

UNITED NATIONS  
ECONOMIC COMMISSION  
FOR LATIN AMERICA  
AND THE CARIBBEAN - ECLAC



Distr.  
GENERAL  
LC/G.1668  
22 August 1991  
ORIGINAL: ENGLISH

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REPORT OF THE WORKSHOP ON THE TRAINING OF MANAGERS  
OF WATER PROJECTS AND SYSTEMS IN THE CARIBBEAN

(Saint Michael, Barbados, 10-11 April 1991)

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## I. OPENING CEREMONY

1. Mr. Terence Lee welcomed the participants on behalf of the Executive Secretary of ECLAC.

2. The workshop was opened by the Honourable Senator Anderson Morrison, Minister (Acting) in the Ministry of Transportation, Communications and Works of Barbados. In addressing the participants, Senator Morrison emphasized the importance of improving water management in the Caribbean countries, the current state of training activities in the region, in particular those related to the Caribbean Basin Water Management Project executed by the Caribbean Development Bank, and the importance of regular meetings among the managers of water systems in the Caribbean as a means for promoting technical cooperation among the countries of the region. He cited the recent loan of a drilling rig by Saint Kitts and Nevis to Barbados as an example of how fruitful such cooperation could be. He continued with a review of the plans of the government for improving water management in Barbados. He ended by commenting on the validity of the report on "Training in Water Resource Management in the Caribbean: Analysis and Proposals" and of the implementation of the topics under consideration in the workshop.

3. The discussions in the workshop were carried out in both plenary sessions and in two working groups.

## II. FINDINGS AND RECOMMENDATIONS OF THE REGIONAL PROJECT FOR LATIN AMERICA AND THE CARIBBEAN ON THE TRAINING OF MANAGERS OF WATER PROJECTS AND SYSTEMS

4. In making his presentation on this topic, Mr. Terence Lee briefly highlighted the various stages of the project "Improving the training of managers of water projects and systems in Latin America and the Caribbean", executed by ECLAC with support from the Government of Germany.

5. The project had been executed in three stages:

i) An analysis of the nature of existing water management practice based on four case studies in Argentina, Chile, Colombia and Peru. On the basis of the findings of those case studies, together with an evaluation of general trends in management practice in the region, a number of conclusions were reached on the state of management. On the basis of those conclusions, the decision was taken to concentrate the further activities of the project on promoting management training.

ii) An evaluation was made of the supply of and demand for water management training in eight countries of Central and South America. As a result of the evaluation, it was concluded that management training was a priority need in most countries. However, there were virtually no institutions in the region offering any courses in integrated water management. Although the demand for such courses was latent rather than expressed, there was a gap which could be filled by ECLAC in collaboration with regional educational and training institutions.

iii) A working group was formed to consider and develop a model system for training managers of water projects and systems in integrated water resource management.

6. Following the presentation, there was a short exchange of views among the participants. In the discussion, emphasis was placed on the role of international organizations in the development of management practice, the political pressure on managers and the importance of the financial health of water utilities and institutions.

### III. SURVEY OF THE SUPPLY AND DEMAND FOR TRAINING OF MANAGERS OF WATER SYSTEMS IN THE CARIBBEAN

7. In introducing his report "Training in water management in the Caribbean: Analysis and proposals", Mr. Ishmael Lashley drew the attention of the participants to the main findings and conclusions of the study.

8. In general, all the organizations surveyed were sensitive to the need for training and had developed in-house training programmes. In some institutions, however, the training component of the budget was given a low priority. The programmes of the Caribbean Basin Water Management Project (CBWMP) had been the principal source of training for the water utilities of the Eastern Caribbean.

9. The main conclusions arising from the study were the following:

- i) There was a general recognition of the need to strengthen in-house training.
- ii) There was only a notional interest in integrated water resource management.
- iii) Water institutions were quite sensitive, however, to the degradation of the environment.
- iv) Few institutions, outside Barbados, were financially thriving.
- v) A "top-down" philosophy of training and development should be fostered.
- vi) The present provisions for continuing technical education should be complemented by a similar means for management education.
- vii) Some model of formalized cooperation among national institutions should be considered.

10. A lively discussion followed this presentation. In the discussion, emphasis was placed on the need for increased management autonomy for water institutions, the necessity of

including the concept of "resource management" in the objectives or "mission statement" of water institutions, the increased importance of demand management to reduce the pressure on increasingly scarce sources of supply, the need for an interdisciplinary approach to management and the importance of continuing education programmes for all staff, including senior management and political decision-makers.

11. Following the plenary discussion of Mr. Lashley's presentation, the question of the need for the training of managers of water projects and systems in the Caribbean was discussed in working groups. The conclusions arising from these discussions are given below.

1. Conclusions from the discussions in  
Working Group 1

12. Identifying the issues facing water management in the Caribbean

a) External

- i) Dealing with political demands in an effective and meaningful manner.
- ii) Assessing water supply projects not only on their financial viability but also on their social and economic benefits, including health and the increase in the productivity of the communities involved.
- iii) The effects of economic development projects' imposing demands on the water resources without consultation.
- iv) Lack of effective and adequate legislation to control activities in catchments used as water supply sources.

b) Internal

- i) The necessity for the water utility to have prior right to the utilization of the water resources of the country.
- ii) Lack of adequate long-term hydrological data to allow informed decisions to be taken on the appropriate and rational use of the water resources.
- iii) The absence of consumer education programmes to inform the public of the following:

- Costs of water conservation to foster the wise use of water.
  - The place of water as the most important basic need for the survival of the human being.
  - The lack of appreciation of resource management and water quality resulting in an imbalance in the allocation of financial resources; the larger share given to transmission and distribution activities.
- iv) The inadequate revenue base inhibiting the ability of the utility management to plan and control activities for optimum development.

13. Assessing the potential role for integrated water management in the region. The concept had met with unanimous support, and it was strongly felt that the final decision on the allocation of resources should rest with the appropriate water utility in the respective countries.

14. Evaluating the need to develop a system for providing training in integrated water management to existing and potential managers of water projects and systems. There was no doubt about the need for this step, but there were two cautions:

- i) It must be based on existing institutions or infrastructure in the region, including technical colleges in the less developed countries.
- ii) Adequate financial resources must be provided.

## 2. Conclusions from the discussions in Working Group 2

15. The following seven management problems identified in Latin America were applicable to the Caribbean:

- Vagueness;
- Reductionism;
- Preoccupation with the short-run;
- Passive style of management;
- Inappropriate or obsolete practices;
- Need to consider water systems to be social as well as productive systems;
- Lack of internal dynamism.

In addition, the group came to the following conclusions:

- There was a lack of competence in negotiating with the political directorate.

- It was desirable to fully clarify the respective roles of the political directorate and the water manager. The water manager needed to have clear policy directives and the independence to determine how goals were to be achieved.
- It was felt that clear mandates within a framework of well defined goals would encourage internal dynamism and innovative thinking.
- It was felt that the strong political influence in the management of water institutions was a legacy of their evolution.
- The time had come for water institutions to be sensitive to the environmental impact on their roles as suppliers of water-related goods and services.

16. For the Caribbean, integrated water management was a concept whose time had arrived. Discussion centred on the need for demand management and integrating the economic sectors which used water.

17. It was agreed that there was a pressing need to develop a system for providing training in integrated water management.



#### IV. THE NEEDS OF THE CARIBBEAN FOR THE TRAINING OF MANAGERS OF WATER SYSTEMS

18. Mr. Helmut Lauterjung presented an outline of the proposed programme for courses directed at the institutional-executive level. He stressed that in developing the proposal consideration had been given to the fact that senior managers, politicians and other public figures could not be expected to take much time or to participate in ordinary training activities. What was proposed were two-day intensive problem-oriented workshops centred on the analysis of a specific case study. A high level of participation would be demanded and the workshop would require careful and well-informed direction.

19. In presenting the proposed model curriculum for the course for the managerial-technical level, Mr. Terence Lee explained that the course outline that had been prepared (annex 1) was based on a course of approximately four weeks duration or 120 lecture hours. The course would be given through both lectures and case studies. The development of the case studies would be through unsupervised small groups with monthly discussions of the findings and conclusions. It was essential that course participants be drawn from a variety of professional backgrounds and that the professors be prepared to work in an integrated manner.

20. In the discussion that followed the presentation, participants raised several questions about the applicability of the model presented to the Caribbean environment, the difficulty of sending staff from small institutions to long courses, the need to involve senior management in the application of an integrated approach to water management and the importance of bringing in participants from outside the water institutions. Some doubts were raised as to whether a multidisciplinary approach would work. There was agreement, however, that a course along the lines proposed would have validity for the Caribbean.

21. Following the discussion of the proposed course programme in the plenary session, the participants continued the discussion in working groups. The conclusions reached in the working groups are dealt with in the next section.

1. Conclusions from the discussion in Working Group 1

22. Applicability of the proposed model course

a) Nature and form

i) Target group (no constraints on years of experience):  
a) middle management personnel in water utilities; b) other professionals in related disciplines, e.g., legal, forestry, health, agriculture.

ii) Duration: acceptable four weeks maximum.

iii) Period: the project should be four weeks annually and reviewed after five years.

iv) Lecturers: i) should be top-of-the-line professionals, preferably with Caribbean water management experience; ii) the possibility of lecturers from regional institutions should be seriously considered, e.g., College of Arts, Science and Technology (CAST), University of the West Indies (UWI).

v) Form: distance teaching methods should be explored.

vi) Accreditation: some form of accreditation should be given which could be useful for pursuing an academic career.

b) Course content

i) Given the importance of the environment, it is felt that environmental management should be given specific mention as a subject under section 1.

ii) Waste water collection, treatment and disposal must be included under section 2. Definition of water uses and their requirements.

iii) Change 4. to "Economic and Social Aspects of Water Management".

iv) Under section 4 (2) should read "The economic problem in water supply and sewerage".

v) Section 4 (3) should include under content "solid waste disposal/land use planning and watershed management".

23. The working group recommended that: i) in the outline water should represent potable water and waste water; ii) an advisory

committee should be formed from water-utility managers in the region to finalize the planning and implementation of the course.

2. Conclusions from the discussion in  
Working Group 2

24. On the nature and form of the courses proposed:

- i) The group endorsed the suggestion of a meeting of strategic managers from water institutions. That should not be to the exclusion of other relevant agencies and/or positions.
- ii) The group endorsed the suggested general form as presented in the document distributed to the participants.

25. On the weight given to the different themes included in the model:

- i) Perhaps too much emphasis had been given to the component on legal aspects. It was recommended that the legal aspects should be incorporated into all modules and not be presented as a major model apart.
- ii) There was no specific module dealing with human resources development (HRD), a critical need for Caribbean organizations. It was recommended that HRD should be incorporated as a major module.

26. Environmental issues were critical. Special emphasis should be given to the creation among the managers of an awareness of the major environmental issues of water. It was recommended that environmental issues should be incorporated under Module 2 (conceptual and technical aspects).

27. On course contents and overall duration, the group endorsed the suggested period of four weeks for the proposed course. The possibility of using the distance-teaching programme of the UWI should be pursued. An evaluation of the course should be made and the progress of course participants should be monitored at timely post-course intervals.

28. Finally, the group recommended that: i) the Caribbean Development Bank (CDB) should be the designated agency for receiving any funds that might be made available for the project; ii) the Caribbean Basin Water Management Programme (CBWMP) should be the designated executing agency; iii) every effort should be made to identify resource personnel from the region (those individuals should demonstrate proven practical experience).

## V. RECOMMENDATIONS

29. The representatives and managers of water institutions from 10 Caribbean countries —Antigua and Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia, Saint Vincent and the Grenadines and Trinidad and Tobago expressed their unequivocal agreement on the urgent need for an upgrading of the management capability of water institutions in the Caribbean.

30. They further raised the question as to whether the development agency of the German Government was a potential source of funding for a project proposal on training in integrated water management for institutions in the Caribbean along the lines of the model outlined and discussed at the present meeting.

31. The project would include activities for the preparation of the required course materials on integrated water management to be completed within six months and allow training courses to begin in the second year of the project's activities.

32. It was proposed that such a project, if approved, should be executed through the Caribbean Basin Water Management Programme of the Caribbean Development Bank, and that ECLAC should initiate the necessary discussions with that body as a matter of urgency.

33. It was also proposed that the draft project should be circulated as soon as possible to all participants for review and comments.

Annex 1

## A MODEL OUTLINE FOR A COURSE IN INTEGRATED WATER MANAGEMENT

SECTION	SUBJECT	CONTENTS	% course hours
<b>1. WATER RESOURCES AND DEVELOPMENT</b>	Development and water resources	Problems of development. Regional development. Water resources and development Instruments for the planning of policies and strategies for water resource development. The management process and public policies. Methodology for integrated water resource management.	7.5
<b>2. CONCEPTUAL AND TECHNICAL ASPECTS</b>	The hydrologic system	Functioning of general and regional hydrologic systems. Interrelation between surface and groundwater. Methods of measurement. The importance of hydro-meteorology in water management.	2.5
	Definition of water uses and their requirements	Urban water supply, irrigation, hydro-electricity, recreation, navigation, floods, available technological alternatives.	10.0
	Water availability	Definition, estimating methods with and without regulation.	2.5
	Water Quality	Biogeochemical cycle, quality for different uses, environmental indices.	5.0
<b>3. LEGAL ASPECTS</b>	Physical and cultural norms	The physical sciences, the social sciences, natural resource law and environmental law.	3.5
	Internal legal provisions: a) Objective water law	Legal systems, private and state. Coexistence of private and public elements. Limitations in the different systems. Police power and restrictions, rights of way, expropriation and temporary use.	

SECTION	SUBJECT	CONTENT	% course hours
<p style="text-align: center;"><b>3.</b> <b>LEGAL ASPECTS</b></p>	<p>b) Creation and modification of subjective rights</p> <p>c) Planning</p> <p>d) Works and services</p>	<p>Changes in law, objectives, indemnization and expropriation, generic damage and irresponsibility of the State.</p> <p>Private and public dominion. Jurisdiction. Multiple use, efficiency and coordination. Granting of rights of use. Transfers. Preferences and priorities. Registration of water rights.</p> <p>Private and public planning. centralization and decentralization , autonomy and autarchy (decentralized administration and public companies).</p> <p>Water control works, public and private. Single and multiple use. Water services: public and private. Direct and indirect state management of works and services.</p>	8.5
	<p>International law:</p> <p>a) Sources</p> <p>b) Treaties</p>	<p>Consuetudinary. Conventional.</p> <p>International organizations. Binational and multinational companies. Quasi-international treaties.</p>	4.0
	<p style="text-align: center;"><b>4.</b> <b>ECONOMIC ASPECTS OF WATER MANAGEMENT</b></p>	<p>The economic character of water</p>	<p>Private and public goods. Water as an economic good. The demand for water. The concept of demand. Elasticities. Consumers surplus. Estimating demand. The supply of water. Costs of production and distribution. Monopolies in supply. Divergencies between social and private costs.</p>
<p>The economic problem in water supply</p>		<p>Social objectives. Optimization of the supply of water. Optimization by sector. Works for multiple use. The value of water. Prices. Criteria for determining tariffs. Financial analysis. The master plan. Optimization techniques. Techniques for the economic evaluation of projects. Cost effective techniques.</p>	10.0

SECTION	SUBJECT	CONTENT	% course hours
<p><b>4.</b> <b>ECONOMIC ASPECTS OF WATER MANAGEMENT</b></p>	<p>Externalities associated with the use of water</p>	<p>Water pollution. Economic instruments for the control of pollution. Technical and legal instruments. Tariffs and water quality standards in hydrologic systems. Externalities in the case where water is a public good. The management of water quality. Natural hazards associated with water, floods, land slides, droughts etc. Control measures. Land use planning.</p>	<p>8.0</p>
<p><b>5.</b> <b>INSTITUTIONS AND THE ORGANIZATION OF MANAGEMENT</b></p>	<p>Organization, the inter-organizational context, and integrated management</p>	<p>The concept of a system, the hydrologic system and the system of organizations related with water resource management. Units and places of organizational interface. Implementation of public policies. Functions and disfunction of the bureaucratic model. Administrative functions. Missions and institutional models for coordination. Inter-organizational and intergovernmental relations. Development of structures for the management of coordination. Centralization and decentralization.</p>	<p>12.0</p>
	<p>Decision making</p>	<p>Decisions in modern organizations. The impact of the computer. Information as part of the decision-making process. Organizational systems. Steps in the decision-making process. Consensus and shared solutions. Information systems. The budget and the process of management control.</p>	<p>12.0</p>
	<p>Information systems for integrated management</p>	<p>Evaluation of the need for information systems. Information networks.</p>	<p>8.5</p>

Annex 2

LIST OF DOCUMENTS

Working document

1. Training in Water Resources Management in the Caribbean: Analysis and Proposals (LC/R.958), 28 December 1990.

Reference document

2. Training in Water Resources Management in Latin America and the Caribbean: Analysis and Proposals (LC/G.1580), 3 January 1990.



## Annex 3

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