USING INFORMATION FOR DECISION-MAKING
ON SUSTAINABLE DEVELOPMENT ISSUES
AND
CHALLENGES FOR CARIBBEAN SIDS

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GENERAL DATA CHALLENGES FACING THE CARIBBEAN IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

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GENERAL DATA CHALLENGES FACING THE CARIBBEAN

This paper observes the concern for the sustainable development of Small Island Developing States (SIDS) in the face of the external world environment which comprises geophysical and environmental concerns as well as the social, economic and governance concerns that have emerged more visibly with globalization.

Globalization has placed the onus on countries to remove the imperfection of competition by a more ample information and governance set. Closer monitoring of production costs, product lines, markets, quality, and environmental/ethical issues has become a **sine qua non** to a successful insertion into the global economy. This requirement justified the earlier efforts of the Bretton Woods organizations to standardize the concepts, definitions and measuring instruments that determined economic and social status and progress. The justification of the need for organized data collection and processing did not, however, translate into an automatic situation of data availability across the globe. The central piece for the economic and social monitoring mechanism – the System of National Accounts (SNA) – is prodigious for its forward thought and should always be consulted when new datasets are being contemplated. Its achievements with respect to universalizing its core data sets were circumscribed by the very characteristics that separate Small Island Developing (and landlocked) States from the more economically and socially advanced countries of the world. Limited national physical and human resources, small domestic markets underdeveloped institutional infrastructures, vulnerability to natural disasters and/or sea level rise, non-independence and the harsh reality of the effect of big companies operating in small countries have militated against economic and social development. A number of the aforementioned characteristics have resulted in poor national information systems. The location in these countries of "dirty industries" that yield relatively low value added at the first (local) stage of the manufacturing process exacerbates the environmental challenges of small island economies and societies and puts pressure on their delicately balanced ecological systems. Some of the attributes of SIDS as mentioned may have contributed to the non-disclosure of information. Some of this support may have been the price exacted by laws that encouraged foreign direct investment. Data disclosure waivers and foreign head offices of major establishments operating in small countries have played their part in thwarting or significantly slowing down the flow of information that would assist governance. The high positive correlation between the status of small island and data poverty may have derived from a number of the foregoing explained characteristics and historical facts of SIDS.

Even if the pressure for the production of data at national level did not come from the developing world events, the Caribbean countries would still be considered to be data poor. The small size of the domestic market does not foster pure or perfect competition as the first successful entrant into a given product line would be followed by a flood of new entrants thus negating the possibility of profitability in that area. Smallness in the case of the example cited here may have contributed to the reluctance to share information – to disclose. Even in cases where the collection of data would have been to the benefit of the planners, governments encouraged foreign direct investment regardless

of the quality of that investment, and protected the entrepreneur from disclosure of key elements of data and information as an incentive.

The United Nations Global Conference on the Sustainable Development of Small Island Developing States, coming two years after the June 1992 United Nations Conference on Environment and Development of Rio de Janeiro, articulated four key proposals in the Programme of Action of SIDS. These proposals reflect the characteristics as described above in this text. They were as follows[1]:

- National and regional disaster emergency funds to assist small islands in recovering from natural disasters and to provide hard-to-obtain insurance coverage. Funds should come from both the public and private sectors.
- Regional Sustainable Development Centres to provide research and training in environmentally sound technologies suitable for small islands. Funds are to be provided by Small Island Governments and International sources.
- A Small Island Developing States Technical Assistance Programme (SIDS/TAP) to pool indigenous expertise and make it available where relevant throughout small Island States.
- A Small Island Developing States Information Network (SIDS/NET) to facilitate information exchange on various aspects of sustainable development relating to small islands.

The key proposals as reproduced above address the four pillars on which the sustainable development of SIDS must stand. The other issues as developed in the Plan of Action[2] are related to the foregoing four pillars. The identification of an information network as a necessity to the achievement of sustainable development is reflected in the present meeting of resource persons. The Programme of Action as identified in Barbados recognizes the importance of the issues as addressed by the chapters as germane to sustainable development. Every one of the issues listed carries with it an obligation to collect information for a situation appraisal, for policy development and for performance monitoring. Indeed, the attributes of SIDS must be at the base of planning for development. Every one of the issues dealt with in the SIDS POA must enter into the development planning agenda.

In Johannesburg 2002, the Plan of Implementation highlighted the need to[3]:

- *Strengthen national and regional information and statistical and analytical services relevant to sustainable development policies and programmes:*
- *Encourage and promote further work on indicators for sustainable development by countries at the national level;*
- *Develop information systems that make the sharing of valuable data possible;*

[1] Taken from "Earth Summit Programme of Action for Small Island States" United Nations Document DP/SD/1609 December 1994.
[2] The Chapters of the POA address the following: Climate Change and Sea-level rise: Natural and Environmental Disasters; Management of Wastes; Coastal and Marine Resources; Freshwater Resources; Land Resources; Energy Resources; Tourism Resources; Biodiversity Resources; National Institutions and Administrative Capacity; Regional Institutions and Technical Cooperation; Transport and Communication; Science and Technology; Human Resource Development; Implementation, monitoring and Review.
[3] Taken from ENVSTATS Issue 12, July 2002 – February 2003, published by United Nations Statistics Division, Guest Editorial by Anne Kerr, Chief, National Information, Strategies and Information Branch, United Nations Division for Sustainable Development.

- *Support countries, particularly developing countries in their national efforts to collect data that are accurate, long-term, consistent and reliable.*

The Rio proposals and the Johannesburg Plan of Implementation may be combined to guide activity towards the enablement of the SIDS to produce the data and statistics that they more than any external body need for their own sustainable development.

The SIDS of the Caribbean suffer from the characteristics as presented in this paper. To the extent that each of the attributes of SIDS as mentioned here is present in the Caribbean, to that extent do those attributes present themselves as challenges to development. The frequent necessity to replace costly infrastructure in the wake of a hurricane or volcano may be reflected in the short term in an upswing of construction activity but at the expense of net capital formation. Uncertainty in the pace or direction of economic growth may result in the postponement of direct investment. Indeed, foreign direct investment may be directed to other locations that are not as data deficient as some of the SIDS. This deflection in investment would adversely affect economic growth and development in the data deficient country.

It is to the credit of the Organization of American States (OAS) that it has seen fit to bring the matter of information insufficiency to the fore as a serious challenge to sustainable development. Capacity building has been identified as a necessary, though not sufficient activity towards the production of a relevant and timely data and information set in the Caribbean countries.

For the purpose of this paper the data requirements of selected areas will be discussed with a view to demonstrating the urgency of work to be done at national level. While ECLAC applauds the OAS/DESA initiative, it wishes to point out that there can be no meaningful regional database without the existence of national databases on which to draw. The selected areas are the following:

- Tourism
- Natural disasters
- Science and Technology Indicators
- Social Indicators

The above datasets are perhaps the least contentious of the datasets that should be collected and organized as they are for the most part denotative and mere statements of fact. Tourism and natural disaster data are largely value free while social indicators may be value laden and present summation problems at regional level if a one-figure descriptor is being sought. ECLAC would hasten to state that it does not believe that a regional description of a situation can at all times be a simple summation of national numbers. Many indicators, especially in the social sciences, may be value laden and differ from country to country. The result of an attempt to strike a regional summation may look good but may conceal a world of national differences. The result would be the same as adding apples to oranges and arriving at a total that is expected to be meaningful.

The Development Problem

Generally, the Caribbean countries have been described as "data poor" and in the absence of data and information, policies adopted and implemented have been arrived at on the basis of little or no data and less information. The result is years of wandering in the wilderness of development – talking of visions of the promised land of development without the ability to measure proximity to that goal. Of equal value to the data to be collected must be the architecture of the system – the roadmap and institutions that must be strengthened to deliver the required data and information. The planners may in fact be too close to the problem to allow objectivity in their assessment of the priority needs of the people without instruments and fora that facilitate a two-way flow of information. The people are supposed to be the object of development planning. People must therefore be catered for in planning and must not occupy second place to the macroeconomic variables. People in all capacities must have access to information to enable them to make informed choices. This observation is all the more pertinent to governments. Good governance must ensure the bi-directional transmission of information between the state and the citizenry before and after decisions are made. The nature of the data and information to be collected and exchanged is wide ranging, as the SIDS POA has concluded. The difficulty experienced in collecting data from the SIDS is well known. An insufficiency of data, let alone quality data, has to date presented a formidable challenge to analysis of the SIDS and the prescription of development policies and strategies.

The development problem concerning information in the Caribbean may be stated as the need to identify datasets that are critical to the analysis of the social and economic as well as environmental condition of the Caribbean countries and the creation of mechanisms for their effective management. There is a one to one mapping of this need to the management of data on SIDS with a view to enabling sustainable development. The problem as identified is directly related to lack of focus in addressing the planning needs of these countries.

The table that follows is a non-exhaustive attempt to present a number of important datasets that must be collected and retrieved in order to contribute to decision-making for development. Its purpose is to signal the need for networking among organizations to accomplish the work of the State.

Data / information requirements	Comments on data capture and storage
Tourism	
1. A document on the structure, nature and contribution of tourism to GDP in each of the relevant countries, with a register of all establishments known to be operating in this activity domain and with concepts and definitions clearly stated. This includes studies on the effect of tourism on the environment.	
2. Main indicators of tourism activity, e.g. Visitor arrivals by age group and country/province/state of residence; Length of stay by age group; Accommodation used by geographical area and establishment; Activities engaged in; Reason for choosing the country/ destination;	Data capture may be through mandated forms such as the visitor embarkation /disembarkation (E.D.) form and surveys designed primarily for national accounting purposes but useful for other studies.

Tourist facilitation including commentary on beaches, other attractions, transport and other services; Analysis of tourist expenditure; Analysis of hotel/ guest house traffic, balance of payments implication of operation and profitability; Survey of supporting economic activity, e.g. restaurants, craftsmen, personal services, data and information services, communication services,	In addition to the Statistical Office, Tourist Boards and Hotel Associations collect data. There is need, however, to increase the usefulness of these surveys by involving the Statistical office in their design. The design of data collecting instruments should be carefully crafted and data captured to make the dataset as flexible as possible. The data should be captured in a relational database format as much as possible.
Natural Disasters	
1. An appraisal of the countries' exposure to varying levels of risk from natural hazards such as floods, storm surge and seismic activity 2. Planning for vulnerability. Studies of past damage and the enactment of mitigation actions. 3. Data on climate, water resources management, population, economic activity by area and management of disasters. 4. A library of literature on natural and man-made disasters	Data capture in this area is done by a number of line ministries. The thrust in this area is towards management and storage of this information to service the need to conduct damage assessment. Networking with Government Ministries and other agencies, incl. International Organizations is required. Damage assessment should be conducted using one common methodology. Attention must be paid to the training of national personnel to carry out these assessments. Data storage should be planned with redundancy. One complete data file or database should be kept in another country in the event of damage to the country under review.
Science and Technology Indicators	
A document on the structure and nature of the economy and society with some commentary on the resource base of the country and its scientific and technological potential to be a driver of economic and social transformation and growth. A document enunciating the country's S&T policy S&T Indicators include the following: All economic and social data relevant to S&T activities[4] Public sector personnel performing S&T as a percentage of total public sector employment Public Sector S&T expenditures as a percentage of government budgetary allocations HRST workers as a percentage of the employed labour force HRST workers as a percentage of total labour force Percentage of the total labour force with post-secondary education Gross domestic expenditure on Research and Development as a percentage of GDP Distribution of HRST by sector	Data capture must be done against a national acceptance of the exercise and the underlying aims, concepts and definitions. Data capture in this case is not a "stand alone" activity but must be done with collaboration from the relevant ministries and the Statistical Office. The captured data must be warehoused and put in databases for easy retrieval and further use.

[4] These include Population; Labour Force; Percentage of Population with post-secondary education; GDP; GDP per capita; Exports and Imports as a percentage of GDP; Foreign Direct Investment; KwH per capita; Telephone lines per 1000 of population; Internet hosts per 1000 of population; Computers per 1000 of population. Reference Report of expert Workshop/expert meeting on the development of Indicators of Science and Technology for the Caribbean, May 2000.

Social Indicators	
A compendium of papers analyzing the social situation in the country. This will form the baseline to an assessment of the current situation. It will also indicate the need for policy intervention.	
Statistics on all aspects of demography, Labour force, Education and training Income distribution, Personal developmental goals And feelings of alienation from society	Much of the data are already in existence. Population Census data and Survey data are available. Some additional surveys may be necessary to capture data from local areas. Data capture must allow for analysis of survey or census results by local area. Data capture should be in the form of relational databases so that more use can be made of the captured data.

The foregoing table does not include the national accounting exercise, which encompasses every aspect of economic activity in the country. For instance, the structure of the tourism activity would be well described and would serve as input into its evaluation from the standpoint of the SIDS POA. The same observation holds true for each of the areas included in the table. What is presented merely indicates the extent of the minimum dataset that should be collected for a first analysis of SIDS. This task is made all the more difficult when in a relatively small island there is fragmentation in the data collection and analysis domains within the public service, for example. This fact is recognized to be a major challenge that must be overcome if the Caribbean SIDS or any group of SIDS in any region of the world must achieve sustainable development and give itself a chance to achieve economic and social development. A report entitled "The Growing Vulnerability of Small Island Developing States", prepared for the UNDP Capacity 21 Project in September 2002 observed that sustainable development which was premised on integration, information and participation was a relatively difficult concept around which to build policy. Governance is based on sectoral (ministerial) lines with the associated "islands of information" that ensure the retention of a measure of power to the ministry. The report observes that despite the enunciation of sustainable development in public utterances, very few new policies are integrated across sectors. The cleavage between economic issues and environmental considerations persists.

The areas addressed in the above table are areas included in the SIDS POA. The POA is more all encompassing and its data and information requirements include numerical data as well as meta-data and information on policy enactment. The data challenges encountered by data collectors in the SIDS programme reveal the numerical data weakness but even more alarmingly, the weakness in the creation of data collection structures at national level for tracking progress in implementation of government policies in the relevant areas. The studies conducted have pointed to obstacles to the data availability that include the following:

- Lack of financial resources,
- Lack of qualified personnel,
- Lack of institutional capacity,
- Lack of coordination between departments,
- Low priority on the political agenda,

among others.

Most of the obstacles derive from a lack of integration in looking at the data requirements and finding solutions to their provision. In any country, given the present heavy demand for detailed information on every aspect of life, a country must devise a modality for procuring those data. It cannot operate without an information architecture that is designed to address all issues of national interest in the most effective manner possible. The main obstacle may well be the lack of national data reporting structures.

A major challenge is therefore the transition from the functional to the integrated approach to data collection and handling. How does a government plan to maximize its human and financial resources in the face of an almost irresistible tendency towards separatism? What will be the touchstone that will set in motion the transition to integration in data design, gathering and warehousing?

The realization that data collection is expensive should lead to a common concern across ministries for the most efficient and effective means of mapping data collection to data needs. Consideration may be given to situations in which some data are required with varying periodicity from the requirements of other organizations. The need that emerges from the data issue is that in the light of the high cost of collecting data, the building of a system-wide planning capacity remains one of the main challenges of decentralized statistical systems. To that extent it must be made clear that the national statistical system encompasses more than the statistical office, though an effective system should have the statistical office at its centre.

Summarizing the development problem

The data poverty problem cannot be corrected by a series of successive marginal changes in peripheral policies. Small Island Developing States should first confront their attributes of smallness and limited trained human resources and derive paradigms to change the variables that can be changed. The paradigm of teamwork should take precedence over narrow ministerial or personal agendas. This would mean the creation or strengthening of capacity in the creation of information management systems. It would be difficult for a country to cross this hurdle on its own resources. This step requires deep change and should be facilitated by a resource person who can be objective in the establishment of priorities[5].

The country must be careful not to opt for a quick fix to the development problem. A superficial regime of networking will not achieve a meaningful integration result.

[5] Colin Carnall would be instructive on this matter. For references, see the bibliography at the end of the paper.

Integrating the Data and Information Elements into a Regional Information Grid

Ceteris paribus as a point of departure

Starting from the premise of cet.par., the integration of national datasets can be accomplished by an officer in a regional or international agency designing a data capture form and e-mailing it to the several countries under his or her purview. At the end of the data collection exercise, a two-day seminar of data suppliers would point out the limitations to the data and qualify the extent to which the data could be used for comparison purposes. That exercise as is often done, is more an exercise in collation rather than integration. Given the pressures of producing some international comparison, this is precisely what is done. This type of exercise would be satisfactory if the other things were in fact equal. Usually they are not. The regional data exercise may result in the addition of disparate datasets that resemble in name only and not in the important aspect of concept and definition[6].

Fundamental regional requirements

Integration carries a special meaning that is deeper than performing a summation of collected objects (tables). It is a social process that leads to the production of data from various sources that possess a common conceptual and classification point of departure. The social process represents the greatest challenge. It consists of bringing together the leaders of two or more information stacks to subject part of their domains to the achievement of a common goal. Integration is reflected in data that though produced in different jurisdictions, are normalized and can be joined to produce a data set that is larger than the sum of its component parts. This is the goal that information professionals seek in the SIDS to compensate for limited human and information resources while preparing the best data set that can inform decision-making. The social process must be triggered by some external stimulus great enough to move two departmental heads to share information. In the case of the SIDS, the external pressure may take the form of conditionalities to the delivery of budgetary support or some other highly desired boost to the operation of the organization. Whatever the external stimulus, the social process should result in the evolution of management styles among the heads of data and information producing departments.

Integration begins at the level of the firm within national boundaries. It cannot be imposed from above, for example from a regional data demand position. Even if the impetus came from the external environment, the groundwork must be organizational within national boundaries. Similar and simultaneous national initiatives must take place in the other states before the stage is set for inter-state comparability and additivity to a regional information grid. Normalization must take place for clean data to be produced for warehousing to facilitate regional comparison.

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[6] Indeed, the same point is made by the CARICOM Secretariat and the United Nations DESA in the document entitled **"The CARICOM Environment in Figures 2002"** (ISBN 976-600-156-1 (pbk). The quotation is as follows:

"It has been noted that there are cases with substantial differences between the national and regional / international data; however it should be stresses that the explanation is often based on a difference in definitions".

A purist stance will proffer the view that in the final analysis there is no such thing as perfect comparability, for each nation has its own peculiar circumstances and will fashion its data capture to suit its national reality, **first and foremost**. While that viewpoint may be accurate, the aim behind international comparability is not to achieve pinpoint accuracy but a broad indication of relative situations and positions, enough to lead to basic conclusions.

Accomplishment of the regional information grid

The foregoing arguments will suggest that attention should be paid to the creation of integrated national information systems while attempting the establishment of a networked regional facility for providing a region-wide information management system to improve decision-making for sustainable development for SIDS. This suggests a national programme with features of regional and international comparability. The work at national level is the more demanding and requires much work to harness the required data elements and sets, bearing in mind varying periodicity requirements in the collection and analysis of data elements at sub-national level. The process approach seems preferable to the present functional approach that is conducive to the establishment of islands of information that usually reflect duplication of data collection without a common system of concepts, definitions and classification schemes in place. The OAS/DESA project may well wish to consider a successor to the present project.

The Role of ECLAC in supporting the review of the implementation of the SIDS POA

ECLAC has been assigned the role of preparing the Caribbean SIDS for international meetings and world conferences within the United Nations system. Foe example, ECLAC was instrumental in preparing SIDS for the Johannesburg Conference in 2002 and is at present preparing the region to participate in the SIDS+10 Conference to be held in Mauritius in 2004. ECLAC's contribution includes the preparation of background documents and the convening of a preparatory meeting to determine the most effective strategies to adopt with a view to registering the concerns of the region at international for a. To perform this role, ECLAC must collect information from governments on progress made in the implementation of SIDS work programme elements in the various aspects of the identified work schedule. As an aid to countries whose progress is not as speedy as it should be, ECLAC seeks best country practices to share with other SIDS Caribbean countries. The success in the achievement of this objective has been limited by a poor country response to data collection forms. The reasons have been cited in the section of the present paper that deals with the description of the development problem.

Recommendations to confront the data problem

The resolution of the data problem is not an undertaking that should be approached in a piecemeal manner. For instance, success would be limited if the SIDS were to attempt to make representation for the construction of appropriate data and information architectures as a separate group. Data poverty affects large numbers of organizations and interest groups. The SIDS would be moving in the right direction if they convened a consultation on data and information management as an essential input into sound decision making and polled the viewpoints of a wide cross-section of the data using community. From its position, the SIDS would be able to take the report of that consultation to the highest levels of Government and the international community, especially those that fund SIDS activities. The alternative suggestion is that ECLAC be asked to convene such a meeting with assistance from other interested organizations.

The ideal situation would be for the Governments of the Caribbean SIDS to acknowledge the need for the design of integrated information architecture – which none of them has put in place up to the present time – and move towards putting it in place. This is an aspect of deep change and cannot be accomplished overnight nor can it be accomplished by a simultaneous re-engineering of all of the data producing departments of government and other allied agencies. The process should be carefully sequenced over time. It must be fully understood that sectoral urgencies will demand that work be done in some areas as a matter of urgency, but that that work must conform to an information architecture that would have been agreed on.

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