

DEVELOPING INDICATORS

Lessons Learned from Central America

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		CLUE Conversion of Land Use and its Effects	
		GDP Gross domestic product	
		GIS Geographic information systems	
		MAG-FOR The Ministry of Agriculture and Forest (Nicaragua)	
		PROCIG Proyecto Centro Americano de Información Geografica	
		P-S-I-R Pressure-state-impact-response	
		WAU Wageningen Agricultural University	

Foreword

Indicators are important for the sustainable use and management of environmental resources. They give valuable information about the present status of the resources being measured, the rate and direction of change, highlighting priority issues and guiding policy formulation. This report, *Developing Indicators: Lessons Learned from Central America*, is one output from a multi-year collaboration between the International Center for Tropical Agriculture, CIAT, the World Bank, and the United Nations Environment Programme, UNEP.

This project has focused on the development and use of indicators for measuring and tracking rural sustainability in Central America. Given the economic importance of natural resources to this region, and the close link between the health of natural resources and the economic well-being of these countries, this is an important topic for the region. In addition, the lessons learned from this exercise have broader implications for other parts of the world and other indicator efforts. Hence this “lessons learned” report.

The Lessons Learned report is designed to provide practical guidance to indicator developers, both in Central America and elsewhere. When the present project began in 1998, it built upon the foundation laid by an earlier joint CIAT-UNEP project on environmental and sustainability indicators for Latin America and the Caribbean region. It recognized that there was a need in Central America to integrate environmental, economic, and social concerns into development decision making, at the regional, national, and local levels. Such inte-

gration was designed to both improve policies and their implementation, and facilitate regular monitoring and reporting on the state of the environment and development process.

Although selected economic and social indicators were available and had influenced certain policy decisions, comparable indicators to assess, monitor, and evaluate changes in and impacts on the state and quality of the environment and natural resources were found to be lacking.

Specifically, the “Rural Sustainability Indicators for Central America” project had the following objectives:

- Develop, test, and refine environmental, land quality, and other related indicators and information tools in a user-friendly geographic information system interface, for the integration of rural sustainability considerations into policy-making and planning, and
- Improve environmental management at the regional, national, and local levels in Central American countries.

The project had a number of innovative features that contributed to its success: (a) it uses GIS in a user-friendly way, (b) it uses data available from national government institutions, (c) all the data and tools are distributed to a large number of national institutes, (d) a consultative process was used throughout the project to increase “buy-in” and local ownership of the results, and (e) key project outputs are being disseminated widely.

This project has been a highly collaborative effort. Not only have the three major partners

worked closely together in the development and execution of the project, but there has been extensive consultation with the countries in Central America. The list of those institutions and groups involved is included in Annex 1 of this report. The generous support of the Government of Denmark, and additional support from the Governments of Norway and Sweden, are also gratefully acknowledged.

Finally, on behalf of UNEP and the World Bank we wish to thank the authors of this report—Ms. Lisa Segnestam of the World Bank was responsible for the overall writing of the report with valuable input from Manuel Winograd and Andrew Farrow of CIAT. This publication is part of a package that also includes a poster outlining the steps of indicator development, specific reports on indicator development for the forestry sector, land use, and climatic risk, as well as a CD-ROM with all the data and tools used in the project.

We hope that this report, and the other products from the CIAT-World Bank-UNEP project on indicators of rural sustainability, will contribute to expanded use of indicators for improved management of Central America’s natural resources and the economies that depend on this base.

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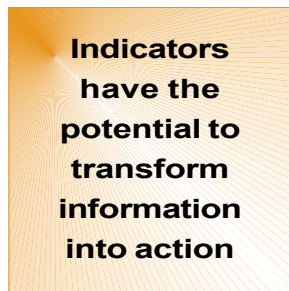
This paper, *Developing Indicators: Lessons Learned from Central America*, is the result of a collaborative project on rural sustainability indicators for Central America involving the International Centre for Tropical Agriculture, the World Bank, and the United Nations' Environment Program.

Thanks are due to Norberto Fernández of UNEP and John Dixon of the World Bank for useful comments and suggestions on an earlier version of this paper. The capable assistance of Jim Cantrell with publishing the document is gratefully acknowledged.

Neither this paper nor the project on rural sustainability indicators would have been possible without the generous support of the Government of Denmark, which is greatly appreciated, as is the support of the Governments of Norway and Sweden.

Introduction

Indicators can serve as important tools in the communication of scientific and technical information. They can also facilitate access to this information for different groups of users and, in so doing, transform information into action. As such, they can play an active role in improving policymaking processes. However, indicator initiatives require a degree of “infrastructure” if they are to result in the kinds of changes sought by users.

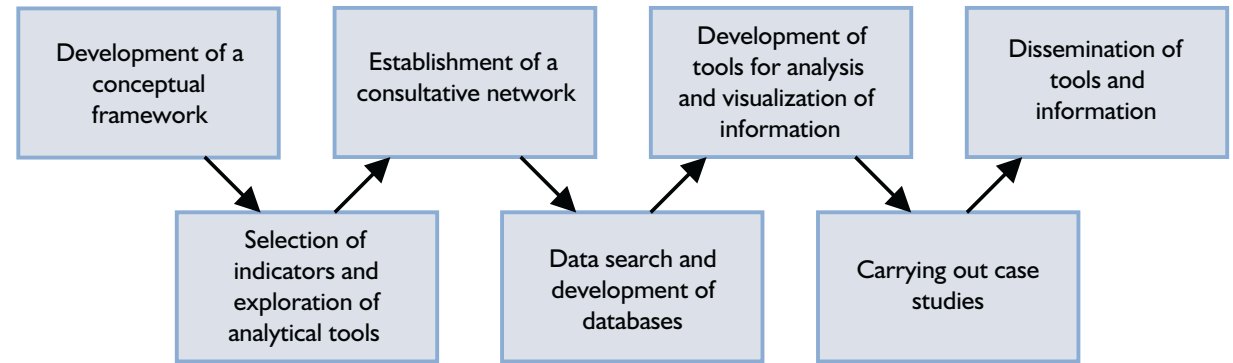


The development of user-friendly tools and the utilization of common indicator frameworks facilitate not only the transformation

of data into relevant information, but also the formulation of strategies for policymaking and planning. Common steps in indicator and information development are (see also figure 1):

- Development of a framework to structure and organize the indicators
- Definition of selection criteria for indicators, discussion on indicators versus indices, sustainable development indices, and analytical methods/tools

Figure 1. Evolution of an indicator project



- Establishment of a consultative network to ensure that the results are used and the initiative is sustainable
- Data search and development of databases for the indicator sets and analytical tools
- Development of capacities and tools to visualize information and analyze cause-effect relationships
- Carrying out case studies for the validation of the selected framework, indicators and indices
- Dissemination of information and tools.

The objective of this paper is to examine the practical challenges that face indicator developers when following these steps. It builds on the experience and lessons learned from a project in developing indicators for rural

sustainability in Central America¹ to better identify the most important aspects of each of these steps.

When the Central America (CA) project started in 1998, it was recognized that there was a need in Central America, at the regional, national, and local levels, to integrate environmental, economic, and social concerns into development decisionmaking. Such integration would both improve policies and their implementation and facilitate regular monitoring and reporting on the national and regional state of the environment and development process. Although economic and social indicators had been adopted in the region and influenced national, regional, and global policy decisions, comparable indicators to assess, monitor, and evaluate changes in and impacts on the state and quality of the environment were found to be lacking.

Box 1. Objectives of the Central American project

The CA project's objectives were to:

- Develop, test, and refine environmental, land quality, and other related indicators and information tools in a user-friendly geographic information system interface, for the integration of rural sustainability considerations into policymaking and planning
- Improve environmental management at the regional, national, and local levels in Central American countries.

Due to the similarities between Central America and many other regions in the world, the CA project has been selected to illustrate the practical challenges that are addressed in this paper. In addition the CA project's objectives are comparable to those of many other indicator initiatives (box 1). Thus the lessons learned in CA are applicable in other regions and for issues other than rural sustainability.

The CA project uses many terms that are specific to indicator and information initiatives. Box 2 provides the reader with brief explanations of the most common terms used in this paper.

Box 2. Definition of terms used in the Central American project

Metadata: Data about data, including scale, origin, start and end dates, and data publishers.

Primary data: The basis for indicators, indices, and information. The data itself usually cannot be used for interpreting change.

Statistics: Primary data in time series.

Indicators: Derived from primary data, which provides information about, for example, the state of rural development. The results obtained from the monitoring of indicators analytically extend beyond those directly associated with a data value.

Core indicator: An indicator identified as important in the monitoring of rural sustainability issues in all six of the countries included in the CA project. These indicators are mainly relevant and monitored at the national level.

Complementary indicator: An indicator identified as important in the monitoring of rural sustainability issues at the national level in one or several (but not all) of the countries included in the CA project. Alternatively, the indicator might be identified as important for the monitoring of rural sustainability in an area within one of the six countries (i.e. local level). Complementary indicators are often used to better understand the results of monitoring core indicators and indices.

Index: An aggregated or weighted indicator based on several other indicators and/or data. Indices are monitored at a regional and/or national level.

Sustainable development index: Aims to capture all issues relevant to sustainable development in one index.

Information: The result of analyses of indicators, or indices; the objective of information is to be policy relevant.

Georeferenced data or indicators: Data or indicators presented in a spatial way, that is, mapped to show varieties within the geographical area studied.

Geographic Information Systems (GIS): A set of tools for spatial analysis that permit manipulation of spatial (or georeferenced) data and indicators.