Sustainable Land Management

Guidelines for
Impact Monitoring

PATHFINDER MODULE

Guidance for users

Pathfinder Module Guidance for users
Sustainable Land Management Module The importance of SLM
SLM Impact Monitoring Module A seven-step procedure for SLM-IM
Toolkit Module A selection of practical tools and cost-effective methods

PATHFINDER MODULE

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GPS

Sustainable Land Management Guidelines for Impact Monitoring (SLM-IM)

Executive Summary

Why sustainable land management?

On a global scale, land resources are becoming increasingly scarce, and the quality of resources such as soil, water, plants and animals is decreasing, mostly as a result of poor management. Only a few countries currently have land resources available for agricultural expansion, and in most cases the lands cultivated today are the same lands that must be protected for the future. This is a new experience for the global community, and there are still difficulties in determining the most suitable approach to achieve this goal. In the past, it was possible to open new lands of good quality to cultivation. But this often resulted in exploitation. Today, however, we must move increasingly towards better management, conservation and stewardship.

In most developing countries, the majority of people are still engaged in agriculture, livestock production, forestry and fishery. They are thus directly dependent on land resources for their livelihood. These people are often the poorest and most underprivileged strata of society. Sustainable management of land resources represents one of the few opportunities they have to improve their position. Sustainable land management (SLM) enables smallholders to gradually improve their production capacity and begin generating additional income. In turn, this stimulates local economies and produces a compounding effect which progressively brings the cycle of rural poverty and resource degradation under control. Consequently, the question for national governments and the donor community is not whether we should be promoting sustainable land management, but why haven't we been doing it up to now, or rather, how should we proceed from now on? SLM has therefore become a key element of AGENDA 21 (Chapter 14), and plays a central role in sustainable development and poverty alleviation.

Why SLM impact monitoring?

Most activities in development projects or programmes influence the productive potential of land in one way or another. Agricultural projects, for example, are directly concerned with land management. But the establishment of infrastructure, irrigation dams, rural services, refugee camps, etc. also has an impact on land resources. Land management activities can be both beneficial and harmful. Information about the status quo of the environment and about land management trends is urgently needed to decide which activities or measures will lead to sustainability. Is land management moving towards or away from sustainability? Since the impact of a project or the general trend is not always immediately visible but often becomes apparent after a project phases out, only long-term monitoring will provide insight. SLM impact monitoring (SLM-IM) is a means that provides the required information necessary for appropriate decision-making, from the project level up to the policy-making level.

The need for adequate monitoring tools

Professionals often lack comprehensive and, at the same time, flexible monitoring instruments to assess the impact of development-oriented activities on the land. Therefore, SLM-IM frequently had to be limited to a partial analysis within the overall evaluation of project performance. In order to fully acknowledge the importance of SLM for sustainable development, practical tools are needed that permit rapid, cost-effective identification of project impacts on land management. In response, an inter-institutional working group has developed the Guidelines presented here, which assist in establishing a systematic monitoring procedure that is both practical and requires limited inputs of human and financial resources. Their main aim is to make impact monitoring processes easier, by providing introductory literature, methodology and tools. Further objectives include low-cost and relatively low-tech monitoring methods, suitable for in-project and post-project monitoring. Special emphasis is given to easy accessibility of information, transparent user-guidance and systematic presentation.

Knowledge base

The Guidelines are based on current literature, project documents, and the experience of many authors and contributing development agencies. Although the Guidelines propose a basic methodology, their design is flexible and can be implemented in many stages of project execution. Since project realities vary considerably, methodologies are adaptable to local conditions. Where highly accurate data are required, specialists should be consulted, since practical indicators and cost-effective methods have their limitations in accuracy and scope.

Principal users

The Guidelines assist programme and project co-ordinators and managers (1) in initiating a monitoring procedure, selecting indicators and methods, assessing the results, and organising user-oriented outputs, presentation, dissemination and storage of the information gathered in the process of SLM-IM. The Guidelines provide project specialists (2) with tools to carry out impact monitoring.

Benefits

Investment in SLM-IM produces added value and different benefits for a project, including:

- identification of unsustainable project activities
- decision-making about activities that promote sustainability
- incremental improvement of project design and organisation
- better integration of local knowledge and capabilities
- improved goal-orientation of land management projects
- systematic learning from experience
- more efficient use of funding

Operational focus of the Guidelines

Sustainable land management in developing countries

There is growing concern among development organisations about land resource degradation related to inappropriate land management. While industrialised countries are more concerned with pollution and the sinks in the ecosystem (air, water and soil pollution, CO_2, etc.), developing countries face direct problems with the maintenance of sources of the system (soil productivity, biodiversity, etc.).

Local context

There are no global procedures or standard sets of indicators to monitor the impact of a project on SLM. Due to the specific setting of each project, SLM-IM has to be adapted to each individual situation. The Guidelines have therefore been kept open and flexible to allow adaptation to local conditions.

Participatory approach

SLM-IM is a participatory process involving project staff and various stakeholder groups. The Guidelines suggest efficient feedback mechanisms that keep local stakeholders interested in and informed about the monitoring process.

Sustainability orientation

The Guidelines focus on the integration of people's needs and the protection of natural resources in one conceptual approach to sustainability. The emphasis is on monitoring trends that indicate whether land management is moving towards or away from sustainability, rather than on monitoring against international standards and threshold values of tolerable soil or water quality.

Low-cost, low-input approaches

The Guidelines emphasise cost-efficient indicators and monitoring methods. Thus, SLM-IM is likely to be participatory and continued in a post-project phase.

1 How to Use the Guidelines

Principal users of the Guidelines

The Guidelines address a broad range of principal users:

(1) Programme co-ordinators and project managers will find assistance in initiating the monitoring procedure, assessing results and organising presentation, dissemination and storage of information.
(2) Agronomists, geographers, socio-economists or other persons conducting the monitoring will find advice about which monitoring methods to select.

As users' backgrounds may differ and not all users will necessarily have a background in land management, the Guidelines are presented in two documents containing four different modules.

Guideline documents and modules

- The **WORKBOOK** contains a brief executive summary and three modules:
  - The **"Pathfinder" Module** serves both groups of users and helps in locating relevant modules, chapters, steps and tools.
  - The **"Sustainable Land Management" Module** provides basic information on the importance of the SLM concept. It guides users in identifying possible connections between their specific programme and SLM. It is most relevant for user group (1) but also provides a background for user group (2)
  - The **"SLM Impact Monitoring" Module** briefly describes the seven steps of the monitoring procedure. It is designed to help user group (1) organise and gain an overview of the SLM-IM procedure, and provides background information for user group (2) in applying methods and tools from the Toolkit Module. SLM-IM consists of the following steps:
    - Step 1: Identification of stakeholders
    - Step 2: Identification of core issues
    - Step 3: Formulation of impact hypotheses
    - Step 4: Identification and selection of indicator sets
    - Step 5: Selection and development of SLM-IM methods
    - Step 6: Data analysis and assessment of SLM
    - Step 7: Information management
- The **"TOOLKIT"** contains methodological options corresponding to selected steps of the SLM-IM procedure. The Toolkit is most relevant to user group (2). It can be selectively used, upgraded, and supplemented by users' own methods and tools, or tailored to suit specific needs. It thus encourages users to develop and document their own methodological experience. The Toolkit consists of the following sections:
  - A: Core Issues / Impact Hypotheses
  - B: Selection of Indicator Sets
  - C: Selected Methods for SLM Impact Monitoring
  - D: Assessment of SLM

The modular design of the Guidelines was chosen to facilitate both their use and modification after a field-testing phase. Accordingly, important factors are appropriate guidance for users and ease of navigation throughout the entire document.

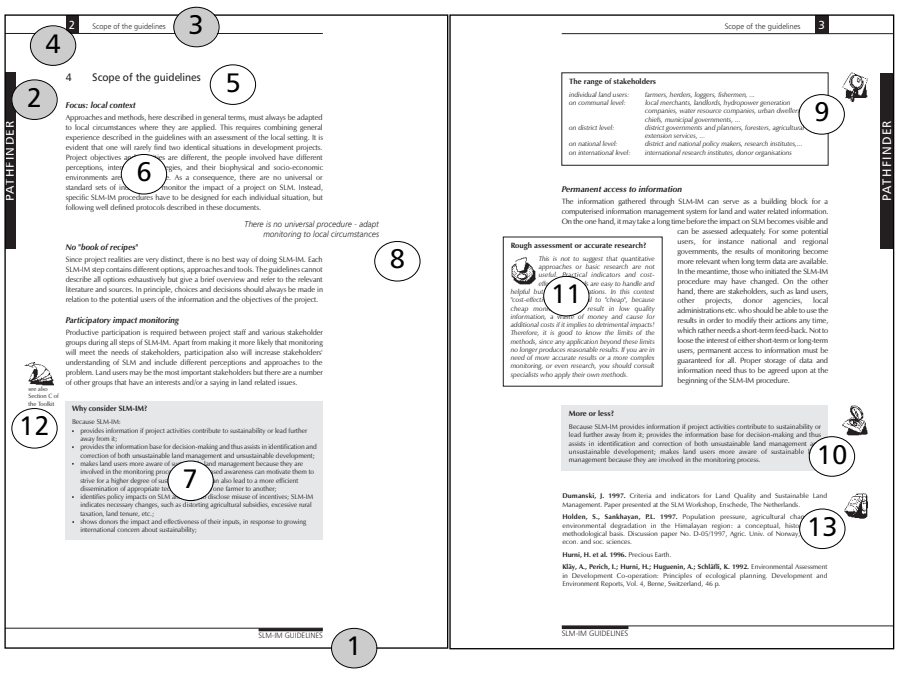
General elements of user orientation

General orientation is provided by the following means:

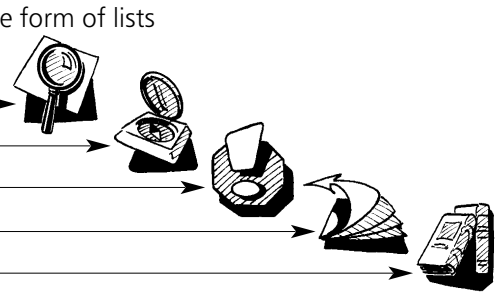
- The WORKBOOK has one general table of contents on the inside of both the front and back covers. The table of contents for each module is shown on the back of the title page of each module.
- Readers will find an executive summary at the beginning of the WORKBOOK, while the Sustainable Land Management Module and the SLM Impact Monitoring Module are introduced by their own brief module summary.

Page layout and graphic interface

1. document title
2. title of the module currently in use
3. chapter or monitoring step currently in use
4. page number



5. titles
6. main text
7. complementary information in the form of lists
8. key messages
9. examples
10. methodological hints
11. caution (pitfalls)
12. cross-references
13. bookshelf



2 Sustainable Land Management - Reasons for Impact Monitoring

Today, almost no development programme or project can afford to request funds without listing sustainable development as a key word among its goals and objectives. But in reality, the long-term goal of sustainability on the one hand, and day-to-day project implementation on the other hand, are not easily matched. For example:

- How can a project contribute to sustainable development if project funding is put at risk every second or third year?
- How can projects ensure a long-term impact leading to more sustainable development?
- Which tools can be used to observe this impact?

These questions show that development projects may have difficulties taking account of and monitoring their impacts on the land. But can any project that claims to contribute to sustainable development afford not to try monitoring its impacts? These Guidelines are designed to assist projects in bridging this gap.

Sustainability will remain an empty phrase if projects do not monitor their impacts

Because it deals with the basis of the global life support system, sustainable land management (SLM) plays a crucial role in sustainable development and poverty alleviation. Consequently, most projects aiming at sustainable development also have an impact on land quality, be it directly or indirectly. This impact, however, is often manifested after a considerable time lag, sometimes even after the expiration of a project. Therefore, monitoring the impact of projects on SLM (SLM-IM) must be designed for and ensured over a period of time beyond the end of a project. These Guidelines on SLM-IM are intended to assist project managers in improving the performance of their projects and reducing detrimental impacts. But SLM-IM appears to constitute additional work for already overburdened project staff. Why should they accept additional tasks?

Why consider SLM-IM?

SLM-IM:

- builds on and improves existing M&E procedures, and helps to assess the impacts of projects on human well-being and the environment (current M&E often focuses only on project performance);
- provides information for decision-making, improved project design and mid-course corrections;
- provides information to help determine whether project activities are moving towards sustainability or further away from it;
- helps to avoid negative or undesirable impacts of the project;
- makes stakeholders, particularly land users, more aware of sustainable land management because they are involved in the monitoring process;
- can lead to a more efficient dissemination of appropriate technologies from one land user to another;
- identifies policy impacts on SLM and indicates necessary changes, such as disclosing misuse of incentives and subsidies, improving rural taxation, land tenure, etc.;
- shows donors the impact and effectiveness of their inputs, in response to growing international concern about sustainability.

3 The Complete SLM Impact Monitoring - A Seven-Step Procedure

The complete SLM-IM procedure proposed in the Guidelines involves 7 main steps. Ideally, a project will carry out the complete process. But the flexible design of the Guidelines also allows for adaptation to many different situations and selective use of single steps, descriptions, and tools in the SLM-IM and Toolkit Modules.

Procedure, steps and key questions in SLM-IM

Step 1: Identification of stakeholders
A stakeholder can be anyone who has an interest in SLM activities, and who will eventually evaluate their usefulness. To make land management more sustainable beyond the lifetime of a project, stakeholders must assume responsibility for SLM-IM from the beginning.
Key questions for SLM-IM: Who can use SLM-IM results and for what purpose? Who will carry out the SLM-IM?

Step 2: Identification of core issues
Limited time and budgets make it difficult to address the complexity of SLM, and similarly, to monitor all its facets. Therefore, the most important land management issues, the so-called "core issues" of SLM-IM will be identified and monitored.
Key questions for SLM-IM: What is essential to make land management more sustainable? What is most important to monitor?

Step 3: Formulation of impact hypotheses
The core issues will eventually be addressed through SLM interventions, some of which may have unintended or even detrimental impacts on SLM in addition to the desired positive ones. The variety of possible impacts will therefore be estimated beforehand by formulating impact hypotheses.
Key questions for SLM-IM: Which impacts of project activities are desirable and expected? Can impacts other than the desired ones be expected?

Step 4: Identification and selection of indicator sets
To measure or observe the complexity of SLM, manageable and relevant simplifications - the so-called "indicators" - must be identified. For this purpose, a framework or structural model will be developed to assemble a meaningful set of indicators that reflects all aspects of sustainability - ecological, economic and social - and thus reveals a trend in land management.
Key questions for SLM-IM: How can indicators be searched? What indicates the sustainability of land management? How can we move from measurement to assessment?

Step 5: Selection and development of SLM-IM methods
SLM-IM methods to monitor the chosen set of indicators will be selected or need to be developed. Practical and cost-effective methods are preferred, because these remain more applicable than costly and sophisticated methods.
Key questions for SLM-IM: How can changes in land management be observed and measured? How can SLM-IM methods be developed?

Step 6: Data analysis and assessment of SLM
Firstly, the results will be analysed separately for each indicator, and secondly, SLM will be assessed as a whole. The fundamental question is whether all or only some aspects of land management show a higher degree of sustainablity than before.
Key questions for SLM-IM: Which principles need to be considered in analysing data? How can results be assessed in view of a contribution towards SLM?

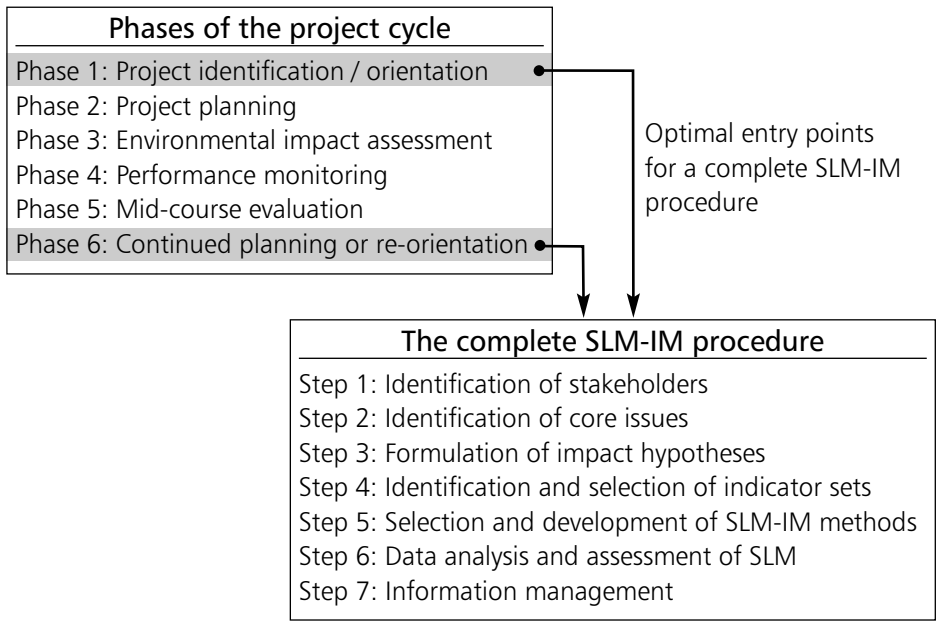
Step 7: Information management
Various stakeholder groups will use the same information, but each group has its own needs and interests. Outputs of SLM-IM will be presented and disseminated in languages and formats appropriate for different users. SLM-IM information will be stored in a way that makes it permanently accessible to everyone interested.
Key questions for SLM-IM: How can information be presented and disseminated in a user-friendly manner? How can information be stored accessibly for all stakeholders?

4 SLM Impact Monitoring in the Project Cycle

SLM-IM needs to be attached to or incorporated into existing project management activities. Optimal entry points for SLM-IM are the orientation and planning phases of a programme or project: before the project starts, or during a mid-course/re-orientation phase. These entry points will allow a complete SLM-IM procedure to be conducted as described in these Guidelines. The advantage of entering at these points is that various stakeholders can best be identified and involved. This is essential because effective long-term monitoring depends greatly on the active participation of all major stakeholders. Furthermore, impact indicators - in addition to performance indicators - can be included in the project matrix or logical framework from the beginning.

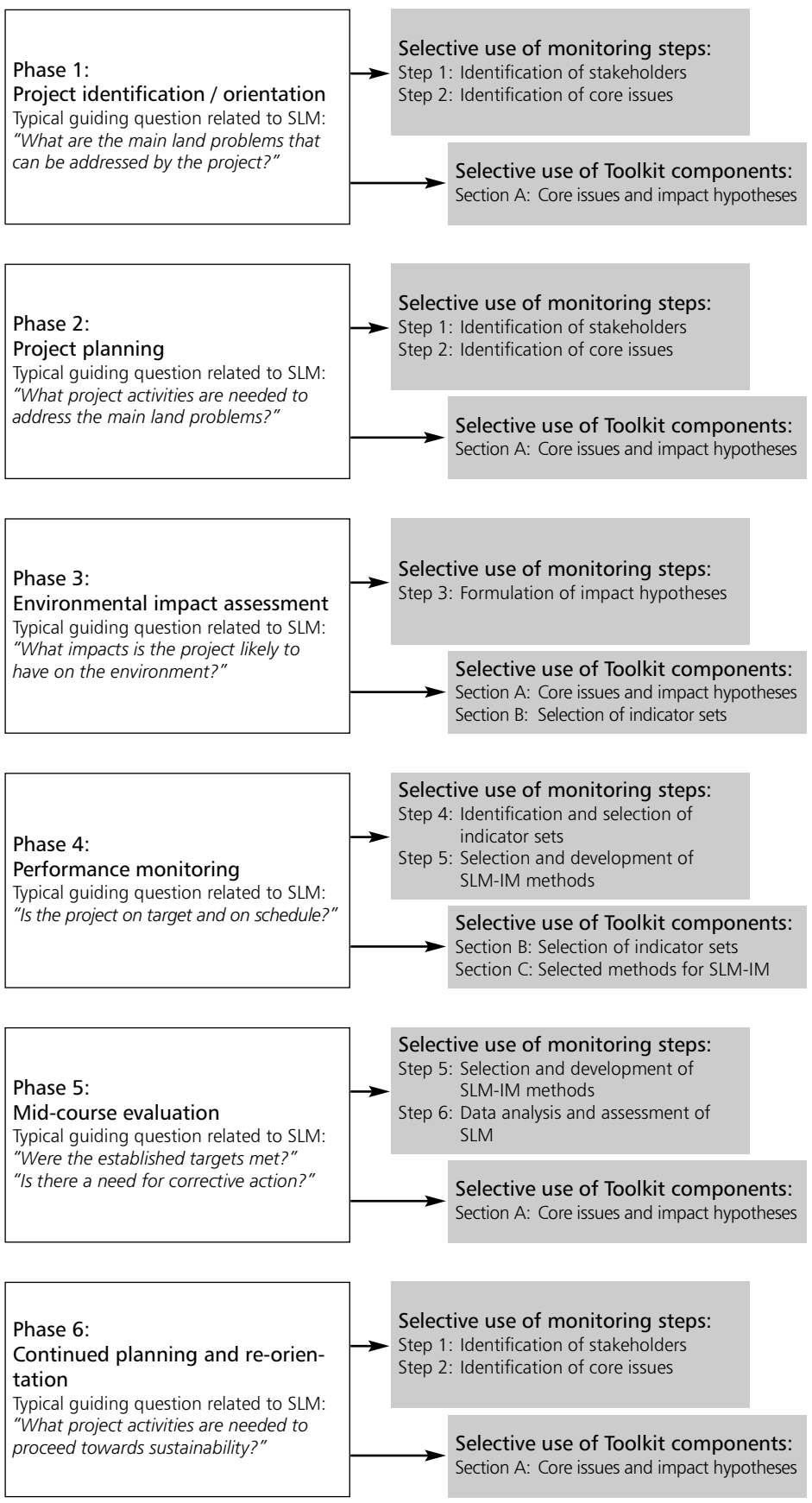
The orientation and planning phases of a project are optimal entry points for a complete SLM-IM procedure. However, during any other phase of the project cycle, single modules, chapters, steps and tools of the Guidelines can also be used selectively.

Where to fit a complete procedure of SLM-IM into the project cycle



Projects that have already passed phases 1 or 6 can make selective use of modules, chapters, steps and tools. For example, you are in the implementation phase of your project and you are already working with stakeholders, and have defined your indicators and monitoring methods. But you realise that the set of indicators is not sufficient to describe the project's impact. In this case, you would selectively use Step 4 of the SLM impact monitoring module (Identification and selection of indicator sets), and section B of the Toolkit Module.

How to make selective use of the Guidelines



5 Scope of the Guidelines

The local context

Approaches and methods, described here in general terms, must always be adapted to local circumstances where they are applied. This requires combining general experience described in the Guidelines with an assessment of the local setting. It is obvious that one will rarely find two identical situations in development projects. Project objectives and activities are different, the people involved have different perceptions, interests and strategies, and their biophysical and socio-economic environments are highly diverse. As a consequence, there are no universal procedures or standard sets of indicators to monitor the impact of a project on SLM. Thus, these Guidelines are not a blueprint. Instead, specific SLM-IM procedures have to be designed for each individual situation, but following well-defined protocols described in these documents. Each SLM-IM step contains different options, approaches and tools. The Guidelines cannot describe all options exhaustively; they give a brief overview and refer to the relevant literature and sources. In principle, choices and decisions should always be made in relation to the potential users of the information and the objectives of the project.

There is no universal procedure - monitoring must be adapted to local circumstances

Participatory impact monitoring

Productive participation is required between all stakeholder groups during all steps of SLM-IM. Apart from making it more likely that monitoring will meet the needs of stakeholders, participation also will increase a general understanding of SLM and include different perceptions and approaches to the problem. Land users may be the most important stakeholders, but there are a number of other groups that have an interest and/or a say in land-related issues.

The range of stakeholders

land users:	*women, men, elders, youngsters, farmers, herders, loggers, fishermen, ...*
at communal level:	*local merchants, landlords, hydropower generation companies, water resource companies, urban dwellers, local chiefs, municipal governments, ...*
at district level:	*district governments and planners, foresters, agricultural extension services, ...*
at national level:	*district and national policy makers, research institutes, ...*
at international level:	*international research institutes, donor organisations, ...*

Only the involvement of all major stakeholders can make long-term monitoring practical

Focus: practical tools

Long-term monitoring of changes can only be done if responsibility for SLM-IM is taken over by national and local institutions, organisations and individuals before a project ends. The use of highly sophisticated monitoring methods requires a great deal of time and money which many projects are not in a position to invest, let alone the local partners who are interested in continued monitoring. Moreover, the more complicated the methods, the more difficult it is to involve local institutions or stakeholders in SLM-IM. This implies that monitoring methods should be manageable and practical, requiring minimal time and financial input. A reasonable target for SLM-IM activities, for example, is 3-5% of the project costs. Therefore, the Guidelines emphasise indirect indicators and qualitative rather than quantitative assessment: soil colour rather than quantitative laboratory estimates of soil organic matter, and participatory wealth ranking rather than formal economic questionnaires, etc.

Practical and cost-effective monitoring increases the usefulness and continued application of monitoring beyond the termination of a project

Rough assessment or accurate research?

Quantitative approaches or basic research are the most accurate methods, but at the same time they are costly and difficult to manage for a development project. Practical indicators and cost-effective methods are easy to handle and helpful, but they have limitations. In this context, "cost-effective" is not equal to "cheap", because cheap monitoring may result in low-quality information and be a waste of money as well as cause for additional costs if it implies detrimental impacts! Therefore, it is good to know the limits of the methods, since any application beyond these limits no longer produces reasonable results. If you are in need of more accurate results or more complex monitoring, or even research, you should consult specialists who apply their own methods. It may be useful to establish contact with a local university or research institute willing and able to provide long-term services.

Permanent access to information

The information gathered through SLM-IM can serve as a building block for a computerised information management system for land- and water-related information. For some potential users - national and regional governments for instance - the results of monitoring become more relevant when long-term data are available. Other stakeholders, such as land users, other projects, donor agencies, local administrations, etc., should be able to obtain and use the results immediately in order to modify their actions any time, which requires short-term feed-back. To prevent users from losing interest, permanent access to information must be guaranteed for all major stakeholders. Proper storage of data and information, including user-oriented outputs, presentation, and dissemination, therefore needs to be agreed upon at the beginning of the SLM-IM procedure.

Only useful feedback mechanisms keep different stakeholders interested in monitoring