

Proposal for a Pilot Network for Decision-making for Sustainable Development

**A Report for the
"Information for Decision-making on Sustainable Development (IDSD)
Project"**

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LIST OF ACRONYMS

CAGRIS	-	Caribbean Agricultural research Information System
CANARI	-	Caribbean Natural Resources Institute
CARICOM	-	Caribbean Community
CEIS	-	Caribbean Energy Information System
CEPNET	-	Caribbean Environment Programme Network
CCA	-	Caribbean Conservation Association
CFRAMP	-	Caribbean Fisheries Resources and Assessment Programme
CPACC	-	Caribbean Planning for Adaptation to Climate Change
GIS	-	Geographic Information Systems
IDB	-	Inter-American Development Bank
ICT	-	Information and Communications Technology
IDSD	-	Information for Decision Making for Sustainable Development
INASP	-	International Network for the Availability of Scientific Publications
ISP	-	Internet Service Provider
NGO	-	Non-Governmental Organization
OAS	-	Organization of American States
ODINCARSA	-	Ocean and Data Information Network for the Caribbean and South America
POA	-	Programme of Action
SDNP	-	Sustainable Development Networking Programme
SIDS	-	Small Island Developing States
UNCED	-	United Nations Conference on Environment and Development
UNDP	-	United Nations Development Programme
UNECLAC	-	United Nations Economic Commission for Latin America and the Caribbean
UNEP	-	United Nations Environment Programme
UNSD	-	United Nations Statistics Division
UWICED	-	University of the West Indies Centre for Environment and Development

1. Background to the Project

1.1 The Caribbean Community (CARICOM) and its member states require support in creating mechanisms for the long-term management of sustainable development and environment information and particularly in defining ways to harness this information for decision-making purposes. In order to assist in meeting this demand, the Organisation of American States (OAS) has teamed up with the United Nations Division on Social and Economic Affairs (UNDESA) to implement a small regional project entitled "**Capacity-Building in Creating Information Management Systems to Improve Decision-making for Sustainable Development for Small Island Developing States (SIDS)**". The OAS has been given the task of managing this important initiative, which is better known as the **Information for Decision-making for Sustainable Development (IDSD) Project**.ⁱ

1.2 The IDSD project aims to: (i) identify and assess regional and country needs in information management systems for sustainable development; (ii) develop a training manual and materials for training of personnel at the national and regional level; and (iii) create a regional electronic site for accessing information on information management systems and techniques. The project will be executed from November 2002 - October 2003.

1.3 It is envisioned that the following outputs will be achieved:

- A pilot network of national, regional, and possibly local institutions involved in information management in the Caribbean region;
- Resource persons trained as information managers within the region that will have the capacity to train information managers themselves at the regional and national levels;
- Training materials on information management systems for training of human resources accessible through SIDSNET connected to regional networks and UN-system sites;
- A forum of exchange for experiences among regional and national information systems' managers; &
- A final report on implementation, including an assessment and evaluation of the projects.

1.4 IDSD builds on previous work carried out by the United Nations Statistics Division (UNSD) in collaboration with the CARICOM Secretariat/Member States on "*Strengthening Capacity in the Compilation and Dissemination of Statistics and Indicators for Conference Follow-up in the Caribbean region*" and work by the United Nations Environment Programme (UNEP) in the field of environmental information management. The work programme envisions

- A regional experts meeting to assess and agree on priority training needs,
- The identification of best practices and appropriate information management tools,
- The implementation of a training course, and

- The establishment of a website to address information management for sustainable development.

1.5 Four pilot countries (Barbados, Belize, Jamaica & St. Lucia) have been selected for the first phase of the project, which is to focus on four thematic areas: Sustainable Tourism, Land use planning, Coastal Zone Management and Disaster Management including Climate Change.

2. Terms of Reference of the Assignment

2.1 The Terms of reference of the assignment are as follows:

The consultant will assist the OAS in proposing a framework for a pilot network to support information sharing and discussion amongst actors at the regional level involved in sustainable development. The network will also, of necessity, be a medium for the sharing of information. As such, the pilot network will be designed to facilitate the practice of sharing information amongst all actors in the region over ongoing activities and function as a readily accessible portal where critical information and data can be located by all. The network will supplement the information provided in the website.

2.2 The Consultant will have the following responsibilities:

1. Evaluate the effectiveness of existing information and information-sharing networks in the region and outside the region which have been set up to increase access to and on information for sustainable development by:
 - (a) assessing their success in (i) reaching their audience, (ii) meeting the needs of practitioners, and (iii) their sustainability. Particularly, the consultant should include the following networks in her review: SIDSNET (United Nations Department of Economic and Social Affairs), the Sustainable Development Networking Programme (United Nations Development Programme); CEPNET (United Nations Environment Programme/Caribbean Regional Coordinating Unit – Jamaica) and Landnet Americas (OAS/USAID), formerly www.PropertyRegistration.org.
 - (b) evaluate these networks, assess the successes and constraints and identify lessons learnt from the execution of these programmes. The consultant should employ efforts to interview both institutions and stakeholders and users involved in completing this review.
2. Develop and propose a framework for a pilot network based on the findings of the evaluation and on needs of the IDSD project. In the design of the proposed framework, the consultant should address in detail: (i) ease of access, (ii) maintenance and updating, (iii) mechanisms for monitoring and evaluation of the effectiveness of the network; and (iv) long term sustainability.

3. Introduction and Context of the Assignment

3.1 This Report is in response to the above stated initiative by the Organization of American States (OAS) with respect to the Terms of Reference to:

- (a) evaluate the effectiveness of existing information-sharing networks in the region and outside the region which have been set up to increase access to and on information for sustainable development
- (b) propose an appropriate framework for a pilot network based on the findings of the evaluation.

4. Background

The Report of the Earth Summit¹ identifies the need for information to support sustainable development, and in Chapter 40 entitled “*Information for Decision Making*”, (in the context of sustainable development) the Report, while recognizing that “considerable data already exist,” recommends the implementation of two broad programme areas which are critical to the decision making process. These were identified as

- Bridging the Data Gap
- Improving Information Availability

The objectives which were listed as important in defining these programme areas are as follows:

5. Bridging the Data Gap: Objectives

- To achieve more cost-effective and relevant data collection and assessment by better identification of users, ... and of their information needs at local, national and international levels;
- To strengthen local, provincial, national and international capacity to collect and use multi-sectoral information in decision-making processes;
- To develop and strengthen local, provincial, national and international means of ensuring that planning for sustainable development in all sectors is based on timely, reliable and usable information;
- To make relevant information accessible in the form and at the time required to facilitate its use.

¹ Agenda 21: Programme of action for sustainable development; Rio declaration on environment and development; the final text of agreements negotiated by Governments on the United Nations Conference on Environment and Development, 3-14 June 1992, Rio de Janeiro, Brazil. NY, UN, 1993.

6. Improving Information Availability: Objectives

- To strengthen existing national and international mechanisms of information processing and exchange, and of related technical assistance to ensure effective and equitable availability of a generation at the local, provincial, national and international levels, subject to national sovereignty and relevant intellectual property rights.
- To strengthen national capacities within Governments, NGOS, and the private sector in information handling and communications, particularly within developing countries.
- To ensure full participation of, in particular, developing countries in any international scheme under the organs of the United Nations for the collection, analysis and use of data and information.

7. Other Developments

7.1 The follow-up meeting to UNCED, held in Barbados in 1994, the Global Conference on the Sustainable Development of Small Island Developing States, in its Programme of Action,² highlighted and requested follow up action on the part of the United Nations in undertaking the development of an Information Network For Small Island Developing States, (SIDSNET), which would address the objectives so clearly stated in Agenda 21.

7.2 In addition, the regional level follow up activity in the form of the Caribbean Meeting of Experts on the Implementation of the SIDS Programme of Action held in May 1995, again focused on the priority areas of action. The recommendations of the Experts Meeting include some recommendations which are specific to information. These are as follows:

- (1) A survey of information resources and needs should be undertaken for the designated priority areas of the SIDS-POA. Based on the results of the survey, a proposal should be prepared for implementation of national and regional information management programmes, for sustainable development which would include data collection and analysis, repackaging and dissemination of information for decision-makers at all levels and utilizing new information technologies, where appropriate. The proposal should be prepared with inputs from multi-disciplinary teams at national and regional levels.
- (2) Information management and training should be promoted since this is crucial for the full and effective utilization of information technologies in the region.

² United Nations 1994. Earth Summit. Programme of Action for Small Island States. Global Conference on the Sustainable Development of Small Island Developing states. Bridgetown, Barbados, 26 April – 6 May, 1994. NY, UN.

7.3 UNECLAC which convened the Ministerial Meeting of Experts responded to the recommendations and commissioned a study to do a number of things, including, identify priority needs of different categories of users for environmental information, identify and detail ongoing and planned environmental information initiatives in the region being implemented by a range of actors, identify mechanisms for national and regional institutions to respond to these needs, and formulate a concept proposal for a regional strategy to strengthen the capability of Caribbean governments and regional institutions for environmental data and information management.

7.4 The resulting study³ provides an extensive listing of data and information needs grouped under priority areas outlined in the POA. The study recommends as the priority step in its strategy, the execution of institutional audits of environmental data and information. Other strategic initiatives proposed are broad based and general in nature and include the development of metadatabases, the establishment of coordinating bodies for information management, the provision of infrastructures to facilitate information flows, (i.e., telecommunications technologies), and capacity building in human resources in information management.

7.5 It cannot be determined (for the purpose of this study) how much of the institutional data audits at national and regional level took place, but certainly there were several layers of activities on going at a practical level which sought to collect, analyze, repackage and disseminate data and information geared towards more sustainable practices for a varied group of users.

7.6 These were to some extent demand-driven in response to an increasing awareness at both governmental and civil society levels of the threats of some development agendas on natural and human resources. Information for decision-making on these issues was not seen as the prerogative of governmental agencies, and the result was a mushrooming of non-governmental organizations and community based organizations at both regional and national level, seeking a role in decision-making with the governments. Add to this scenario the role of international agencies, in particular with respect to the reporting and other requirements of international conventions, (Convention on Biological Diversity, The Ramsar Convention, the Cartagena Convention and its related Protocols, etc.) and the result is a complex mix. The multi-disciplinary nature of the issues involved in sustainable development and the range of potential actors only serves to increase the complexity.

7.7 The dynamic and complex situation has spawned a range of projects, programmes and initiatives. Some were focused specifically on information management , others on a combination of research and information dissemination, and yet others on advocacy and conservation efforts and which therefore had a component of information management.

³ ECLAC-CDCC/IDRC/UNEP. 1997. The way forward: environmental information management in the Caribbean. Caribbean Ministerial Meeting on the Implementation of Programme of Action for the Sustainable Development of Small Island Developing States, Barbados, 10-14 November, 1997. (SIDS97/INF.9)

7.7 These initiatives include SIDSNET, Sustainable Development Networking Programme of the United Nations Development Programme, (SDNP), the United Nations Environment Programme's (UNEP) INFOTERRA Programme, the Ocean and Data Information Network for the Caribbean and South America (ODINCARSA), Caribbean Planning for Adaptation to Climate Change (CPACC), Coastal Zone Management Programme of Barbados, CARICOM Fisheries Resources and Management Programme (CFRAMP), the Gulf of Paria Database Project funded by Food and Agriculture Organization and the United Nations Development Programme (UNDP). The role of information technology as a tool was a major factor in these initiatives. This list is not exhaustive.

7.8 Library networks and databases relevant to sustainable development were also in progress, e.g., the Caribbean Agricultural Research Information System, (CAGRIS) of the University of the West Indies, and CARISPLAN, a Caribbean Socio-economic Information System, funded by UNECLAC.

7.9 Programmes within NGOs and other institutions aimed at information dissemination included the CCA Information Management Programme, the extensive investment in all aspects of information collection, publication and dissemination by the Island Resources Foundation and the work in research and documentation on specific themes, for example, participatory planning in natural resources management done by CANARI. This list is also not exhaustive.

7.10 It is within this context that the attempt at determining the effectiveness of networks has been approached.

7.11 The extent to which SIDSNET and other networks have effectively "bridged the data gap" and "increased the availability of information" in Caribbean SIDS and the effectiveness of the input of the information in decision-making for sustainable development, is the focus of this meeting and project.

7.12 The network concept as used here refers to a group of organizations and institutions which participate in a defined activity and which use information and communications technologies (ICTs) as the method of linkage and information sharing.

7.13 There are several different types of these networks, including those which use the technology as the major tool for linkage, and others such as wide area networks and Intranets, but the discussion here is not limited to these technological networks. Information is assumed to include both 'data' and information.

8. The Information Networks

8.1 The time frame of this assignment and the scope of work did not permit a full and detailed evaluation of the selected networks. It did permit an overview and an assessment which can lead to some conclusions and provide some pointers for other network development. Much of this assessment is based on the comments of participants in the

network, on my own observations and interaction with the SIDSNET and other developments.

9. SIDSNET.

9.1 SIDSNET had as a major objective, the provision of ICTs as a tool to enable SIDS to share information, expertise, experiences and other resources and to use these in decision making for sustainable development.

9.2 Certainly, SIDSNET did provide the ICT tools to a wide range of stakeholders, and initiated through training and other initiatives increased participation by SIDS in Internet based activities. SIDSNET spawned new web sites, increased the availability of information at national level through national web sites and by mirroring some sites expanded the horizons of information usage. In addition, SIDSNET also provided the tools for virtual discussion forums, chat conferences, document storage, events calendars, and discussion lists. In my own experience the discussion lists were particularly useful.

9.3 Some of the drawbacks were the wide range of topics and the number SIDS intended for coverage, and the difficulties faced by the receiving organizations in maintaining the activities when the support and training were completed. The reality of this is evident on the SIDSNET web page today, where the linkages to relevant Caribbean sites and sources are quite limited. The proposal to establish a SIDSNET presence in each of the key island regions did not materialize for the Caribbean and may account for the low level of coverage on the Caribbean on the web page. In the process of this assignment, it was learnt that the SIDSNET Regional Focal Point will shortly be established in Jamaica under the aegis of University of the West Indies Centre for Environment and Development (UWICED).

9.4 Comments by users in the region stressed the absence of specific areas for example, trade and the environment issues which are critical for SIDS and the focus on rather broad areas. Content was seen as a concept but not delivered as a working tool. Responsiveness to user needs was also felt to be ineffective, and the absence of a regional contact point was also a weakness. The establishment of Caribbean Focal point referred to above, is likely to address some of these concerns.

10. Sustainable Development Networking Programme (SDNP)

10.1 The Sustainable Development Networking Programme (SDNP) of the UNDP was another initiative which sought to introduce ICTs within developing countries as a means of enhancing information flows within and between sectors and thus contributing towards the achievement of sustainable development. The SDNP focus was focused on human development, giving a wider scope to SDNP activities than its sub-programme, SIDSNET. In addition, its coverage is developing countries while SIDSNET's coverage is restricted to small island developing states.

10.2 In the Caribbean there are two SDNP projects, Jamaica and Guyana. Both have achieved significant success in the broad based objective of supporting sustainable

development through the delivery of information by the increase in connectivity, but the process has been markedly different.

10.3 The Jamaican model has established seven telecentres in rural communities, trained more than 500 persons in Internet use and basic computer applications, assisted in developing content and hosting it for a number of NGOs and other agencies.

10.4 Now operating as an established NGO, entitled the Jamaica Sustainable Development Network Ltd., the project has clearly established its growth and success by adopting developments which met the demands of its user group. These appear to have been the need for training and access to computers and the Internet, and on a lesser scale the development of web pages and hosting services.

10.5 The Guyana model has taken a different route. In a country with a lower level of ICT development, the objective of facilitating information flows towards contributing to sustainable development, was interpreted as more directly providing connectivity and building skills for access. In Guyana, the SDNP acts as an ISP and offers dial up access under different plans as well as hosts web pages (both for the Government and NGOs), and trains users and web developers.

10.6 The SDNP is also very involved in ICT policy development in the country and collaborates with governmental and other agencies in potential ICT project development in Guyana.

10.7 In both the Jamaica and Guyana models, therefore, it seems the demands of the situation have directed the path of the networks and been contributory factors to their success and further development. This seems to be a useful lesson in the design of new networks.

10.8 It is therefore recommended that in the development of the IDSD network some flexibility in operations be accommodated within each thematic network, and that the guidelines to be developed for operations clearly state this.

10.9 With respect to sustainability this has remained a problem, and both have continued to receive support beyond the original completion date. Both have used the opportunities available for income generation to their advantage, but have continued to seek support funding to maintain the networks.

11. CEPNET

11.1 The CEPNET project was approved by the Inter-American Development Bank (IDB) as a regional Technical Cooperation Project. Its objectives were to “strengthen the coastal and marine resource management capabilities of the IDB member countries in the UN Caribbean Environment Programme.” Operational between 1996 – 1999, (approved in 1994) the Pilot Network involved six countries, Barbados, Jamaica, Trinidad and Tobago, Dominican Republic, Nicaragua and Venezuela. There are extensive progress and evaluation reports which document the process of the project implementation.

11.2 In brief, the project achieved significant success in strengthening the marine and coastal marine resources capabilities in participating countries. This involved the provision of hardware and software to enable information management, training in web page design and management of web sites, training in specialized software such as GIS and metadata standards and application for network partners. Network participants in turn were expected to generate ‘State of the Coasts’ reports for sharing on the network. For the Regional Coordinating Centre at UNEP in Jamaica, the project did ‘strengthen the central role of the Caribbean Regional Coordinating Unit,’ which developed an Intranet and a web site during the project, and facilitated the hosting of the databases and other products developed by participating countries. The strength of the internal infrastructure left at the RCU is a major benefit of the project. Its further development and ongoing management remain an issue of concern.

11.3 For the participating countries training and information sharing of available resources have been the major benefits. Metadata on available information resources has encouraged cooperation and eliminated some duplication. This also highlighted issues related to the need for policies on data dissemination, opened avenues for cost recovery of data collection in some instances or at least policies on this, and provided a virtual space for environmental reporting on the ‘State of the Coasts.’

11.4 The Progress Reports on the Project indicate achievements beyond the creation and sharing of information and skills in the model and framework which can be applied in other areas, and in the catalytic role it has played in bringing information and Internet policy issues to the fore. Users of the network sites have also expressed satisfaction with its very focused approach and see this as a major advantage to the broader framework attempted by SIDSNET.

11.5 There is concern however with respect to sustainability at both the RCU and the pilot network sites, given that ongoing efforts at maintaining the services and information products now have to be done without additional staff and other inputs provided at start up. In addition, the rate of information technology development, particularly with respect to specialized tools (e.g., GIS, metadata databases, etc.) requires an ongoing commitment to training and updating for participants. The difficulty of resolving this need, coupled with the routine loss of trained personnel, continue to be concerns for network planning.

12. Other Networks

12.1 It is useful at this point to indicate that in addition to the networks actually listed for review there are an increasing number of networks of different types which are also relevant in the field of sustainable development.

13. Library and Bibliographic Networks

13.1 Library networks precede thematic networks and were focused on the development of bibliographic (i.e., catalogues of documents on a particular field from several participating libraries), databases between several institutions and made the information available to all network members. Caribbean Socio-Economic Information System

(CARISPLAN), Caribbean Agricultural Research information system (CAGRIS), Caribbean Energy information System (CEIS), are good examples of these networks. The development of ICTs and the growth of the Internet has forced changes on these networks, but their role and input in information delivery and use remain very relevant.

13.2 While there is less need for collaborative building of bibliographic databases now that participating members can provide their specific databases on the Internet, the additional possibility of making the full text of citations possible has led to the growth of digital libraries. These can be a major supporting infrastructure to thematic networks and should form part of any new network development. UNECLAC for instance has made this transition from CARISPLAN, a bibliographic network, to a digital library, and provides access not only to its own documents but to other full text links of relevant Caribbean documents.

14. Commodity and Thematic Networks

14.1 There is also an increasing number of commodity and thematic networks in the Caribbean and the structure and operations of some of these should be both supportive and useful in the design of new networks.

14.2 The networks operated under the Program for Cooperation of Institutes of Agricultural Science and Technology in the Caribbean (PROCICARIBE) jointly by IICA and CARDI are recommended as models. The networks cover the following:

- CARIFRUIT Fruits
- CRIDNET Rice
- CIPMNET Integrated Pest Management
- CAPGERNET Plant Genetic Resources
- CLAWRENET Land and Water Resources
- CABANET Banana and Plantain
- CARINET Biosystematics

14.3 The National Network engages both private, public sector and civil society representation in the generation, validation and transfer of technology and information related to the specific issues nationally and regionally. National networks join together at the regional level under the leadership of a Regional Coordinator who works closely with the PROCICARIBE Secretariat and a Technical Advisory Committee which ensures the technical integrity of the networks' activities and products. The Secretariat facilitates and coordinates the operations of the networks and assists in mobilizing resources.

14.4 Funding for the networks is generated through membership fees and from project funds. As is the case with other regional bodies membership fees are often late or unpaid. The dynamism and success of regional coordinators in attracting project funds becomes critical.

14.5 The experience of the CARINET network seems relevant for planning purposes.

CARINET is mandated by the Caribbean region's urgent need to conserve and utilize sustainably its biological resources. While the Caribbean is renowned for its species diversity and endemism, the problems of small size, isolation and fragility threaten the very resources on which the region is dependent. This applies to its marine, coastal and terrestrial resources.

14.6 CARINET therefore seeks to

- Provide biosystematic services to the Caribbean sub-region and to develop and maintain sustainable systems in the agricultural and environmental sectors;
- Offer species identification services at minimal cost to member countries;
- Progress the initiative of self-reliance in biosystematics through continued training, upgrade of reference collections, information services and the development and adaptation of user-friendly technologies;
- Provide support to national programmes in areas related to plant quarantine, wise use of the environment, biodiversity, and eco-tourism; and
- Establish North-South, South-South linkages to facilitate the implementation of the programme of work.

14.7 CARINET's work is targeted at the agricultural, environmental and public health sectors in the Caribbean, and its services are directed to biological scientists, research scientists, and the extension and farming community in the CARIFORUM countries. CARINET's activities are mainly in the taxonomic field and are focused on information and communication services, training, rehabilitation of resources, development and application of new technologies. CARINET has developed databases which include biosystematics and directories of experts and technical centres and has facilitated training in biosystematic methods. While there are no built in mechanisms for assessment of its effectiveness there has been clear validation by the responses to its success in identification and management of the Pink Mealy Bug and whiteflies which have been major pests in the region. This type of validation has done more for the continued support to CARINET than formal evaluation mechanisms.

14.8 CARINET's scientific data on taxonomy feeds its specialist clients, but by extension the generation of data can also be utilized in respect of the region's input to requirements for the Convention on Biological Diversity as well as for developments in areas related to the planned networks of this workshop, for example, sustainable tourism and coastal zone management.

14.9 It is suggested that in the planning of new networks extensive research be conducted to identify existing networks, institutions and work programmes with which the networks should collaborate, as well as explore the development of joint information products.

15. Caribbean Energy Information System (CEIS)

15.1 The CEIS is also presented as an interesting model. A cooperative network of fifteen (15) CARICOM governmental members the network is engaged in the sharing and pooling of energy information. CEIS generates a number of information products

covering energy production and use, directories of research and expertise as well as news on energy themes. Its products have been developed based on user needs and sale of the products generate some funds for the network. The dynamism and commitment of the regional coordinator of this network have contributed to its continuity, in spite of problems related to ongoing funding.

16. NGO Networks – Caribbean Conservation Association Network

16.1 In addition to information networks there are also NGO networks which have as a major focus, the management and dissemination of information. The experience of the Commonwealth Secretariat funded project developing the information system at the Caribbean Conservation Association, a network of governmental and other NGO members, is also relevant and is drawn on here as an input to the discussion.

16.2 The focus of the Information Management assignment was the building of a library and databases to ensure improved access to CCA's considerable information resources. The project met this objective but also accelerated the development into adopting new technology, developing a web presence, offering information directories on the web, and initiating email information services. The scope of work needed and the available financial and human resources could not meet the demand that was created. However, the process also created a focus on the need for regional environmental information management and focused CCA's strategic thinking towards new projects such as its current Regional Environmental Information Network (REIN). That process has influenced the ideas presented here.

17. Virtual Networks

17.1 The International Network for the Availability of Scientific Publication (INASP) operates a successful health information network. INASP-Health is a cooperative network of more than 1000 organizations worldwide working to improve access to relevant, reliable information for health professionals in developing countries. The services include an information forum (workshops), advisory services which draw on the expertise of network participants, email discussion lists, provision of directories on organizations working to improve access to information for health professionals, and a portal to health related information on the web. Supported by INASP, WHO and other organizations the role of the Coordinator appears to be pivotal in the development of the network.

17.2 With respect to evaluation of networks INASP-Health recently requested participants to indicate their observations on value of the network on their email discussion list. The responses which provide details of practical examples of usage are the best evaluation seen to date on information networks. Practical approaches may be the best solution.

18. Sustainable Development Initiatives in Barbados

18.1 Given that Barbados is a pilot country in the IDSD project, a review of current sustainable development initiatives was undertaken and discussions were held with the following agencies:

- Caribbean Conservation Association (CCA)
- Caribbean Disaster and Emergency Response Agency (CDERA)
- Caribbean Environmental Reporters Network (CERN)
- Caribbean Planning for Adaptation to Climate Change (CPACC)
- Caribbean Tourism Organization (CTO)
- Ministry of Housing, Lands and Environment

18.2 The range of ongoing activities which are being done by these agencies and which are generating varied information and datasets is extensive, and have been reported on in the baseline study⁴ which forms the background study for the IDSD project.

18.3 The information scenario seen includes the generation of information from several sectors, the sharing and dissemination by various methods, (CERN and CCA in particular), the analysis of data collected (CPACC), the development of indicators, (CTO), as well as attempts at building systems for information management (CCA and its Regional Environmental Information Network).

18.4 In brief, Barbados appears to present an ideal scenario for a pilot network focusing on a specific theme, and it is suggested that tourism should be the theme selected. In addition, the management structure in existence in Barbados is recommended as a possible model for the other pilots to be developed. Barbados' National Commission on Sustainable Development is supported by a multi-sectoral Steering Committee on Indicators for Sustainable Development, which advises on information and datasets which are needed. The work done by this Steering Committee can in turn be further disseminated and shared through the facilities offered by the CERN and CCA's REIN, with linkages to the OAS IDSD project.

18.5 The Pilot Network for Sustainable Tourism can be initiated in Barbados by linking the several agencies already involved in aspects of sustainable tourism. The common shared goal of ensuring an effective economic tourism sector is supported by sub-goals which meet the specific objectives of the participating institutions. The role of the network will best be met by supporting the specific objectives of each agency but at the same time addressing the broader issue of achieving an effective economic tourism sector

18.6 The CTO's MIST requires the input from other agencies and can best be advanced by offering them a win-win situation which involves them in providing data to MIST but at the same time, provides some support for their own activities. In addition, the interaction between the agencies will result in a more widespread knowledge of the development of MIST, and shared information on the concerns of the participating agencies is likely to lead to new processes in information collection and to more committed and motivated membership.

⁴ Marco Alcaraz and Leisa Perch. Assessment and establishment of a baseline on information for decision-making in CARICOM Small Island Developing States (SIDS). Washington, OAS, 2003.

18.7 It should be noted that there was limited knowledge among agencies met during the survey in Barbados for this project, of the development of MIST and of its intention to provide information in the region.

18.8 A critical component of this project and of the information management approach being developed should be the initial creation of a portal/directory on the range of activities and initiatives for each thematic area which are generating and producing relevant information. This will assist in the development of plans for the effective management of the information and for ideas and methods which allow for improved access and better outputs.

18.9 CERN's potential for making information available to the general public through a range of media services including radio, print, email news lists, should be brought into the project mix. Information outputs targeted at the general public but drawn from the datasets generated by the specialist systems will make a significant impact on the design of information systems.

18.10 Ongoing assessments should be done within the life of the project to provide for adjustments that may be needed. The assessments should be straightforward and simple and should not involve additional funding.

19. Networks: Effectiveness in Improving Access to Information

19.1 Defining the Concepts

In planning networks that will be effective a preliminary step is the identification of the information gap/s which the network seeks to address and the process by which that gap was identified. There are likely to be many problem areas requiring information support, and consultation on the most critical of those problem areas is needed.

19.2 Deciding on the audience for the information needs is also a necessary process in ensuring a relevant and effective network. The stance that information is needed for decision-makers should also address the levels of decision-makers a network is intended to serve. The current views on participatory decision-making particularly with respect to sustainable development, mandates a network that seeks to inform and involve all levels of stakeholders in the decision-making process.

19.3 A very focused planning process should therefore address specific problems, rather than broad issues, for e.g., biodiversity, and should be participatory involving all possible stakeholders.

19.4 Ensuring Effectiveness at the Operational and Technical level

In measuring the effectiveness of networks in improving access to information one can employ both identifiable qualitative and quantitative indicators, but these must be identified in advance and data generated against these indicators. In a study done by

Margot Bellamy⁵ on the assessment of impact of information management in the field of agriculture, five types of indicators are identified:

- Performance indicators: relating inputs to outputs
- Effectiveness indicators – relating outputs to use
- Cost-effectiveness indicators – relating inputs to use
- Cost-benefit indicators – relating inputs to outcomes
- Impact indicators – relating use to outcomes.

19.5 This type of theoretical approach is both costly and time consuming, and according to one source provides inconclusive results. The International Development Research Centre (IDRC) funded a CARICOM project entitled ‘Information for Decision-Making’ (1993 – 1994), which sought to assess the impact of regional information services on decision-making, research and action. While the project did provide information providers with some lessons on the approach to assessment, it was inconclusive with respect to the actual input of information services to decisions taken.

19.6 In the absence of a monitoring system geared towards the data collection and analysis suggested by Bellamy, one has to depend on a more generalised and practical approach and this is what has been employed in this study, and it is suggested as an effective means determining the value of networks.

19.7 In effect, the study has depended on observation of the major outputs of the networks, e.g., the Internet presence and programmes, on experience in interaction with the networks, and on the observations, comments and of stakeholders, institutions and users. The number of these approached while minimal, were of a quality that the information provided can be ranked as the best available.

19.8 Some suggested useful approaches to determining effectiveness at operational level are the following series of questions:

20. Assessment of Effectiveness of Networks

Has the network been effective in collecting relevant information?

In making the information available (processing – cataloguing, indexing)?

In disseminating the information (traditional means or new technology)?

Has the network been able to generate new information?

Have information networks made any significant impact on sustainable development practices?

Does the structure of the network facilitate the increased availability of information from members? Do members have the tools and resources for creating a web presence, for loading their information on network sites?

Is there a national network structure which builds and shares information at national level?

⁵ Margot Bellamy. Approaches to impact evaluation (assessment) in agricultural information management. CTA, 2000.

Are there effective methods for dissemination of information from all partners in the network? For e.g., discussion lists, newsletters, newswire, radio programmes
Do users have the tools to access and use the information?
Can you identify problems faced by information networks, e.g.,
Have information providers in the specialist areas been identified?
Do existing networks adequately cover the special fields of the study?
Are the areas of coverage well defined in networks?
Are there a proliferation of new knowledge networks? Are there linkages?
Do information providers have the capacity to make information available?
Is there any linkage between information generators and users which ensures application of the information?

21. Success in Reaching the Audience

Has the network been effective in sharing the information with all levels of users?
Is there any indication that information provided has made an in-put in decision-making?
Is there any evidence of changes in behaviour among recipients?
Have the methods of information dissemination met the particular needs of users? TV, radio, Internet, print, etc.
Have the networks specifically addressed the needs of users/practitioners in the following fields – Sustainable Tourism, Land Use Planning, Coastal Zone Management, Disaster Management?
Have information activities changed the way you work in the field?
Are you aware of increased capacity in any relevant institutions as a result of information availability?
Has information strengthened the capacity of individuals working in the fields listed?
Has the network generated new information from users/practitioners?

22. Sustainability Issues

What changes have you noticed in information handling for sustainable development in the last 5 years?
Are you aware of any significant improvement in information management for sustainable development?
Would networks be sustainable without grant funding?
Can networks generate funds on their information services?
What products can assist in making the networks sustainable?

23. General Recommendations

This assignment has generated some thoughts on the network development process as follows:

(i) A clear definition of problem areas to be addressed and the types of information needed to address those problems should be made. Generalised themes are not useful.

(ii) The levels of information needed must be clear, with participatory decision-making as an objective, information generation must meet the needs of the researcher, the policy maker and the local NGO.

(iii) Preliminary research should be done to identify all potential stakeholders, other networks, institutions and programmes (including information sources) which should be involved in the consultation and development process.

(iv) Full consultation with all stakeholders is needed to ensure priorities are determined and that cooperation is agreed.

(v) Negotiation on linking and sharing of available complementary and relevant information sources which combined can make a valuable whole should precede the development of new product development.

(vi) Willingness on the part of users to meet the costs of information generation should be explored. This is a crucial factor as it affects the sustainability of the network and its products.

(vii) The network structure must clearly define the information generating roles of all members, and facilitate the coordination and output. Responsibility for the data sets should be clear and rights re usage and sharing should be stated.

(viii) Full advantage should be taken of the information technology developments, in particular tools such as online discussions, users lists, video and radio linkages and associated use of e-commerce and other features which can support the financial stability of participants in the networks.

(ix) The process of network development should include capacity building within participating institutions, enabling continuing training particularly with respect to the rapidly changing information technology applications in information management.

(x) The network should also allow for the training of users in the information outputs, particularly in the use of specialized products such as GIS.

(xi) Information dissemination should however also address the needs of users without the capacity to use specialized tools.

(xii) Consideration should be given to exploring new type networks which are virtual rather than physical and which operate under a very open structure. An example of such a network is the INASP Health Network. (see www.inasp.info/health). Admittedly, the life or death need for health information may account for the active participation in this network.

(xiii) Human resources for the network are vital to its success. In this context, the role of the coordinator of the network is critical, and requires a full time dedicated dynamic and committed individual. The network should provide for this.

(xiv) Agreements should be sought early in the development for methods to maintain trained personnel post the start-up of the network. The networks reviewed all indicated the difficulty of maintaining the system when project funds ended.

(xv) An overview external group for example, a Technical Advisory Group should form part of the planning and ongoing review work of the network.

(xvi) The experience of regional networks represented here should be useful in providing additional guidance in a design of a pilot that truly delivers information, helps in its application and uses the experience to build further knowledge for users.

24. Priority Action

25.1 Sections 19 – 24 provide recommendations for the development of the network and guidance questions which can be used both for planning and monitoring the network. Urgent attention must also address the following priority issues:

- Seed funding to initiate the network, and allow for the start up processes, (e.g., meetings, guidelines preparation, sample output);
- Selection of the coordinating agency and the coordinator to guide the process; and
- Training of network participants in data inputs and outputs and development of training materials to support the network (use of technology, application of multi-sectoral approaches to indicators for sustainable development, etc.)

25. Proposed Framework

The design of the Tourism Pilot Network which has been proposed for Barbados should first of all address the institutional infrastructure of the network. The development of the institutional framework will require the identification of all the agencies involved in the thematic area and the determination of the objectives on which the several collaborating agencies are focused. It is suggested that this step should be the next step in the implementation stage of this project.

25.2 While all the selected agencies may have the development of tourism sector as a common theme, each has more specific aims. CTO may, for example, be concerned with the potential of the economic growth of the sector, a number of other national agencies in Barbados may be focused on beach and water quality, participation of small entrepreneurs in the tourism sector, development of heritage tourism for example, and others at a more regional level (for example CCA) may have an interest in involvement in the development of tourism policies and in their application and dissemination across the region.

25.3 An initial step in the structure of the framework therefore is the identification of all the relevant agencies which should be brought together in the setup of the pilot network. In addition, each agencies' focus on the tourism sector should be clearly identified and the resources which are available for meeting the stated objectives. The contribution of the individual agencies towards meeting the common overall objective should also be identified. A critical input at this stage of development of the network is the identification of those activities which can contribute to **decision-making for sustainable tourism**.

26. Structure and Potential Operations

26.1 A Coordinating agency should be agreed on by all the agencies participating in the network. The Coordinating Agency will have a major role in guiding the development of the network and in ensuring that the major objective of the network (i.e., information for decision-making in tourism) remains the priority focus, while permitting the individual agencies to maintain their special interests in related areas.

26.2 While the Coordinating Agency is critical to the network development, the real responsibility lies with the individual who leads the network. Dynamism and commitment, initiative, strong team and leadership qualities, ability to motivate others are all qualities that will be needed.

26.3 Other operational activities include the preparation of guidelines under which the network will function, the pooling of data and information generated by participating and other agencies, the definition of new information necessary to meet the objectives, the agreement on tasks for each agency, the design of new information activities, the building of the information tools, the effective dissemination and promotion of the new tools, the analysis of their application and use and review towards changes and additions.

26.4 With respect to the Pilot Tourism Network proposed for Barbados it is suggested that the following options be explored. At the recent UNDESA/OAS IDSD meeting 'Using Information for Decision-making on Sustainable Development – Issues and Challenges for Caribbean SIDS' in St. Lucia, the CCA offered to act as coordinator for the development stage of the project, and it is suggested that this offer can be extended to provide an option for the CCA to act as coordinator of the Barbados based Tourism Pilot Network. There are several good reasons for this. CCA's current focus on the development of a REIN allows for the incorporation at a practical level of the policies, guidelines, inputs and outputs being developed for the REIN, within the Pilot Network. It also offers the opportunity for linkages with other networks in which CCA is participating or building, and provides the win-win situation noted earlier in this report.

26.5 The Ministry of Housing, Lands and Environment is also a possible option for the development of the Pilot Tourism Network. This Ministry has responsibility for the operations of the National Commission on Sustainable Development which is supported by a multi-sectoral Steering Committee on Indicators for Sustainable Development. The development of the Pilot Network could be exploited by this Ministry to generate the data needed for the creation of indicators of sustainable tourism development. Barbados'

priority focus on the tourism sector in its economic development and the critical need for ensuring the sustainability of the tourism product are factors that can be brought together effectively in a Pilot Network managed by the Ministry of Housing, Lands and Tourism. Managing the Pilot Network within the Ministry also provides a more direct national focus, and could assist in guiding the development of national networks in other Caribbean countries.

26.6 The CTO is another possible option for the location of the Pilot Network on Sustainable Tourism. CTO is the most important and stakeholder in the Caribbean in the tourism sector, and its very existence justifies its inclusion as a possible operator. Additionally, its thrust on information dissemination and awareness as a specific programme and strategy for sustainable tourism development can be the pillar on which the Pilot Network is developed. CTO's resources and its regional strengths are significant advantages for this option. The range of its activities, and the demands of its more direct clients in the tourism business, who need to generate profits rather than indicators may be disadvantages.

26.7 The OAS itself is also a major contender for the role of network coordinator. Its role in the conceptual development of the IDSD Project and its position in the joint UNDESA/OAS Project as Field Managing Institution, together with the various assessment and extensive data collection on the status of regional information management activities for sustainable development, prepared as a precursor to the IDSD project, are significant factors in the OAS' retaining its role as coordinator of all the networks to be developed within the IDSD project. It can be argued that the clarity of its vision in defining and developing the IDSD Project require its continued involvement in the coordination to ensure its successful implementation. In addition, the need for accessing funding and for collaboration with other international agencies can best be achieved with the OAS as leading partner. The disadvantage of a non-regional host for the network has been noted earlier in this Report, but given the awareness of this possible limitation, efforts can be made to ensure that regional institutions are made collaborative partners in the networks.

27. Linkages with Existing Networks and Sharing of Lessons Learnt

27.1 This report and the Regional Meeting held as part of the Project on Information for Decision-Making for Sustainable Development, have identified a wide range of existing networks in the region. These networks can contribute data in some instances and the value of the experience in network development to the IDSD Project.

27.2 It has been determined that initial operational processes will include the identification and pooling of data generated by other agencies. This process should allow for the establishment of linkages (formal or non-formal) with relevant networks and this can best be facilitated through the coordinator, who can seek to use the strength of his/her organization and the new network to forge the links. Maintaining the linkages and gaining from the experience of other networks requires the building of relationships and ability in developing a perspective on issues as they develop. Tools such as Internet

access, participation in meetings, newsletters, email discussion lists all contribute to the process, but the coordinator provides the stimulus and the balance.

28. The Role of Networks in Information Dissemination

28.1 The review of the networks cited in this Report has pointed to the increase in the availability of information to network members, and the potential for sharing by means of ICTs to non-members. Network participation increases the potential for the development of new and specialist information resources and the application of ICTs enhances the tools that can be developed, for example databases, webpages, portals, etc. ICTs also facilitate more extensive sharing of the information being generated. Networking both in the sense of collaborative building and sharing and in the context of technological networking (i.e., Intranets, WANS, etc.) offer enormous potential for the increased dissemination of information.

28.2 The geographic make-up of a dispersed island chain in the Caribbean limits the interchange between islands. This further exacerbates the already limited information flows at the local level. Several studies have noted the tendency for organizations in the region to operate in a uni-dimensional way. Participants at the workshop and the survey conducted for this project confirmed in a practical way the lack of information and knowledge sharing between institutions. Effective networking has the potential to open up channels of information exchange at national and regional levels, and consequently to improve decision-making, as well as lead to the generation of better sources of information.

28.3 In addition to the priority role of information generation and dissemination the network can also use its information resources in assuming a more activist role in defining strategies, in providing advisory services to policy makers, in influencing public opinion and reaction, and in effecting the necessary changes in the area of its operation.

28.4 It is particularly in the context of the network assuming a more activist role that the participation of CCA's REIN has been suggested. CCA has long sought and given the composition of its membership of Governmental and NGO members should play a major role in policy determination in the area of sustainable development in the region. CCA's involvement at the level of the REIN should facilitate the additional value of setting policies for sustainable tourism which can be shared and eventually adopted in the region.

BASELINE COSTS AND BENEFITS OF ESTABLISHING A NEW NETWORK

COSTS	BENEFITS
Network Coordination including:	Creation of linkages among participating members
<ul style="list-style-type: none"> • Preparation of guidelines 	Increased sharing of information
<ul style="list-style-type: none"> • Consultation with stakeholders 	Coordination of information activities between agencies leading to improvements in availability
<ul style="list-style-type: none"> • Research and analysis 	Generation of new information products drawing on larger information resource base
<ul style="list-style-type: none"> • Provision of equipment and network tools 	Capacity building in human resources via training of network members
<ul style="list-style-type: none"> • Support funds to initiate network 	Access to updated technology for members
<ul style="list-style-type: none"> • Development of network products, email lists, multi-media products, web pages, etc., 	Capacity building in IT management via requirements of network to maintain pace with IT developments
<ul style="list-style-type: none"> • Training of network members 	Development of focused website and portals
<ul style="list-style-type: none"> • Training of trainers 	Establishment of linkages with other related networks and potential coordination of information activities, e.g., CSD, SIDSNET, IIED, IISD, INFOTERRA, CARINET, ACS Sustainable Tourism Zone for the Caribbean
<ul style="list-style-type: none"> • Dissemination of information costs 	Ongoing assessment of impact of network – and resulting adaptations
<ul style="list-style-type: none"> • Network Coordinator 	Identification of information producers and users in the specialist area/s
<ul style="list-style-type: none"> • Meeting costs 	Input to building national information policies, strategies and structure
	Increased credibility in work of regional coordinator
	Possibility of generating funds from sale of information products
	Increased sustainability of network through sale of products
	Increase in public awareness through outputs to various groups
	Increased civil society participation in issues

	Development and improvement in IT skills nationally and regionally (capacity building) (training of users)
	Documentation of qualitative aspects of network experience in lessons learnt
	Increased visibility of network (and members) in sector leading to greater input in policy-making levels, e.g., CARICOM meetings, ACS Convention on Sus. Tourism Zone of the Caribbean