



GENERAL

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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

Seventh Plenary Session  
Kingston, Jamaica  
1-3 December 1987

MINUTES OF THE SEVENTH PLENARY SESSION  
OF THE  
CARIBBEAN COUNCIL FOR SCIENCE AND TECHNOLOGY



**UNITED NATIONS**

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



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Kingston, Jamaica 1-3 December 1987

1. ORGANIZATION OF THE MEETING

1. The Seventh Plenary Session of the Caribbean Council for Science and Technology (CCST) convened in Kingston, Jamaica from 1-3 December 1987. The meeting was hosted by the Government of Jamaica, through the Scientific Research Council (SRC) in collaboration with the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), Subregional Headquarters for the Caribbean.

Opening Session

2. The opening session was chaired by Dr. Gladstone Taylor, Executive Secretary of the SRC. The Chairman of the SRC, Professor Gerald C. Lalbr conveyed greetings to those present, while the opening address was delivered by the Hon. Anthony Johnson, Minister of State in the Ministry of Agriculture. Dr. Ernie Brunings of Suriname, the Chairman of CCST, then addressed the meeting. He was followed by Mr. Donatus St. Aimee, Secretary of the Caribbean Development and Co-operation Committee (CDCC) who delivered the vote of thanks.

Attendance

3. Representatives of the following CCST member countries were present: Antigua and Barbuda, Cuba, Grenada, Jamaica, Saint Lucia, Suriname and Trinidad and Tobago. The Netherlands Antilles was also present as an observer.

4. The following institutions and organizations with interest in Science and Technology were also present as observers: United Nations Food and Agricultural Organization (FAO), United Nations Environmental Programme (UNEP), United Nations University (UNU), United States Agency for International Development (USAID), Inter-American Development Bank (IDB), University of the West Indies (UWI) and Economic Commission for Latin America and the Caribbean (ECLAC). The list of participants appears at Annex I.

## II. SUMMARY OF PROCEEDINGS

### Adoption of the Agenda (Agenda Item 1)

5. The agenda as proposed in document CCST/87/2 was amended. These amendments included the incorporation of Item 5(iii) into Item 9, Work Programme and Budget 1987/88. In this regard the Secretary agreed to prepare a document outlining a possible mechanism for a Permanent Secretariat of CCST for presentation in the discussion of this item. Other amendments were the inclusion of a discussion on "Manpower Resources" in Item 7 and "Environment" during Agenda Item 8. This Agenda as amended was adopted and is given as Annex II.

### Chairman's Report (Agenda Item 2)

6. The Chairman's report was given during the opening ceremony and is given as Annex III.

### Minutes of the Sixth Plenary Session (Agenda Item 3)

7. The Minutes of the Sixth Plenary Session which had previously been circulated to all member countries was presented to the meeting by the Secretary who highlighted the main points.

8. In response to a question based on paragraph 27 on whether the Secretariat had compiled a booklet on the state of science and technology in the region, the Secretary responded that this had not been possible

since the relevant information had not been forwarded by the member countries to the Secretariat. He further elaborated that while the Council sought to avoid duplication of effort in this area (bearing in mind UNESCO's work on this) at the time that this project had been proposed, the UNESCO project had been at a lull. The Council, however, had placed such importance on this type of information that it had requested the Secretariat to initiate this action. Since the UNESCO project was again underway it was no longer necessary to undertake this activity.

9. Cuba undertook to forward the information on this topic to the Secretariat.

10. The non-completion of projects in the Council's work programme from year to year elicited discussion on mechanisms to solve this. The lack of a Permanent Secretariat was seen as a possible reason and it was decided to discuss this further when that item was dealt with.

11. Several delegations considered that for the coming work of the Council more effort should be displayed among its members to strengthen co-operation. In this regard, the Secretariat should provide support in the diffusion of information among members, thus contributing to this objective.

Minutes of the Ninth Executive Committee Meeting  
(Agenda Item 4)

12. The Secretariat reported that the Ninth Executive Committee Meeting had not been held as planned due to lack of finance. An oral report of the Executive Committee Meeting held earlier in the day was given.

Matters arising - with special consideration given to:

(i) CCST logo, and (ii) Amendments to Statutes  
(Agenda Item 5)

13. (i) CCST Logo - The Secretariat presented the proposed logo to the council and it was adopted after some comments.

(11) Amendments to Statutes - Consensus was reached on the amendment to the CCST statutes governing membership, with Cuba holding the position that while not being against any country and the possibility that each country, independent or not, should benefit from the work of the Council, it considered that membership of non-independent countries was against the spirit of United Nations Resolution No.1514 and did not help the on-going decolonization process.

14. Article 4 of the CCST thus now reads:

"1. The Members of the Council shall comprise the States that are members of CDCC.

2. In addition, the Council may admit as a Member of CCST any country or territory within the Caribbean region. In the case of a country or territory that is not an independent state, an application for admission as a member of CCST shall be presented to the Council by the competent governmental authorities of the State which is responsible for the international relations of the country of territory in question."

15. It follows from the amendment of Article 4, concerning "membership" that other articles of the Statutes where reference is made to only CDCC member countries as members of CCST, must accordingly, be slightly modified, e.g. Article 31 concerning "ratification or acceptance of the Statutes" and also Articles 17 and 20. The relevant changes will be made and circulated to member states.

16. A new document with the Statutes will be made up by the Secretariat and sent to the member countries and observers of CCST and to the other related international organizations in January 1988.

Countries interested in becoming members of CCST can now make formal application for membership of CCST in accordance with Article 4, paragraph 2 of the Statutes.

17. The Netherlands Antilles delegation thanked the host country for having made this session possible and congratulated the Chairman for the excellent way in which the meeting had been conducted.

18. At the same time the delegation took the opportunity to express, on behalf of the government of the Netherlands Antilles, its deep

satisfaction and sincere gratitude to the Secretariat and the Members of the Council for the recognition of the involvement of the Netherlands Antilles in the CCST, as was shown so clearly by the adoption of the amendments to the statutes by consensus.

Annual Report and Balance Sheet for 1986-87  
(Agenda Item 6)

19. The Annual Report and Balance Sheet for 1986-87 (CCST/87/4 and CCST 87/4 Add.1) were presented to the Council.
20. In discussing the matter of attendance at meetings on behalf of CCST, the Council agreed that, as a matter of policy, the Secretary should report on the main points of these meetings and forward this to CCST focal points.
21. Having noted that many activities were not implemented due to lack of feedback from member countries and/or lack of funding, and that many of the focal points were not at science and technology policy-making level, the Council recommended that effective lines of communication be established to ensure that the focal points could communicate more effectively with the Secretariat.
22. It was recommended that the Secretary should periodically travel to those member countries not active in the Council to stimulate their participation in CCST.
23. The completion of the UNESCO project on the assessment of science and technology in the region was viewed by the Council as being of the utmost importance to member countries and it is hoped that upon completion this will assist in the planning efforts in science and technology of member states.
24. On the matter of CCST finances, the Chairman reminded members of a previous decision on the payment of half the contributions in foreign currency and half in local currency to be used for CCST activity in the country. He also urged member states to make every effort to pay, if not all, at least part of their contributions.

Country Reports on Science and Technology  
(Agenda Item 7)

25. In keeping with a decision adopted at the Fifth Plenary Session, papers were presented in the following order by: - Netherlands Antilles (CRP/3); Antigua and Barbuda (CRP/2), Cuba (CRP/4); Saint Lucia (CRP/5); Jamaica (CRP/6) and Grenada (CRP/7). An oral presentation was delivered by Trinidad and Tobago.

26. The representative from the FAO also delivered a paper, which will be forwarded to participants upon receipt by the Secretariat.

Netherlands Antilles

27. In presenting the Country Paper (CRP/3) the meeting was informed that while a national council had not yet been formed, the representative was optimistic that a workable council would be formed within the coming year and that the Secretariat would assist in planning a national science and technology consultation.

28. During discussion on a wind turbine project (wind air course system) developed in Curacao, offers of collaboration in this area between the Netherlands Antilles, Antigua and Barbuda and Saint Lucia were made, with follow-up action planned by the delegates.

29. Similar areas of activity in desalination technology in both the Netherlands Antilles and Antigua & Barbuda, and on solar energy cooling in the Netherlands Antilles, Antigua & Barbuda, Saint Lucia, Suriname and Cuba were identified, with the relevant countries making offers for collaboration with each other. Cuba, in particular, had some experience in the use of solar energy for cooling through its centre on non-conventional sources of energy located within the University of Santiago de Cuba.

30. An important point made was that countries should first maximize local technological resources by co-ordination, then regional science and technology resources, before seeking assistance extra-regionally. It was noted that in many instances the facilities available within a country were under-utilized due to a lack of information of their existence and capabilities.



In this respect, information was provided on collaboration between the Government of the Netherlands Antilles and the Caribbean Industrial Research Institute (CARIRI) in Trinidad and Tobago in providing a network for facilities available in the Netherlands Antilles for use in that country's industrialization programme and linked to testing, quality control, etc. in producing goods which would meet international standards.

#### Antigua and Barbuda

31. Elaboration on a medicinal plants project was provided. This activity centered on two projects: the Commonwealth Science Council project which is on the ethnobotany of medicinal plants; and the OAS (EBUTROP) project which is the collection and evaluation of data outside of the ethnobotany of these plants.

32. A request by the Netherlands Antilles for information on the project on King Crab was made; as was an offer for the exchange of information between the Netherlands Antilles and Antigua & Barbuda on work being done on shrimp culture.

33. A suggestion was made that countries seeking to institute work on standards should use the experiences of other countries such as Ireland, Singapore and Malaysia as guides since they have developed suitable structures for meeting needs which are not dissimilar to those of the region.

#### Cuba

34. Cuba is currently in the process of re-organizing its mechanisms for science and technology by identifying new objectives and priorities. The Country's priorities are geared towards increasing exports and reducing imports. To this end efforts are aimed at the production phase of research results.

35. In response to questions on energy, the meeting was informed that there were three centres for energy: one on non-traditional sources of energy, a second on traditional sources of energy and one now being developed on nuclear energy.

36. Recognizing that nuclear energy was being developed in countries such as Cuba and Brazil, a call was made that, given the extra-territorial impact of nuclear reactor disasters, information on safety procedures should be provided to surrounding countries and others in the region interested in such information.

#### Saint Lucia

37. A great deal of discussion centered on the use of biogas, which was described as an under-utilized resource. It was recognized, however, that biogas technologies were still awaiting a major breakthrough towards making it a cost-effective technology, and that collaborative efforts were needed on the science of biogas technology rather than on the technology of the process.

38. The delegate also provided information on Saint Lucia's national consultation on science and technology, the report of which will be sent to the Secretariat for forwarding to the other member countries.

#### General

39. Due to time constraints, discussion was not possible on the presentations of Jamaica, Grenada and the FAO, and only for a limited time on the Trinidad and Tobago presentation.

40. Nevertheless, it was agreed that the FAO representative and the CCST Secretariat will collaborate towards the development of small tissue culture labs through training and provision of equipment.

41. The consensus of opinion on the discussion on the Trinidad & Tobago presentation was that, with some exception, the region was not addressing the issues of science and technology that were germane to development as evidenced by an absence of research in areas fundamental to the economies of its countries, e.g. sugar, petroleum, water management and energy conservation and this would need to be corrected.

42. The meeting recommended also that at future meetings, country reports should focus on brief general overviews on science and technology activities in member states, with the major reporting being on-going activities.

Issue for in-depth discussion  
(Agenda Item 8)

(i) Biotechnology

Jamaica

42. An introduction to the host country's presentation on Biotechnology was provided by Dr. Gladstone Taylor, co-ordinator of the Monitoring Committee for the Tissue Culture Research and Development Project in Jamaica. This project was developed within a few months from an idea to a project proposal which, after being presented to the Government and approved, had obtained funding from the United Nations Development Programme (UNDP) for its implementation.

43. Jamaica's presentation was delivered by Dr. Vishnoo Asnani, Project Co-ordinator, who stated that use of plant biotechnology through tissue culture produces large amounts of disease-free planting material. This is of particular relevance to Caribbean countries since one of the largest constraints to agricultural production is the availability of planting material.

44. Dr. Asnani underlined the major focus of the tissue culture project as being the production of planting material for distribution to farmers, rather than fundamental or basic research in tissue culture. The project seeks to produce planting material for root crops (yams, sweet potato, cassava and ginger) and ornamentals (anthurium, gerbera and orchids). For all of these crops research is conducted to determine the most suitable medium for micro-propagation under Jamaican conditions.

45. The application of biotechnology in Jamaica is seen as an integrated system with a Grower's Committee, a Technical Committee and a Monitoring Committee which determine technological needs prior to the initiation of the project. This was seen as the major factor which has contributed to the success of the project to date.

46. In discussing this presentation, the point was made that this type of activity provided excellent opportunities for collaboration on a regional level, since activities need not be duplicated in all countries.

47. Dr. Ahmad, Co-ordinator of UWI, Mona, Biotechnology Unit, informed the meeting that the Unit was currently training post-graduate students in applied biotechnology.

#### Trinidad and Tobago

48. Dr. Desmond Ali, in introducing Trinidad and Tobago's paper, (See CRP/1) stated that while the Caribbean had a tradition of more than three hundred years' experience in biotechnology through the rum industry, this had not been developed through research and development which could have carried over into other areas. Further, the rum industry itself did not understand the dynamics of fermentation.

49. Trinidad and Tobago's work in biotechnology was a collaborative effort involving the UWI, CARIRI and NIHERST; and involved three elements: plant tissue culture, applied microbiology and biological control. Additionally, a biotechnology workshop is scheduled to be held in that country from 25-27 February 1988 and seeks to bring together researchers in the field to exchange information on their work; to establish a Caribbean network of biotechnologists and to establish priorities for work, training and equipment-sharing.

#### Netherlands Antilles

49. The delegate from the Netherlands Antilles presented a paper on the production of vaccines used in the poultry industry. The vaccines, he informed, are prepared primarily for export and information can be made available to interested parties.

#### Cuba

50. Cuba briefly described the activities of the Cuban Biotechnology Centre which produces, among other products, interferon and various vaccines. An offer for co-operation with other countries in the region was made.

#### General Discussion

51. In the general discussion which followed on the topic, concern was expressed that while biotechnology is potentially one of the fields

that the region could excel in, the training programmes at the secondary and university levels did not address the needs for skills in that field. There was also the absence of linkages between the universities and the private sector, contrasting with what obtained in the developed countries where there exist partnerships between the universities, the private sector and the government in commercializing scientific effort.

52. This item led to a comment that the Council should bring to the attention of the Governments the need for greater resources in training, particularly at the secondary level, and that a statement to this effect should come from the Council to the CXC. This is given as Annex IV.

53. The meeting agreed that elements of biotechnology should be included in the secondary school syllabus, and be reflected in the CXC and 'A' level exams.

(ii) Environment

54. This topic was introduced by Richard Thelwell, UNEP Consultant, who informed the meeting on the development of a network for exchange and transfer of environmental information in the wider Caribbean (CAPNET).

55. Concern was expressed over recent lucrative financial offers made to Caribbean countries to dispose of waste (municipal and industrial) from some developed countries, since the future environmental impact associated with the disposal of this waste was unknown. The view was held that the region did not have the science and technology capabilities to deal with the problems that this would create, and that countries in the region could lend support to other countries in defending precautionary stands taken on this particular, and other environmental issues.

56. It was felt that the Council is well placed to draw this to the attention of governments and agencies working in this field.

Work Programme and Budget 1987/88  
(Agenda Item 9)

57. The proposed Work Programme and Budget 1987/88 was introduced by the Secretariat. After much discussion it was agreed that CCST should undertake such projects which could be carefully implemented and which would have an immediate impact on the development process of its member states. In that context changes were made to the proposed work programme to reflect the areas of priority and the projects which were felt would improve both the standing and profile of the CCST in the region. The projects approved appear as Annex V of this document.

58. A request was made that the Secretariat should send copies of the elaborated documents agreed upon in the Work Programme to all members for their consideration.

59. The Netherlands Antilles expressed an interest in holding national consultations and requested the assistance of the Secretariat in organizing same.

60. On the question of the establishment of a Permanent Secretariat for the Council, delegates had before them a paper presented last year by the Secretariat and a short note on some modalities by which the matter could be approached. It was felt that the establishment of a Permanent Secretariat was indispensable to the continued success of the CCST and that establishment of such Secretariat should be given priority in the 1988 Work Programme. To that extent it was agreed that the members of the Executive Committee should, on a priority basis, seek to obtain the necessary information concerning the allocation of posts to the Port of Spain Office to service an interim Secretariat and to enter into discussions with other agencies with an interest in science and technology in the region, such as: CARICOM, OAS, UNESCO and the Commonwealth Secretariat, for agreement on a format for the Permanent Secretariat of CCST. Such proposals should be submitted to member states before July, and subsequently to ECOSOC for approval, through the ECLAC office.

61. It was decided also that at each Session, arising out of the discussion on the special topic, an activity should be developed and be incorporated into the Work Programme for the coming year. In this regard the Council allocated \$20,000.00 towards developing small primary tissue culture laboratories in those CCST countries requesting such assistance.

62. The Council decided that the topic for discussion at the Eighth Plenary Session would be "Science Fairs", and requested member states to provide the Secretariat with as much information as possible for their experiences to be shared with other members prior to the Eighth Session.

Election of Officers  
(Agenda Item 10)

63. The following officers were elected to the Executive Committee for the 1987/88 term:

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

64. It was suggested that the Executive Committee should meet during the Biotechnology Workshop scheduled for Trinidad and Tobago 25-27 February 1988.

Date and Venue for the Eighth Plenary Session  
(Agenda Item 11)

65. It was agreed that the Eighth Plenary Session will be held at the end of November/early December 1988 (the precise dates to be determined) and Trinidad and Tobago offered to host this meeting. Following last year's precedent, a request was made for offers of an alternative venue. The Secretariat is to consult with member states on both the exact dates and the alternative venue.

Any Other Business  
(Agenda Item 12)

66. The Trinidad and Tobago delegate invited Council Members to visit his Country's Business Incubator facility which is to be opened in January, as

well as to try to identify other mechanisms for translating research and development to production which could be applicable to other situations.

67. Jamaica informed the meeting on its contact with the International Foundation of Science located in Sweden. This is a non-governmental organization which funds projects on a one-to-one basis. Information was circulated on the organization and member states were urged to get in touch and, if possible, to apply for membership.

68. The Director of the Foundation had been invited to visit the region in 1988 and an indication was needed of countries which would wish their inclusion in his itinerary.

69. The Jamaica delegate also informed the meeting about the Third World Academy of Sciences and distributed literature on this organization, urging members to make use of the opportunities offered.



Annex I

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1. CCST Member Countries

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Annex II

PROVISIONAL AGENDA

1. Adoption of the agenda
2. Chairman's report
3. Report of the Sixth Plenary Session
4. Report of the Ninth Executive Committee Meeting
5. Matters arising with special consideration given to:
  - i) CCST logo;
  - ii) Amendment to statutes;
  - iii) Permanent secretariat for CCST.
6. Annual report and balance sheet 1986/87
7. Country reports on science and technology and manpower resources
8. Issues for in-depth discussion: Biotechnology - with particular reference to tissue culture; environment
9. Work programme and budget 1987/88
10. Election of officers
11. Date and venue for Eighth Plenary Session
12. Any other business
13. Consideration of the draft report and recommendations

Annex III

CHAIRMAN'S REPORT

That our Council has been able to meet for three consecutive years is no mean feat in the face of continued economic difficulties and for that we need to pay special tribute to the efforts of the interim secretariat - ECLAC Subregional Headquarters for the Caribbean in Port of Spain.

But more important because it is realized that sound science and technology policies and the optimal utilization of resources, both human and material, are the avenues by which our countries can hope to cope with these difficulties and eventually be on the way to development. It is, therefore, another reason for us to meet to chart the course of development within the framework of the application of science and technology and to exchange ideas and experiences recognizing the varied stages of development among our members.

Our in-depth discussion topic last year - the Utilization of Natural Resources for Development - pointed to the range of products in our region that need attention and consideration in terms of research and development. This year, our topic is "Biotechnology" and we will hear from our colleagues on the state of the art in our individual islands. These topics are intended to bring to the forefront both the activities undertaken and the potential of our region in areas that, up to now, have been given little attention. Yet it is in these very areas that much progress has been made elsewhere and for which we have to spend our scarce foreign exchange to acquire techniques and products.

In some of these areas, the Council itself may be unable to do much but by bringing these topics to the forefront of the agenda, it is hoped that funding agencies, national institutions and other organizations would give a more sympathetic ear to projects developed in these areas and may themselves take up the challenges in their research and development programmes, or financing systems.

I am pleased to say that the round of national consultations has begun and all indications are that these were long overdue. It is an old saying that "the chain is only as strong as its weakest link" and we need to build strong national units and institutions if we are to genuinely affect the lives of the population. It is hoped, therefore, that at the end of the consultations, the CCST will emerge a stronger regional body strengthened by national units interlinking with each other and assisting in the development of the work programme of the Council.

At this point I wish to welcome the addition of a new member to our Council, St. Kitts and Nevis, and wish to say a hearty welcome to its representative.

The Council continues its membership drive to make it truly representative of our subregion, excluding no one, and I hope that the proposed amendment to the Statutes will meet with your approval to enable this widening process.

While the Council continued to co-operate and collaborate with other agencies on science and technology matters, there are, I believe, too many agencies dealing with the same aspects. In that respect, I am pleased to note that efforts are underway between the UNESCO, CCST and OAS to arrive at an operational mode which would allow for greater collaboration of activities, recognizing that in small countries, the same individuals are responsible for similar projects, and that demands a considerable amount of their time.

I wish to end by making a plea again, as I did last year, to member states to pay their contributions so that our modest but important work programme can be implemented on schedule so that the true role of science and technology in the development process of our countries and region will be realized.

Annex IV

STATEMENT TO THE CARIBBEAN EXAMINATIONS COUNCIL (CXC)

At the Seventh Plenary Session of the Caribbean Council for Science and Technology mention was made of the need to have aspects of "Biotechnology" reflected in the 'O' Level and 'A' Level syllabuses and that a statement to this effect should be communicated to the CXC. The following is the text of the note to the CXC:

" The Council wishes to commend the CXC for the innovative examinations in science which it has introduced in our territories. We feel that no other single factor has changed the tone of science education in the region as significantly as the new emphases which are reflected in your examinations.

In light of your obvious interest in developing the region through science, we therefore offer this statement:

CCST at its Seventh Plenary Session did an in-depth study of Biotechnology and strongly recommends that when the Biology Syllabus is reviewed positive steps be taken to introduce aspects of this technology in your syllabus.

The Council strongly feels that Biotechnology will significantly improve life in the Caribbean at a very affordable price and that, in keeping with your thrust of Science for Development, this inclusion would be strategic. "



Annex V

1987/88 BUDGET SUMMARY

Primary Health Care Meeting	\$ 10,000
Food and Nutrition Workshop	10,000
National Science & Technology Capabilities	6,000
Caribbean Film Magazine	7,000
Animal Feed Production	1,500
Other Activities:	
Meeting of Science & Technology Agencies	3,000
Assistance to National Activities	20,000
TCDC promotional activities	20,000
Regional seminars	30,000
Assistance with market profiles information gathering and dissemination	2,000
Total	<u>\$109,500</u>

