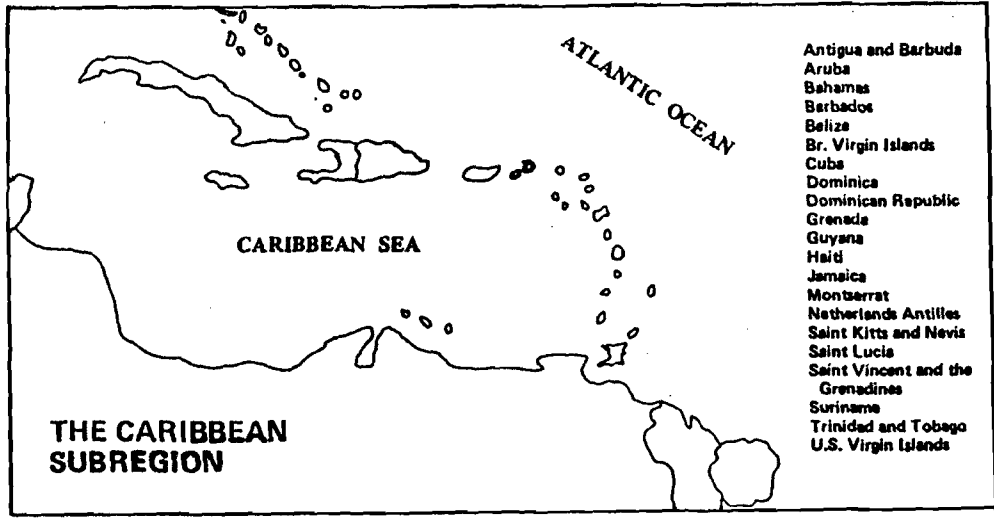
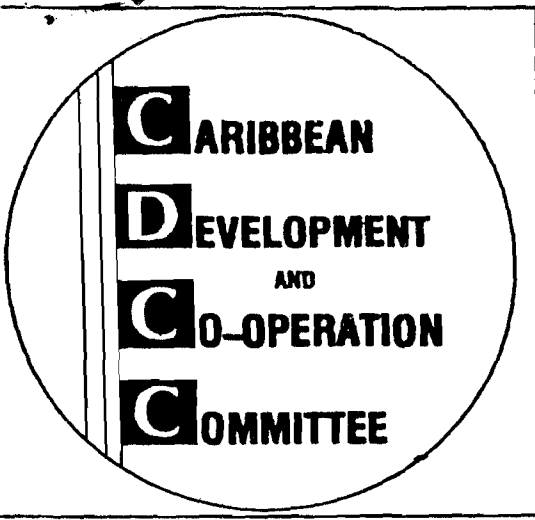


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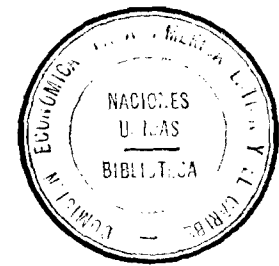
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 28 March 1990
 ORIGINAL: ENGLISH

ECONOMIC COMMISSION FOR LATIN AMERICA AND THE CARIBBEAN
 Subregional Headquarters for the Caribbean

CARIBBEAN DEVELOPMENT AND CO-OPERATION COMMITTEE

CARIBBEAN COUNCIL FOR SCIENCE AND TECHNOLOGY

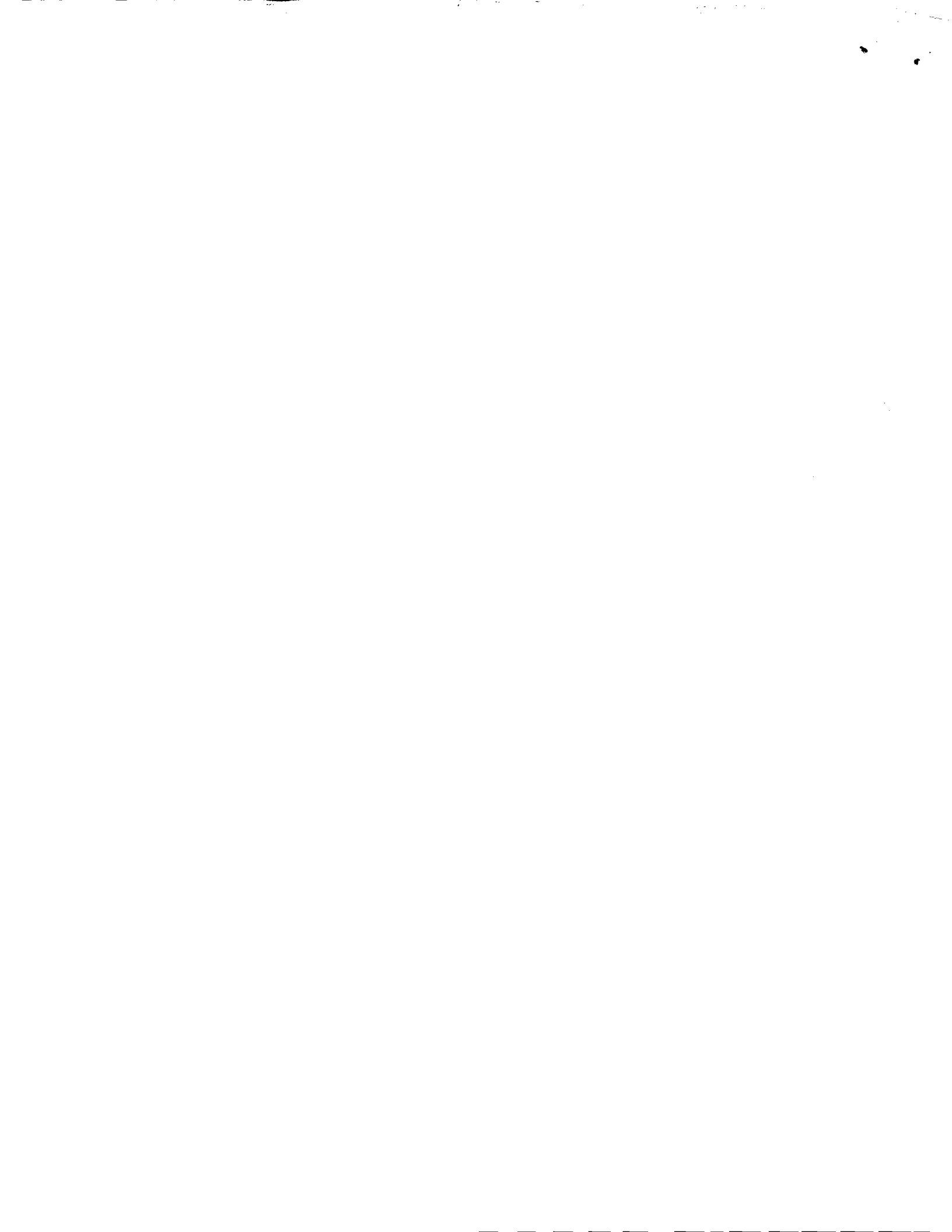
Eleventh Executive Committee Meeting
 Kingston, Jamaica
 11-12 April 1990



REPORT ON CCST ACHIEVEMENTS



UNITED NATIONS
 ECONOMIC COMMISSION FOR LATIN AMERICA AND THE CARIBBEAN
 Subregional Headquarters for the Caribbean



REPORT ON COST ACHIEVEMENTS

Introduction

The Caribbean Development and Co-operation Committee (CDCC) decided at its second session in the Dominican Republic during March 1977 that a Caribbean Council for Science and Technology (CCST) should be established.

The statutes of the CCST were adopted and signed in Jamaica in April 1980 and its first plenary session was held in Barbados in 1981.

The Council was established to "...promote co-operation in the field of science and technology aimed at furthering the social and economic development of its member countries, including the implementation of provisions of the Constituent Declaration of the CDCC to promote efforts to co-operate in the mutual transfer of science and technology in order to facilitate the adaptation of imported technology and the development of domestic technologies and increase the bargaining power of the Caribbean countries in their relations with countries outside the area". (Article 2 of the Statutes of CCST).

The objectives of the Council as stated in the Statutes (Article 3) are:

"The Council shall pursue the following specific aims:

- i. to implement CDCC objectives by designing and executing appropriate joint scientific and technological projects, and also advise the CDCC and its member countries on scientific and technological issues requiring attention;
- ii. to identify institutions that could participate in the projects, and establish the mechanisms for co-operation;

- iii. where no relevant institutions exist, to propose measures for the implementation of particular projects;
- iv. to devise procedures for the effective dissemination of the results of Caribbean R+D projects, and their application in member countries;
- v. generally, to promote the establishment and strengthening of appropriate national and Caribbean organs and mechanisms for science and technology development and application".

The operational functions of the Council are contained in Article 18 which describes its work programme:

"The Council's Work Programme may include;

- i. identification of priority scientific and technological activities suitable for regional co-operation;
- ii. encouragement of the design and adaptation of technology to suit local circumstances;
- iii. advice on the monitoring and control, where appropriate, of the transfer of science and technology;
- iv. devising of measures and appropriate programmes, within selected fields, permitting a better utilization of the internal scientific and technological potential of Caribbean countries with special attention to the contribution of universities, R+D and technical institutes and scientific organizations or services;
- v. promotion of the use of functional budgeting procedures by governments for scientific and technological activities;
- vi. promotion of measures for enhancing the status of scientific researchers, teaching personnel and other scientific and technological workers;
- vii. action to foster the education and training of specialized scientific and technological auxiliary R+D personnel;

- viii. action to raise the level of public awareness of the implications of science and technology for social and economic development;
- ix. measures to encourage talented and qualified staff to work and remain in the region, thus stemming the exodus of such people to other countries, and to attract Caribbean research scientists and engineers, teaching personnel and other Caribbean scientific and technological workers, for work in the region;
- x. organization of symposia, seminars, workshops and conferences;
- xi. arrangements for the dissemination of the results of its activities through publications and other ways;
- xii. such other activities as may be consistent with its aims and objectives".

In order to carry out these functions and responsibilities, provision is made in the statutes for the establishment of a secretariat in Articles 15 and 16:

"Article 15

The Council shall establish an Executive Secretariat staffed by paid, full-time personnel as might be authorized by succeeding Regular Plenary Sessions. The Secretariat shall be headed by a duly qualified Executive Secretary, and shall be responsible to the Council. The Executive Secretary shall be the Secretary of the Council and its committees.

Article 16

The Secretariat shall:

- i. deal with the day-to-day technical, financial and administrative affairs of the Council;
- ii. maintain links with international governmental and non-governmental organizations as approved by the Council in regular Plenary Sessions, to which reference is made in Article 17 iii and iv;

- iii. maintain the Council's accounts mentioned under Article 29 hereinafter;
- iv. submit, for approval by the Honorary Treasurer, at least one month before its presentation for acceptance by a Council Plenary Session, the Annual Balance Sheet mentioned in Article 29 hereinafter;
- v. prepare the draft Annual Report and Draft Annual Programme and Budget of the Council;
- vi. prepare all publications, reports, studies, surveys and any other written or audiovisual material required for the Council's operations;
- vii. convene and technically organize all meetings held under the Council's auspices".

CCST currently comprises 13 countries: Antigua and Barbuda, Belize, Cuba, Dominica, Grenada, Guyana, Haiti, Jamaica, Saint Christopher and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname and Trinidad and Tobago.

In 1987 the statutes were amended to permit admission of non-independent Caribbean territories.

The Economic Commission for Latin America and the Caribbean (ECLAC), Subregional Headquarters for the Caribbean has served as interim secretariat for CCST since its inception. Between 1981 and 1985 the post of Economic Affairs Officer (Science and Technology) was provided as support to CCST, along with one Research Assistant and a Secretary. Since 1985, however, there has been no officer for Science and Technology. The Secretary of CDCC has assumed responsibility for CCST since that time. This and the problem of lack of funding by member countries has severely curtailed the functioning of the Council.

Member countries are required to make an assessed contribution annually to support the CCST. This amount is US \$2,000 for those classified as LDCs (Antigua and Barbuda, Belize, Dominica, Grenada, Haiti, Saint Christopher and Nevis, Saint Lucia and Saint Vincent and the Grenadines) and US\$8,000 for MDCs (Cuba, Guyana, Jamaica,

Suriname and Trinidad and Tobago).

Recognizing the difficulties faced by member governments in the payment of hard currency, the Council instituted a mechanism whereby governments could pay a part of their contribution in hard currency and the rest in local currency to be held by a designated local institution for use in approved CCST activities. This, however, has not proved successful in overcoming the CCST's financial difficulties. While a few countries have submitted all their contributions, the majority are in arrears.

As of end December 1989, member countries were in total arrears of US \$208,000. No country has as yet made a contribution for 1990.

This difficulty in financing has understandably prevented many planned activities from being implemented and, coupled with the absence of a full-time officer, has resulted in CCST not achieving its objectives.

Since its inception there have been eight plenary sessions and 10 Executive Committee meetings. The venues and dates for the plenary sessions have been:

First Plenary Session	29 June -2 July 1981	Barbados
Second Plenary Session	3-5 November 1982	Jamaica
Third Plenary Session	27-29 July 1983	Curacao
Fourth Plenary Session	17-19 September 1984	Antigua and Barbuda
Fifth Plenary Session	27-29 November 1985	Dominica
Sixth Plenary Session	10-12 December 1986	Grenada
Seventh Plenary Session	1-3 December 1987	Jamaica
Eighth Plenary Session	2-3 December 1988	Trinidad and Tobago

There was no plenary session in 1989 since no funds were available.

The Officers of the Council comprising the Executive Committee from 1981 to the present time were:

1981-1982

Chairman: Dr Dennis H. Irvine Guyana
 Vice-Chairman: Mr Iwan Kortram Suriname
 Treasurer: Ms Merline Smith Jamaica

Member: Dr James de Vere Pitt Grenada

1982-1983

Chairman: Dr M.O. "Pat" Hamilton Jamaica
 Vice-Chairman: Ms Erica McIntosh St Vincent and the
 Grenadines
 Treasurer: Mr Iwan Kortram Suriname
 Member: Dr U. O'D. Trotz Guyana

1983-19843

Chairman: Dr James de Vere Pitt Grenada
 Vice-Chairman: Mr Jacques Lorthe
 replaced by
 Mr Gilbert Duperval Haiti
 Member: Dr M.O. "Pat" Hamilton Jamaica

1984-1985

Chairman: Mr Angus Philogene Saint Lucia
 Vice-Chairman: Mr Gilbert Duperval Haiti
 Member: Dr Ulric O'D. Trotz Guyana

1985-1986

Chairman: Dr Ernie Brunings Suriname
 Vice-Chairman: Dr Hayden Thomas Antigua and Barbuda
 Treasurer: Dr K. V. Buckmire Grenada
 Member: Dr Gladstone Taylor Jamaica

At the fifth plenary session it was decided that the Executive Committee would remain unchanged for the upcoming year, thus giving the Executive Committee a two-year term on an experimental basis. The officers for 1986-1987 were:

Chairman:	Dr Ernie Brunings	Suriname
Vice Chairman:	Mr Leonard Grant	Antigua and Barbuda
Treasurer:	Dr James de Vere Pitt	Grenada
Member:	Dr Gladstone Taylor	Jamaica

1987-1988

Chairman:	Dr Gladstone Taylor	Jamaica
Vice-Chairman:	Dr Tirso Saenz	Cuba
Treasurer:	Ms Marie-Grace Auguste	Saint Lucia
Member:	Dr Desmond Ali	Trinidad and Tobago

For 1988-1989, the countries comprising the Executive Committee remained the same and currently are:

Chairman:	Dr Gladstone Taylor	Jamaica
Vice-Chairman	Dr Tirso Saenz	Cuba
Treasurer:	Mr Aloysius Barthelmy	Saint Lucia
Member:	Mr Louis Wiltshire	Trinidad and Tobago

CCST work programme

At the first plenary session, six projects were identified and approved as the basis for the CCST work programme and two were added at the second plenary session.

These eight projects were:

- I Assessment of National Science and Technology Capabilities
- II Establishment of a Science and Technology Journal
- III Preparation and Exchange of Audio-visual Material for Education in Science and Technology
- IV A Study of the Consequences of the Development of Energy Crops on Food Supplies in the Region

- V Conservation and Exchange of Germplasm of Crop Plants
- VI Development of Agro-industries and Employment Opportunities Particularly at the Rural Level
- VII The Potential and Limitations of Newly Emerging Technologies for Developing Countries
- VIII A Science and Technology Policy for the Caribbean.

Projects

Assessment of national science and technology capabilities

At the first plenary session in 1981, this was designated a priority project with the objective of obtaining information on the quality and quantity of personnel involved in science and technology activities at the national level and their deployment within the national framework for development.

The general consensus among CCST member countries was that this could be achieved if (wherever possible) the project was undertaken by Caribbean nationals and if a standard methodology was adopted.

The project was therefore divided into three stages:

- (a) A planning workshop to standardize the methodology and to familiarize participants with its use;
- (b) The execution of the assessment in member countries; and
- (c) A final workshop to examine and analyse the national assessments and prepare specific recommendations for further action by CCST member governments.

The planning workshop was held in Suriname in October 1981 and a survey format was produced.

The second stage was attempted with varying degrees of success. Guyana conducted the survey in 1982 and produced a directory of institutions and personnel. Montserrat, with technical assistance from ECLAC, completed the survey and a directory was produced in 1983. Grenada completed its survey in 1984. Assistance was also provided to Antigua and Barbuda, Saint Lucia and Saint Vincent and the Grenadines. Although the survey was completed in

Antigua and Barbuda, the results were never compiled nor analysed. Surveys were partially conducted in Barbados, Saint Lucia, Saint Vincent and the Grenadines and Trinidad and Tobago, but likewise, were not tabulated nor analysed.

In 1983, two main problems were identified in the assessment. One was the length and format of the questionnaire and the other was the lack of resources (human and financial) within the countries to carry out the survey. With few exceptions, in the countries in which the assessment was being conducted, no single institution had been identified as responsible for science and technology activities per se.

The first problem was easily solved by adaption of the questionnaire to suit the individual countries requirements. In 1984, the Council mandated the Secretariat to produce a revised questionnaire; this was done.

The second problem was not so easily solved and eventually led to the project being discontinued as a CCST activity. By this time other agencies (eg. United Nations Education, Scientific and Cultural Organization (UNESCO), International Development Research Centre (IDRC) and the Commonwealth Science Council, (CSC) among others) were undertaking similar activities and the Council collaborated with them in implementing these. CCST contributed to the CSC project in this field by funding one expert to assess the Organization of Eastern Caribbean States (OECS) countries. Certain key limitations were encountered. Successful implementation of the project depended on national organizations whose strengths and weaknesses determined the extent of the project's effectiveness. Discussions at plenary sessions on overcoming these problems led to other spin-off activities, presented elsewhere in this document.

Establishment of a science and technology journal for the Caribbean

The establishment of a science and technology journal was among the first projects identified by CCST for implementation.

Its objectives were to bring CCST activities to the attention of scientists, technologists, policy-makers and planners in the region and to share knowledge of new and significant information in the areas of:

- (a) technical processes appropriate to the countries in the region;
- (b) projects in progress; and
- (c) research results relevant to the development of the science and technology capability of the region.

Work done on this produced a production costing; identification of advertisers; authors of articles; composition of an editorial board and, eventually, a mock-up of a first issue.

The Council decided subsequently to produce a newsletter instead because of the high production cost. The first issue of the CCST newsletter was published in late 1985. The newsletter, which continues to be published bi-monthly, will be dealt with as a separate topic in this paper.

Preparation and exchange of audio-visual materials for education in science and technology.

The objective of this project was to sensitize students, teachers, decision-makers and the general public about the pivotal role of science and technology in present-day society.

Three 20-minute video films were produced:

- (a) "Science and Technology: the Trinidad and Tobago Experience" (1983);
- (b) "Regional Development in Energy" (1983); and
- (c) "Food Technology : Our Business Now" (1985).

These were distributed to the CCST and CDCC countries free of charge in the video format preferred by each country and were shown on regional television.

Feedback, particularly from schools in Trinidad and Tobago, showed that the topics of the films were particularly relevant to aspects of the science and, surprisingly, social studies syllabi

in secondary schools and presented opportunities for discussion and research among students.

The project demonstrated the co-operation that can exist within the Caribbean. Filming for these productions took place in Barbados, Guyana, Jamaica and Trinidad and Tobago. Support was extended not only by all governments from which it was requested, but by regional institutions, scientists, technologists and the business community. Included in these are the Caribbean Development Bank (CDB), Jamaica National Investment Promotion Limited (JNIP), Institute of Applied Science and Technology (IAST) and Hi-Lo Food Stores, among others. The films were produced on a low budget and served to bring together regional educators and television production facilities and improve their production skills.

Other productions were planned, including a film on the impact of the telecommunications and information sector on the region and a Caribbean Science Film Magazine which was intended to be a continuous production. Lack of finance has, however, prevented implementation of these activities.

A study of the consequences of the development of energy crops on food supplies in the Region.

This project was proposed at a time when some CARICOM countries were assessing the feasibility of converting part of their sugar-cane and cassava production into fuel. The objective was to collect analyse information which would assist regional planners and decision-makers in the critical evaluation of the production of crops for food or for fuel and in identifying options.

In 1983, a report by two consultants contracted by the secretariat, reference CDCC/CCST/83/10, presented a precise plan of action, together with provisional estimates.

The report was submitted to funding agencies with requests for financial support. By this time, however, the lowered cost of petroleum fuel had led to a waning of interest in this project.

Development of agro-industries and employment opportunities particularly at rural level

This project had two objectives:

(a) To reduce post-harvest losses by optimizing the small-scale processing of agricultural produce, particularly in rural areas; and

(b) To increase individual income by the sale of processed and semi-processed products.

A consultant was contracted to assess the available skills and natural resources in food processing in Grenada and Dominica. His report was submitted to the Council and subsequently to funding agencies, while the project was transferred to the Agriculture Unit at the ECLAC Subregional Headquarters. Arising out of this was a survey and consultant's evaluation of cottage type agro-processing industries in the LDCs of the Caribbean. This was part of a project funded by the Government of the Netherlands to identify and evaluate the potential for development of rural agro-based industries in the LDCs. A meeting was held in March 1985 in Antigua and Barbuda to consider the consultant's evaluation.

CCST resumed activity in this area in 1985. In conjunction with the Caribbean Association of Industry and Commerce (CAIC), it held two workshops for small-scale agro-processors for the OECS countries with particular emphasis on quality control, marketing and preliminary aspects of business management techniques. One workshop was held in Saint Kitts and Nevis and the other in Saint Lucia.

Conservation and Exchange of Germplasm of Crop Plants

This project's objectives was to assist regional centres with the identification, exchange, conservation and storage of genetic material from indigenous as well as introduced crop species.

In 1983, funds were obtained from the Commonwealth Foundation and a consultant was recruited to initiate work on this project.

His report is contained in document CDCC/CCST/84/4. Arising out of its recommendations, a plant-breeder recruited to complete the first stage of the project commenced work in September 1984.

His terms of reference were:

(a) to determine endangered germplasm of crop varieties (food and forest) of Jamaica, Grenada and Guyana;

(b) to determine the most suitable conservation methods for the particular crop varieties and recommend appropriate mechanisms for such conservation; and

(c) to advise on protocol for exchange of germplasm and on collaboration amongst national and regional institutions.

The project was separated into three phases:

Phase I: A consultant's visit to relevant institutions in Barbados, Saint Vincent and the Grenadines and Trinidad and Tobago;

Phase II: A report on this visit

Phase III: Circulation of the report to member governments for consideration and appropriate action.

Following a visit to Jamaica, Grenada and Guyana, the consultant reported on the status of germplasm diversity and conservation in these three countries. His findings and observations are contained in a report entitled "Report on Conservation and Exchange of Germplasm".

This report was circulated to member countries for their consideration.

CCST itself did not pursue any further action since other organizations had by this time taken action in this area.

A science and technology policy and plan for the region

In 1982, the Council included this in its work programme in order to formulate a cohesive regional policy on science and technology to harmonize the priorities and capabilities of individual member countries.

At the request of the CARICOM Ministerial Sub-committee on Science and Technology the interim secretariat co-ordinated the

preparation of a science and technology policy and plan for the region.

The plan has since been presented to the CARICOM Ministers responsible for science and technology for their consideration.

The potential and limitations of newly emerging technologies for developing countries.

CCST was among the first regional organizations to initiate action in this area when it identified this project in 1982. Its objectives were:

(a) To create an awareness of the implications of newly emerging technologies among senior officials and decision-makers in regional governments and institutions; and

(b) To identify and implement the type of practical action which would be most effective for the beneficial utilization of these technologies.

With the assistance of UNESCO, a preparatory meeting was convened in Jamaica in May 1983 to plan a workshop on new technologies and their implications for Caribbean development. A regional report on the Implications of New Technologies for Caribbean Development was completed and distributed to Council members for discussion and comment. It was originally intended that CCST, in conjunction with UNESCO and the United Nations Centre for Science and Technology for Development (UNCSTD), would organize a workshop in 1985.

During this period the Standing Committee of Ministers responsible for Science and Technology requested CARICOM to undertake consultations with appropriate agencies and organizations with a view to holding a regional seminar/workshop on new technologies and their implications for Caribbean development. This subsequently resulted in the convening of a seminar/workshop in Trinidad and Tobago in May 1986. The workshop was hosted by the Government of Trinidad and Tobago through its National Institute for Higher Education Research, Science and Technology. Financial

assistance was provided by the Commonwealth Secretariat.

Other activities

The following activities were all initiated after 1984:

CCST Newsletter

The first issue of the CCST newsletter was published in September 1985. Since then, it has appeared bi-monthly, distributed using ECLAC's facilities and resources. The newsletter serves the same purpose as the journal was intended to, but is a more informal publication.

In general, each issue focuses on a particular topic, in addition to informing on past and future events and available publications. Among topics highlighted in the past were the pharmaceutical sector in the Caribbean; science, technology and the small State; science and technology popularization; and sustainable development and technology.

Other CCST science and technology popularization activities

During the period when the CCST films were made, a capability in film production was developed, whereby local media and education personnel worked together in the production of material for science education purposes. This led to two training workshops on television production materials for education and popularization of science and technology. These were held in Saint Lucia in 1986 for the Windward Islands and in Antigua and Barbuda in 1986 for the Leeward Islands. The countries participating in the workshops were Antigua and Barbuda, Dominica, British Virgin Islands, Grenada, Saint Christopher and Nevis, Saint Lucia, Saint Vincent and the Grenadines, the Netherlands Antilles and Montserrat. This enabled the local production of Science and Technology films for use in schools and on national television. In Saint Lucia for example, the Primary Health-Care Unit benefited greatly and continues to produce public information material which is regularly aired. CCST's role in upgrading the skills of personnel in Saint Lucia's Helen

Television pre-dates that station's participation in CBU's Programme, "Caribvision" and undoubtedly contributed to it.

A register of films dealing with science and technology in the region was also started, using material from companies in Trinidad and Tobago, with the aim of circulating these films throughout the region.

CCST developed the main ideas behind the workshop on Science Writing and Communications which was eventually held in 1986 in conjunction with Community on Science and Technology for Education in Developing Countries (COSTED) and Caribbean Industrial Research Institute (CARIRI).

Through its activities in this area, CCST also supported the first regional consultation on science education research in Latin America and the Caribbean held in Trinidad from 12 to 15 February 1986, under the auspices of the Faculty of Education, University of the West Indies.

CCST logo

Discussions on a logo for CCST began in 1985, when it was decided that a regional competition for youth should be used for its selection.

The interim secretariat subsequently drew up rules for the competition, devised a mechanism for the selection of the winner and determined the amount of prize money.

Individual country competitions were held in the five countries which responded to the offer. At the plenary session in 1986, the Council decided that none of the entries was completely suitable and directed the interim secretariat to contract a professional graphic artist. This was done and a design was presented to the seventh plenary session which approved it.

The current financial situation of the Council has prevented the production of plates for use of the logo, but the interim secretariat is seeking alternative ways to reproduce the logo.

National consultations on science and technology

In 1985, the plenary session agreed that the CCST should, as a principal function, assist in strengthening and/or establishing national science councils in member countries. To that effect, a sub-committee was appointed to develop a paper on guidelines for establishing national science councils. The paper produced was distributed to member countries and at the next plenary session the Council mandated the interim secretariat to assist in conducting national consultations on science and technology.

This series of national consultations was planned to examine the role of science and technology in the development of the smaller CCST member countries and to make recommendations for the organization, policy and programmes for science and technology at the national level.

These consultations were planned with the assistance of CCST which helped to identify and provided financial support for resource persons drawn from regional and national institutions. Participants represented both public and private sectors of each country. The sessions were generally held in plenary with lectures by the invited persons, followed by open discussions.

Thus far, consultations have been held in Saint Lucia (September 1987), Grenada (November 1987), Antigua and Barbuda (1987), Dominica (October 1988) and Saint Vincent and the Grenadines (November 1989). Consultations in Saint Kitts and Nevis will be held shortly while preliminary discussions are being held with the government of Belize on that country's consultation.

Topic for in-depth discussion

In 1985, the plenary session decided that future plenary sessions would hold an in-depth discussion on one critical issue that it identified. The first, discussed in 1986, was Utilization of Natural Resources for Development in the Region, with special reference to:

- (a) natural products (including agriculture products); and
- (b) minerals.

Two topics, Biotechnology and Environment, were discussed in 1987. During the discussions, information was exchanged on developments occurring in the various countries in these areas. Of particular concern were offers made to Caribbean countries to dispose of waste from developed countries and the possible environmental effects if these were accepted.

In 1988, The Role and Future of CCST and Science Fairs were the topics discussed.

Country reports

Since 1986, representatives to plenary sessions have delivered country reports on activities in science and technology which occurred in the previous year. This has served to transfer information about activities in member countries and created linkages between countries with related interests in specific areas.

Animal feed production

A project shared by the University of the Virgin Islands and Saint Lucia was developed to investigate the growth of tilapia as a protein source for feed, using coconut meal and banana for pigs and possibly other animals. Following successful trials, the project is being expanded by the Government of Saint Lucia.

Specialized committees/working groups

In addition to projects, the Council established eight specialized committees/working groups in the following areas: Energy; Transfer of Technology and Patents; Information Systems; Agricultural Research; Marine Affairs (including fisheries); Health, Nutrition and Pharmaceuticals; Universities, Industrial Sector and other private and public-sector institutions; and Newly Emerging Technologies.

Nominations to these working groups/committees were submitted by some countries.

A proposal for a workshop on Agricultural Research Policy and Management was formulated and the workshop was subsequently held in September 1982. This was initiated by CCST and carried out by the Agriculture Unit of ECLAC which thereafter assumed responsibility for the output from the workshop, which included a proposal for a Caribbean Co-operative Agricultural Network.

The first meeting of the Working Group on Health Nutrition and Pharmaceuticals was held in March 1986 in Havana, Cuba, as was a regional workshop on the Pharmaceutical Sector of the Caribbean. This workshop brought together senior pharmacists in the public sector and representatives of regional organizations. Among topics presented were an overview of the Caribbean pharmaceutical sector; the industrial property system regarding pharmaceuticals; ways of strengthening national and regional production and trade in pharmaceuticals; and the exploration and utilization of medicinal plants.

CCST collaborative work with other organizations

CASTALAC II

On behalf of UNESCO, CCST convened a consultation of regional officials involved in science and technology matters in preparation for the Second Conference of Ministers for Science and Technology in Latin America and the Caribbean (CASTALAC II). This was held in Trinidad and Tobago in November 1984.

Workshop on problems of science popularization

A regional seminar/workshop on the problems of science popularization was organized in Trinidad and Tobago in October 1985 by the Caribbean Industrial Research Institute (CARIRI) and sponsored by COSTED, UNESCO and CCST which also participated in the workshop.

Technological capability survey

CCST assisted in implementing components of the IDRC project, Technological Capability Survey of Trinidad and Tobago and Saint Lucia in December 1985.

Science and Technology policy and plan for the region

At the request of the CARICOM Ministerial Subcommittee on Science and Technology, CCST co-ordinated preparation of a science and technology policy and plan for the region.

Among the organizations with which CCST has collaborated is the Intergovernmental Oceanographic Commission (IOC), in 1983. At that time, CCST had been asked to co-ordinate the visit to the region of a Mission of Experts (as part of IOCARIBE). The proposed visit, did not however, take place as planned.

TCDC function

CCST has served a TCDC function on a number of occasions.

Within its work programme, CCST has advocated and continues to employ the modality of TCDC. In all of its workshops and training programmes it has drawn on the resources available within its larger members and, in cases where these were not available, within the larger ECLAC framework, as evidenced by a training seminar on agro-processing sponsored by the Government of Brazil.

CCST also provides technical assistance whenever possible. This began in 1985 when, through ECLAC, it made available the services of an engineer from the University of the West Indies (UWI), St Augustine for one week to assist the Food Technologist of Montserrat in the installation of some agro-industrial equipment.

In 1988, the secretariat negotiated a two-week training workshop on banana by-products for four participants from the Windward Islands with the Brazilian Institute of Food Technology (ITAL) of Brazil. Financial assistance was provided by the TCDC Unit of United Nations Headquarters and the Brazilian Government.

Negotiations with the University of the Virgin Islands (UVI) enabled two participants from Saint Kitts and Nevis and Dominica to attend a workshop on Science Teaching at the Primary School Level. The workshop was organized by the Lawrence Livemore Institute of California and the University of the Virgin Islands.

Funding by CCST enabled the participation of member countries in a seminar on Biotechnology, held in February 1988 in Trinidad.

These TCDC modalities will continue to be employed in the implementation of the CCST work programme as they not only serve as means of information exchange, but also considerably reduce the cost of project implementation.

Publications by CCST

- "Consequences of the development of energy crops on food supply in the Caribbean", CDCC/CCST/83/10 (9 June 1983).
- "An analysis of Science and Technology Projects/Programmes supported by agencies in the Caribbean", CDCC/CCST/83/17 (24 August 1983).
- "Present state and trends in science and technology policies in the Caribbean - CCST", prepared for CASTALAC II, CDCC/CCST/84/3 (26 April 1984).
- Paper presented to the CARICOM meeting of the Interim Co-ordinating Committee for Science and Technology.
- Report on visit to Grenada and Dominica - prepared by George A. Sammy, November 1982, for Agro-industry project.
- "Interim report on Conservation and Exchange of germplasm of crop plants", CDCC/CCST/84/4 (5 July 1984).
- "Report on Conservation and Exchange of crop plants", Consultant's Report, 1 October 1985.
- Report of the workshop on "Agricultural research Policy and Management in the Caribbean", September 1983.
- "Opportunities for regional collaboration in dealing with problems arising from the impact of new technologies in Caribbean

development", a paper read at workshop of UNIDO/CARIRI on Technology Transfer Management and Development and the Implications of Newly-emerging Technologies, November 1983.

Meetings at which the Council was represented

The Council was represented at the following meetings:

1. Preparatory Meeting for Workshop on "Technology Problems for the Caribbean" (Jamaica, 5-7 January 1983), sponsored by the International Development Research Centre.
2. Caribbean Science and Technology Co-operation Committee (Antigua and Barbuda, 19-21 January 1983).
3. Meeting of Ministers responsible for Science and Technology (Kingston, Jamaica, 6-7 April 1983), sponsored by CARICOM and UNESCO.
4. Preparatory Meeting for Workshop on "New Technologies and their implications for the Caribbean" (Kingston, Jamaica, 23-24 May 1983).
5. Meeting of Steering Committee for the Caribbean Alternative Energy Plan (Barbados, 27 May 1983), sponsored by the Commonwealth Science Council.
6. CARICOM Meeting of the Interim Co-ordinating Committee for Science and Technology (Barbados, 31 August - 2 September 1983).
7. UNIDO/Government of Trinidad and Tobago sponsored Seminar/Workshop on "Technology Transfer, Management and Development" (Trinidad and Tobago, 8-10 November 1983).
8. IDRC/ISER sponsored Research and Policy Workshop on Technology Problems for the Caribbean (Jamaica, 13 November - 10 December 1983).
10. First Meeting of the CARICOM Ministerial Sub-committee for Science and Technology (Antigua and Barbuda, 4 May 1984).
11. Commonwealth Science Council/Scientific Research Centre sponsored Workshop on Evaluation of Research and Development and Science Management (Jamaica, 21-25 May 1984).

12. Ninth Session of the Caribbean Development and Co-operation Committee (Trinidad and Tobago, 29 May-4 June 1985).
13. Seminar/Workshop on Technology Imports and Technology Policy, organized by the Central Bank of Trinidad and Tobago April 3-4, 1985).
14. Seminar/Workshop on Problems of Science Popularization, organized by CARIRI (Trinidad and Tobago, 8-11 October 1985).
15. Workshop/Seminar on Medicinal and Aromatic Plants, organized by the Commonwealth Science Council, (Saint Christopher, 14-18 October 1985).
16. Meetings of Information Systems and Services on Research in Progress (Port-of-Spain, Trinidad, 20-24 January 1986).
17. Seminar/Workshop on the Implications of Newly Emerging Technologies for Caribbean Development (Port-of-Spain, Trinidad, 7-10 May 1986). The report of this meeting was circulated to all CCST member countries).
18. Caribbean Agricultural Research Management and Implementation Workshop (St Croix, 22-24 April 1986). This meeting was organized by CARDI and the Agricultural Experiment Station of the College of the Virgin Islands.
19. The Organization of American States (OAS) Meeting on Programming and Co-operation for the Caribbean Subregion (St Kitts and Nevis, 29-30 May 1987).
20. The Commonwealth Science Council Meeting on Research Evaluation (Barbados, 20-30 May 1987).
21. The Seminar/Workshop on Science and Technology Planning in the Caribbean (Barbados, 13-17 July 1987).
22. The Meeting on CARICOM Science and Technology Policy (Jamaica, 14-15 August 1987).
23. Biotechnology Workshop (Trinidad and Tobago, 20-27 February 1988).
24. Meeting of the Standing Committee of Ministers of Science and Technology (Trinidad and Tobago, 7-10 March 1988).

25. National Consultation on Science and Technology (Antigua and Barbuda, 25-29 April 1988).
26. National Academy of Sciences (Trinidad and Tobago, 16-17 May 1988).
27. World Association of Industrial Technical Research Organizations (WAITRO) (Trinidad and Tobago, 27-29 September 1988).
28. National Consultation on Science and Technology (Dominica, 3-5 October 1988).
29. IDRC/UWIDITE (Jamaica, 29-30 March 1988).
30. First COMMANSAT/RANDEVAL meeting on issues of science and technology management for strategic integration into national planning in small States (Caribbean region), organized by the Commonwealth Science Council and the Overseas Development Administration (Grenada, 30 January - 3 February 1989).
31. Latin America and Caribbean regional meeting to assess the implementation of the Vienna Plan of Action (VPA) with respect to science and technology for development (Costa Rica, 11-13 April 1989).