IEA

Training Manual

A training manual on integrated environmental assessment and reporting

Training Module 4

Monitoring, data and indicators

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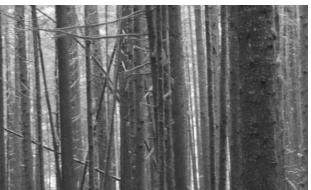










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List of Acronyms

AFEAS Alternative Fluorocarbons Environmental Acceptability Study

AQI Air Quality Index

ASTER Advanced Spaceborne Thermal Emission and Reflection Radiometer

BOD Biological Oxygen Demand

CDIAC Carbon Dioxide Information Analysis Center

CEDARE Centre for Environment and Development for Arab Region and Europe

CEOS Committee on Earth Observation Satellites

CFC Chlorofluorocarbon

CIDCM SFTF Center for International Development and Conflict Management (CIDCM)

State Failure Task Force (SFTF)

CIESIN ENTRI Center for International Earth Science Information Network –

Environmental Treaties and Resource Indicators

CITES Convention on International Trade in Endangered Species of Wild Flora

and Fauna

CLRTAP Convention on Long-range Transboundary Air Pollution
CRED Center for Research on the Epidemiology of Disasters

CRU Climate Research Unit, School of Environmental Sciences, United Kingdom

DALYs Disability-Adjusted Life Years

DEIA Division of Environmental Information and Assessment

DO Dissolved Oxygen

DPSIR Drivers – Pressure – State – Impacts – Responses

DSR Driving – State – Response

EC-JRC European Commission Joint Research Centre

EDGAR Electronic Data Gathering, Analysis, and Retrieval system, USGS

EEA European Environmental Agency

EEZ Exclusive Economic Zone

EIONET European Environment and Observation Network

UN EIP UN Economic Impact of Peacekeeping

EM-DAT Emergency Disasters Data Base, OFDA and CRED

ERS European Remote Sensing Satellites

FAO Food and Agriculture Organization of the United Nations

FRA Global Forest Resources Assessment, FAO

G3OS The Three Global Observing Systems (GCOS, GOOS, GTOS)

GCOS Global Climate Observing System

GDP Gross Domestic Product

GEIA Global Emissions Inventory Activity
GEM Gender Empowerment Measure

GEMS-Water Global Environment Monitoring Systems – Water

GEMStat Global Environmental Monitoring Systems – Global Water Quality Database



GEO DWG Global Environment Outlook
GEO DWG GEO Data Working Group

GEOSS Global Earth Observation System of Systems

GDI Gender-related Development Index

GGIS Global Groundwater Information System

Global Information System

GLASOD Global Assessment of Human Induced Soil Degradation

GMET General Multilingual Environmental Thesaurus

GNP Gross National Product

GOOS Global Ocean Observing System

GRDC Global Runoff Data Centre

GTOS Global Terrestrial Observing System

HCFC HydrochlorofluorocarbonHDI Human Development Index

HPI Human Poverty Index

ICLARM International Center for Living Aquatic Resources Management

IEA Integrated Environmental Assessment

IFA International Fertilizer Industry Association
IGBP International Geosphere-Biosphere Programme

IGOS Integrated Global Observing Strategy

IGRAC International Groundwater Resources Assessment Centre

ILAC Latin America and Caribbean Initiative for Sustainable Development

ILO International Labour OrganizationIMO International Maritime OrganizationIMS Institute of Mathematical Sciences

IISD International Institute for Sustainable Development

IPCC Intergovernmental Panel on Climate Change

IRS Indian Remote Sensing Satellite

ISRIC International Soil and Reference Information Centre

IUCN International Union for the Conservation of Nature and Natural Resources –

the World Conservation Union

LME Large Marine Ecosystem

MAMillennium Ecosystem AssessmentMEAMultilateral Environmental AgreementNAFTANorth American Free Trade Agreement

NOAA National Atmospheric and Oceanic Administration

NO_x Nitrogen Oxides

ODA Official Development Assistance and Aid

OECD Organisation for Economic Co-operation and Development

OFDA Office of US Foreign Disaster Assistance



PCB Polychlorinated Biphenyl

PM Particulate Matter

PPP Purchasing Power Parity

RCMRD Regional Center for Mapping of Resources for Development

RIVM Rijksinstituut voor Volksgezondheid en Milieu (National Institute for Public

Health and the Environment, Netherlands)

RS Remote Sensing

SEEA System of Integrated Environmental and Economic Accounting

SoE State of the Environment
SOFO State of the World's Forests

SO₂ Sulphur dioxide

TDS Total Dissolved Solids
TSS Total Suspended Solids

UBC University of British Columbia

UN COMTRADE United Nations Commodity Trade Statistics Database

UN CSD UN Commission on Sustainable Development
UN DSD UN Division for Sustainable Development

UN MDG UN Millennium Development Goals

UNDP UN Development Programme
UNEP UN Environment Programme

UNEP/GRID UNEP Global Resource Information Database

UNEP GPA UNEP Global Programme of Action

UNEP RRC.AP

UNEP Regional Resource Centre for Asia and the Pacific

UNESCO

UN Educational, Scientific and Cultural Organization

UNFCCC UN Framework Convention on Climate Change

UNH University of New Hampshire

UN-ISDR UN International Strategy for Disaster Reduction

UN-OCHA UN Office for the Coordination of Humanitarian Affairs

UNOOSA UN Office for Outer Space Affairs

UNSD UN Statistics Division

USGS United States Geological Survey

USGS EDC USGS Earth Resources Observation Systems (EROS) Data Center (EDC)

USGS GLCC USGS Global Land Cover Characterization

UV-B Ultraviolet radiation-B

WCMC World Conservation Monitoring Centre

WHO World Health Organization



Overview

A steady increase in reporting on environmental trends and performance during the past decade reflects a broad societal need for strengthening the evidence base for policymaking. We also see a growth in systems for collecting and analysing data about the environment and human well-being at local, national, sub-regional, regional and global levels. Interest in fine tuning monitoring and data collection systems to reflect the real needs of society and decision-makers is now part of the mainstream.

At some point during the process of developing your integrated environmental assessment (IEA), you will need to collect, process and analyze data. As you begin, you will need to know essentials about data collection including selecting the most appropriate and reliable types and sources of data and how to collect, store and analyze your data. This module addresses these issues, with particular focus on statistics and spatial data collection, analysis and the use of tools such as the GEO Data Portal and regional data portals to support IEA.

With data in hand, the next step will be to convert the data into a meaningful form that can be used during decision making processes. Indicators and indices help us package data into a form that speaks to a relevant policy issue. You will learn the basic building blocks of indicators and indices, including frameworks, selection criteria, and elements of a participatory indicator selection process. The module outlines these elements, and includes examples of indicators, including the GEO core indicator set.

Once you have developed indicators, you will need to derive meaning from them. What trends, correlations, or spatial relationships are revealed through the data? To answer these questions, you will need familiarity with various non-spatial and spatial analysis techniques.

A common theme running through this module is the importance of participatory processes. Understanding which stakeholders and experts need to be involved in the process, and when and how is essential because what we choose to measure reflects our values. A participatory process also provides an opportunity for change, as society seeks to improve what gets measured.

A second theme is the importance of reliable data and well-chosen indicators. This is critical to the process, because poor information can lead to poor decisions. At the same time, information needs to speak to the intended audience in a relevant way; otherwise, the most well-developed indicators could have limited impact.

Through a series of presentations, examples and exercises, this module will provide you with a number of tools and techniques necessary to complete the data collection and indicator development aspects for an IEA.

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