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Guidelines for the Preparation and Reporting on Globally-relevant SLM Impact Indicators for Project-level Monitoring

Guidelines prepared by the GEF MSP *"KM:Land"* on
Ensuring Impacts from SLM – Development of a Global Indicator System

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"Ensuring Impacts from SLM – Development of a Global Indicator System"
"KM:Land" Initiative

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List of Acronyms

ACOS	Advisory Committee on Official Statistics
ADB	Asian Development Bank
AfDB	African Development Bank
AQUASTAT	Global Information System on Water and Agriculture (of the FAO)
CIESIN	Center for International Earth Science Information Network
CRED	Centre for Research on the Epidemiology of Disaster
DESIRE	Desertification Mitigation and Remediation of Land – A Global Approach for Local Solutions
DNI	DesertNet International
DPSIR	Driver-Pressure-State-Impact-Response
DSD	Dryland Science for Development Consortium
FAO	Food and Agricultural Organization of the United Nations
GEF	Global Environment Facility
GIS	Geographic Information System
IADB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
KM:Land	Knowledge Management: Land
LADA-L	Local Assessment of Land Degradation in Drylands
LD	Land Degradation
LD FA	Land Degradation Focal Area (of the GEF)
LMP	Land Management Practices
LSMS	Living Standards Measurement Survey
LUS	Land Use Systems
MA	Millennium Ecosystem Assessment
MDG	Millennium Development Goals
M&E	Monitoring and Evaluation
NDVI	Normalized Difference Vegetation Index
NGO	Non-governmental Organization
NPP	Net Primary Productivity
PIR	Project Implementation Review
PMAT	Portfolio Monitoring and Tracking Tool
SLM	Sustainable Land Management
STAP	Scientific and Technical Advisory Panel (of the GEF)
UNCCD	United Nations Convention to Combat Desertification
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNICEF	United Nations International Children's Emergency Fund
UNU-INWEH	United Nations University – Institute for Water, Environment & Health
WB	World Bank
WCMC	World Conservation Monitoring Centre (of UNEP)
WOCAT	World Overview of Conservation Approaches and Technologies

Executive Summary

This guideline presents a set of four global impact indicators and their methodologies which, when taken together, can be used to determine the trends in combating land degradation and desertification through sustainable land management practices that improve the productivity of agro-ecosystems while generating other associated global benefits (development, human well-being, etc.). The indicators are intended to be used under the GEF-5 portfolio of projects and programmes in the Land Degradation Focal Area which aims to improve the provisioning of agro-ecosystems and forest ecosystems, reduce greenhouse gas emissions from agriculture and deforestation, reduce vulnerability to climate change and other human-induced impacts, conserve biodiversity and water resources in production landscapes, and improve livelihoods, particularly of the rural poor.

An iterative process of expert discussions, compilations and reviews of available methodologies, a dedicated pilot testing exercise (KM:Land, 2010), and a further review of methods and guidance led to the recommendations and guidance presented in this document (see UNU-INWEH, 2010 for reports of the KM:Land project).

The indicator set is meant to cover the broad range of problems that result in land degradation (LD), usually caused by multiple and coupled biophysical and socio-economic factors. The indicators are also intended to cover the actions used to prevent and reverse land degradation, that is, sustainable land management (SLM) practices.

This minimum set of indicators is intended to be used as a starting point for GEF-5 portfolio projects and programmes to address LD and SLM regardless of the frame of reference taken by different programmes and projects. However, ultimately each well-defined problem will require additional indicators to complement this minimum set.

This guideline includes a description of a conceptual framework that accompanies the indicators. The framework is a hybrid of the Driver-Pressure-State-Impact-Response (DPSIR) and Millennium Ecosystem Assessment (MA) frameworks that are relatively well known in this field. This merged framework can be used to ensure that the indicators capture the complexities of LD and SLM, and help to provide information for decision-making on better land management practices leading to improved human well-being.

A second framework to operationalise the use of the indicators is also included in these guidelines as an aid to project formulation, inception, implementation and evaluation. As projects often have problems in determining and initiating critical baseline studies that are needed for evaluating the impacts of projects, this guideline includes an extended section on this aspect of data collection.

Each indicator is described in detail with up to three sub-indicators for measurement at the project level, and takes into account the experiences of a pilot testing exercise of the indicators in five GEF-funded projects in four countries (Dominican Republic, Namibia, Senegal and Tajikistan). It is expected that further development, adaptation and strengthening of the indicators will occur as they are used and applied in other projects, and this document should thus be viewed as a reference point for future elaboration and refinement of the indicators.

Introduction

This document provides a user-friendly guide on the use of a set of four global indicators to capture the impacts of SLM achieved through projects funded in the Land Degradation Focal Area (LD FA) of the Global Environment Facility (GEF). The projects and programmes under the LD FA are expected to: improve the provisioning of agro-ecosystem and forest ecosystem services; reduce greenhouse gas emissions from agriculture, deforestation and forest degradation; increase carbon sinks; and, reduce vulnerability to climate change and other human-induced impacts on land (GEF, 2010). Since its launch in 2003, the strategic approach of the LD FA has evolved through a series of funding cycles and objectives to a point where it is ready to measure impacts. These guidelines are intended to enable project teams to immediately take up the four selected indicators for use in capturing global environmental impacts achieved through SLM, and to encourage development and improvements on the use of these indicators (see Box 1 for definitions of 'Impact' and 'Indicator').

The measurement of impacts on the ground achieved through SLM helps facilitate improved adaptive management, both within the targeted GEF-funded projects and beyond.

Box 1: Definition of Key Terms

Impact
: Positive and negative, primary and secondary long-term effects from changes in state brought about by driving forces (indirect drivers) and pressures (direct drivers) (after OECD/DAC, 2002).

Indicator
: A quantitative or qualitative parameter, or a value derived from parameters, which points to or provides information about the state of a phenomenon/environment/area. Indicators present clear and simple information on selected issues of concern, even when the targeted issue is itself highly complex (from OECD/DAC, 2002; OECD 1993; Hammond *et al.*, 1995).

Through the KM:Land Project 'Ensuring Impacts from Sustainable Land Management', a set of five[1] global indicators to capture the impacts of SLM achieved through GEF LD FA projects was selected through an expert consultation process (UNU-INWEH, 2010). This set of indicators (Table 1) was designed to capture the complexities of LD and SLM that include interacting biophysical, political, social, cultural and economic factors, reflecting the widespread understanding that impacts need to consider these interacting factors through interdisciplinary approaches (see MA, 2005; Reynolds *et al.*, 2011; Schwilch *et al.*, 2011). This set of indicators further reflects an emerging global scientific perspective concerning the definition of impacts to be anticipated from the efforts combating LD (e.g. UNCCD, 2011).

The tracking of progress towards impacts in relation to these indicators at the portfolio level requires relevant information to be collected at the project level from each of the GEF LD projects in a targeted manner, enabling and informing the collation and review of information at the portfolio and global levels by the GEF, its partner Agencies and stakeholders. A set of project-level indicators to provide necessary information for tracking four of the five global impact indicators was identified through several Expert Workshops of the KM:Land Project (Table 1).

The global impact indicators have been designed to be consistent and compatible with other processes for the generation of environmental information, such as the Guidelines and Methodologies for Reporting on Indicators of Sustainable Development (UNDESA), the Human Development Index (UNDP), the Millennium Development Goals (MDG) indicators, and the GEF Portfolio Monitoring and Tracking Tool (PMAT). Beginning in 2012, national reporting to the United Nations Convention to Combat Desertification (UNCCD) will include mandatory reporting on land cover status and proportion of the population above the poverty line in affected areas, while other impact indicators may be reported voluntarily. The proposed global impact indicators for the GEF LD FA addressed in this document are

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[1] Although five global indicators were selected, only four were developed through the KM:Land project (see footnote 2).

compatible with this system, and are designed to strengthen and complement national level collection and use of relevant data. It is therefore hoped that the process and associated guidance provided here may be of interest to the wider SLM and development communities beyond the GEF LD portfolio.

Table 1. List of Global SLM Impacts and Indicators Measurable at the Project Level*	
Global Impact	**Indicators to be Measured at the Project Level**
Land Use/Land Cover	Global Land Cover Classes (water, built-on and bare areas, cropland, forests/woodlands, grassland)
	Country-specific Land Use Systems
	Project-defined Land Management Practices (for projects operating at land use level)
Land Productivity (in different land cover and land use systems)	Annual Agri- and Silvo-cultural Production (crops, livestock and forests)
	Crop Diversity (alternative varieties, recorded # and % of total production)
	Production per Unit of Physical Inputs (i.e. water, agro-chemicals)
Water Resources Availability	Available Water Resources Volume in the Watershed
	Extracted Water Resources Volume by Land Use System across the Watershed
	Ratio of Available Water Resources Volume to Extracted Water Resources Volume
Human Well-being	Percentage of Rural Population below the National Poverty Line
	Maternal Mortality Ratio (according to national MDG reporting)
	Proportion of Chronically Undernourished Children under the Age of 5 in Rural Areas (according to national MDG reporting)

*Carbon-related indicator: to be developed through an external initiative not covered in this document[2]

Through practical use and continued scrutiny by SLM project stakeholders and scientists, the approach and methods outlined in this document can be adapted and strengthened, leading to the creation of a harmonized and/or standardized[3] global system for tracking SLM both within, and beyond, the GEF LD portfolio. The challenge in the creation of this document has been to present a requisite degree of simplicity and a limited number of indicators to enable project teams to report on each indicator to the extent of their available capacities. While orienting project teams to current available and state-of-the-art measurement approaches for each indicator, an attempt has also been made to allow space for project teams to anticipate, and indeed make contributions to, ongoing scientific progress in

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