

Workshop on the development of
Science and Technology Indicators in the Caribbean
15-16 December 2003
Trinidad and Tobago

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**REPORT OF THE WORKSHOP ON THE
DEVELOPMENT OF SCIENCE AND TECHNOLOGY INDICATORS
IN THE CARIBBEAN**

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REPORT OF THE WORKSHOP ON THE DEVELOPMENT OF SCIENCE AND TECHNOLOGY INDICATORS IN THE CARIBBEAN

Introduction

Further to the workshops held in 2000 and 2001 on The Development of Science and Technology Indicators for the Caribbean, some countries undertook an initial exercise in the collection of data. In 2003 the Science and Technology Unit of the Economic Commission for Latin America and the Caribbean (ECLAC), with assistance and input from the National Institute of Higher Education, Research, Science and Technology (NIHERST) of Trinidad and Tobago, put together a manual that would serve as a guide to the development of programmes in the collection and analysis of data. In order to determine the effectiveness of the programme, to date, and to introduce the programme to the remaining countries in the Caribbean, a training workshop was held on 15-16 December 2003, at which the Manual was introduced and used as the main training tool.

The objectives of the workshop were to:

- (a) Analyse the experience acquired in the collection and use of the science and technology (S&T) indicators by selected countries;
- (b) Train participants in the use of the manual that was developed; and
- (c) Provide training in the analysis and use of the data collected as a tool for policy formulation.

Representatives from Antigua and Barbuda, Belize, Bahamas, Barbados, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines and Suriname were in attendance, together with a resource person from NIHERST. (See Annex)

Opening

Donatus St. Aimee, Economic Affairs Officer, ECLAC, welcomed the participants and thanked them for making the effort to participate in the workshop. He introduced Mr. Daniel Deen, Senior Statistician of NIHERST, who would be responsible for conducting most of the training during the two days. Participants were asked to introduce themselves and provide some background information on their involvement in the programmes, where applicable.

The experience acquired in the preparation and use of science and technology indicators for the Caribbean region

Trinidad and Tobago – Mr. Daniel Deen

Mr. Deen stated that NIHERST was responsible for the S&T indicators programme in Trinidad and Tobago and was involved in the collection of data since the late 1990s. He noted that three biennial surveys had been conducted to measure the manpower and financial resources devoted to Scientific and Technological Activities (STA). STA include Research and Development (R&D), Scientific and Technological Services (STS) and Scientific and Technical Education and Training (STET). Details of the survey methodology used by NIHERST follow: Government, research institutions, public enterprises and higher education institutions are contacted. A questionnaire is mailed out and follow-up appointments are made. The completed questionnaires are then checked for consistency and completeness of data. There is usually a 95% response rate, with some limitations to the methodology.

Mr. Deen added that although a lot of the information was received directly from the companies, secondary sources were also used to obtain data on expenditure on higher education, registration of students at graduation and above; and degrees awarded for graduate, post-graduate and at the Ph.D. level. The registration of students in technical and vocational courses, registered professionals and demographic characteristics of persons in occupations of science and technology were also derived from census data. Macro socio-economic indicators were also utilised. To date, the NIHERST S&T Statistical Unit had published a number of reports including:

- Report on Survey of S&T Indicators 1999
- Report on Secondary Data on Education Indicators 1992 – 1997
- Science and Technology Indicators, 1995 – 2000
- Profile of Teachers in Public Secondary Schools, 1999 – 2000.

Jamaica – Dr. Marcia Blair, Technical Officer – National Commission on Science and Technology (NCST) Secretariat

Dr. Blair noted that Jamaica was involved in the S&T indicators programme organized by the Caribbean Council for Science and Technology (CCST) in 2000. Following that workshop, data was collected using the standard format questionnaire that was designed. The information was collated, analysed and published by the NCST in a booklet entitled “Public Sector Organizations involved in Science and Technology in Jamaica”. This publication also provided information on the profile of the S&T institutions involved in research and development activities. As a follow up to the wider survey done on S&T Indicators, the NCST sought to update information on the expenditure on research and development and science and technology for the fiscal years 2001/2002 and 2002/2003. This exercise was recently completed, but data analysis was yet to be finalised. Several problems were encountered during the exercise, with information coming in very slowly largely due to the failure of the institutions to respond in a timely manner. In some cases, the data was not disaggregated and therefore did

not allow for proper analysis. Change of personnel also affected continuity of the programme and the slow process of analysis.

St. Vincent and the Grenadines – Dr. Alston Stoddard

Dr. Stoddard informed persons present that the involvement of St. Vincent and the Grenadines in S&T Indicators began since 1999 at the very first workshop in Jamaica, when specific indicators applicable to the Caribbean were derived. The actual collection of data, however, did not start until October 2002. During the exercise, a number of drawbacks were identified and Dr. Stoddard saw this workshop as an opportunity to revise the type of data collected and make appropriate revisions to the questionnaire that was used to collect data. The lack of adequate funding was also identified as one of the drawbacks to a successful programme in St. Vincent and the Grenadines. Dr. Stoddard suggested that the programme could be linked with the current Agricultural Diversification Project within the Ministry of Agriculture. The problems, notwithstanding, St. Vincent and the Grenadines was committed to the programme because the policy makers were aware of its importance in development.

Barbados – Lennox Chandler, Director, The National Council for Science and Technology

Mr. Chandler said that Barbados, like St. Vincent and the Grenadines, was represented at the first workshop held in the Caribbean in Jamaica. The first data collection exercise was conducted in June 2000 and lasted five months. Data was collected mainly in the area of human resources and expenditure. As with other countries, there was some difficulty in getting persons to respond to and return the questionnaire. To overcome this particular problem, plans were being put in place to engage the services of a private company to make some input into the questionnaire to capture data relevant to the Barbadian situation and to also conduct the survey.

Guyana – Joshua Paltoo, Head of Technology Transfer Department, Institute of Applied Science and Technology (IAST)

Mr. Paltoo informed that the IAST had been involved in the S&T indicators programme from the onset and, like Barbados, had started collecting data since 2000. The collection exercise lasted approximately three months. Questionnaires were mailed or hand delivered to 80 agencies, both private and public sector. Because Guyana lacked a clearly defined framework for S&T agencies, judgement had to be used in determining which companies or institutions should be surveyed. Many agencies interviewed did not realise that their operations entailed S&T-related activities, therefore there was difficulty in getting the questionnaires completed. Mr. Paltoo was optimistic about the future of the programme in Guyana and he noted that in moving towards a continuous process of data collection it would be necessary for an awareness programme that would emphasize the importance of completing the questionnaires and compiling and publishing the data. He proposed that this be done by a series of advertising and awareness campaigns. It would be necessary to standardize the data collection process and to train designated personnel in the use of the manual and assist agencies in filling out the questionnaire. The possibility of submitting data to an online database would also be addressed.

Mr. Paltoo also noted that the IAST had a data sharing network, INSAT, that would eventually be expanded to include more agencies to enable free flow of data among agencies. As with other countries, the issue of funding the programme would have to be addressed. The IAST, together with other agencies in Guyana were presently under serious financial constraints that would hinder the continuity of the programme, but Mr. Paltoo stated that efforts would be made to compile data from other data collection agencies.

Saint Lucia – Judith Ephraim, Ministry of Planning and Development

The collection of data on S&T indicators was collected in December 2000 in Saint Lucia, with funding from the Red Iberoamericana de Ciencia y Tecnología (RICYT). Unfortunately, due to the difficulty in acquiring the data and in accessing the necessary funds, the data was not published. Ms. Ephraim outlined the future direction that the programme could take, which included seeking funding to publish the data and disseminate the published data. Among the proposals for dissemination were that the report be handed over to the department of statistics for publishing; publish select indicators in the national newspapers and posting the report on the website of the National Council for Science and Technology. She also suggested that the statistics should feature select speeches made by government representatives.

Workshop training sessions

The training sessions were conducted jointly by Daniel Deen and Donatus St. Aimee using the Manual and the questionnaire as the main tool, together with the techniques employed by NIHERST in their data collection efforts. The exercise discussed and explained issues of definition of the terms employed, with examples given in cases that were not very clear. During the training session, the discussion centred around the methodology, as well as the type of data collected by different countries. The consensus was that the office or officer responsible for the programme in the country would determine that methodology, which would be dependent on existing institutions and facilities. It was noted, however, that over time, the type of data collected and even the manner of collection might also change, as development took place.

Objective of the survey

Mr. Deen first advised that before undertaking any survey, considerable thought should be given to defining the objectives of the survey and designing the survey tools in order to obtain relevant data. In the case of Trinidad and Tobago, with a strong R&D component in the social sectors, information on the number of personnel employed in S&T and in R&D activities and the relevant expenditure was sought. Details were requested on two parameters, the breakup of R&D and S&T expenditure into revenue and capital expenditure for a specific period. The qualifications of R&D and S&T personnel were further broken down by gender. Apart from this, information on ongoing R&D projects, including the title of the project, project description, objectives, duration, sponsor and budget, was also requested. Organizations were requested to give their opinion on the extent of problems faced in carrying out R&D activities due to certain factors such as manpower, training, funding, encouragement, facilities, environment and

bureaucracy. Where R&D activities were not major, it might not be necessary to concentrate on this factor in the initial stage of the survey.

The survey methodology should cover government, private and other higher education actors. The highest administrative officer or permanent secretaries of all ministries should be contacted and asked to identify departments/divisions under their administration involved in S&T and/or R&D, and the heads of divisions subsequently sent the questionnaires. In the case of institutions of higher education, questionnaires might be sent to the deans. With regard to industry, a complete list of organizations should be sourced from the Central Statistical Office (CSO) and a sample selected based on the employment size. Questionnaires should be sent to these companies. The method of contact employed should be one in which the questionnaire and the list of concepts and definitions were mailed or hand-delivered to organizations and a deadline given. A period of two weeks should be allowed for the receipt of questionnaires after which appointments would be made with representatives of organizations in order to clarify concepts and definitions and to explain the method in which these should be applied to the various institutions based on their type of activity. It was also helpful to identify a person within the organization, dedicated to the completion of the questionnaire. If the above steps were not taken, the process of completion would be unnecessarily long. The completed questionnaires should be checked for consistency and completeness of data and, where necessary, queries referred back to the respondents.

A number of factors, of course, could influence the effectiveness of the methodology, for example, questionnaires might not be received on time in the mail; the absence of national laws/mandates/statutory provisions which might assist in the procurement of S&T statistics and; at another level, the fact that companies do not maintain separate accounting systems for R&D and/or S&T expenditure.

Definitions – Human Resources

An important aspect of the survey is a clear understanding of what is to be collected. In that case, definitions should be as precise as possible to avoid conjecture. They should also be agreed, so that a level of comparability could exist on a regional basis. The following is a list of definitions presented and discussed:

Scientific and Technological Activities (STA) – Systematic activities which are closely concerned with the generation, advancement, dissemination and application of scientific and technical knowledge in all fields of science and technology. These include such activities as Research and Development (R&D), Science and Technical Education and Training (STET) and Scientific and Technological Services (STS).

Research and Development (R&D) – Researchers - Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems, and in the management of the projects concerned.

Post-graduate Students - Post-graduate students engaged in R&D should be considered as researchers.

Technicians and equivalent staff - Technicians and equivalent staff are persons whose main tasks require technical knowledge and experience in one or more fields of engineering, physical and life sciences, or social sciences and humanities. They participate in R&D by performing scientific and technical tasks involving the application of concepts and operational methods, normally under the supervision of researchers. Equivalent staff perform the corresponding R&D tasks under the supervision of researchers in the social sciences and humanities. Their main tasks include carrying out bibliographic searches and selecting relevant material from archives and libraries; preparing computer programmes; carrying out experiments, tests and analyses; preparing materials and equipment for experiments, tests and analyses; recording measurements, making calculations; preparing charts and graphs as well as carrying out statistical surveys and interviews.

STS Personnel - The STS Personnel includes persons engaged in scientific and technical services included in the concept of STA. STS are defined as activities contributing to the generation, dissemination and application of scientific and technical knowledge, including:

- (a) S&T services provided by libraries, archives, information and documentation centres, reference departments, data banks and information-processing departments;
- (b) S&T services provided by museums of science and/or technology, botanical and zoological gardens and other S&T collections;
- (c) Systematic works on the translation and editing of S&T books and periodicals;
- (d) Topographical, geological and hydrological surveying; routine astronomical, meteorological and seismological observations; surveying of soils and of plants, fish and wildlife resources; routine soil, atmosphere and water testing; the routine checking and monitoring of radioactivity levels;
- (e) Prospecting and related activities designed to locate and identify oil and mineral resources;
- (f) The gathering of information on human, social, economic and cultural phenomena, usually for the purpose of compiling routine statistics, e.g. population census, production, distribution and consumption statistics, social and cultural statistics;
- (g) Testing, standardisation, metrology and quality control; regular routine work on analysis, checking and testing, by recognised methods, of materials, products, devices and processes, together with the setting up and maintenance of standards of measurement;
- (h) Routine work on the training of clients and other sections of an organization of independent users to facilitate the use of scientific, technological and management information; and
- (i) Activities relating to patents and licenses; systematic work of a scientific, legal and administrative nature on patents and licenses carried out by public bodies.

Definitions – Expenditure

The other major part of the questionnaire required information on expenditure in S&T. Two types of expenditure categories are required, specifically: current and capital. Current expenditure includes labour costs and other current costs.

Labour costs - These comprise annual wages and salaries and all associated costs or fringe benefits such as bonus payments, holiday pay, contributions to pension funds, NIS and health surcharge contributions, payroll taxes, etc. The labour costs of persons providing indirect services and which are not included in the personnel data (such as security and maintenance or the staff of central libraries, computer departments or head offices) should be included under other current costs.

Other current costs - These comprise non-capital purchases of material supplies and equipment to support R&D performed by the statistical unit in a given year. All expenditures on indirect services should be included here, whether carried out within the organization concerned or hired or purchased from external suppliers.

Capital expenditure includes land and buildings and major instruments and equipment.

Land and buildings - This comprises land acquired for S&T or R&D (e.g. testing grounds, sites for laboratories and pilot plants) and buildings constructed or purchased, including major improvements, modifications and repairs.

Major instruments and equipment - The boundary between “minor” and “major” instruments and equipment varies slightly among countries according to accounting practices and among different firms and organizations in the same country according to accounting practices. Thus, national conventions will govern allocations to current or capital expenditures.

Mr. Deen stated that it was necessary to be as precise as possible with the definitions of the terms used, hence the amount of detail on definitions provided in the questionnaire. The next phases of the training dealt with identification of the institutions and agencies and sources of information.

Survey and selection of S&T institutions and organizations

With regard to identification of S & T institutions and organizations, it was pointed out that while many agencies, institutions and organizations in both the private and public sectors were involved in some form of STA, many did not think that they were so involved and therefore might not fill out the questionnaire, saying that it was not relevant to their situation. This was sometimes one reason given for non-completion of the questionnaire. It was necessary, therefore, to be as detailed as possible when defining the terms, hence the inclusion of precise definitions of terms in the questionnaire to avoid ambiguities. To ensure that accurate and relevant data was received, it was also necessary for the agency conducting the survey to have dedicated personnel familiar with the questionnaire to assist organizations in completing the forms. In the ensuing discussion, it was highlighted that this experience of non-cooperation in

completing the questionnaire was also found to be common to the countries which had embarked on the data collection exercise.

Sources of information

One other way to overcome the problems of data collection was to make as much use as possible of secondary sources of data. For example, NIHERST would often “piggy-back” on consumer surveys to extract information, or use census data from the Central Statistical Office (CSO) of Trinidad and Tobago. Information on macroeconomic indicators, expenditure on higher education, registration of students at undergraduate and postgraduate level, degrees awarded for graduate, postgraduate and PhD level and registration of students in technical and vocational courses could also be obtained from secondary sources.

The question of duplication of data was also raised if, for example, organizations utilised the services of one agency’s personnel to provide services or used a consultant on contract with more than one company as a source of STS as defined in the Manual. Mr. St. Aimee explained that this should not pose a problem since consultants were not considered staff in most cases and with regard to personnel from institutions such as libraries, they would not be considered part of regular staff. It was expected that library or service provider personnel would be captured when that particular institution completed the questionnaire. There was also the issue of foreign personnel on staff or working as consultants within an organization. Mr. Deen responded that in some questionnaire designs, such data was captured under workforce composition.

It was agreed during the discussion that while there was suspicion of the motives of the questionnaires, especially coming from a government agency, there was even more difficulty in obtaining information on expenditure. Even when such information was forthcoming, many organizations, especially government agencies, did not maintain separate accounting systems for S&T and R&D expenditure, where applicable. It was recommended that a policy decision might be required to encourage industries to maintain separate accounts for S&T and R&D.

Analysis and use of data

Mr. St. Aimee pointed out that a properly conducted and published survey could be of great use to policy makers and could boost the standing of the agency involved in the exercise. It was therefore important for policy makers, especially those concerned with planning, implementation and management of technology issues, to have comprehensive information, not only on the use of input resources mainly comprising the financial and human resources deployed and infrastructure available for science and technology, but also the output of such activities measured in terms of increased productivity and increased economic growth and the use of new technologies and their impact on society. Such information was considered useful for undertaking cost benefit analysis and other economic studies as well as for efficient programming, planning and budgeting. It would also help in comparing the national science and technology efforts with other developing/developed countries.

He identified the functions that S&T indicators could fulfil:

- Signaling or monitoring: giving insight and calling attention to developments and trends in the science and technology system and its environment;
- Accountability, evaluation and allocation: setting and justifying science and technology budgets and giving insight into the performance of the science and technology system against the goals established by policy makers and planners;
- Legitimization: support for existing policies; and
- Awareness: providing information to set aside prejudices and incorrect perceptions of the performance of the science and technology system.

In the public sector, statistics on science and technology inputs and outputs, and the consequent budget, should support the following activities:

- Formulation of science and technology policy, in support of economic and social objectives including analysis of the national system of innovation;
- Provision of advice to ministers and other senior officials;
- Support for and justification of science and technology programme expenditures; and
- Information on scientific activities for elected officials, journalists and other stakeholders.

In practice this meant looking at changes in the levels of human and financial resources devoted to science and technology, as inputs and the change in the level of national development, as the desired output. Human resources for science and technology were the common denominator among all nations – science and technology programmes, were, by definition, carried out by skilled science and technology professionals. In the Caribbean context, the allocation of human resources was more indicative of the distribution of science and technology assets than actual expenditures. Thus, it was possible to define what was, and was not, a science and technology programme by asking whether or not science and technology professionals were a component of the programme.

The way forward – The national level

Based on the discussions held during the training sessions, it was agreed that of paramount importance was the need for countries to view the S&T indicators programme as an important tool for development. This meant that the process should not be perceived as a one-off activity, but one that should be included in the work programme of the national S&T council or equivalent institution. A brief outline of the direction of the programme in each country that was represented at the meeting is highlighted.

Antigua and Barbuda - Among the main objectives for the future of the programme in Antigua and Barbuda was the establishment of a focal point for the collection of S&T indicators

together with identification of funding for all the various elements of the programme. Other strategies for the future included:

- (i) Educating the stakeholders of the need for and use of S&T indicators;
- (ii) Identifying suitable surveyors to carry out the survey;
- (iii) Establishing a cost per questionnaire;
- (iv) Establishing deadlines for collection, collation and publication of data;
- (v) Sensitising the public to the use of and need for S&T indicators.

The Bahamas - The representative from The Bahamas stated that the Manual would be used to create a survey tailored to collect S&T indicators. It would be the first time that the programme would be initiated in those islands and assistance from the Department of Statistics would be sought. It was noted, however, that without a full-time designated agency to provide resources to collect and collate data, additional resources might be needed. For the immediate future, the creation of a survey document and the compilation of target institutions could be done using the resources of the Bahamas Environment, Science and Technology Commission (BEST). In addition, the Science and Technology Committee could begin discussions on building a strategy towards data management as it related to the S&T database. The Committee would liaise with the Science and Technology Adviser to eventually promote policy. All the information provided by the workshop would be shared with the Science and Technology Committee, which would seek to begin collecting data, resources permitting.

Barbados - As indicated in the presentation of a report on the status of the S&T indicators programme in Barbados, the NCST intended to engage the services of a private company to design the survey questionnaire to capture data relevant to the country, and also conduct the survey. Data collection would be in the area of human resources, expenditure and services. Information on the social sciences and the humanities would not be collected. It was also hoped that there would be legislation in place to deal with the issue of compliance.

Belize - The first step towards the launching of the programme in Belize was to share the information obtained in the workshop with the Faculty of Science and Technology of the University of Belize. To successfully sell the concept of S&T indicators as a policy tool to aid in development, several considerations would be necessary, including

- (a) Funding;
- (b) Targeting specific sectors;
- (c) Reviewing the sample questionnaires to determine if they would meet the national needs of Belize;
- (d) Sensitizing all stakeholders on the methodology and importance of the survey;
- (e) Establish a team to process and analyse the data
- (f) Identifying any similar programmes that might already exist; and
- (g) Publishing the data.

The survey would assist stakeholders in making informal decisions and would definitely assist the University of Belize to decide on which programmes to offer and/or upgrade.

The programme was viewed as an excellent research opportunity for faculty members of the University.

Dominica - One of the key decisions to be made with regard to the future of the S&T indicators in Dominica was whether or not the programme should be expanded to include the entire public service or be restricted as at present, to the Ministry of Education. The programme would continue with plans to develop instruments to capture relevant information and identify indicators in conjunction with those already listed, whether or not it was expanded. The focus would be on human resource and expenditure in science and technology and attempts would be made to have data available by August 2004.

Grenada - The institutions in Grenada that were to be targeted had already been identified, with questionnaires having been sent to some of these. One of the considerations would be whether or not to use or modify the questionnaire.

Jamaica - Although the programme was fairly established in Jamaica, S&T indicators were yet to be recognised as a tool in policy formulation. There was therefore a need for education of the general public and the organizations which would benefit from a development perspective. The NCST would continue to update information on expenditure on research and development, S&T personnel and scientific and technological services. Collaborative work with the Statistical Institute of Jamaica would also continue.

St. Kitts and Nevis – Since there were no organizations involved in R&D in St. Kitts and Nevis, the indicators programme would focus on STS and STET. A questionnaire would be developed based on the model used by NIHERST in Trinidad and Tobago, specifically targeting public sector institutions, such as the Bureau of Standards, the Department of Agriculture, the Fisheries Department, the Department of Health, local hospitals, primary and secondary schools, the Caribbean Agricultural Research and Development Institute (CARDI), the Inter-American Institute for Cooperation on Agriculture (IICA) and libraries. The Bureau of Standards would be the most appropriate agency to take the lead in collecting, collating, analysing and publishing the data with assistance and advice of a private consultant. Liaising with the Planning Unit would be a definite asset. Funding of the programme could prove to be the major challenge facing the government.

Saint Lucia - One of the main objectives for the future of the programme in Saint Lucia would be publication and dissemination of the data already collected. This could prove to be very challenging because of the critical lack of funding. Also to be considered for the next set of indicators would be an evaluation of the questionnaire with a view to modification.

St. Vincent and the Grenadines – St. Vincent and the Grenadines proposed to involve as many agencies and institutions as possible and engage in dialogue to sensitise people to the importance of the data. It was expected that this would result in a relatively high response rate (at least 80%) and would also serve to remove any suspicion on the use of data.

Suriname - Although this was the first time that Suriname had been introduced to the concept of S&T indicators for the Caribbean a plan of action was conceptualised that would see

the collection of data beginning in April 2004. The Government of Suriname would be advised and an interdepartmental working group would be formed to formulate a proposal for the S&T indicators programme – Suriname. Technical assistance would be needed from ECLAC and the possibility of financing from Dutch development aid to Suriname would be explored. The Ministry of Planning and Development Cooperation would initially coordinate the preparatory phase.

Analysis of the responses to the questionnaire on the S&T programme in the Caribbean

As part of the ongoing process to determine the effectiveness of the S&T indicators programme, a questionnaire was forwarded to the S&T councils of 14 countries. Below is a compilation of the responses to the questionnaire, together with the questions that were asked.

No. of questionnaires: 14
No. of responses received: 05
Percentage: 35.71%

The figures are derived from only those questionnaires that were completed.

Q1. Has data been collected in respect of the S&T Indicators Programme?

Yes	05
No	04
No Response	05

Q2. When did the data collection exercise begin?

June 2000	Barbados
August 2000	Guyana
December 2000	Saint Lucia
October 2002	Saint Vincent and the Grenadines
November 2002	Jamaica

Q3. What was the total length of the data collection exercise?

5 months	Barbados
3 months	Guyana
6 months	Saint Lucia
6 months	Saint Vincent and the Grenadines
10 months	Jamaica

Average = 6 months

Q4. Who collected the data?

Ministry/Agency Personnel Contract personnel

Q5. Was any difficulty encountered in collecting data?

Yes, in all cases

Q6. How willing were persons in providing the requested information?

Very cooperative Had to be persuaded

Q7. From your own knowledge of data, was the information collected reliable?

Very reliable Fairly reliable Unreliable

Q8. Has the information collected been analysed?

Yes No Incomplete

Q9. Has any policy decision yet been taken as a result of the programme?

Yes No Don't know

Q10. What improvements do you think are needed for the data collection exercise, analysis of data and dissemination?

Improved questionnaire design
 Shorter questionnaire
 Allocated funding
 Additional training for data collecting and analysis
 Specific identification of targeted agencies
 Possible legal requirements to ensure compliance
 Increased public awareness on the importance of S&T Indicators

The way forward – The Caribbean level

It was noted that the workshop was a first step towards an integrated Caribbean S&T indicators programme since it served to focus on developing and adapting the original concepts to reflect a more accurate view of the regional situation, using the experiences of those countries that had already conducted surveys and made use of the data collected. For the programme to be successful at the national level, it might be necessary to sensitise the public to the use and need for information on S&T indicators; lobby for statutory provisions to facilitate the procurement of S&T statistics from establishments and use experts in the field to educate respondents on the impact of the programme on policy development. One of the major recommendations was the publication of Caribbean S&T indicators. Mr. St. Aimee suggested that this initiative could be part of the ECLAC work programme for the period 2006 – 2007. It was also agreed by all the participants present that the data collected and published by individual member countries be used for input into the Latin American (RICYT) publication of S&T indicators, for regional comparability.

Annex

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