sector integrated management information system is to be implemented. In the mean time the introduction of small personal computers in the CDPU, at least for the advisory team use, can and will enhance the process. It could be possible to justify three personal computers -- one for the advisory team, one for the planning office and one for the office of the Undersecretary for Public Utilities.

The MHPU's ability to manage and administer the assistance contracts is not so obvious. Training in this area prior to final selection of technical assistance advisors may be justified. The Ministry of Development's handling of TAMS for ten years indicates that GOE officials can handle technical assistance contracts both administratively and financially. In terms of the procurement of goods or training under USAID regulations, it is expected that MHPU will need some assistance. Such assistance can either be provided through short term AID-direct contracts, or through training. The problem could easily be overcome in MHPU since the level of effort in this component is probably limited. It is not expected that the MHPU will have problems with the provision of office space for the advisors. Some logistical support with the equipping of adequate office equipment will be necessary.

2. NOPWASD Capability

To enable NOPWASD to develop national plans to coordinate implementation and assist in the operational and other service provisions in the sector five priority areas have been identified. These include: Management and Finance, Planning and Economic Analysis, Manpower Development, Engineering and Environment, and Pilot Start Up and Operations and Maintenance. The support for NOPWASD would include both technical assistance and training support in publications and training aids, in addition to logistics, data management, and participant training support.

Unlike the MHPU, NOPWASD does have more staff professionals, it is thus expected that the agency can easily provide 12 to 15 competent staff professionals including engineers and accountants to support the first four tasks providing for 360 to 450 man months of effort. In addition approximately six engineers are needed for the start-up and O&M program. While the total number may not seem very high, in some cases however filling these posts will be more difficult than others. For the start up program and the engineering area the staff is currently available. This is also true for the management, finance, and planning areas. In the training area however, the availability of personnel is nonexistent. There is a need for specialized training in manpower development and training for at least three staff members, in addition to language training that a large number of the staff requires. So far efforts to identify the potential staff to work on the project have been limited, but all of those people proposed are presently working in NOPWASD on the implementation of the potable water master plan.

As far as paying for Egyptian experts, NOPWASD uses Egyptian engineering consultants on a regular basis. It is not clear at this point how much they actually pay them per year. The problem may surface if the expenditure on Egyptian experts for the ISP project substitutes for a major portion of the engineering assistance. NOPWASD's chairman does not seem concerned, and thinks that approximately LE 250,000 to LE 300,000 per year can be used for this purpose.

In terms of potential use and implementation of the results of the technical assistance, the technical issues such as economic analysis, engineering and effluent standards will get top management support. The external management problems such as the relationship between NOPWASD and the municipalities, will get the similar support. NOPWASD's internal management problems will not. These must be addressed through the context of the technical and cost impacts on the performance of the agency. Proposed adjustments to the organizational structure should be approached very carefully with extensive inputs from the Central Agency for Organization and Administration, if any implementation is to take place.

The emphasis on training will allow the needs assessment and the training coordination to proceed satisfactorily. NOPWASD wants to see more staff from the sector receive training. If NOPWASD is able to provide new space for training and meeting rooms, the space can be equipped with training aids and equipment. Support for the Training Library will also proceed if the agency provides space for the development of the facility.

NOPWASD is already training two staff in information management at AUC to become the nucleus of the information center. When larger numbers of NOPWASD staff get training in this area the study of information needs and plans, and system design to integrate NOPWASD with both the Municipalities and the MhPU can occur. Actual purchases of hardware will be contingent upon this study and the availability of personnel for training. It is anticipated that additional staff training will be required. Before the end of the technical assistance contract NOPWASD will be ready to procure a microcomputer to cover a part of its information needs. The introduction of a few personal computers will improve NOPWASD's information needs. Personal computers could be utilized in the Construction, Planning, Finance, Training, and Research Departments, as well as the Chairman's office.

Studies and conference support will promote NOPWASD's participation in the promotion of Sanitary Engineering issues. Presently, NOPWASD is not involved in this field, nor has it dealt with such issues before. The implementation of an extensive study and conference support program during the first phase of the project is highly unlikely. A small pilot program with one or more universities, and the sponsorship of one or two national water/wastewater conferences could be realized during the first phase of the program.

To improve NOPWASD's relations with the municipalities, a pilot start-up O&M program will be initiated. This program is contingent on two issues: (1) the availability of six to eight staff professionals to assist the advisors, and (2) that NOPWASD complete the modifications suggested by the advisors to ensure the operability of the plants. NOPWASD is anxious to see this component begin. It could be accelerated if USAID and NOPWASD agree on utilizing PVO assistance for this part. This technical assistance would be absorbed by NOPWASD through hands-on training activities, including the development of standard operating procedures, and operations and maintenance manuals. For NOPWASD the result would be the development of a start-up O&M training team to provide start-up and O&M services to municipal plants throughout the nation. This would enhance NOPWASD's current technical assistance role which primarily focuses on design and construction supervision. The four or five municipal plants receiving start-up and O&M assistance through the project would receive on-site, hands-on training for their O&M personnel.

It is expected that NOPWASD will not have a large problem with the repairs and renovations for the pilot plants. A cost estimate for repairs for three wastewater and two water treatment plants (based on budgeting 10% of capital cost as an allowance for wastewater and 2% for water plants) is somewhere between LE 1-4 million.

NOPWASD's ability to manage a technical assistance contract surpasses the MHPU's ability. NOPWASD has managed several foreign technical assistance contracts, and currently is managing one for USAID on the Canal Cities project. Some training in this area may be required, but it is less of a need than for the MHPU.

If NOPWASD follows through with its plan to acquire new office space, there will be adequate space provided for the advisors. Even in its current office quarters there exists sufficient space for advisor offices.

3. Scale of Assistance:

After reviewing both the MHPU and NOPWASD's requirements and capabilities it is not unreasonable to expect a smaller effort at the MHPU with three long-term advisors complemented with some 45 man months of short-term advisors, and approximately 180 manmonths for local advisors. This is in contrast to the longer effort at NOPWASD with five long-term advisors, and 140 man months of short-term, supplemented with 300 man months of local advisors. In addition, the start-up assistance effort requires approximately four long-term advisors, and nine manmonths of short-term, and 80 man months of local advisors.

The local advisors for both agencies will be handled through the MHPU and NOPWASD respectively, and should not present any major management or administrative problems. To ensure flexibility in the program, and to allow for a quicker response time than that of host country contracting, approximately 100 man months of short-term AID-direct contracts is factored in the technical assistance. The AID direct contracts will be used to start the project during the premobilization phase, for AID evaluations and to respond to an emergency request for assistance from another agency or municipality other than from the MHPU, NOPWASD, or a municipality where the ISR is actively involved. These contracts will be administered by USAID/Cairo and will not impose additional burdens on the MHPU or NOPWASD, except in providing counterparts when necessary.

USAID/Cairo prefers that the TA contract involve one firm serving both the MHPU and NOPWASD. The GOE agencies each would prefer separate contracts. This point remains under discussion with the two agencies.