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Environmental Indicators

This information package on *"Environmental Indicators"* is a contribution of the Inter-Agency Technical Committee (ITC) to the Fourteenth Meeting of the Forum of Ministers of the Environment of Latin America and the Caribbean, to be held in Panama City from the 20th to the 25th November 2003.

The United Nations Environment Programme (UNEP) has coordinated the preparation activities for this document. Inputs have been received from the Governments of Brazil, Cuba, Honduras, Mexico, Nicaragua and Saint Lucia, as well as from the World Bank (WB), the Inter-American Development Bank (IADB) and the Economic Commission for Latin America and the Caribbean (ECLAC).

I. Background

1. The use of indicators is a long established means to track trends and minimize risks in the area of economics. The success or failure of international and national policies targeting economic development can be evaluated fairly easily using economic indicators. However, the complex and interdependent nature of the three pillars of sustainable development – economic, environmental and social – has posed a great challenge to those who have attempted to develop and use indicators to measure sustainable development.

2. Decision makers require timely, precise and reliable information concerning the environment and sustainable development. Indicators possess the potential to become important tools for communicating scientific and technical information. They can also facilitate the communication of such information to diverse user groups and society as a whole, helping to transform information into action.

3. Having recognized the severe implication of this problem in the regional context, the Forum of the Ministers of the Environment of Latin America and the Caribbean (The Forum) has decided:

a) To establish a data and information system, based on the subsystems being designed in the region, including pertinent intraregional cooperation underway and the basic supply and capacities of each country in that regard (10th Meeting of the Forum, Argentina 1996).

b) To develop environmental and sustainability indicators, both at the country and regional levels, and build national capacity for data and information management (10th Meeting of the Forum, Argentina 1996).

c) To request the Inter Agency Technical Committee to contribute elements for developing a regional environmental vision that includes the selection of indicators (including geo referenced data), points of departure, quantitative goals and budgetary requirements, as part of a managerial information system to support decision-making (1st Special Meeting of the Inter-Sessional Committee of the Forum, New York 1998).

d) To request UNEP to continue the development of environmental databases and indicators to help countries of the region monitor progress towards sustainable development within the framework of the GEO, in collaboration with partner UN and regional agencies (13th Meeting of the Forum, Brazil 2001).

e) To establish a new working group coordinated by Costa Rica on environmental indicators (13th Meeting of the Forum, Brazil 2001).

4. Furthermore, in an extraordinary meeting of the Forum held on the 31st of August 2001 in Johannesburg on the margins of the World Summit on Sustainable Development (WSSD), the Forum approved the Latin American and Caribbean Initiative for Sustainable Development (ILAC) that sets out the position of the region with regard to sustainable development within the context of WSSD. The Guiding Goals and Indicative Purposes concerning indicators in ILAC are as follows:

> *"Develop and implement an assessment process to follow up the progress made towards attaining sustainable development objectives, including the results of the Johannesburg Plan of Implementation, adopting* ***national and regional sustainability indicators*** *that respond to the region's unique social, economic and political features."*

5. The members of the Interagency Technical Committee of the Forum have been undertaking various initiatives to respond to these requested of the Ministers. Some of the key initiatives are in the annex.

II. Issues and challenges for the development and use of indicators

6. Efforts have been made to create the culture to develop and use environmental and sustainable indicators for monitoring and decision-making in Latin America and the Caribbean.

7. Requirements of assessing and following up the progress made towards attaining sustainable development objectives, including the results the Millennium Development Goals and the Johannesburg Plan add to this common challenge facing the region.

8. Nevertheless, efforts implemented at the local, national, sub-regional and regional levels have so far failed to produce a set of common indicators that is used by the countries in the region to provide precise information for environmental decision-making.

A. Issues and challenges at the National Level

9. Many national governments in the region lack technical and financial capacity to devote to indictor work. Much of their national budgets are spent on dealing with the existing problems and mitigating immediate impacts of the socio-economic and environmental problems and very little is left for monitoring and planning. The lack of appreciation for information (i.e. lack of information culture) coupled with limited national budgets prevent many countries from devoting sufficient resources for data and indicator related work. Even in countries where the importance of having data and indicators is well recognised, it is still a challenge to maintain the level of the interest and funds required to collect primary data, establish useful indictors and use them to monitor environmental and sustainable development trends.

10. As result, data and indictor work is often *ad hoc* and linked to initiatives with a limited timeframe and focus and involves the application of different methodologies to collect data and calculate indicators. Under such circumstance, it is difficult to establish a baseline on which monitoring programmes could be based.

11. Moreover, existing sectorial divides limit the positive impacts that could be achieved through data and indicator efforts made by various ministries and institutions, creating duplication of efforts and lowering the level of credibility attached to these data and indicators.

12. At the national level, the main focus of the future initiatives should be on capacity building, sectoral integration, and awareness raising. Many countries in Latin America and the Caribbean need both technical and financial assistance to build their capacity in the

collection of primary data, data processing and management, as well as the development of integrated databases and data sets and information monitoring system.

13. When planning capacity building to target these areas, the differences in institutional development among the countries in the region should be recognized, and the capacity building initiatives should be designed to fit the current level of capacity in each country. South-South cooperation in the data and indicator field could be utilized more to promote the transfer of skills from countries with advanced capacity and experience to the others.

14. To alleviate the problems associated with the low priority given to data and indicator work, it would be crucial to demonstrate the usefulness of data and indicators in policy and decision making at the national level. Equally important is the effort to promote multi-sectoral and multi institutional collaboration on data and indicator work, especially among national statistics offices, ministries of environment and other technical institutes, to minimize overlaps and duplication of efforts.

B. Issues and challenges at the Regional and Sub-regional levels

15. The efforts to establish a useful set of indicators at the regional and sub regional levels have had a limited success so far. It should be noted that indicators are often applicable to a specific geographical level only (regional, sub-regional, national, municipal, or local), and this nature of indicators does impose extra burden on those who are trying to establish indicators that are applicable across the region or sub region.

16. Lack of coordination among key organizations involved in indicator development has also led to the development of numerous initiatives that have produced the methodologies and indicators with little compatibility. In the absence of institutional agreement to co-ordinate data collection and reporting or to share collected data, the organizations have resorted to request individual countries to submit the same data using different indicators and reporting formats. The same problem is observed among the Convention Secretariats. Many countries in LAC, especially those small island developing states, simply do not have capacity to cope with these repeated requests for data and indicators.

17. There is urgent need for institutional coordination and integration of activities related to data and indicator at the regional level, first through the identification of possible overlaps and conflicts on data requirements. Secondly, the organizations involved in data collection and indicator development must be encouraged to establish institutional collaborative agreements to ensure adequate level of data and information exchange and sharing in the region. As for the on-going key initiatives in the region including the ILAC indicator project and the UN Statistic Division initiative on sustainable development indicators, information exchange and integration of the initiatives through harmonization of the indicator methodologies are vital. This effort should eventually lead to a set of standardized indicators used by countries and reported to international and regional organizations. Dissemination of the information on the existing data and indicators as well as the said initiatives must be done using a user friendly system.

18. Finally, special attention should be paid to the aspects of environment and sustainable development where indicators are least developed such as environmental health, vulnerability, urban development, as well as other areas of special importance for the region (e.g. tourism).

III. Options for action

19. Information is the foundation of sustainable development and is a basic and essential ingredient for successful planning and decision making. If decisions are made without sound data and information, they will be little better than best guesses and are likely to be wrong. Economic and social data are widely available and are relatively reliable and well understood. The situation with environmental data and information is somewhat different. High quality, comprehensive and timely information on the environment remains a scarce resource, and finding the 'right' information can pose problems: data are more difficult and expensive to obtain. It is also difficult to find indicators that capture and reflect the complexity of the environment and human vulnerability to environmental change. Environmental data acquisition remains a basic need in all countries.

20. Despite the problems, scientific consensus based on best available data and knowledge, although sometimes partial and limited, has proved a powerful tool for bringing environmental issues to international attention, and prompting action. There have been great improvements in environmental research and monitoring but it is important that these efforts are maintained and improved to ensure a flow of timely and reliable information.

21. The provision of information will benefit from:

a) structured and nested monitoring and observing systems including global satellites for collection of timely and reliable data on environmental components, using harmonized units of measurement and terms;

b) an effective, globally acceptable environmental information system supported by a harmonized set of data, indicators and indices and closely integrated with socio-economic information systems to provide basic information for decision making;

c) maximizing the use of the Internet as a cheap and effective means of information exchange worldwide;

d) identifying indicators and indices to capture the sustainability of environmental trends as well as trends in human vulnerability to environmental change;

e) tools to create a knowledge base accessible to environmental policy and decision makers;

f) presentation of complex data and information in an easily understandable form to decision makers.

22. Indicators can help identify the forces that contribute to the improvement or deterioration of economic, social and environmental conditions allowing for the establishment of precise goals for future action, enabling governments and civil society alike to assess progress attained through their actions. In order to set in motion a harmonised indicator process in Latin America and the Caribbean the barriers encountered thus far at the national and regional levels need to be addressed. A close look at these challenges can provide information about the direction that the work on indicators ought to take in Latin America and the Caribbean.

23. Within the context of the Forum of Ministers of Environment of Latin America and the Caribbean, the work on indicators could focus on developing and implementing an indicators process to enable the monitoring of the progress towards achieving the goals

of the Latin American and Caribbean Initiative for Sustainable Development. The process could consist of the following:

a) reaching agreement on a core set of indicators which are readily available in the countries that can be used to measure progress towards the goals of the Latin American and Caribbean Initiative for Sustainable Development;

b) reaching agreement on a common methodology to measure back of the indicators in the core set;

c) initiating the development of a project to strengthen capacities and promote the collection and harmonization of data and indicators at the national level within the framework of the Forum of Ministers;

d) collecting the national data and indicators and inputting them into a regional environmental information system that allows the Forum of Ministers to monitor progress towards achievement of the goals of the ILAC.

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Annexes

Annex I
Inventory

1. This annex presents an update of activities planned or underway as reported by the respective agencies of the Interagency Technical Committee in response to requests of countries of the region.

2. It aims at indicating trends, main lines of work or gaps to be taken into consideration by the Forum of Ministers during the formulation process of its Regional Plan of Action 2004-2005.

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3. Mainly through its Division of Early Warning and Assessment (DEWA) UNEP is working on the generation of high quality data and indicators and addressing information gaps that still exist in priority areas for the region and the Forum. It is also promotes harmonisation in the collection of data and indicators and facilitates access to information. UNEP's main activities in this area focus on the following:

A. Project: Harmonised core set of national indicators

4. In direct response to the request made by the Forum and the ILAC, in 2003 DEWA-LAC initiated an indicators project financed by the World Bank (WB) with the goal of producing a core set of environmental and sustainable development indicators (at the national level) to assess progress in the implementation of the Latin America and the Caribbean Initiative for Sustainable Development. The project is being implemented in coordination with Costa Rica, the focal country for indicators work designated by the Forum. The project uses the Guiding Goals and Indicative Purposes of the ILAC as its framework.

B. Project: Data and Indicators tool kit

5. Having had first hand experience with the problems of availability and accessibility of environmental data and information, DEWA-LAC initiated in 2001 a project to develop a software tool to help countries organize and use data and indicators as a basis for State of Environment (SoE) reporting. The project is run in collaboration with the University of Costa Rica Development Observatory where UNEP's environmental database for LAC is based. A demo software was produced and distributed in 2003 for review by selected data experts and users in the region. .

C. Project: GEO Regional Data Portal for Latin America and the Caribbean (RDP-LAC)

6. As part of the Global GEO Data Portal Network, this project has been initiated to develop a globally harmonized, region-specific data infrastructure. A 4-day workshop on UNEP global and regional data portal for LAC was held in November 2002, where a preliminary user group analysis (global vs. regional) was carried out and the conceptual framework of the RDP-LAC was discussed.

7. The agreements to construct the RDP-LAC are being developed between UNEP and its partner centres in LAC. Among the project activities planned in 2004 are: the production of off-line products and tools that support the dissemination of the data and information

provided through RDP-LAC and a training workshop targeting GEO Collaborating Centres and key national partners in LAC.

D. Project: State of the Environment reporting – GEO (Global Environment Outlook)

8. DEWA–LAC, in combination with governments, subregional and regional organisations and expert centres from the region, undertakes integrated environmental assessments at the municipal, national, sub-regional, regional and global levels using the methodology developed by UNEP's GEO project. To date DEWA -LAC has provided technical and financial assistance to over 15 governments to support the development of their national assessments, as well as assist other partners in the development of subregional environmental assessments.

9. Many of these GEO assessment processes involves a review of the existing environmental database or setting-up databases when no functioning database exist. The process has also helped countries to identify the fundamental issues related to data and indicators such as lack of intersectoral or inter-ministerial collaboration regarding data collection and management. Some countries have preferred to strengthen their capacity to work with specialized type of data and indicators linking it to the assessment process. For example, the on-going GEO Mexico process will benefit from geo spatial indicators for Mexico being developed in collaboration with CentroGeo. A CD has been developed with the core geo spatial indicators and tools to develop tailor made geo spatial indicators and GIS maps.

E. Publications

2002	The Environment in Latin America and the Caribbean (CD ROM) with database
2001	GEO Estadisticas ambientales de America Latina y el Caribe (book and CD ROM)
2000	Statistical annexes to GEO reports (continues)
1997	Indicators of Rural Sustainability: a vision for Central America (information tool kit)

Economic Commission for Latin America and the Caribbean (ECLAC)

10. The main activities of ECLAC in the area of indicator are as follows:

11. One of the objectives proposed in this work area is to prepare a summary report on the different thematic approaches with a view to analysing the regional situation from the perspective of sustainable development. This document, provisionally entitled "Panorama of Sustainability in Latin America and the Caribbean", is expected to be completed by the end of 2003 as a report on the regional situation in the field of sustainable development.

A. Project: Assessment of Sustainability in Latin America and the Caribbean (ASLAC)

12. The Sustainable Development and Human Settlements Division has been conducting the ASLAC project. Its objective is to support the definition of public policies by the

countries of the region through a systematic and integrated assessment using a combined form of environmental, social and economic indicators, organized in a systems framework.

13. The project has developed a systems framework to measure and assess the progress of the countries of the region towards sustainable development. For that purpose (1) indicators at the national level have been identified, (2) geo-referenced indicators at tertiary administrative levels (failure to meet basic needs, population density, land uses, and others) and resolutions up to 1x1 km in the case of some environmental variables detected by satellite are being produced, and (3) systems cause and effect analyses of development sustainability in a pilot group of countries are being implemented.

14. The project is completing a databank with national indicators and a Geographical Information System (GIS) containing spatial information for all the countries of the Latin American region. Currently, the project is in the phase of adjustment, calculations, selection of final indicators and analysis of outputs.

B. Capacity building in Latin America and the Caribbean

a) Seminars

15. Various seminars related to sustainability indicators have been held. The most recent took place in August 2003 at ECLAC headquarters in Santiago and was called the ECLAC-UNDP WORKSHOP ON INDICATORS OF MILLENNIUM DEVELOPMENT GOALS, Indicators of Goal 9 (Objective 7).

b) Support for the countries in formulating sustainable development indicators

16. Technical assistance activities in countries such as Argentina, Colombia, the Dominican Republic and Puerto Rico have been maintained. One of the additional outputs is represented by the Network of Sustainable Development Indicators, which is being developed for the entire region to support the countries in the installation of capacities to develop and implement development indicators.

17. In June 2003, the Division held a Course-Workshop on Sustainable Development Indicators for participants of all the countries in the region.

C. Publications

May 2003	A systems approach to sustainability and sustainable development
May 2002	Science and Technology, Sustainability and Sustainable Development
May 2002	Report on the Seminar on Sustainable Development Indicators in Latin America and the Caribbean

Inter-American Development Bank (IADB)

A.Publications

2002	Environmental Indicators on Selected Issues for Latin America and the Caribbean (in collaboration with the World Resource Institute)

The World Bank (WB)

18. The work on environmental economics and indicators is done by the World Bank Group's Policy and Economics Team. Current work programs include:

a) analyzing poverty and environment linkages;

b) assisting countries to mainstream the environment into Poverty Reduction Strategy Papers;

c) advising World Bank staff on mainstreaming the environment into project and programmatic lending, as well as the country assistance strategies;

d) contributing to improve project and program design by piloting and building capacity in environmental valuation and payments for ecological services;

e) acting as a focal point for the development of environmental indicators which are essential to monitor progress.

19. The Team works closely with the Data Development Group when developing publications on data and indicators.

A. Project: Wealth estimates and genuine saving

20. The Policy and Economics Team works on '"synthetic" indicators that combine environmental and economic factors in one indicator. Wealth estimates is stock measure that estimates a country's total resources, including produced assets, natural capital, and human resources. Genuine saving, on the other hand, is a flow measure that calculates real national gross saving by considering the depleted value of the underlying resource asset and pollution damage as an decrease and current educational spending as an increase in saving.

B. Project: Country Assistance Strategies (CAS) and the environment

21. In 1998 a project was launched to better reflect environmental concerns into the CAS of the World Bank, resulting in the development of an environmental indicators page as one of annexes to the CAS.

C. Project: Indicators-on-the-web

22. This is the project to develop an intranet site whereby task managers can know about environmental performance indicators at the project and national levels. The site presents the lists of indicators covering multisectors and cross-cutting issues.

D. Others

23. The World Bank is a full partner in the UNEP ILAC Indicators project and has provided both technical and financial support for the project (see above). Also, the World Bank has collaborated with other organizations on: International Development Goals (with OECD/DAC), Rural sustainability indicators for the Central America (with the International Centre on Tropical Agriculture, CIAT, and UNEP), Sustainable Development Indicators for the Caribbean (with the Caribbean Development Bank), Indicator compendium on the web

(with the International Institute for Sustainable Development), and the Millennium Assessment (with the World Resource Institute).

E. Publications

Annual	World Development Indicators
Annual	The Little GREEN Data Book
1996 and 1999	Manual on Environmental Performance Indicators (EPIs)

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