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Economic Commission for Latin America and the Caribbean

TRAINING IN WATER RESOURCES MANAGEMENT IN THE CARIBBEAN:  
ANALYSIS AND PROPOSALS

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## I. BACKGROUND, OBJECTIVES AND METHODOLOGICAL ASPECTS OF THE STUDY

### 1. Background

This study was commissioned by the Economic Commission for Latin America and the Caribbean (ECLAC) to complement a similar study done in 1989 for Latin America.

It is one of the activities in the project entitled "Training in the Management of Water Resources Projects and Systems" sponsored by the Government of the Federal Republic of Germany.

In the Caribbean, as in Latin America, an important aspect of social and economic development is the provision of adequate supplies of water for industrial, agricultural, and domestic purposes. Because water supply is a key component of a country's infrastructure, the effectiveness of the management of water institutions assumes importance in achieving at least three objectives:

1. To ensure that demand for water is adequately met through effective strategic management.
2. To optimize the allocation of the national water resources through synergistic co-operation and collaboration with other national sectors.
3. To ensure that water institutions continually strive to operate at their highest productivity levels within an organizational environment which promotes the personal and professional growth of its members.

ECLAC has recognized that, in general, the water institutions in Latin America and the Caribbean have not been able to adequately achieve these goals because of deficiencies in their managerial capabilities. These deficiencies have been

traced to a lack of systematic training by the institutions to prepare their executives to perform their managerial roles.

It is to identify existing deficiencies and to provide for ongoing management training needs, that this project has been devised.

## 2. Basis and objectives of the study

Discussions leading up to the formulation of the project, as well as the information collected by ECLAC over the years, have supported the thesis that the quality of management of water institutions determines the organizational effectiveness in respect of the following:

1. The mobilization of the resources necessary to carry out the mission of the institution.
2. The degree to which the mission of the institution, as perceived by its members, coincides with the real needs of the society it serves.
3. The quality, quantity, price and ease of acquisition of the goods and services produced by the institution.
4. The extent to which the needs of the members of the institution are met both personally and professionally.

Against this background of the benefits to be derived from effective management, the objective of this study is to investigate the status of management training in the water institutions of Caribbean countries and to determine the mechanisms required to promote the steady improvement of such management through the narrowing of the gap between the demand for training and the supply of training.

Specifically, it will examine and report on the following:

a) The local and regional institutions that offer training courses in the management of water resources, including internal courses offered by the water institutions themselves.

b) The range of courses being offered including data on the target groups and duration.

c) The potential demand for training in management in the water institutions.

d) The relationship between potential supply and demand.

On the basis of the findings in a) to d) it will:

i) make recommendations with a view to establishing strategies to improve current management training systems, focusing on identifying areas where ECLAC could help to strengthen and supplement such systems;

ii) provide the basis for discussions to explore the possibility of establishing a regional approach (with the collaboration of ECLAC) to the delivery of training to meet the organizational development needs of water institutions in the Caribbean;

This survey is the first stage in a process that has as its goal the formulation and implementation of a comprehensive and integrated system of management training for the water institutions in the Caribbean with links with similar programmes in Latin America.

### 3. Methodological aspects

Sixteen countries were potential candidates for the survey: Anguilla, Antigua and Barbuda, Barbados, Belize, British Virgin Islands, Cayman Islands, Commonwealth of Dominica, Grenada, Montserrat, St Kitts and Nevis, St. Vincent and the Grenadines, Turks and Caicos Islands, Trinidad and Tobago, Jamaica, and The Bahamas Islands. However, a sample of eight countries was used. The following considerations were taken into account in deciding on the sample:

- The experience gained in the associated study for eight Latin American countries.

- The relative smallness of water institutions in the Caribbean when compared with those of Latin America.

- The wide variation in the size of countries, (see Annex 1) and their water institutions.

As a result, it was decided to conduct face-to-face interviews in four More Developed Countries (MDC), viz:

- Bahamas Islands
- Barbados
- Jamaica
- Trinidad and Tobago

and four Lesser Developed Countries (LDC), viz:

- Antigua
- Commonwealth of Dominica
- Saint Lucia
- St. Vincent

It was estimated that this sample would provide a good assessment of the situation being investigated.

## II. STATUS OF MANAGEMENT TRAINING IN THE CARIBBEAN WITH RESPECT TO WATER INSTITUTIONS

### 1. Regional institutions pertinent to the study

The following regional institutions offer management training relevant to the needs of water institutions:

i) Caribbean Basin Water Management Project (CBWMP). This is a regional project located at the Caribbean Development Bank (CDB), Barbados. It is funded by the Pan-American Health Organization (PAHO) and the Canadian International Development Agency (CIDA).

At the inception, it was a training fellowship oriented programme and provided managerial/technical training for water sector employees from seven Caribbean territories. The high cost of funding overseas programmes limited the number of persons who could benefit from the project.

As a result of a review of the scheme in 1977, it was agreed to change the emphasis to focus on the provision of training in operational skills and first line supervisory management.

This project in regional functional co-operation now embraces thirteen (13) Caribbean Countries, viz Anguilla, Antigua and Barbuda, Barbados, Belize, British Virgin Islands, Cayman Islands, Commonwealth of Dominica, Grenada, Montserrat, Saint Lucia, St. Kitts and Nevis, St Vincent and the Grenadines and Turks & Caicos Islands. It has the following as its objectives:

- To develop a self-sustaining Training Delivery System for water utilities of the Eastern Caribbean, making optimal use of appropriate existing institutional and technical expertise.

- To train trainers by providing technically trained individuals with the communication skills and instructional techniques, so that the local training could be substantially increased.

- To develop appropriate training/job manuals.

- To increase and improve manager/supervisory training.

The programme offered in 1989 comprised the following:

<u>Topic</u>	<u>Duration</u>
Maintenance Management in Water Utilities (Grenada)	5 days
Public Relations and Customer Service in Water Utilities (British Virgin Islands)	5 days
Leak Detection and Wastage Control in Water Distribution Systems (Barbados)	5 days
Supervisory Management in Water Utilities (St. Kitts and Nevis)	2 weeks
Basic Course on "Water Works and Sewerage Plant Operations and Maintenance" (CAST)	5 weeks

ii) The College of Arts, Science and Technology (CAST). CAST is a Jamaican institution but, in the spirit of regional co-operation, it provides training for personnel of Caribbean water institutions under the auspices of the CBWMP. The training at

CAST is primarily in operational skills but there is opportunity for training in first line supervisory management.

iii) The University of the West Indies (UWI). The UWI offers programmes in management education at its three campuses (Mona in Jamaica, St. Augustine in Trinidad and Cave Hill in Barbados) and, to a limited extent, at its Centres for Continuing Education in all its constituent countries.

iv) The Barbados Institute of Management & Productivity (BIMAP). BIMAP is a non-profit organization located in Barbados. It represents a co-operative effort between the Government and the private sector of Barbados to provide the necessary management training and development to meet the needs of Barbadian society.

Over the past decade BIMAP has responded to requests from other Caribbean countries for assistance in meeting their training needs. As a result, BIMAP has evolved into being a Caribbean institution making a significant contribution to management training and development in the region. BIMAP provides training for Caribbean water institutions under the sponsorship of the CBWMP.

## 2. Summary of country studies

Table 1 summarizes the details of the country studies contained in Annex 2.

It should also be noted that:

1. All the institutions surveyed, with the exception of the one in the Commonwealth of Dominica, were constituted as government statutory corporations.
2. In general, water institutions restricted their scope of operation to the provision of potable water and, where pertinent, to the treatment of waste water.
3. Over time there have been changes in the structure of the water institutions to come to terms with the need to replace the civil service bureaucracy (with its



Table 1

## SUMMARY OF COUNTRY STUDIES

Country	Type of organization	<u>Degree of estimated</u>	
		<u>in-house training*</u>	<u>demand for training*</u>
Antigua and Barbuda	GSC	1	5
Bahamas	GSC	2	4
Barbados	GSC	2	4
Dominica	Privatized	2	4
Jamaica	GSC	4.5	4.5
Saint Lucia	GSC	2	4
Trinidad and Tobago	GSC	4.5	4
St. Vincent	GSC	2	4

GSC = Government Statutory Corporation

\* Ratings are on a scale of 1 to 5.

strong focus on systems and procedures) with structures reflecting a concern for strategies and tactical plans. These changes became necessary because of the need to meet the challenges of providing water-related goods and services in modernizing societies.

4. All the institutions, with the exception of the Barbados Water Authority, were facing some degree of financial difficulties.

### III. ANALYSIS OF THE SUPPLY OF TRAINING

a) In-house training: All the organizations surveyed were sensitive to the need for training in management as an important activity in meeting their corporate goals.

Systems (some embryonic, as in the Commonwealth of Dominica and in St Vincent, and others well developed, as in Trinidad and Tobago and Jamaica) are therefore in place to meet identified training needs using in-house capabilities. The details are contained in Annex 2.

The following should be noted:

1. There is a tendency for the training to be "bottom up" (reacting to operational problems, unforeseen and unpredicted) rather than "top down" (proactive, anticipating operational problems and devising systems to eliminate them, as well as steering future operations in premeditated directions).
2. Except in the cases of Jamaica and Trinidad & Tobago, the training effort tends not to be motivated by the spirit of a Mission Statement for the institution.
3. In many LDC's, the training component of the budget tends to be given low priority because the resources allocated to training are not generally perceived as being legitimate crucial expenses (with associated revenues) and investments (with associated returns on investment).

b) Local institutions: A few institutions (notably in Jamaica, in the Commonwealth of Dominica and in Saint Lucia) use the facilities of local community colleges, polytechnics and other tertiary institutions to meet skills training needs and limited training in first line supervisory management.

c) Regional institutions: Management programmes are offered at the various campuses of the University of the West Indies (UWI) and, to a limited extent, at its Centres for Continuing Education. The programmes offered are not specifically designed to meet the needs of water institutions.

Also, water institutions have not generally sought to use management training made available by UWI. The main reason for this might be that the larger institutions have been concentrating on developing their in-house training capabilities whilst the smaller institutions have concentrated on using the facilities of the Caribbean Basin Water Management Project (CBWMP) to meet their training needs.

The programmes of the CBWMP have been the principal source of systematic training for the LDC's and Barbados for a number of years.

A conference of water engineers is normally associated with the annual meeting of the Board of Directors of the CBWMP. This conference is devoted to the consideration of current technical issues and the examination of recent technological advances in water engineering.

It is held under the auspices of PAHO, CIDA and other international organizations and might be viewed as providing a forum for the continuing technical education of water engineers.

#### IV. ANALYSIS OF THE DEMAND FOR TRAINING

Water institutions in the Caribbean have already started to recognize the importance of optimizing the contribution of the human resource, through effective training, in the achievement of corporate goals.

This emphasis on human resource development is reflected in the wide range of courses offered in the larger institutions, especially in Jamaica and in Trinidad & Tobago.

The smaller institutions are seeking out ways and means of stretching their meagre resources (both human and financial) to meet those training needs that have been clearly identified as being necessary for viable and productive institutions. It is to their credit that most of them have established fledgling in-house training activities, using personnel who have been trained in particular subject areas but who, unfortunately, have not been trained to train.

All the water institutions have substantial investment in plant and equipment. It is quite evident that there is a need to maintain an adequately trained work force to ensure that the investment in non-human capital provides the return expected of it.

The financial constraints which most water institutions are experiencing, along with the use of the popular (because easily done) incremental budgeting process, could mask the true extent of the demand for training in the institution by tending to relegate the allocation of funds for training to the lowest priority. The danger posed by such a situation is that the damaging effects of not making timely and adequate outlays on training and development ensue several years after the occurrence of the default and then, it generally proves to be more expensive to merely contain the damage.

## V. CONCLUSIONS AND RECOMMENDATIONS

### 1. Conclusions

The foregoing leads to the following conclusions with respect to the supply of, and the demand for, training in Caribbean water institutions:

1. Both large and small institutions recognize the need to strengthen their in-house capabilities to deliver management training at first line supervisory level.
2. There is only a notional interest in the idea of integrated water resource management. Water institutions tend to be preoccupied with the delivery of potable water and the treatment of waste water. The need for incorporating the strategic management of the entire water resources of the country and, perhaps, the region, into their management philosophies has not yet been fully acknowledged.
3. In light of the universal concern for the deteriorating global environment, and because the provision of water related goods and services is quite sensitive to degradation of the environment, it would seem that (building on an integrated approach to water management) water institutions should seek to establish their legitimate role in formulating and implementing environmental policies.

If water institutions do not consciously and deliberately incorporate concerns for the environment into their management activities, they will be forced to react to the policies and actions of other institutions whose environmentally sensitive activities adversely affect the water institutions' provision of water related goods and services.

4. Except in the case of Barbados, water institutions are not financially thriving organizations. However, as they are key infrastructural institutions, they must be viable and thriving in order to serve their societies well. Adequate return on the human resource investment, through training and development, must be pursued by the management of water institutions as a key strategy in their efforts to achieve financial strength.
5. A "top down" philosophy of training and development with an appreciation of, and a commitment to, the goals, processes and possibilities of training and development should be fostered as a means of ensuring the effectiveness of human resource development efforts.

6. The provisions for continuing technical education through the water engineers' conference needs to be complemented by providing a comparable forum for continuing management education.

The conscious and sustained effort at nurturing the practice of scientific management in water institutions is necessary to transform their technical efficiencies into organizational effectiveness.

7. The culture of functional co-operation in which national social and economic institutions in the Caribbean operate makes it inevitable that, in considering the question of management training for Caribbean water institutions, some model of formalized co-operation should be considered.

## 2. Recommendations

Based on the preceding discussions, it is recommended that:

1. The hindrances to the achievement of the desired level of effectiveness of water institutions which can be attributed to deficiencies in management training be clearly focused and the necessary remedial action taken.

This could best be done by conducting an audit of each institution to establish the extent to which the following exist:

a) Clearly focused organizational goals which are known to all personnel and the attainment of which occupies their energies and talents.

b) A process of goals setting which is practised at all levels of the institution and which results in each member of the organization engaging in activities which contribute to the efficient and effective realization of the institution's mission.

c) A system of performance appraisal which effectively monitors the goals set by each member of the organization and the attainment of them and, in review, ascertains hindrances to performances (devising ways and means of eliminating them) and acknowledges achievement (rewarding it and strengthening the will to continue to achieve).

d) Procedures for: i) short- and medium-term planning to optimize the use of existing resources in the achievement current goals; and for ii) longer-term strategic planning to provide the institution with the means for interacting meaningfully with its changing environment.

Where significant deficiencies are revealed, a programme of organization development strategies be devised and implemented.

2. Given the fact that the CBWMP already exists as a proven institution for functional co-operation between Caribbean water institutions, and also given the recent precedent set by the electric utilities in establishing the Caribbean Electric Services Corporation (CARILEC), the interests of ECLAC and the CBWMP be united to explore how the already existing framework of collaboration could be strengthened and molded into a fully viable system of functional co-operation.
3. A specific country programme be formulated to assist Jamaica in providing the training that will be required to meet the process of organization development now in progress.
4. Investigations be conducted to determine the best way of strengthening the in-house training capabilities of Trinidad and Tobago and Jamaica. These two centres to be considered as eventually becoming the foci of regional training activity for Caribbean water institutions.
5. The capabilities of the LDC's to deliver basic in-house management training be developed.
6. A programme designed to sensitize the executive and strategic management of water institutions to the need for integrated water resource management be inaugurated. This would lay the foundation for a more comprehensive approach to the management of the water resources of the various countries and the region.
7. That the conference for water engineers be lengthened to provide opportunity to focus on issues related to the management of water institutions.

8. That, acting proactively, water institutions should seek to clearly define the roles which they must legitimately play (at the strategic level in the first instance) in order to defend their environmentally sensitive raw materials and goods and services.

9. Funding and investment agencies consider financing a programme of training and development over a period of 5 to 10 years to embrace the previous recommendations, as a trained work force is the best insurance that the potential returns on the substantial investment in plant and equipment, by these agencies and the water institutions themselves, would be realized.

### 3. Proposed work programme

1. ECLAC convenes a meeting to discuss functional co-operation between Caribbean water institutions (April 1991).

2. An audit is conducted of each institution to determine its Organizational Development (OD) needs and associated training requirements (June 1991 to June 1992).

3. ECLAC convenes a meeting to formulate a work programme as a result of the decisions arrived at in section 1. and the studies conducted in section 2. (August 1992).



## Annex 1

## DEMOGRAPHIC AND OTHER DATA ON COUNTRIES OF THE CARIBBEAN

Country	Area km <sup>2</sup>	Mid-year population 1988 ('000)	Per capita GDP (1988) *
Bahamas	13 942	244.6	8 802
Barbados	431	253.8	5 740
Jamaica	11 424	2 235.6	1 351
Trinidad and Tobago	5 128	1 211.5	3 699
Belize	22 960	179.6	1 587
Antigua and Barbuda	440	77.9	4 123
Dominica	750	81.2	1 692
Grenada	345	99.2	1 675
Montserrat	102	12.0	4 516
St. Kitts and Nevis	269	43.0	2 521
Saint Lucia	616	145.4	1 454
St. Vincent and the Grenadines	388	113.1	1 365
Anguilla	91	7.3	3 856
British Virgin Islands	150	12.4	10 685
Cayman Islands	260	24.9	18 603
Turks and Caicos Islands	417	14.0	4 507

Source: Annual Report of the Caribbean Development Bank for 1989.

\* Current Market Prices.

**Annex 2**  
**COUNTRY STUDIES**

## ANTIGUA &amp; BARBUDA

The Antigua Public Utilities Authority (APUA) is a government statutory corporation which performs the functions of an umbrella organization for the management of the three utilities --water, electricity and telephones-- in Antigua & Barbuda.

While the component utilities of APUA have separate identities, it is structured so as to provide as many common services as possible to each of them and, as a result, there is considerable interaction between their respective managements at all levels.

The water division has some 300 employees including some ten supervisors and senior management.

The APUA has had substantial difficulty in recruiting and retaining managerial staff. It is believed that the more capable and trained citizens tend to emigrate to build their careers overseas rather than stay at home. It has also proven very difficult to get professionals to return.

a) Supply of training

In-house training: In-house training is restricted to on-the-job skills training.

Local institutions: Limited opportunities exist for participating in local training courses organized by the government training agency.

Regional: The programmes of the Caribbean Basin Water Management Project (CBWMP) are the principal sources of training in water management,

b) Potential demand for training

The management of the APUA is extremely worried about the inability of the Authority to attract and keep qualified Antiguan/Barbudan management personnel. It might be remarked that the present General Manager is on contract and this matter is being addressed by him, as a matter of urgency, to ensure that the authority can continue to be viable and productive.

At the strategic level, it seems that there will have to be an in-depth examination of the Authority to determine the factors which are responsible for the situation and systems developed to meet the requirements of the institution for trained personnel and to minimize the deleterious effects which the current situation will have on the future performance of APUA, in general, and on the water division, in particular.

It might be that, in the short-run, the APUA should consider increasing the number of trained management personnel at its disposal by identifying all those person in the lower ranks who have the necessary traits and aptitudes to be managers and providing them with the necessary education an training in management.

## THE BAHAMAS ISLANDS

The Water & Sewerage Corporation is a government statutory corporation providing management for the water resources for the group of islands comprising the Bahamas Islands.

The composition of the staff is as follows:

- Executive Staff: 6
- Supervisory Staff: 50
- Operatives: 300

The training situation in the corporation is in a state of flux because of the sudden death of the Training Officer. All training activities have been suspended until a new Training Officer assumes duty.

### a) Supply of training

In-house training: Junior supervisory and skills training are done in-house at the corporation's own training facilities. The training programme planned for operatives, for 1990-1991, comprise the following:

<u>Topic</u>	<u>Duration</u>	<u>Target group</u>
General Induction Course	5 days	All new employees.
Introduction to Water Supply	3 days	Employees who have had former introduction to water supply.
Introduction to Tools, Materials and Techniques	4 days	Employees who have had no former instruction in the use of tools & work methods
Defensive Driving	8 hours	All employees whose duties require them to drive Corporation vehicles
Safety and Hygiene	1 day	All employees

Care & Use of tools and Mobile Plant	2 days	All staff who use pumps, compressors and other mobile plant.
Introduction to Blue Print Reading	3 days	All employees who in the course of their duties are required to interpret technical drawings
Pipe Joining, Tapping, Service Connections, Mains Laying	2 days	Service layers who require the skills of pipe jointing and tapping
Leak Repair & Detection	3 days	Anyone who requires the skills and knowledge to locate and repair buried pipes, boxes and leaks.
Maintenance of Wellfields	1 day	Wellfield operators and station operators.
Valve Operation and Wellfields	2 days	Anyone required to maintain and repair valves and hydrants.
Water Treatment and Testing	1 day	All employees, to give them a general understanding of water treatment and testing.
Lower Level Supervisory Skills	2 days	New Foremen, or Foremen without training in the management of people.
Record Keeping	2 days	Service layers and main layers.
Large Diameter Pipes	2 days	Mainlayers who require skill and knowledge in the laying of large diameter pipes.

Local institutions: Very occasionally the Corporation participates in programmes in supervisory management conducted by the College of the Bahamas.

Regional institutions: The Bahamas does not participate in the management training programmes offered by the CBWMP. There is a

tendency to take advantage of the proximity of the Bahamas to the USA and to utilize training opportunities available at American institutions.

b) Potential demand for training

The Bahamas has still not solved the problem of retaining trained managers in the public sector. The tendency has been for such persons to take up more lucrative positions in the private sector.

This problem is most keenly felt at supervisory level and hence there is a continuing need for training in supervisory management.

## BARBADOS

The Barbados Water Authority (BWA) is a government statutory corporation which manages the island's water and sewerage systems. It was established in 1980 to replace the Waterworks Department, a government department.

Since its inception the BWA has been a financially successful institution. The fact that the delivery of water related goods and services in Barbados is a much easier task than in most other Caribbean countries no doubt aided the management of the authority, from the inception, to attain the highest level of productivity possible.

Training of staff to equip them to be more effective has always been recognized as being important in the successful operation of the Authority.

a) Supply of training

In-house training: In-house training is confined to on-the-job skills training and first line management.

Local institutions: The BWA collaborates with the polytechnic in the area of skills training.

Regional institutions: The BWA has participated in the Caribbean Basin Water Management Project (CBWMP) from the project's inception. The Authority continues to have its training programmes closely linked to and integrated into those of the CBWMP.

b) Demand for training

In preparation for the challenges as Barbados progresses towards modernization, the Authority has prepared a training programme for the period 1991 to 2000. The programme estimates the training that will be required in the areas of distribution, sewerage system, Administration, accounting and personnel. The principal features of that programme are as follows:



## DISTRIBUTION

ImmediateProgramme for Plumbers

1. Use of new materials in plumbing  
2 days - local
2. Leak Detection  
5 days - local
3. Hydrology  
2 days - local
4. Supervisory Management  
4 days - local

Training of District Crews

1. Basic Course in Water Works Distribution in Barbados.  
1 week - local

Lorry Drivers and Operators

1. The care of public service vehicles  
2 days - local

Foreman and Superintendents

1. Training in Transport Management  
3 - 4 months
2. Supervisory Management  
4 weeks - local

Medium Term - Fiscal Year 1991/1992 until 2000

Plumbers - Same as for immediate level training needs

District Crews - Same as for immediate term training

Drivers and Operators - Same as for immediate term training

Foreman and Superintendents

1. Supervisory Management training
2. Management of water distribution systems

Long term training needs - year 2000 and beyond

Not yet identified.

## BRIDGETOWN SEWERAGE SYSTEM

ImmediateOperation and maintenance

1. Supervisory Management training  
4 weeks - local
2. Document Preparation  
2 weeks - local
3. Junior Officer Development  
2 weeks - local

Medium Term Training - Fiscal 1991/1992 - 2000

1. Instrument technician training, 2 - 3 years in the United Kingdom, United States of America or Canada. Funding to be sought.
2. Training of mechanical engineering, electrical and welding staff with assistance from the staff and resources of the Samuel Jackman Prescod Polytechnic.

Chlorination

Basic training for chlorination personnel in water works agency 4 -6 weeks training possibly in the College of Arts, Science and Technology in Jamaica. Funding to be sought through the Caribbean Basin Water Management Project (CBWMP).

Medium Term 1991/1992 - 2000

1. Specialized training for fitters, electricians in maintenance of pumps and electrical systems - new recruits. It is suggested that the services of the Samuel Jackman Prescod Polytechnic be solicited in a custom made programme.
2. Training of Instrument Technician, preferably 2 - 3 years either in England, the United States of America or Canada. Cost not yet determined.
3. Study tour for two treatment plant operators in the United States of America for a duration of 6 weeks - Funding PAHO/WHO to be sought.
4. Supervisory management  
4 weeks - local

## ADMINISTRATION

Commercial

1. Junior officer development  
10 days
2. Public Relations  
5 days - local
3. Document Preparation  
10 days - local

Medium Term - 1992 to end of centuryTraining of Inspectors

1. Training at the level of Ordinary Technicians Diploma in Mechanical Engineering for 3 officers - Barbados Water Authority.
2. Training in property valuations for waste and service inspector - local.

ImmediateStores and Inventory

1. Stores and materials management - 3 months at Crown Agents in England.

Medium Term 1991/1992 to 2000

1. Stores and materials management - 3 months at Crown Agents in England.

## ACCOUNTING

Immediate

1. Training leading to the A.C.C.A. for chief accountant in England.
2. Training of internal auditor - overseas.
3. Training in accountancy
  - a) Government Training Division
  - b) Barbados Institute of Management and Productivity.
4. Junior officer development.
5. Document preparation.  
2 weeks - local
6. Personnel management and industrial relations - Government Training Division - 4 weeks.

Medium Term 1991/1992 to 2000

1. Training in accountancy  
Government Training Division or Barbados Institute of Management and Productivity.
2. Junior officer development.
3. Document preparation.
4. Training in personnel management.
5. Training in rate fixing for public utilities - to be investigated.

ImmediateTraining for engineers

One year training in water resources management - this programme will focus attention on:

- a) Hydrology.
- b) Water resources management.
- c) Distribution network.
- d) Water treatment procedure.
- e) Instrumentation.
- f) Computer applications.
- g) Distribution network.

Medium Term 1991/1992 to 2000

1. Training in wastewater management for 2 officers at the level of engineer preferably in the United States of America - day release to provide some practical experience training should be of one year's duration. Funding through PAHO/WHO to be sought.

**PERSONNEL**Immediate

1. Training in personnel management and industrial relations - 4 weeks - Government Training Division.
2. Specialist training in counselling 2 weeks - to be arranged.
3. Specialist training in document preparation 2 weeks - Government Training Division.
4. Training in performance appraisal  
Special training to be arranged.

## THE COMMONWEALTH OF DOMINICA

The Dominica Water & Sewerage Co. Ltd. (DWS) is unique among the water institutions of the Caribbean in that it is in the process of being privatized. The programme of privatization was started a little under two years ago and should be completed during this year, 1990.

The privatization programme is being facilitated by the Canadian International Development Programme (CIDA) which is providing funding for management assistance using counterpart management strategy throughout the transition period.

A substantial quantity of electricity is produced in Dominica using hydro-electric generators, and there is some interaction between the DWS and the Dominica Electricity Corporation with respect to the management of the water resource employed.

The total work force of the authority is about 80 persons. This does not include a cadre of some fifteen (15) rural caretakers who perform part-time duties.

### a) Supply of training

In-house training: The DWA has started to develop a capability to deliver in-house training. This is being done using the Water & Sanitation for Health (WASH) Programme developed by the United States Development Agency (USAID). Senior managers meet at regular intervals to pursue the programme alternating classroom presentations with on-the-job practice. Also, during 1990 DWA participated in the following programme: "The Psychology of Winning" conducted by Paul Riley of Florida (Denis Waithe-Nightingale Public Speaking).

Local institutions: The facilities of Clifton Community College are utilized for training rural caretakers, work crews, and area supervisors in junior supervisory and in advanced skills training.

Regional institutions: DWA participates fully in the programmes of the Caribbean Basin Water Management Project (CBWMP). The courses run under the auspices of this project are the principal source of the authority's professional management training.

During 1990 the Barbados Institute of Management and Productivity (BIMAP) gave courses in consumer relations (15 persons), decision-making (10 persons) and time management (10 persons).

The DWS has also used attachments to various water institutions in the Caribbean (Saint Lucia, Grenada, St. Vincent) as a means of training staff members.

The Facilities of the Caribbean Environmental Health Institute (CEHI) and the Caribbean Meteorological Institute (CMI) have also been used to train technicians.

b) Demand for training

It is recognized by the management of the DWS that the success of the privatization effort depends on having well trained persons in all aspects of the operation of the company.

As the company settles down to its new ownership and management structures and begins to focus on achieving its mission, new training needs will necessarily emerge. At present the perceived greatest need is training in financial management. Other areas of interest include:

- the transfer of operational information between institutions and the establishment of industry norms;

- the need for more regular meetings of general managers and senior managers;

- the concern that institutions should try to minimize the overlap in training activities;

## JAMAICA

The National Water Commission of Jamaica (NWC) is a government statutory corporation. It is an amalgamation of the National Water Authority (formerly responsible for production) and the Parish Councils (formerly responsible for distribution). The NWC was legally formulated in 1985 but has had difficulties over the years in becoming and functioning as a fully integrated entity.

The best estimate of the total permanent staff of NWC in February 1990 was 4 192

At the present time the management of the National Water Commission is in the throes of effecting the changes required to make the institution fully integrated and effective.

To this end, an Operations Plan, with a focused Mission Statement and clearly stated objectives for the period 1990/1991, has been formulated and is in the process of being implemented.

The following is the Mission Statement:

- a) To efficiently provide and distribute potable water.
- b) To safely collect, treat and dispose waste water at the lowest possible cost, consistent with long-term viability.
- c) To provide a reliable supply of water, at affordable cost, to all consumers and maintain good conditions of employment.

The objectives for 1990/1991 are:

1. To implement strategies to ensure that revenues cover operating expenses, except interest charges and depreciation.
2. To strengthen the organization to meet the challenges of the nineties.

The specific challenges facing the management of the NWC arising from the new mission and objectives are:

- to establish an efficient meter reading and billing system;
- to restructure the organization to enable the focus to be directed at the customers;
- to attract and retain people with appropriate skills through job reclassification, upgrading of salaries and appropriate training.



a) Supply of training

In-house training programme: To meet the challenges outlined above, the manpower planning, organizational development and training Department Commission has prepared (and is in the process of implementing) a comprehensive in-house corporate training and development programme for 1989/1990 which covers the following areas:

<u>Topic</u>	<u>Duration</u>	<u>Target group</u>
Orientation	5 days	New employees.
Introduction to Supervision	2 weeks	Incumbent supervisors and junior managers who were promoted without any formal training; potential supervisors; administrative assistants; executive secretaries.
Basic Management Functions	5 days	Persons promoted to managerial positions without formal training; persons who have successfully completed the in-house "Introduction to Supervision" course; persons within the system who have successfully completed an external course in supervision over the last two years.
Supervisory Management	16 days	Qualification course for advancement to middle management level.

Time Management	3 days	Top executives; senior and middle managers; supervisors; administrative assistants; executive secretaries.
Management by Motivation	1 day	Senior and middle managers; junior managers; Supervisors.
"Thrust": An Executive Programme for Assertive Training.	3 days	Senior managers and their spouses.
Performance Standards	2 days	Senior and middle managers who have completed the Advanced Supervisory Management Course.
Technical Report Writing	10 days	Middle and junior managers.
Course in Business Communications	3 days	Supervisors and potential supervisors; executive officers; correspondence officers.
Labour Relations in Practice	3 days	Middle managers; supervisors; potential supervisors; administrative assistants; executive secretaries.
Discipline, Grievance and Procedures	5 days	Middle managers; supervisors.
New Entrants Orientation Courses	3 days	New entrants operating in commercial operations and water/wastewater O&M divisions.
The Meter Readers Roles and Responsibilities	1 day	Meter readers; meter inspectors; meter supervisors.

The consumer and You	2 days	Persons in the commercial operations and water/wastewater O&M divisions who come in direct contact with the public.
The Consumer is Our Business	5.5 days	Supervisors, managers, and top executives.
Telephone Techniques and Consumer Relations	15 hours	Consumer service officers; cashiers; clerical officers/executive officers in the commercial operations and water/wastewater O&M divisions; duty officers; telephone operators and relief operators; secretaries.
<u>Computer courses</u> Computer Concepts for Executives	3 days	Senior managers
Accounts Receivable and Operations		Persons working in payroll accounts, payroll, accounts receivable, general ledger or any other such application system already established.
Word Processing		Executive secretaries, Secretaries Grade 1 & 2, Steno/Typist 1 & 2.
Lotus 1-2-3	30 hours	Managers and supervisors, clerical and accounting officers who should have a thorough grounding in microcomputers and want to become more actively involved in using the microcomputer.
Data Base Management System		Persons who will be required to develop a data bank of information.

# Certificate in Computing

Certificate in Office Automation	8 weeks	Persons working with computers but who have no formal training; new persons entering the work of computers.
Chlorination & Sampling Techniques	2 days	Executive secretaries; Secretaries Grades I & II
Basic Water/Wastewater	6 days	Water distribution operators, and persons who apply chlorine for water treatment
Preventative Maintenance	3 days	Water and wastewater personnel.
Secretarial Skills and	3 days	Maintenance mechanics; maintenance electricians; plant operators; plant supervisors.
Office Practices, Procedures	10 days	Secretaries Grades 1, 2 & 3; clerk/typists and steno/typists
Appreciation Workshop	4 days	Executive officers; clerical officers; clerk/typists.
Together We Work	2 days	Ancillary staff, plumbers, drivers, messengers, labourers, operators, watermen, mechanics, etc.
Defensive Driving	8 hours	The entire Corporation.
Training in First Aid		Drivers
Training of Instructors	5 days	Identified managers and supervisors potential for session leading.
Instructional Skills Training for Supervisors.	2 days	All supervisors.

The Manpower Planning, Organizational Development and Training Department co-operates with other government agencies, local training communities and associations, training organizations and associations and individual resource training personnel to strengthen its human resource development programme. These include:

- NCR - Computer Education
- Ministry of the Public Service
- Administrative Staff College
- Jamaican Institute of Management
- Institute of Management & Production
- Management Consultancy Services
- Leo Richards & Associates
- Jamaican Association of training and Development

b) Estimate of the potential demand for training

Given the situation at the NWC, viz: the need to effect a high degree of organization development to equip the institution to become an integrated, viable and productive entity, it stands to reason that much attention must be devoted to management training at all levels as the means of supporting the desired change.

The extent of the training that will be required is still uncertain because the process of rationalizing the work force is still in progress.

In preparation for the immense training effort that will be required, plans are being formulated to strengthen in-house capability to deliver training. These include upgrading the Training Centre located next to the Mona reservoir to be a fully equipped residential facility and the acquisition and wider use of modern training technology.

## SAINT LUCIA

The Water & Sewerage Authority is a government statutory corporation. It has undergone substantial organizational reform in recent years and is still settling down from the changes which have been introduced. It is twinned with Essex, a British water institution. This twinning mechanism has provided substantial support during the transitional period.

### a) Supply of training

In-house training: Current in-house training programmes are quite limited. Graduates of previous programmes are used as resource persons and these try to duplicate the training they have received. These in-house programmes have proven not to be as effective as expected because the resource persons are not trained trainers.

Local training institutions: Use is made of training organized by the government training department. This facility provides training for a few persons a year. The authority allows time off for employees to pursue part-time studies at the Sir Arthur Lewis Community College.

### b) Demand for training

The process of organizational reform is not yet complete and, if the desired results envisaged by the reforms are to be realized, new training needs, as they arise out of the changes in the institution, and those required to support the changes, will have to be identified and provided for.

The following emerging training needs have been identified:

- Training of trainers
- Attachments to other water institutions support required changes in attitudes.
- Coping with organizational restructuring.
- Full time scholarships at regional institutions such as BIMAP in management of information systems.

- Training in specific management skills: capital budgeting, cost control, interviewing, counselling.

- Seminars/workshops on self-improvement including cultivating reading, writing and speaking skills.

- Productivity measurements.

## TRINIDAD &amp; TOBAGO

The Trinidad & Tobago Water and Sewerage Authority (WASA) is a government statutory corporation established in 1965 as the sole agency responsible for the development and control of the water and waste water systems of the twin island republic. WASA replaced five agencies which previously had responsibility for such functions. It is required to supply water for agricultural, domestic, commercial, and industrial uses.

a) Supply of training

In-house training: The Centre for Management Development (CMD) is the focus for the conceptualization and delivery of in-house training in both the technical and managerial areas. Its responsibilities are:

- Identifying training needs for the design, development, and implementation of specific training action.
- Forecasting (in consultation with supervisors) the future training and development needs of employees, developing courses and scheduling of same within a three-year time frame.
- Keeping in continuous contact with inter-divisional and intra-divisional activities, so that the centre's plans and programmes may be influenced by any change in organizational requirements and/or temperament.
- Acquiring of updated practices, equipment, methods, techniques, which are applicable to a variety of training circumstances/situations.
- Investigating outside training sources, examining training techniques, programmes and operations of other organizations with a view of developing staff via these organizations.



The training effort of WASA in 1989 is summarized as follows:

Approximate number of employees at WASA	4 630
Number of employees trained In-house:	1 240
Number of employees trained - Externally:	40
Man-days utilized in Internal Training:	8 651
Man-days utilized in External Training:	188
Total number of man-days utilized:	8 839
Suggested International Standard:*	11 668

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\* Based on the concept that 1% of total number of man-days in the organization should be utilized in training human resources)

WASA's performance level in comparison  
with industry standard: 76%

The in-house training programme planned for 1990, and currently being implemented, is contained in Table 1. The estimated number of man-days to be utilized in training in 1990 are 11 701 providing an anticipated performance level of 100.33%

Local institutions: During 1989 WASA employed the services of Clyde James Management Processes Ltd, a firm of management consultants, to meet specialized training needs at strategic management level. Other local institutions which are available to provide specialized training are:

Government Central Training Unit  
Bureau of Standards - Quality Assurance.  
Cipriani Labour College.

b) Potential demand for training

In 1989 the strategic management of WASA identified the institutions' medium and long-term goals as being the following:

1. Financial self-sufficiency.
2. Expansion of water resources.
3. Improvement of service delivery.
4. Improvement of corporate image.

Table 1

DETAILS OF THE IN-HOUSE TRAINING AND DEVELOPMENT PROGRAMME OF  
THE TRINIDAD & TOBAGO WATER & SEWERAGE AUTHORITY FOR 1990

Topic	Duration	Target group
<u>Management/Supervisory/General Courses:</u>		
Standard of Performance Workshop	Five days	Supervisors
Creative Cost Improvement (CCI)	Three - four days	All WASA employees
Time Management Workshop	Three days	Supervisors/managers
Planning and Scheduling Workshop	Two days	Supervisors/managers
Discipline Workshop	Five days	Supervisors/managers union representatives
Motivation Workshop	Two days	Supervisors
Communication Skills Workshop	Five days	Clerks, clerks/steno and typists, supervisors
Counselling Skills Workshop	One day	All supervisors/ managers
Human Resource Development	Nine days	All employees of the Authority
Functional Grammar	Three days	Clerk/steno, clerk/typist and security
Customer Relations	Three days	This course is designed for personnel of the Water and Sewerage Authority whose duties involve interacting with members of the public.
Orientation Course For Junior Staff (Non-Technical)	Five days	Range 08 - 30

Table 1 cont. 1

Topic	Duration	Target group
Legal Implications Course	One day	Water inspectors, distribution area supervisors, water-works foreman, mains superintendents, plumbing inspectors, inspectors of works, sewer foreman.
Registry Procedures/ Records Management	Two days	Range 15 - 17
Performance Evaluation	Three days	Supervisors/managers, union representatives
Law Enforcement and Crime Prevention for (Security Awareness)	Two days	All levels of supervisors
Lecture Series	Three hours	Dependent on topic
Women in Management	One day	Existing women managers/supervisors and/or potential women managers/supervisors.
Effective Meetings	One day	WASA employees who chair or attend meetings.
Dealing with the Media	One day	Discrete groups of senior officers/managers in WASA who are directly and personally involved in meeting the media.
WASA in the 1990's	One day	Senior managers in WASA
<u>Computer Courses:</u>		
Computer Literacy Course	Two days	All employees
Computer Course in DOS	Two days	End Users, supervisors

Table 1 cont. 2

Topic	Duration	Target group
Word-Processing Course	Four days	Managers, supervisors and end users
Computer Course in Spread Sheet Application	Four days	Supervisors/managers and end users
Computer Course in Database Application	Four days	Persons who utilize a manual database
<u>Technical Courses:</u>		
Mains Laying for OMD Craftsmen	Eight days	Fitters, TMA's and senior labourers
Operation & Maintenance of Wastewater Collection System	Five days	Sewerage pipework systems workers (operators)
Wastewater Operators	Eight days	Wastewater operators and supervisors
Basic Mathematics for Craftsmen	Seven days	Craftsmen
Certification Review Workshop	Three days	
Closed Circuit Television Inspection (CCTV) Workshop	Six days	Wastewater
Specialized Water	Six months	Water and wastewater
Wastewater Operator Trainee Course		Operator "Trainees"
Appreciation & Developmental Courses for Craftsmen	To be announced	Craftsmen
Waterworks Foreman System Investigations Course	Six months	Waterworks foreman, system investigators
Water/Wastewater Operator Contingency Course	Four days	Water/wastewater operator recruits

Table 1 cont. 3

Topic	Duration	Target group
Water Treatment Plant Operations Course	Four months	Appointed/untrained water treatment plant
Specialized Turncocks Course	Eighteen weeks	Turncocks
Fluid Mechanics Workshop	Five days	Main superintendents, p r o d u c t i o n superintendents, systems investigators, engineering assistants
Distribution System Network Analysis Workshop	Module I - to be announced Module II - to be announced	System investigators, mains superintendents, successful trainees from waterworks, foreman/system investigators training course
Orientation for Senior Staff (non-technical_	Five days	This course is designed for senior members of staff, other than those from a scientific discipline, who require a broad understanding of the scientific aspects of water management including water analysis and treatment processes.
Waste Water Foreman I	One month	Waste water foreman foreman I
Advanced Training Workshops in Water Treatment Plant Operations	Five days	Water treatment plant superintendents

Table 1 cont. 4

Topic	Duration	Target group
<b><u>Safety Courses:</u></b>		
Supervisor Safety Responsibility	Three Days	All levels of supervisors
Defence Driving Course	Four days - Four hours/session	Managers, travelling officers, MVOs
First Aid and CPR	Three days	Officers at all levels
Chemical Handling	One Day Seminar	P r o d u c t i o n superintendents, plant superintendents, water works supervisors, operators
Workshop Safety Awareness	One day	Supervisors, foreman and workers throughout WASA operations
Industrial Hygiene for Wastewater Personnel	One day	Operator II to sewage works superintendents
Confined Space Procedures	One Day Seminar	Middle level supervisors
Industrial Hygiene for Wastewater Personnel	One Day	Operator II to sewage works superintendents
Dynamics of WASA's Commercial Systems	Five days	1. All members of staff attached to commercial and other rate collecting offices.  2. Other employees of sections whose work are dependent on information from commercial.

Table 1 conclusion

Topic	Duration	Target group
<u>Financial and Accounting Courses:</u>		
Principles and Practices of Storekeeping	Five days	Stores clerks and storekeepers
Accounting for Non-Accounting Supervisors	Four days	Supervisors/middle managers

Using the on-going training efforts and the corporate objectives identified above, the following areas of potential demand for training have been projected:

- Corporate services.
- Strategic planning.
- Systems design.
- Stores management
- Behaviour modification.
- Public relations.
- Human resource management (executive and strategic)
- Effective communications.
- Career path development.
- Accounting.
- Training management.
- Security management.
- Managing conferences.
- Redesigning the organization and jobs.
- Managing and computerizing maintenance.
- Managing technology.
- Stress and the manager.
- Industrial relations.
- Water resource management.



## ST. VINCENT AND THE GRENADINES

The St. Vincent Central Water Authority is a government statutory corporation. It has some 185 employees in addition to a nine-member board and 12 supervisory and senior management staff.

a) Supply of training

The In-House Training Programme planned for 1990 is as follows:

<u>Topic</u>	<u>Target group</u>
Customer Service/Public	All categories of employees.
Supervisory Management	Supervisors; water inspectors; pipefitter I
Water and Sewerage Plant Operation	Water inspectors, area supervisors, pipefitter I.
Water Quality	Care-takers/water inspectors; area supervisors, clerical staff.
Project Implementation and Management	Water inspectors, surveyors, area supervisor, pipefitter I, senior clerical staff.
Computer Concepts	Secretarial, management and senior clerical staff
Precautions to be taken while accepting cash/cheques against Bill Receivable.	Commercial staff.

The In-House Training Programme conducted during 1989 was as follows:

<u>Topic</u>	<u>Duration</u>
The Functions and Responsibilities of the Central Water & Sewerage Authority.	2 days
Meter Reading and its Importance to the Billing Department.	1/2 day

Water Quality Monitoring	1 week
Public Relations	1 day
Billing Procedures	1/2 day
Retirement in Focus	1 day

The following local training was provided through Government Agencies in 1989:

<u>Topic</u>	<u>Duration</u>
Investment Climate in St. Vincent & the Grenadines.	1 day
Seminar on Journalism.	1 week
Project Monitoring	1/2 day
Project Implementation & Monitoring	3 weeks

The following Regional Training (sponsored by Government) was provided in 1989:

<u>Topic</u>	<u>Duration</u>
Organization and Financing of Sewerage Sector Development sponsored by PAHO in Trinidad	1 week

There was full participation in the training activities organized by the CBWMP during 1989.

The Executive Officer (Personnel) was attached to the Personnel Department of the Antigua Public Utilities Authority for four weeks.

b) Demand for training

The CWA is keenly aware of the importance of training in the achievement of its goals and objectives. The appointment of an Executive Officer Personnel was the first step on the road to systematizing training within the Authority.

The need to develop an in-house training capability has been recognized. During 1988/1989 a few in-house programmes were developed and tested. They were not fully satisfactory mainly because resource persons did not possess adequate training skills.

The following areas for training in the future have been identified:

- Financial management
- Computer applications
- Stores and purchasing management
- Water resource management
- Basic math skills
- Instructional/training skills