Environmental Management and Sustainable Development

IFAD's Environmental and Social Assessment Procedures

Enabling poor rural people to overcome poverty

IFAD

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ACRONYMS

ADB	Asian Development Bank
AfDB	African Development Bank
AP/PD	Assistant President/Programme Management Department
CAS	Country Assistance Strategy
CBD	Convention on Biological Diversity
CBO	Community Based Organization
CCA	Common Country Assessment
CEA	Country Environmental Analysis
CPM	Country Programme Manager
CPMT	Country Programme Management Team
ESA	Environmental and Social Assessment
EB	Executive Board
EC	European Commission
EEC	European Economic Community
ESIA	Environmental and Social Impact Assessment
ESIS	Environmental and Social Impact Statement
ESS	Environmental Screening and Scoping
ESRN	Environmental and Social Review Note
EU	European Union
EUGAP	European Union Good Agricultural Practices
FAO	Food and Agriculture Organization of the United Nations
GIS	Geographic Information System
IADB	Inter-American Development Bank
IAIA	International Association for Impact Assessment
IBRD	International Bank for Reconstruction and Development
IEE	Initial Environmental Examination
IFAD	International Fund for Agricultural Development
IFDC	International Centre for Soil Fertility and Agricultural Development
ILRI	International Livestock Research Institute
KSF	Key Success Factor
MAT	Maturity Assessment Template (Assessment of Program/Project Design Maturity)
MDG	Millennium Development Goal
MFI	Multilateral Financial Institutions
NAP	National Action Programme
NAPA	National Adaptation Programmes of Action
NEAP	National Environment Action Plan
NGO	Non-Governmental Organisation
NRM	Natural Resource Management
OECD	Organisation for Economic Co-operation and Development
OS	Operational Statements
OSC	Operational Strategy and Policy Guidance Committee
PB	President's Bulletin
PDR	Project Design Report

PPP	Policy, Plan and Programme
PRSP	Poverty Reduction Strategy Paper
PT	Technical Advisory Division
QA	Quality Assurance
QE	Quality Enhancement
RB-COSOP	Results-Based Country Strategic Opportunities Programme
RD	Regional Director
REA	Regional Environmental Assessment
RIMS	Results and Impact Management System
RRN	Reviewers' Recommendations Note
SEA	Strategic Environmental Assessment
SIA	Social Impact Assessment
SWAp	Sector-Wide Approach
TOR	Terms of Reference
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNCT	United Nations Country Team
UNDAF	United Nations Development Assistance Framework
UNFCCC	United Nations Framework Convention on Climate Change
UNDAF	United Nations Development Assistance Framework
WB	World Bank
WSSD	World Summit on Sustainable Development

INTRODUCTION

IFAD's Commitment to Environmental Management

IFAD's mission statement "To enable poor rural people to overcome poverty"

1. As a development institution, IFAD has been involved in addressing environmental issues for many years. IFAD's 'Administrative Procedures for Environmental Assessment in the Project Cycle' – PB/94/03 was approved in 1994, broadly mandating the Fund to ensure that all environmental issues associated with its operations are adequately addressed. The Administrative Procedures included provisions for: (i) improving environmental quality of operations financed by the Fund; (ii) promoting the conservation and sustainable management of natural resources with specific references to environmentally sustainable practices for biological diversity and protected area management, fisheries, range resources, forest resources, wetlands and water resources; (iii) environmental categorisation of projects entering the pipeline; and (iv) environmental impact assessments (EIA) for all projects with classification of Category A.

2. The imperative to recognize and act upon the linkages between poverty and environment in IFAD's operations is particularly strong given the generally negative changes in the world's ecosystems. The 2006 Millennium Ecosystem Assessment (MA) summarized the importance of ecosystem goods and services to the well-being of human populations throughout the world. It also highlighted the particular vulnerability of poor people to declines in ecosystem goods and services, because their lifestyles are disproportionately dependent upon the provisioning services of ecosystems and they frequently lack other options. As a specialised agency of the United Nations, IFAD actively embraces the principles of sustainable development and is demonstrated in its support to the Global Mechanism of the United Nations Convention to Combat Desertification (UNCCD) and the International Land Coalition (ILC). As an executing agency for the Global Environment Facility, IFAD has taken a key role in dealing with threats to the global environmental commons, such as biodiversity loss, deteriorating International Waters, Climate Change, desertification and Land Degradation, with a special focus on the latter three because related issues (in isolation or combined) threaten the livelihoods of nearly one billion poor rural people around the globe. These threats present new urgent challenges, especially to poor rural communities many of whom depend entirely on natural resources for their daily livelihoods. The Fund's commitment to sustainable development is also illustrated in its Strategic Objectives wherein, a balance of economic growth, social cohesion and equity, agricultural productivity/production, environmental protection and sustainable natural resource management are considered as fundamental to its core mandate of rural poverty reduction – a link recognised by the Comprehensive Development and in the Multilateral Environmental Agreements

(MEAs) set forth in the Millennium Development Goals (MDGs). Through the afore-mentioned efforts, the Fund has built up a portfolio of investments devoted to environmental issues and rural poverty reduction and continues to make progress in "mainstreaming' environmental and social objectives into its operations (loans, grants and policy dialogue).

3. These updated Environmental and Social Assessment (ESA) Procedures entitled 'Environmental Management and Sustainable Development', hereafter referred to as ESA Procedures, draw on lessons learned on the basis of past and recent experience on environmental issues by IFAD and other partners, and it sets a direction for the Fund's future actions in the environment and natural resources area for the longer term. The focus is on an integrated assessment of the environmental, social and economic factors, which are the key elements of rural poverty reduction and sustainable development, complemented by broader factors such as institutions and governance dimensions. These procedures respond to a changing global context and take into account current realities that influence environmental sustainability, such as: (i) the links between poverty reduction and sustainable natural resource management; (ii) increased role of community participation, including Indigenous Peoples, in decision-making and governance processes; (iii) evolving new approaches to development effectiveness; (iv) changing roles of private and public sectors, and civil society; (v) generating local and global environmental benefits and opportunities to address challenges such as climate change and desertification; (vi) country-level environmental analysis to inform both country strategies and dialogue; (vii) innovative markets and mechanisms for global environmental public goods; and (viii) application of best practices and standards of the international community. The ESA Procedures apply these lessons to our future efforts (see Tables 1 and 2).

4. These ESA Procedures replace the earlier IFAD 'Administrative Procedures for Environmental Assessment in the Project Cycle' and make no attempt to provide a comprehensive list of environmental and natural resource issues in IFAD's borrower countries. In view of the great diversity of environmental, economic, institutional and social challenges across the borrower countries, it seeks to address these challenges by providing a common approach that allows for flexibility in carrying out environmental and social assessments, responding to the diversity of needs. A central theme, therefore, is the importance of working with borrower countries and partners to develop and implement policies, plans, programmes and investments that not only address the links of environment and poverty but also tailor IFAD support according to differences in environmental management capacity in respective countries.

5. These Procedures are unique from existing environmental guidelines of other partners as the focus is on the rural poor and the important role that sound management of environment and natural resources plays in promoting livelihoods in poor rural settings. The ESA Procedures work in a complementary fashion with other IFAD initiatives which include (i) strategies; (ii) policies[1]; (iii) QE Guidance Notes; (iv) risk management of its portfolio; and (v) transparency and accountability. These five elements have implications for issues that are important for the mainstreaming of environment in IFAD operations, in particular, the identification of suitable entry points for enhanced quality of the design and implementation support of IFAD projects and programmes. The Procedures should enable users to identify environmental constraints as well as opportunities when pursuing economic and social development objectives in rural areas. The Fund will endeavour to operationalise these Procedures by enhancing measures to mainstream the environment into overall economic and social development of its operations, and to safeguard the environment in all its activities, while improving the livelihoods of poor rural people.

[1] These include:
(i) IFAD targeting policy: Reaching the rural poor;
(ii) IFAD policy on supervision and implementation support

6. These ESA Procedures are a product of a broad consultation process that has involved staff from IFAD and selected resource persons from multilateral and bilateral development agencies. The consultations have played an important role in shaping these Procedures in order to align it with those of other Multilateral Financial Institutions and country priorities, and with IFAD's new Quality Enhancement and Assurance process. Continuous communication and collaboration with borrower countries, partners and IFAD staff in the Programme Management Department, as well as systematic monitoring and assessment of the effectiveness of the ESA Procedures, are essential to its further updating, improvement, and successful implementation. In order to achieve this, what is required is an integrated approach that focuses on the ways that both environment and social aspects impact poor rural livelihoods and builds on: (i) lessons from past and ongoing efforts; (ii) changing global trends; and (iii) IFAD's comparative advantage (see Table 1). We expect that this approach will continue resulting in updated ESA procedures to enhance quality at entry.

7. There are six main parts of the ESA Procedures. This Introductory section introduces the general concepts and ideas related to environmental and social assessment and highlights IFAD's Environmental and Social Values and Principles. Chapter I provides information necessary to formalize IFAD's approach to ESA in the Quality Enhancement and decision-making processes, and a set of supporting materials that will guide IFAD missions to introduce the necessary environmental and sound dimensions systematically into all IFAD operations. Chapter II provides information on Strategic Environmental Assessment (SEA) as a planning tool and provides suitable entry points for the SEA process in the development of RB-COSOPs. The next part is Glossary followed by a section on References which provides a bibliographic compendium of selected assessments and management guidelines that deal with specific environmental and social aspects. The last part consists of a set of Operational Statements to assist in environmental and social screening/scoping of projects and programmes, as well as strengthening of the respective designs.

Table 1
What's new in IFAD's approach to environmental and social issues?

Key Factors of Change	Strategic Framework	Tools/Instruments	Institutional Realignment
Lessons learned			
▪ Build on field realities and impact concerns ▪ Set realistic targets ▪ Focus on country ownership	▪ Emphasis on poverty-environment links. ▪ Focus on targeting and gender equality ▪ Emphasis on Institutional Strengthening	▪ Country diagnostic studies ▪ Guidance/Learning Notes ▪ Operational Statement ▪ Portfolio reviews	▪ Emphasis on poverty and vulnerability assessments ▪ Institutional commitments such as field presence, implementation support, supervision and knowledge management
Changing context			
▪ Globalisation ▪ Increasing role of public/private partnership ▪ Stronger role of regional organizations and the civil society ▪ Increasing role of research ▪ Focus on comparative advantage	▪ "Mainstreaming" (inter-sectoral linkages) and upscaling (focus on best practices and policy dialogue) ▪ Emphasis on institutional strengthening including Community-Based Natural Resource Management	▪ Strategic Environment Assessments (SEAs) ▪ Policy dialogue ▪ Grant policy ▪ IFAD Supplementary Funds	▪ Innovation mainstreaming ▪ Focus on challenges such as climate change, desertification, food crisis and emerging diseases (i.e. avian flu) ▪ Innovative financing mechanisms such as ecosystem markets ▪ Strategic partnership ▪ Grant/policy processes ▪ Global and Country grants
Changing IFAD			
▪ Comprehensive Development Framework ▪ Focus on integrated environmental and social assessments ▪ Focus on quality at entry ▪ Focus on Indigenous Peoples & the Marginalised Poor ▪ Focus on agricultural productivity/production ▪ Focus on fragile states	▪ Focus on maximising local and global environmental opportunities ▪ Emphasis on natural resource management	▪ Targeting policy ▪ Gender-sensitive poverty and livelihood analysis ▪ Risk/vulnerability assessments ▪ Key Success Factors ▪ Sector-wide Programmes ▪ Changing lending instruments ▪ Results-based strategic programmes/ approaches ▪ Participatory tools ▪ Free, prior and informed consent	▪ Policy on supervision and implementation support ▪ Framework for Gender Mainstreaming in IFAD's Operations ▪ Results and impact monitoring ▪ Linking local to global environmental benefits ▪ Quality enhancement and assurance processes ▪ Staff training ▪ Policy Forum

Box 1 IFAD'S Environmental and Social Values and Principles

In support of the Fund's mission to enable poor rural people to overcome poverty, IFAD is committed to adopting the following environmental and social values and principles:

A. Address the vulnerability and adaptation needs for the rural poor. In this context: (i) address the cause-effect relationship between rural poverty and environmental degradation; (ii) ensure that its operations support the efficient use of natural resources, subject to their regenerative capacity; (iii) adopt approaches that foster mediation to help rebuild social cohesion and good governance of natural resources; and (iv) wherever possible make use of indigenous knowledge & technologies that improve rural livelihoods while safeguarding the environment.

B. Promote the sustainable use of natural resources and protection of key ecosystems. Ensure that its operations (agricultural, fishery, forestry, livestock, micro-enterprise development, promotion of rural finance) do not lead to unnecessary clearing of tropical forests, unsustainable utilisation of natural resources, the inundation of irrigation storage reservoirs, the loss of biodiversity (loss or threat of biodiversity and the elimination of important breeding grounds and habitats such as fish nurseries, etc). This shall apply especially to those activities in which the intensification of agricultural production and value chain development are specific objectives.

C. Focus on partnership-oriented initiatives for improved social and environmental quality. Consider the diversity of environmental and social factors which impinge on its activities – such as population dynamics, health and sanitary conditions, institutional strengthening, environmental awareness - to expand use of win-win practices across collaborating institutions and maximise impact.

D. Address environmental and social impact assessments of agricultural and non-agricultural activities in an integrated manner. Where impacts are found to be potentially detrimental to the environment and rural livelihoods, undertake suitable measures to mitigate risks and adverse impacts, and thus ensure the sustainability of its rural poverty programmes.

E. Incorporate externalities and minimize social costs. Mitigate diseconomies imposed by an IFAD-financed operation on the environment external to the project boundaries. Where possible, its operations shall address the affected areas as well, through joint projects (which may constitute an entire command area or watershed) to minimise social, economic and environmental costs in the affected area and, where possible, to incorporate the externalities.

F. Implement participatory approaches, with special emphasis on the role of women. Strengthen local farm-level organizations and user groups, essential for promoting environmental sustainability and social cohesion. In this regard, promote appropriate incentive systems and maximise the opportunities for local grass-root organizations and the target group, with special emphasis on the role of women, to participate in project/programme design and implementation, as well as in cost recovery and delivery systems.

G. Promote the development of Indigenous Peoples and other marginalised groups (pastoralists, hunters and gatherers). Through its operations, enhance their livelihoods: secure ownership /access to ancestral land and territories; strengthen their institutions, promote Free Prior Informed Consent (FPIC), and value indigenous knowledge systems.

H. Promote environmentally sound agricultural and manufacturing processes. These include Traditional and Indigenous Technologies, Integrated Pest Management (IPM), use of biological control and cleaner technologies. Whenever it is necessary to use agrochemicals in its investment projects, ensure (through enhanced environmental awareness, farmer training & improved field extension services) the proper application, storage and disposal of agricultural chemicals in line with international standards.

I. Ensure systematic environmental and social monitoring. Focus on projects identified as 'at risk' or in 'sensitive areas' centered on its Results and Impact Management Framework to help promote continued diligence in pursuing its environmental objectives. Committed to maintaining transparency, continue the disclosure of any information considered useful in clarifying its operations, within the limitations of its Disclosure Policy.

J. Undertake Strategic Environmental Assessments; where appropriate; undertake integrated environmental and social assessments at critical points of the Plan, Policy and Programme cycles centered on results of promoting aid effectiveness, while focussing on promoting better sustainable regulatory and institutional frameworks of countries.

Table 2.
Addressing environmental issues in the context of IFAD's strategic objectives and principles of engagement

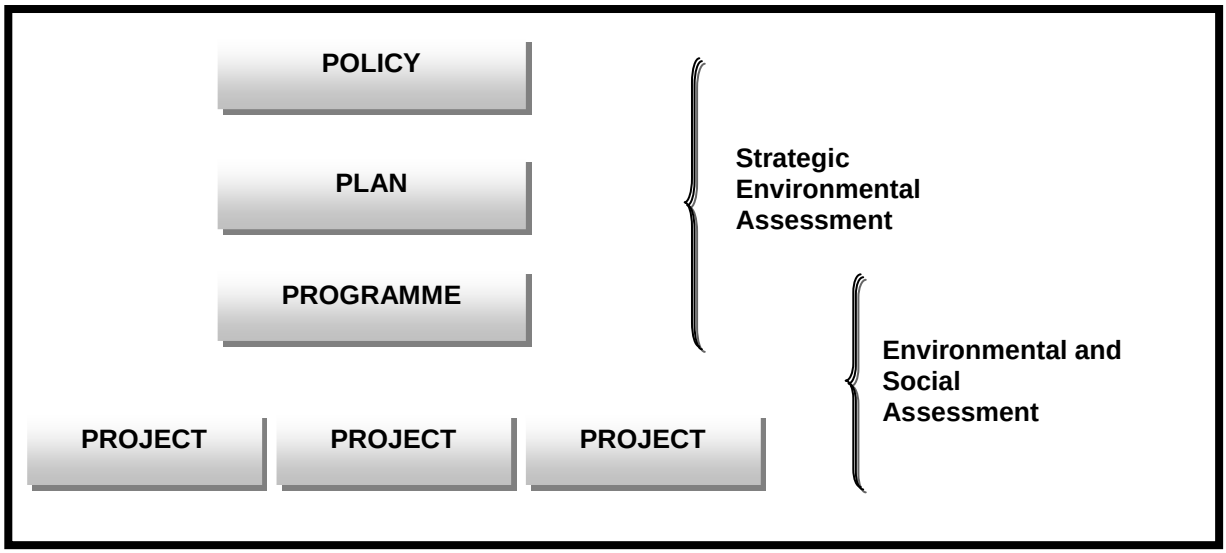
Strategic objectives, principles of engagement	Entry points and priorities from an environmental perspective
1 Natural resources, especially secure access to land and water, and improved natural resource management and conservation practices	▪ Establish links between poverty and NRM ▪ Policy dialogue on incentives to optimize local control over, and access to NR ▪ Environmental awareness for user groups (in water, community forest, etc.) ▪ Indigenous/traditional knowledge and roles in protecting biodiversity and the natural resource base ▪ Positive synergies between relevant activities.
2 Improved agricultural technologies and effective production services	▪ Environmentally friendly technologies (water, soil conservation, energy, etc.) including Indigenous Technologies ▪ Training and extension, Environmental Awareness / Education ▪ Organic Farming ▪ Improved management of indigenous locally adapted plants & animals ▪ Judicious use of agrochemicals ▪ Innovation in agriculture
3 A broad range of financial services	▪ Capacity building of MFI and financial institutions ▪ Environmental screening of activities (including list of unsustainable practices) ▪ Environmental performance, impact of microfinance institutions ▪ Rewards for Environmental Services
4 Transparent and competitive markets for agricultural inputs and produce	▪ Strengthen capacity on good agricultural and manufacturing practices (i.e. EUGAP) ▪ Improved markets for Indigenous products (indigenous grains, wild honey) ▪ Promote clean technologies
5 Opportunities for rural off-farm employment and enterprise development	▪ Mitigate cumulative adverse impacts (exploitation of raw materials) ▪ Mitigate environmental pollution (soils, water, etc.) ▪ Occupational safety and health risks ▪ Tailor skills and vocational training on environmental issues for different target groups ▪ Off-farm activities
6 Local and national policy and programming processes	▪ Use of analytical tools such as Strategic Environment Assessments and Country Environmental Assessments in development of PPPs ▪ Establish positive synergies with relevant frameworks (NAPs, NAPAs, NEAPs, PRSPs etc) ▪ Focus on the community and municipal levels ▪ Influence policy reform on natural resources
7 Emerging issues	▪ Climate change ▪ Alternate energy including bio-energy ▪ Genetically Modified Organisms (GMOs) ▪ Disaster mitigation (Drought, Desertification & Floods) ▪ Risk and vulnerability assessments ▪ Food crisis – agricultural productivity/production ▪ Synergies with Multilateral Environmental Agreements

Chapter 1. ENVIRONMENTAL AND SOCIAL ASSESSMENT PROCEDURES

1.1. Introduction

1. In order to make Environmental and Social Values and Principles (Box 1) fully operational within the context of IFAD's mandate, the Fund applies its Environmental and Social Assessment Procedures to formalize the integration of environmental and social issues in its rural development initiatives. Mainstreaming Strategic Environmental Assessments (SEAs) and ESAs in IFAD's operations will provide information and analysis that strengthen the environmental and social dimensions of policies, plans and programmes and minimize or avoid negative environmental impacts. This will increase the consistency, transparency and accountability in decision-making concerning the environmental and social dimension of IFAD's policies, plans, programmes and projects (see Figure 1).

Figure 1
Mainstreaming environmental and social considerations in IFAD



(Source: adapted from OECD, 2006)

1.2. Purpose of mainstreaming ESA

2. The purpose of mainstreaming ESA throughout IFAD's operations is to ensure that: (i) interventions incorporate principles of environmental sustainability and maximize opportunities and enhance poor rural livelihoods, and (ii) environmental and social considerations are integrated in a timely fashion when necessary. Mainstreaming ESAs in IFAD's operations will provide information and analysis that strengthen the environmental and social dimensions of policies, plans and programmes and minimize or avoid negative environmental impacts.

3. Through the adoption of SEAs, key environmental issues will be appropriately addressed at the earliest stages of decision-making and included in the development of IFAD policies, Results Based-COSOPs and programmes (see Chapter II). This will create an overall environmental management

framework within which specific programme/project proposals can be assessed using the ESA tool (see Table 3).

Table 3.
The Use of ESA and SEA

Environment and Social Assessment (ESA)	Strategic Environmental Assessment (SEA)
Is reactive to a development proposal	Is pro-active and informs development proposals
Is used to assess the effect of a proposed development on the environment and socio-economic conditions	Is used to assess the effect of the existing environmental and socio-economic conditions on development opportunities and constraints
Relates to a specific programme/project	Relates to areas, regions or sectors of development
Enables the identification of programme/project-specific impacts	Enables the development of a framework against which positive and negative impacts can be measured
Has a well defined beginning and an end and focuses on informing a specific decision at a particular point in time	Is a process aimed at the development of a sustainability framework to inform continuous decision-making over a period of time
Is focused on the mitigation of negative impacts and the enhancement of positive impacts	Is focused on maintaining a chosen level of environmental quality and socio-economic conditions (e.g. through the identification of sustainability objectives and limits of acceptable change)
Has a narrow perspective and includes a high level of detail	Has a wide perspective and includes a low level of details to provide a vision and overall framework
Limited review of cumulative impacts, often limited to phases of a specific programme/ project	Inherently incorporates consideration of cumulative impacts

(Source: Adapted from DEAT, 2004 and OECD, 2006)

4. The use of ESAs will identify and address programme/project-specific environmental and social issues, informed by the considerations raised in the SEA, and incorporate appropriate preventive actions and/or mitigation measures into programme/project design.

5. It is expected that mainstreaming ESA principles in IFAD operations will ensure that Country Programme Management Teams (CPMTs) continue to address environmental and social considerations as an integral part of their work and that they will seize opportunities for assisting the rural poor to manage their natural resources in a sustainable manner to reduce rural poverty and hunger and enhance rural livelihoods.

6. IFAD's approach with respect to mainstreaming ESA principles may be subject to further modifications by the AP/PD and supplementary guidelines; further Operational Statements to guide the ESA process may also be issued.

1.3. General ESA provisions

1.3.1. ESA Responsibility

7. Any ESA required during programme/project design is the responsibility of the borrower country, as is the case for programme/project preparation in general. Any ESA deemed necessary during the implementation phase is also the responsibility of the borrower. In both cases IFAD will support the process to ensure that both IFAD and borrower ESA requirements are met.

1.3.2. Financing of Environmental and Social Assessments

8. The costs of ESA studies undertaken during the preparation of RB-COSOPs and programmes/projects will be part of the Programme Development Financing Facility (as laid out in EB 2001/74/R.7/Rev.1-and any subsequent amendment to this document that may take place). For studies undertaken during implementation, the associated costs are to be included in the loan provision including any additional cost of ensuring full community participation.

1.3.3. Projects initiated by co-financing institutions

9. For projects initiated by co-financing institutions, such as IBRD, ADB, AfDB and IADB, the respective environmental and social safeguards/procedures of the initiating institution will take precedence over the IFAD ESA procedures described below. In these cases: (i) the initiating institution will support the ESA process and ensure that borrower requirements are met; and (ii) fulfilment of the initiating co-financer's ESA requirements will be deemed, in principle, to satisfy IFAD's ESA requirements. Unless otherwise specified, the initiating institution will support the borrower in ensuring environmental due diligence throughout the project cycle.

1.3.4. Consultation in the ESA process

10. In conformity with IFAD's emphasis on participation in programme/project design and implementation, full consultation with the programme/project stakeholders, including beneficiaries, affected populations (especially the marginalized poor), representative non-governmental and community-based organizations and other interested parties, will continue to be sought on environmental/natural resource management issues during the respective programme/project cycle. To ensure active and useful participation, IFAD will also continue to support capacity building of communities and the public with emphasis on critical issues such as Poverty and Environment Biodiversity Loss, Climate Change and Desertification. Community participation should be an integral part of the planned RB-COSOP and project stakeholder consultation process as much as possible.

1.3.5. Disclosure of documentation related to ESA process

11. The sharing of reports with programme/project stakeholders and other interested parties resulting from IFAD's ESA process will be subject to the same procedures that currently apply to the distribution of IFAD's Project Design Reports. In line with IFAD's Disclosure Policy (EB 2006/89/R.5.Rev.1), ESA reports will be made available upon request to stakeholders and other interested parties, subject to agreement by borrowing member countries.

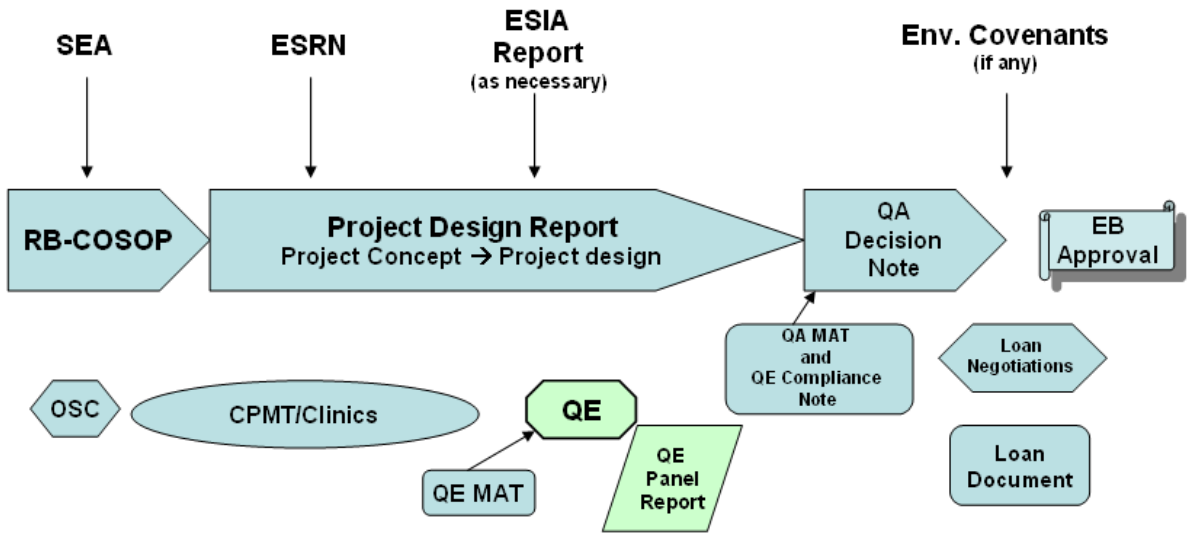
1.4. Incorporation of ESA into IFAD's Quality Enhancement (QE) process

12. IFAD's ESA process is fully incorporated into the Quality Enhancement process (PB/2008/01 'Guidelines for project design, for internal project review and for quality assurance'). Country

Programme Management Teams and particularly CPMs are assigned the central role of overseeing the ESA process and implementing the ESA procedures with respect to their programme/project proposals. The steps in the ESA process may be merged and not all projects will be subject to all steps. Furthermore, the intensity of action required at each step will depend on the nature of the project.

13. The mainstreaming of the ESA process into IFAD's Quality Enhancement process can be represented schematically in Figure 2.

Figure 2.
Quality Enhancement Process: Flow Chart Design Stages



(i) The Maturity Assessment Template (MAT) provides a robust indicator of quality at entry (environment and social safeguard issues are incorporated in Key Success Factors 3 and 5).

(ii) Each successive MAT should focus on how maturity of design has evolved.

(iii) Specific environmental risks for implementation, including Borrower responsibility for due diligence, to be resolved at loan negotiations.

(iv) Both ESRN and ESIA reports are part of the Project Life File.

Table 4.
ESA Process Mainstreamed in the Project Cycle

Project Stage	ESA Document requirements	Reference	Purpose	Main contents	Responsibility
Pre-lending phase	SEA, if considered necessary	RB-COSOP (contains pipeline with indicatively three proposals) Project Life File	- Integrate environmental considerations into policy and planning, evaluate the inter-linkages with economic/social considerations	Strategic priorities to enhance institutional capacity on NRM	CPMT/STA Environment
Project Concept (within the COSOP or Inception Memorandum/ Concept Note for countries without a COSOP)	Preliminary ESRN	RB-COSOP Mission report Concept Note Project Life File	- Collect environmental information on proposed activities - Preliminary categorization	Govt policies, institutions addressing environment, Country's environmental regulatory framework, main site characteristics, major environmental concerns. Linked poverty and environment indicators.	CPMT/CPM
Project Design (Early design stage)	ESRN	PDR Mission report Project Life File	- Confirm environmental category - Identify magnitude and detail likely environmental and social impacts, propose alternatives, preventive actions, mitigation measures and any design changes required	Project description, issues in natural resources management, potential social and environmental impacts and risks, Recommended features of project design to improve NRM and mitigate environmental concerns, Monitoring aspects, components (if any) requiring ESA, justification of category assigned.	CPMT/STA Environment
Project Design (Final design stage)	ESRN ESIA report, if Category A)	PDR Project Life File	- Integrate design changes and environmental management plans, if any, into the Project Design Report	Description of Env/NRM-related activities in the project, description of modifications to project design, environmental management plan details, monitoring and evaluation, conditions to loan agreement, outstanding risks.	CPMT/RD
Implementation	Analysis of env. issues in supervision reports	Project Supervision reports Project Life File	- Supervise implementation of activities specified in ESRN (Cat. B) or in ESIA (Cat. A)	Analysis of environmental impacts, performance of the environmental monitoring plan according to objectively verifiable indicators	CPMT/co-financiers
Completion/Evaluation	Ex post facto ESIA for Cat. A projects	Completion Reports, Evaluation Reports Project Life File	- Evaluate completion of the activities specified in the ESRN (Cat. B) or in the ESIA (Cat. A)	Evaluation of project environmental outcomes, results of the environmental monitoring according to objectively verifiable indicators	CPMT/ co-financiers

1.5. Environment and Social Assessment: Project and Programmes

14. The basic steps of IFAD's ESA process are summarized in Box 2 below. These steps are described in the text that follows.

Box 2.
The ESA Process

(a). Environmental Screening and Scoping (ESS)
(b). Environmental and Social Impact Assessment (ESIA)
(c). ESIA Review and Recommendations
(d). Loan Negotiation
(e). Board Approval
(f). Project Supervision
(g). Project Completion and *ex post facto* ESIA

1.5.1. Environmental Screening and Scoping

15. The first step in the process is the environmental screening and scoping (ESS) exercise. It is undertaken for all IFAD loan operations (programmes and projects) entering the pipeline. The purpose is to identify the main environmental and social issues associated with the programme/project proposal and define environmental assessment or analysis needs critical for enhancing quality of project design and implementation. It should draw on and be informed by the environmental issues raised in the SEA's findings, as reflected in the RB-COSOP. It culminates in the Environmental and Social Review Note (ESRN), which is part of the Project Life File. Relevant information is summarized under and KSF 5 of the MAT. Preparation of the ESRN is the responsibility of the Country Programme Management Team (CPMT), under the leadership of the CPM.

16. The ESRN should contain the following:

(i). A preliminary overview of the principal environmental/NRM and social issues in the programme/project area and identification of any significant environmental/NRM impacts and social concerns likely to be associated with the programme/projects (clearly indicating any community concerns).

(ii). Justification for the environmental category (A, B, C) to which the programme/project proposal is assigned on a preliminary basis, with references also to country social and environmental policy, legislation and institutions, as well as the ESA requirements of any co-financer. For programmes/projects initiated by the co-financer, this includes a description of the ESA requirements of the co-financing agency and the extent to which its ESA procedures satisfy IFAD requirements.

(iii). Specific requirements for future project processing, including: (i) preliminary indications of the scope of the ESA likely to be required during formulation for Category A project proposals, or the type of environmental analysis required for Category B proposals; (ii) any consultation requirements on the environmental dimensions of the project proposal (and if available, views of interested parties on the environmental dimensions of the proposal); and (iii) budgetary requirements.

17. To ensure an integrated approach to environmental management, relevant Guidance/Learning Notes and diagnostic studies should be consulted. The outline and required information for the ESRN is provided in Annex 1.1.

18. The ESRN assigns the programme/project proposal to one of three categories (A, B, or C) according to the likely significance of environmental and social concerns in relation to criteria laid out in section 1.6 ("Criteria for Project Categorisation"). The three categories are:

> **Category A:** The programme/project may have significant environmental and social implications that are sensitive, adverse, irreversible or unprecedented and affect an area broader than the sites or facilities subject to physical interventions. A formal ESIA is likely to be required for the whole programme/project or one or more components.
>
> **Category B:** The project may have some environmental and social impacts on human populations or environmentally significant areas but which are site-specific and less adverse than Category A. While no formal ESIA is required, environmental analysis will be undertaken in the course of project implementation.
>
> **Category C:** The project will have negligible environmental and social implications – no further environmental analysis is specifically required.

19. The rationale for the decision and the assigned classification are included in the ESRN. The Technical Advisory Division provides a technical judgment on the ESRN and the final rating of the programme/project rests with the QE Panel.

20. For programmes/projects classified as **Category A**, a formal environmental and social impact assessment (ESIA) is required (see below). For those classified as **Category B**, satisfactory incorporation of mitigation measures in the design as specified in the ESRN, fulfills the ESA requirement for the programme/project. For those classified as **Category C**, no specific action is required.

21. Compliance with the ESRN is ascertained in the Reviewers' Recommendation Note and in the QE Panel Report in the context of the formal QE review. The Maturity Assessment Template (MAT) should contain a brief section describing the quality of the ESS (KSF 5).

1.5.2. Environmental and Social Impact Assessment (ESIA)

22. The second step, in the ESA process involves an ESIA, which must be carried out for all programmes/projects classified as **Category A.** In some cases a specific study may be required for some components of Category B projects as identified in the ESRN.

23. Generic requirements for the ESIA are given in Annex 1.2. The precise nature of the assessment to be undertaken, however, will depend primarily on the nature and scale of the issues to be addressed (see Annex 1.3 for a proposed outline of the ESIA report). Ultimately, it is important that the assessment focus on the issues identified as significant in the ESRN (consult the relevant Operational Statements/Learning Notes).

24. The ESIA is undertaken as early as possible and completed well in advance of the project formulation phase so that its results can be fully reflected in the final Project Design Report. Unless otherwise decided by AP/PD, the study should be completed and cleared before project approval. It is the responsibility of the CPM to ensure that the ESIA is undertaken in a manner that meets the requirements of both IFAD and the borrower (see Annex 1.4 for sample terms of reference for an ESIA). ESIA reports are cleared by the relevant Regional Director after technical judgment has been provided by the Environment/NRM Senior Technical Advisor.

25. Compliance with ESIA procedures is ascertained in the Reviewers' Recommendation Note and in the QE Panel Report in the context of the formal QE review. Findings of the ESIA should be reflected in the Maturity Assessment Template (MAT).

1.5.3. ESIA Review and Recommendations

26. The third step in the ESA process is review of the ESIA and incorporation of its recommendations into the project design documentation. For all **Category A** projects, the Appraisal Mission must review the findings and recommendations of the ESIA Report, including any outstanding issues identified by the QE Panel (see Annex 1.5 for questions to be answered in the technical review of the ESIA), and discuss these with Government and all interested parties, especially affected rural communities. The CPM in conjunction with the Country Programme Management Team will ensure that the recommendations have been adequately addressed in the final Project Design Report. This may include alterations to the project design, incorporation of additional preventive actions and/or mitigation measures, suggested loan covenants, supervision requirements, necessary institutional capacity building for environmental management, and any specific monitoring and evaluation requirements. The ESIA Report is part of the Project Life File. The MAT should also summarize these issues.

1.5.4. Loan Negotiations

27. The fourth step in the ESA process involves negotiation of the loan agreement for the project, which takes place between IFAD and the Government. To ensure proper environmental management under the project, the Loan Document may include Environmental Clauses/Covenants specifying the environmental/NRM actions the Government commits to taking in the context of the implementation phase, as necessary.

1.5.5. Board Approval

28. The fifth step in the ESA process involves review and approval of project documentation by IFAD's Executive Board. The Executive Board reviews the *President's Report and Recommendations* on the project proposal. For **Category A** projects, the final ESIA report is made available to the Board on request. In cases where the Executive Board raises specific environment-related concerns that have not been addressed adequately, both the President's Report and the Project Design Report should be revised to take these issues into account.

1.5.6. Project Supervision

29. The sixth and critical step in the ESA process is supervision of project implementation to ensure that recommended environmental actions/measures are effectively addressed. For both **Category A** and **Category B** projects, the Regional Director has the responsibility to ensure that project supervision (including the cooperating institution) takes due account of any environmental provisions contained in the Project Design Report. In the event that serious environmental issues/risks arise during project implementation, the Regional Division must ensure that appropriate ameliorative action is undertaken especially if it has any serious implications for the livelihoods of the rural poor.

1.5.7. Project Completion and *ex post facto* ESIA

30. The seventh and final step in the ESA process is project completion reporting and *ex post facto* evaluation of project environmental and social impacts. Completion-related reports of all projects

should provide a specific analysis of the impact of environmental and social issues arising from project implementation. The analysis should take special note of views expressed by rural beneficiaries.

31. For **Category A** projects, an *ex post facto* ESIA may be undertaken as part of the Completion Evaluation, as appropriate. Such an exercise will evaluate project environmental impacts, the adequacy of the ESIA, and the effectiveness of any preventive actions and/or mitigation measures included in project design. The evaluation exercise should include extensive community consultations.

1.6. Criteria for Project Categorization

1.6.1. Criteria

32. **Category A** projects are those likely to have significant impacts (environmental and social), which may be sensitive, irreversible, diverse, comprehensive, broad, sector-wide or precedent-setting. The impacts of **Category B** projects are less significant and not as adverse as those of **Category A**. Few, if any, of these impacts are irreversible, and remedial measures can be easily designed. If a **Category C** project has any impacts at all, they are negligible. In practice, the selection of the environmental category depends on the type and scale of the project, the characteristics of the project location and sensitivity of environmental issues, and the significance of potential impacts.

1.6.2. Project Type and Scale

33. Projects supporting/inducing the following activities would normally be considered for classification as **Category A** (although this will depend on the location and magnitude of impacts):

- Construction or rehabilitation of rural roads in “sensitive areas”;
- Conversion of significant areas of natural forests or other wild lands;
- Loss of natural habitat and loss of biodiversity or environmental services provided by a natural ecosystem;
- Wetland development, including small-scale water control;
- Groundwater-based development where there is reason to believe that depletion may occur from the effects of climate change;
- Fisheries development in situations where little information exists on sustainable yield;
- Significant increased use of agrochemicals.

34. In addition, although not currently financed by IFAD, the projects supporting/inducing the following would be considered **Category A:**

- Involuntary displacement or Resettlement of human populations;
- Large-scale dam/reservoir construction;
- Large-scale irrigation schemes;
- Forestry production;
- Industrial plants (other than small-scale artisanal production); and manufacture and transportation of hazardous and toxic materials.

35. Projects supporting/inducing the following activities would be considered for classification as **Category B:**

- Construction or rehabilitation of rural roads in “non-sensitive areas”;

- Small-scale irrigation and drainage projects (except in wetlands);
- Agricultural intensification and/or expansion of cropping area in "non-sensitive areas";
- Rangeland and livestock development;
- Artisanal fisheries where there is information on sustainable yield;
- Aquaculture and mariculture;
- Watershed management;
- Large-scale soil/water conservation measures;
- Small and micro enterprise development projects[1];
- Projects involving credit operations through financial intermediaries[2]; including credit for pesticide/other agrochemicals, livestock purchasing, irrigation, drainage, etc.,
- Natural resources-based value chain development.

36. **Category C** projects generally do not require additional environmental analysis because the activities have negligible or minimal adverse environmental impacts:

- Technical assistance grants for agricultural research and training;
- Grants to generate global environmental impacts;
- GEF activities;
- Research;
- Extension;
- Health;
- Nutrition;
- Education;
- Institutional building.

1.6.3. Project Location

37. The selection of an environmental category will depend substantially on the project setting, as the "significance" of potential impacts is partly a function of the natural and socio-cultural surroundings. This is particularly true for IFAD, which tends to finance a large number of projects in marginal and ecologically fragile areas. "Sensitive areas" include areas such as: protected areas (national parks, wildlife/nature reserves, biosphere reserves); areas of global significance for biodiversity conservation; natural forests; wetlands; coastal ecosystems, including coral reefs and mangrove swamps; small island ecosystems; areas managed by indigenous peoples and other traditional societies; areas most vulnerable to climate change and variability; and lands highly susceptible to landslides, erosion and other forms of land degradation[3]. Projects located in such "sensitive areas" may be considered for **Category A** classification and should involve extensive community consultations because of their potentially serious negative impacts on the livelihoods of the rural poor.

[1] This is based on the process used by the World Bank, Operational Policies 4.01 January 1999 (updated March 2007).
[2] It should be noted that credit operations and SME development components present unique problems during screening because the details of the sub-components may not be known at the time of project screening. In addition, financial intermediation projects present specific challenges because activities to be financed through credit may be difficult to anticipate accurately.
[3] May include arid and semi-arid areas.

1.6.4. Magnitude of Impacts

38. There are a number of ways in which magnitude can be measured, such as the *absolute amount* of a resource or ecosystem affected, the *amount affected relative to the existing stock* of the resource or the viability of the ecosystem, the *intensity* of the impact and its *timing* and *duration*. In addition, the *probability of occurrence* for a specific impact and the *cumulative impact* of the proposed action and other planned or ongoing actions should be considered. For example, conversion of 50 hectares of wetlands differs markedly in significance depending on its size relative to the total area of wetlands in the country or region. In addition, impact can also be measured in social terms – by the number of rural communities or villages (including livelihoods) affected positively and negatively by a proposed project (in areas which support multiple livelihoods, an intervention which might benefit a large number of crop producers might lead to a smaller number of livestock herders, fishermen, hunters, etc. losing their livelihoods).

39. Other current and proposed development activities within the project area, spontaneous activities spurred by a project (e.g. migration of people into or increased charcoal production in an area opened by a road project), and externalities beyond the project boundary must be taken into account. Such *cumulative* or *induced impacts* may sometimes be the primary determinant of the appropriate level of environmental analysis.

40. For community, demand-driven projects, it may be difficult to pre-determine the potential adverse impacts until project implementation. Though, the magnitude of impacts would depend on the scale of such activities, nonetheless, a cautious approach to the concern of cumulative impacts is considered essential. In such cases, the necessary environmental analysis and associated budget should be incorporated into project design. Such projects may be considered for **Category B**.

ANNEXES

Supporting Material for

Environmental and Social Assessment

Annex 1.1
Environment/Natural Resource Management
Environmental and Social Review Note - ESRN (Outline)

The ESRN is normally completed on the basis of a field visit and consultations with stakeholders. For this reason, the environmental screening and scoping (ESS) exercise of each project component should be undertaken by the Mission members while in-country in order to allow for such data collection to inform project design. The results are normally made available as part of the preliminary report of project design. The ESRN should follow the outline contained Box 3 below.

Box 3. Outline of the ESRN

Title of Programme/Project:

Although the outline refers to projects, it can also be used for programmes. This outline provides a number of possible topics to assist design teams to develop ESRNs. Thus the sections included herein should be completed only when applicable.

1. Brief description of Programme/Project and components (1 page maximum)
Make cross-reference to the relevant sections of the design document and annexes (information should be in relation to the environmental and social issues raised by the programme/project).

2. Major site characteristics (1 page maximum)
Describe the existing socio-cultural context (poverty, gender issues, vulnerability, migration patterns, etc.) and those types of land and water aspects that characterize the area. Include whether any of these represent untapped social and environmental impacts and opportunities or might be a determinant in the design and delivery of results/impacts of the intervention. Include information on climate, prediction of impact, vulnerability, and how it relates to specific types of farming systems.

3. Issues in Natural Resources Management (1 page maximum)
Mention three to five environmental/social issues that are of key importance in the area. For example, there is ongoing land degradation/desertification, the grazing area potential is smaller than present carrying capacities, or the area is prone to the effects of climate change and variability, such as droughts or floods. Topics to consider also include quality of life of the local population, health concerns such as HIV/AIDS, resettlement issues, land tenure rights and conflicts over use of resources, transboundary issues, fragile or degraded ecosystems, natural resource management productivity and practice, vulnerability to climate change and variability, any past climate change impacts, institutional capacity and the role of children and women, level of environmental awareness, and opportunities to enhance natural resource management; identify environmental and social opportunities. Consultation with local communities, especially the marginalised poor, and other key stakeholders will improve the accuracy of this section.

4. Potential social and environmental impacts and risks (1 page maximum)
Identify the key potential impacts (positive, negative, cumulative, externalities) that implementation of the interventions may have on the social and natural environment. Describe how the interventions will address them in an integrated manner. If the project is on agricultural development, for example, indicate whether soil and water conservation, appropriate selection of crops and agrochemicals, associated public health concerns (i.e. HIV/AIDS) and community environmental education, advisory and extension services have been envisaged.

5. Environmental category (1/2 page maximum)
Provide the justification/rationale for the environmental category designated (with reference to the country's environmental policies, ratification of relevant conventions, MEAs[1], relevant ministries and agencies, country environmental legislation, relevant national strategic frameworks, and any specific ESA requirements of potential co-financiers). Any enforcement mechanisms or institutional capacities to achieve appropriate environmental management and promote sustainable development should be discussed, if not previously done under 3 above.

6. Further information required to complete screening and scoping, if any. (1/2 page maximum)
Highlight additional information or studies needed to take better advantage of the opportunities offered by the

[1] UNFCC, CBD, UNCCD, RAMSAR, CITES, etc.

environmental and social context to: (i) influence the necessary changes in project design (technologies, objectives etc); and (ii) eliminate or mitigate the environmental and/or social concerns, including risks that the intervention may create.

7. Recommended features of project design and implementation to improve NRM and mitigate environmental concerns (1 to 2 pages maximum)
Introduce changes and/or measures to the design to eliminate or reduce potential adverse environmental and social impacts, or make better use of opportunities[2] and synergies/complementarities between relevant national frameworks/environmental conventions/key actors. Explore opportunities to promote green procurement. Identify a range of dis/incentives as tangible benefits for relinquishing unsustainable practises (farming, processing etc.). Discuss the various alternatives including environmental objectives and reasons for choosing the best option. Identify mitigation/adaptation measures to reduce vulnerability and risks of climate change and variability. Identify suitable participatory approaches/tools to draw on local understanding of local problems and potential solutions. For example, if addressing adaptation planning, introduce use of climate risk maps, local resource maps, community timeline history, focus group meeting etc. for the planning of village development plans, as necessary. Identify areas of conflict between key actors and over use of resources and include suitable measures (financial and non financial incentives, empowerment mechanisms, etc.) that will allow achievement of environmental objectives. For example, if the proposed activity will introduce irrigation, relocate people or promote the use of agrochemicals, the local environment will be affected. The strategy, in this case, will help to design an environmental management plan with specific targets to address salinisation, water pollution, fair compensation, integrated pest management and build the necessary institutional capacities[3] with clearly defined responsibilities. Analyse the environmental decision-making chain of command to also include other sectors that are key actors in environmental management. Identify who would be responsible for the various activities. Identify community environmental education and training needs. Identify the potential of linking the loan to relevant Grant(s) for enhanced impact.

8. Monitoring aspects (1/2 page maximum)
Describe how participatory environmental monitoring will be ensured and provide specific indicators with special emphasis on the linkage between poverty and environment. Identify community and other stakeholder capacity building needs, supported by effective information, education and communication activities. Incorporate measures for reporting on significant health and safety incidents, as necessary. As the activities will be incorporated into the various project and programme components, monitoring should be aligned to the project M & E system.

9. Components (if any) requiring ESA and scope of assessment needed (elements of TOR for ESA) (1/2 page maximum)
Provide estimated budgetary requirements (see 6 above).

10. Record of consultations with beneficiaries, civil society, general public etc. (1/2 page maximum)
Specify details of consultations with marginalised poor sections of the communities.

[2] In light of the environmental issues (impacts resulting from a diverse array of small interventions) which tend to be associated with value chains development and income-generating activities (IGAs), a self-defining process to identify critical entry and exit points for the necessary capacity building (including skills training on cleaner technologies and good agricultural practices) is essential. An example is EUGAP control points which applies to the production and processing of fresh produce. The Procedures also contains provisions relating to labour standards and the lowering of pesticide use, essential for the long-term improvement and sustainability of agricultural production.
[3] For example, Ministries of Agriculture, Environment and Planning, focal points for UNCCD, CBD and so on.

Annex 1.2
Formal Environmental and Social Impact Assessment (ESIA)

Environmental and Social Impact Assessment (ESIA) is a management tool for better programme/project planning and design and can be considered an overall process within which an actual ESIA study itself is carried out. As such, the term ESIA can be used in several ways as follows:

(i) a **process** which enables both environmental and social issues to be taken into account during all stages of programme/project design and implementation;

(ii) a formal **procedure** for providing environmental and social information for decision makers who authorise the programme/project; and

(iii) a **study** which identifies, predicts and evaluates the potential environmental and social impacts of programmes/projects in a systematic and objective way, recommends appropriate preventive actions and mitigating measures, and maximises environmental opportunities. The results of the ESIA study are presented in the form of a report, often called an Environmental and Social Impact Statement (ESIS).

While EIA/ESIA legislation differs among countries, the general process involves a standard sequence of steps (e.g. US NEPA, EIA Directive of EEC). The characteristics of good ESIA are presented in the Box 4 below.

Box 4. Characteristics of a Good ESIA

A good ESIA:

1. starts early in project development and completed prior to end of formulation phase;
2. identifies data requirements and focuses on the significant environmental and social issues;
3. involves key stakeholders and affected people at the outset of the process in a meaningful fashion;
4. provides information for decision-making in a clear and usable manner, taking into account the views and concerns of affected parties, local communities, and relevant agencies;
5. recommends feasible changes in design and implementation which are both sustainable and cost-effective, while enhancing the livelihoods of the rural poor and reducing rural poverty.

The steps in IFAD's ESIA process can be presented in generalized form as follows:

A. PRE-ESIA

(i) SUBMISSION OF PROPOSAL[4]

(ii) SCREENING (SCREENING PHASE ONE)[5]

(iii) PRELIMINARY ASSESSMENT (SCREENING PHASE TWO)[6]

[4] Submission of proposal to the competent authority, generally the environmental authority or responsible government ministry initiates the ESIA process.

[5] **Project screening** determines whether the project requires an ESIA or some subsidiary form of environmental investigation. This form of screening generally relies on mechanistic application of lists or simple criteria or checklists (see criteria in Chapter II above and attached Operational Statements). Depending on the outcome of this screening stage, the proposal may or not have to go through the next stage of the ESIA process.

(iv) ORGANIZATION OF STUDY[7]

(v) SCOPING[8]

B. ESIA STUDY[9]

(i) DESCRIBE PROPOSED ACTIONS AND THEIR GOALS

(ii) IDENTIFY POTENTIAL IMPACTS (ENVIRONMENTAL AND SOCIAL, POSITIVE AND NEGATIVE)

(iii) DESCRIBE ALTERNATIVES CONSIDERED[10]

(iv) PREDICT IMPACTS, INCLUDING DIRECT, INDIRECT, REVERSIBLE, IRREVERSIBLE, AND CUMULATIVE EFFECTS

(v) EVALUATE SIGNIFICANCE OF IMPACTS, AND COMPARISON OF ALTERNATIVES

(vi) IDENTIFY APPROPRIATE PREVENTIVE ACTIONS AND/OR MITIGATION MEASURES TO ELIMINATE, REDUCE OR MITIGATE NEGATIVE IMPACTS

(vii) PREPARE AN ENVIRONMENTAL MANAGEMENT PLAN

(viii) DESIGN AN ENVIRONMENTAL MONITORING AND EVALUATION PROGRAM

(ix) DESIGN A CAPACITY-BUILDING PROGRAM FOR STRENGTHENING PROGRAMME/PROJECT ENVIRONMENTAL MANAGEMENT

(x) PRESENT RESULTS (ESIS)

c. POST-ESIA STUDY

(i) REVIEW OF THE STUDY, INCLUDING PUBLIC PARTICIPATION/ CONSULTATION[11]

(ii) DECISION-MAKING (SHOULD PROJECT PROCEED OR NOT; SHOULD PROJECT DESIGN AND IMPLICATION BE MODIFIED)[12]

(iii) IMPLEMENTATION OF THE ENVIRONMENTAL MANAGEMENT PLAN

(iv) POST-STUDY AUDIT, AS NECESSARY[13]

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[6] **Preliminary Assessment.** Sometimes referred to as an Initial Environmental Examination (IEE), the preliminary assessment consists of a first attempt to characterize the environmental impacts of a project proposal. It acts as a further screening mechanism for determining whether an ESIA is required or whether some subsidiary form of environmental investigation would suffice. Further information from the project proponent may be requested by the Technical Advisory Division or the competent body.

[7] **Organization of Study.** If after the review of the preliminary assessment, the competent authority determines that a full ESIA study is required, the organizational modalities for the study are worked out.

[8] **Scoping.** This stage comprises the identification of issues that should be considered in the study and in what depth, by whom, how, and by when. Initial scoping is carried out on the basis of the Preliminary Assessment and other information available on the project proposal. In some countries, procedural guidelines for scoping exist as do requirements for the format and content of ESISs.

[9] **The ESIA Study** is the centrepiece of the ESIA process. It is generally the responsibility of the development proponent. The ESIA study culminates in the preparation of an Environmental and Social Impact Statement (ESIS). The ESIS will outline the major impacts and possible mitigation measures as well as alternatives to the proposal. The ESIS forms the basis for the review and decision-making steps outlined below.

[10] **Alternatives** considered should include the proposed action and no action alternatives. Among the possible alternatives, the report should clearly show which alternatives were considered in detail and the rationale for that choice. Unfortunately, many ESIA reports are deficient in the consideration of true alternatives to the proposed action. Identification of potential impacts should be done for all alternatives considered in detail.

[11] **Review of the Study.** At this stage the ESIA report is reviewed to ensure that it provides the necessary information for decision-making. Depending on the legislative or procedural context, review may entail scrutinization by an independent body or the environmental authority in charge of the ESIA process. There may also be provisions for public review and comment. The review stage may result in revisions being made to the ESIA before it is submitted to the decision-making authority.

[12] **Decision-Making.** The ESIA report is submitted to **the Technical Advisory Division** or other competent decision-making authority. In some jurisdictions, the ESIA report may be attached to some statutory Government decision on the project. Conditions for accepting the proposal are decided upon based on the recommendations of the ESIA.

[13] **Post-Study Audit**. The ESIA process does not always end with the presentation of the ESIA report and the decision to go ahead with the project or a modified version of the project. A "post-audit" may be carried out to ascertain whether the provisions contained in the ESIA study were adhered to or whether the predictions contained in the ESIA study were accurate.

Depending on the ESIA procedures adopted in a particular country, the exercise generally involves an independent authority which has the responsibility of ensuring that the requirements of the ESIA process are met in a satisfactory manner. These tasks generally include: ensuring that ESIA studies are carried out for relevant projects according to pre-established screening mechanisms, controlling the quality of ESIA studies, and making decisions concerning whether a project may proceed and, if so, what mitigation measures are required. The actual carrying out of the study in compliance with legislated requirements is generally the responsibility of the proposing agency.

Annex 1.3
Recommended Format for ESIA Reports

The ESIA should focus on the significant environmental and social issues identified by the environmental screening and scoping (ESS) exercises. The ESIA statement/report should be concise; the level of detail and sophistication being commensurate with the potential impacts identified in the ESS Note. The target audience should include project designers, implementing agencies, borrowers, affected populations and IFAD staff. The statement/report submitted to IFAD should be prepared in any of the UN official languages. The ESIA statement/report should include the following items (see Box 5 below):

Box 5. Outline of ESIA Report

Executive Summary. Concise discussion of significant findings and recommended actions.

Introduction. Rationale for ESIA, based on ESS exercise. Concise discussion of significant findings and recommended actions.

Policy, legal, and Administrative Framework. Discussion of the policy, legal, and administrative framework within which the ESIA is prepared. The environmental requirements of the country and of any co-financiers should be explained.

Project Description. Concise description of the project and its geographical, ecological, social, and temporal context, with particular emphasis on specific project components which are the subject of the ESIA in line with the Environment Screening and Scoping exercise.

Baseline Data. Assessment of the dimensions of the study area and description of relevant physical observed changes and prediction of climate change, biological, and socioeconomic conditions (including level of community environmental awareness), including any changes anticipated before the programme/project commences. Current and proposed development activities within the project area (but not directly connected to the project) should also be taken into account. Where data are lacking or unreliable, specific reference must be made on this point.

Socio-economic Impacts. Assessment of positive and negative social and economic impacts likely to result from the proposed project or project component. Specific attention should be given to gender dimensions and vulnerability to risks/effects of climate change and variability. The extent of public participation, public health concerns (i.e. HIV/AIDS) especially the involvement of marginalized poor communities in project design and implementation should also be assessed.

Environmental Impacts. Identification and assessment of the positive and negative impacts likely to result from the proposed project or project component. (Preventive actions and/or mitigation measures, and any residual negative impacts that cannot be mitigated should be identified). Opportunities for environmental enhancement, including promotion of global environmental benefits, should be explored. The extent and quality of available data, key data gaps, and uncertainties associated with predictions should be identified/estimated. Topics that do not require further attention should be specified.

Analysis of Alternatives. Systematic comparison of the proposed investment and design, site, technology, and operational alternatives in terms of their potential environmental and social impacts; capital and recurrent costs; suitability under local conditions; and institutional, training, and monitoring requirements. For each of the alternatives, the environmental costs and benefits should be quantified to the extent possible, and economic values should be attached where feasible -attention should be given to cost-effectiveness. The basis for the selection of the alternative proposed for the project design must be stated.

Recommendations for Changes to Programme/Project Design. Identification of feasible and cost-effective measures that may reduce potentially significant adverse environmental impacts to acceptable levels, and estimation of the potential environmental impacts; capital and recurrent costs; and institutional, training, and monitoring requirements of those measures. This should provide details on proposed work programmes and schedules. Such details help ensure that the proposed changes in project design can be executed in phase with previously planned activities throughout implementation. Compensatory measures should be

considered if mitigation measures are not feasible or cost-effective.

Institutional Aspects. Assessment of the existence, role, capacity and capability of formal and informal institutions for natural resources management, including official environmental units on-site (at the agency and ministry level), and informal and community-level institutions. Explore opportunities for policy dialogue/reform and green procurement. Based on these findings, recommendations should be made concerning the strengthening, establishment and/or expansion of such units, and the training tailored to the identified target groups, to the point that ESIA recommendations can be implemented.

Environmental Management Plan. Identification of the preventive actions and/or mitigation measures recommended to eliminate, reduce or mitigate the potential adverse environmental and social impacts of the programme/project, as well as the responsible parties for implementing such actions/measures, the estimated costs involved, poverty-environment indicators, etc.

Environmental Monitoring Plan. Specification of the type of monitoring (i.e., early warning systems, participatory, environmental quality, implementation of environmental measures), who would do it, how much it would cost, and what other inputs (e.g. personnel, training, GIS, field and/or laboratory equipment, supervision arrangements) are necessary.

Appendices

(i) *Composition of ESIA mission – individual(s) and organizations.*

(ii) *References* – written materials used in study preparation. This list is especially important given the large amount of unpublished documentation often used.

(iii) *Record of Consultations* – The record of consultations for obtaining the informed views of the affected people and local NGOs should be included. The record should specific any means other than consultations that were used to obtain the views of affected groups and local NGOs. (List community individuals and organizations consulted.)

Annex 1.4
Sample Terms of Reference for Environmental and Social Impact Assessment (to be tailored based on the ESRN)

Sample Terms of Reference (TOR) of the ESIA are shown in Box 6 below.

Box 6. Sample TOR for the ESIA

A. Introduction and Background

1. Introduction. This section, drawing on the ESRN, should state the purpose of the terms of reference (TOR), identify the development project to be assessed, and explain the executing arrangements for the environmental assessment.

Background Information. Pertinent background information for potential parties who may conduct the environmental assessment, whether they are consultants or government agencies, would include a brief description of the major components of the proposed project, a statement of the need for it and the objectives it is intended to meet, the implementing agency, a brief history of the project (including alternatives considered), its current status and timetable, and the identities of any associated projects. If there are other projects in progress or planned within the region which may compete for the same resources, they should also be identified here.

Objectives, Organisation and Study. This section will summarize the general scope of the environmental and social assessment and discuss its timing in relation to the processes of project preparation, design, and execution.

Environmental and Social Assessment Requirements. This paragraph should identify any regulations and guidelines which will govern the conduct of the assessment or specify the content of its report. They may include any or all of the following:

- IFAD's Procedures for Environmental Management and Sustainable Development
- National, regional, provincial or communal laws and/or regulations on environmental assessment
- Reviews and impact assessments;
- Environmental and Social assessment regulations of any co-financing organizations involved in the project.

Study Area. Specify the boundaries of the study area for the assessment (e.g. water catchment, agro-ecological zones) and any adjacent or remote areas which should be considered.

B. Scope of Work

In some cases, the tasks to be carried out by a consultant will be known with sufficient certainty to be specified completely in the TOR. In other cases, information deficiencies will need to be alleviated or specialized field studies or modeling activities performed to assess impacts, and the consultant will be asked to define particular tasks in more detail for contracting agency review and approval. Task 4 below is an example of the latter situation.

Task 1. Description of the Proposed Project. Provide a brief description of the relevant parts of the project, using maps (at appropriate scale) where necessary.

Task 2. Description of the Environment. Assemble, evaluate and present baseline data on the relevant environmental and social characteristics of the study area. Include information on any changes anticipated before the project commences. (Include relevant data only)

a. Physical environment; geology; topography; soils; land degradation/desertification, climate trends

and prediction of impact, surface and groundwater hydrology; coastal and oceanic parameters; existing air and water pollution; and receiving water quality.

b. Biological environment: flora; fauna; rare or endangered species; sensitive habitats, including parks or reserves, significant natural sites, etc.; species of commercial importance; species important for local community livelihoods.

c. Socio-cultural environment (include both present and projected where appropriate); population; land use; planned development activities; community structure; adaptation/technical capacities; employment; distribution of income, goods and services; recreation; public health; use of medicinal plants/indigenous medicines; cultural properties; status of Indigenous Technical Knowledge (ITK) of tribal people; and traditional customs, aspirations and attitudes, level of community environmental awareness on issues such as poverty and environment, biodiversity loss, climate change and desertification, extent of community dependence on local natural resources for livelihoods.

Task 3. Legislative and Regulatory Considerations. Describe the pertinent regulations and standards governing environmental quality, health and safety, protection of sensitive areas, protection of endangered species, siting, land use control, etc., at international, national, regional and local levels (the TOR should specify those that are known and require the consultant to investigate for others). Where environmental standards are inadequate, recommendations on how to upgrade them should be proposed.

Task 4. Determination of the Potential Environmental and Social Impacts of the Proposed Project. In this analysis, distinguish between significant positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts. Identify impacts which are unavoidable or irreversible. Wherever possible, describe impacts quantitatively, in terms of environmental and social costs and benefits and specify the valuation method adopted. Assign economic values when feasible. Characterize the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with predictions of impact (will the interventions result in changes in access to natural resources?). If possible, give the TOR for studies to obtain the missing information. Give special attention to impacts on the livelihoods of rural communities, especially the marginalized poor.

Task 5. Analysis of Alternatives to the Proposed Project. Describe alternatives that were examined in the course of developing the proposed project and identify other alternatives which would achieve the same objectives. The concept of alternatives extends to siting, design, technology selection, and implementation procedures. Compare alternatives in terms of potential environmental and social impacts; capital and operating costs; suitability under local conditions; and institutional, training, and monitoring requirements. When describing the impacts, indicate which are irreversible or unavoidable and which can be mitigated. To the extent possible, quantify the costs and benefits of each alternative, incorporating the estimated costs of any associated mitigating measures. Include the alternative of not constructing the project, in order to demonstrate environmental conditions without it.

Task 6. Development of Recommendations for Adjustments to Project Design. Recommend feasible and cost-effective measures to prevent or reduce significant negative impacts to acceptable levels. Recommend measures for green procurement. Estimate the impacts and costs of those measures, and of the institutional and training requirements to implement them. Consider compensation to affected parties for impacts which cannot be mitigated. Prepare an implementation plan.

Task 7. Development of an Environmental Management Plan

Task 7.1. Identification of Institutional Needs to Implement Environmental and Social Assessment Recommendations. Review the authority and capability of institutions at local, provincial/regional, and national levels to implement the project and proposed changes proposed and recommend steps to strengthen or expand them so that the management and monitoring plans in the environmental and social assessments can be effectively implemented. The recommendations may extend to new laws and regulations, new agencies or agency functions, inter-sectoral arrangements, management procedures and training, environmental education, staffing, operation and maintenance training, budgeting, and financial support. Indicate clear responsibilities, staffing and training requirements. Give full costs and

benefits of the proposed changes to project design.

Task 7.2. Development of an Environmental Mitigation Management Plan. Identify the preventive actions and/or mitigation measures recommended to eliminate, reduce or mitigate the potential adverse environmental and social impacts of the programme/project, as well as who will be responsible for implementing such actions/measures, how much they will cost, etc.

Task 7.3. Development of a Monitoring Plan. Prepare a detailed plan to monitor the implementation of mitigating measures and the impacts of the project during construction and operation. Include in the plan an estimate of capital and operating costs and a description of other inputs (such as training and institutional strengthening) needed to carry it out. Provisions should be made for compensation in the event that negative impacts should result from the project or project components. Also include poverty-environment indicators.

Task 8. Assist in Inter-Agency Coordination and Public/NGO Participation. Assist in coordinating the environmental and social assessment with other government agencies, in obtaining the views of local NGOs and affected groups (especially the marginalized poor), and in keeping records of meetings and other activities, communications, and comments and their disposition.

C. Report

The environmental and social assessment statement/report should be concise and limited to significant environmental and social issues; this should include emerging issues. The main text should focus on findings, conclusions and recommended actions, supported by summaries of the data collected and citations for any references used in interpreting those data. Unpublished documents used in the assessment may not be readily available and should also be assembled in an appendix.

D. Practical Details

Mission composition. Describe specialists required and specific tasks for each member of the team.

Schedule. Specify dates for progress reviews, interim and final reports, and other significant event.

Other Information. Include here lists of data sources, project background reports and studies, relevant publications, and other items to which the consultant's attention should be directed.

ESIA Report Outline. The ESIA report should follow the following outline:

i. Executive Summary
ii. Introduction
iii. Policy, Legal and Administrative Framework
iv. Description of the Proposed Project
v. Description of the Environment
vi. Significant Environmental and Social Impacts
vii. Analysis of Alternatives
viii. Environmental Management Plan
   - Mitigation Management Plan
   - Monitoring Plan
ix. Inter-Agency and Public/NGO Involvement
x. List of References and Consultations
xi. Appendices
xii. List members of Environmental and Social Assessment Mission
xiii. Records of Inter-Agency and Public/NGO Communications

xiv. Follow up of emerging issues
xv. Data and Unpublished Reference Documents

Annex 1.5
Technical Review of ESIA

The Technical Advisory Division should review the adequacy of the ESIA report, checking especially the questions shown in the Box 7 below.

Box 7. Questions for the Technical Review of ESIA

- ☐ Does the ESIA report meet the requirements of the original TOR as specified in the ESS Note?
- ☐ Is the Executive Summary adequate with recommendations clearly stated? Decision-makers may read only the summary, therefore it must present the significant impacts (in order of importance), clarifying which are unavoidable and which are irreversible; the measures which can be taken to mitigate them; the cumulative effect of impacts; and the requirements for monitoring and supervision.
- ☐ Is the project outline description complete, insofar as the aspects which can affect the environmental management of natural resources and poor rural livelihoods are concerned?
- ☐ Is the poverty-environment nexus adequately addressed? Has the issue of vulnerability been adequately covered?
- ☐ Are alternatives described and have their costs been evaluated appropriately?
- ☐ Is the baseline study section in the main report concise and useful to readers who are not specialists in the scientific disciplines covered? Does the section give an overall picture of present conditions and trends (including climate change predictions), and include ongoing and proposed development activities in the study area? Does it provide comments on the quality of the data and the completeness of the database? Is the baseline study adequate for decision-making?
- ☐ Is there consideration of probability in the section in which impacts are predicted and evaluated? Are potential impacts mentioned that were expected *a priori* but not found? Are significant impacts analyzed in more detail than less significant ones? Is sufficient justification provided for dropping topics from further consideration?
- ☐ Do mitigating measures both control adverse impacts and enhance project benefits? Are the institutional arrangements for implementing the measures defined? Are the costs of implementing all its recommendations adequately budgeted in the cost tables?
- ☐ Where monitoring programmes are described, are the reasons for and costs of the monitoring activities covered? Is there a description of the institutional arrangements for carrying out the work, evaluating the results, and initiating any necessary action to limit adverse impacts disclosed by monitoring? Have compensatory measures been included?
- ☐ Are proposals for institutional strengthening and training adequate?
- ☐ Has the consultation process participation (especially the rural poor, indigenous peoples and women) and other statutory requirements been met?
    - ☐ Is there documentation of community involvement (especially of the marginalized poor), including an overview of the issues raised and their disposition?

- ☐ Do the recommendations comply with IFAD's principles and values?
- ☐ Where existing databases, planning studies, other EAs, scientific papers, etc., are used as information sources, are the references given and are technical terms defined where they occur?

Chapter 2. Strategic Environmental Assessment (SEA)

2.1. Introduction

41. During the last decade, several multilateral and bilateral funding agencies, as well as the OECD's Development Assistance Committee, have increasingly promoted the use of Strategic Environmental Assessments (SEAs) to complement project based ESIA[1]. Strategic Environmental Assessment can be defined as "*a range of analytical and participatory approaches which aim to integrate environmental considerations into Policies, Plans and Programmes (PPP) and evaluate the inter-linkages with economic and social considerations* (OECD 2006)". SEA promotes more sustainable and integrated approaches to sectoral and broader development PPPs by evaluating potential environmental and social impacts upstream of projects and taking into account several development options to reduce environmental risks and promote sustainable development outcomes.

42. The adoption of SEA would be particularly relevant for enhancing the quality of RB-COSOP and in guiding policy dialogue on borrower countries. The implementation of SEA would ensure: (i) the integration of sustainable environment and natural resource management priorities in the decision making processes at the country strategic level (COSOPs); (ii) the identification of unexpected potential impacts and of new opportunities at the initial stages of PPPs, rather than later in the process when choices are limited; (iii) the prevention of costly mistakes by identifying unsustainable development options at the early stages of decision making, thus enhancing the effectiveness of IFAD supported programmes; and (iv) the development of enabling policy frameworks that respond to the needs of rural people through the emphasis given by the SEA process to enhance public participation in the decision making process.

43. By implementing SEA, IFAD would ensure that its approach to environmental assessment is further harmonized with that of the international aid community, as called for by the Paris Declaration on Aid effectiveness, clearly stating that "*Development agencies and partner countries jointly commit to…Strengthen the application of EIAs and deepen common procedures for projects, including consultations with stakeholders; and develop and apply common approaches for 'strategic environmental assessments' at the sector and national levels".*

44. Generally, the type of SEA carried out is defined by the issues, priorities and needs that are identified in a particular situation. Table 5 below provides the basic principles of SEA. SEAs can generally be divided into "stand alone" processes focusing on the identification and assessment of environmental impacts of specific PPPs or can be integrated into the planning, policy/decision-making processes. In this context SEA needs to link with and, where feasible, reinforce other policy appraisal approaches which shape development policies and programmes. Three such approaches are: (i) poverty and social impact analysis; (ii) risk assessment; and (iii) Country Environmental Analysis (CEA).

45. The process for SEA is tailored to existing circumstances (i.e. legal, procedural, institutional, political factors, etc) and needs for its applications. SEA can be applied in different ways to suit particular needs, i.e.:

[1] Which are more effective in addressing environmental threats and opportunities of specific projects.

(i) focused on environmental impacts while others integrate all three dimensions of sustainability: environment, social and economic;

(ii) applied to an existing PPP or providing inputs into developing a PPP so that they address environmental dimensions effectively;

(iii) as an output based activity (i.e. a report), which is a more practical approach providing something tangible for all stakeholders to work with and provide inputs, or as a more continuous process that is integrated within decision making and that strengthens institutional capacity; and

(iv) engaging a broad range of stakeholders or being limited to sector or policy analysis.

Table 5.
Basic Principles for SEA

To help improve policy-dialogue, quality of RB-COSOPs and decision-making, SEA should:

- establish clear objectives;
- be integrated with existing policy and planning structures;
- be flexible, iterative and customized to context;
- analyse the potential effects and risks of the proposed PPP, and its alternatives, against a framework of sustainability objectives, principles and criteria;
- identify environmental and other opportunities and constraints;
- address the linkages and trade-offs between environmental, social and economic considerations;
- involve key stakeholders, especially rural communities wherever possible, and encourage public involvement (particular attention should be given to the participation of women, elderly, marginalized groups, Indigenous People);
- include an effective, preferably independent, quality assurance system;
- be transparent throughout the process, and communicate the results;
- be cost-effective;
- explicitly justify the preferred options identified and the acceptance of significant trade-offs;
- include an effective quality assurance system and monitoring of PPP outputs after completion;
- build capacity for both undertaking and using SEA.

(Source: adapted from OECD, 2006)

46. The adoption of SEA can help to promote the integration of environmental (as well as social and economic) issues in poverty reduction frameworks and country strategies and programmes to ensure the achievement of sustainable development objectives while contributing to poverty reduction (MDG 1) and environmental sustainability (MDG 7). Moreover, SEA implementation will enable the identification of cumulative and large scale impacts of different strategies or proposed PPPs at country level.

47. The following SEA approach draws on practical experience and established “good practice” and points to ways to support the application of SEA in the formulation and assessment of IFAD policies, plans and programmes.

2.2. SEA in IFAD Operations

48. Increasingly IFAD is shifting its support towards new development co-operation investments such as policy reform and sector-wide support.

49. There is a clear role for SEA in the development of IFAD’s Results-Based Country Opportunity Programmes (RB-COSOPs).

50. SEA, in IFAD, should be systematically adopted to address:

(i) environmental sustainability, and the internalization of externalities;

(ii) global issues and Multilateral Environmental Agreements, such as biodiversity, desertification and climate change; and

(iii) sectoral policies to help in project selection, and improve economic cost benefit analysis.

51. Table 5 below illustrates key features of how SEA can be applied within IFAD's work. The earlier the SEA process begins during the development of these policy documents, the more effective it will be.

Table 6
Key Features of SEA Undertaken in IFAD's Own PPPs

Who does it?	▪ CPMT with the support of the Senior TA for Environment/NRM.
Objectives	▪ To upstream and mainstream environmental considerations in RB-COSOPS and strategic decision-making in order to identify opportunities and manage constraints for effective development processes.
Measures of success	▪ Environmental issues are systematically integrated within RB-COSOPs.
Level of effort and costs	▪ Varies based on country-based information and analytical capacity.
Process/steps/inputs	▪ Identify and analyze relevant environmental and social issues, corresponding positive opportunities and negative aspects, institutional aspects and recommendations/ suggestions as input to RB-COSOPs and IFAD strategies to identify gaps in information.
	▪ Undertake a comprehensive stakeholders' analysis and put in place mechanisms to ensure that stakeholders (especially vulnerable groups) are fully engaged in consultation processes.
	▪ Assess SEA knowledge & Application within country. Raise SEA awareness of High level Government Staff including Ministers. Involve stakeholders as appropriate. Seek information and/or feedback from government, key partners at country level (UNCT, UNDAF, etc.), undertake studies relevant to scale or scope of PPP in question.
	▪ Bring information to the table during appropriate windows in donor approval process.
	▪ Identify indicators for measuring progress and identify accountabilities as part of RIMS and country monitoring system.
	▪ Allocate budget to fulfill assigned responsibilities.
	▪ Review of final product/PPP/strategy to determine level of integration of environmental recommendations.
	▪ Monitor environmental outcomes over longer term to improve future IFAD support.

(Source: adapted from OECD, 2006)

2.3. SEA Steps in RB-COSOP Development

52. The following SEA steps can generally be identified in each RB-COSOP preparation (also see figure 3 below):

1. Initial identification of plan/programmes options.

2. SEA Screening – this stage refers to the decision to undertake an SEA. Screening is one of the very early steps in the SEA, and it is carried out to decide whether it is appropriate to develop an SEA of PPP in the area under consideration. An important part of screening therefore is the identification of clear objectives of the SEA and what is the role of the SEA. SEAs are necessary for all PPPs that, when implemented, are likely to produce significant negative impacts on the environment. During the screening stage a **comprehensive stakeholders' analysis** should be carried out to identify stakeholders that need to be engaged and to develop an appropriate communication strategy to ensure public engagement in the process. In particular, efforts should be made to ensure the participation of those stakeholders who are most at risk from environmental degradation, usually the poor and vulnerable groups within communities (i.e. women, elderly, indigenous people, ethnic minorities, etc).

3. SEA Scoping - refers to the identification and clarification of issues to be addressed by the SEA. At this phase the SEA needs to actively engage with identified stakeholders. This is to ensure that relevant issues associated with the proposed PPPs are identified and addressed in the SEA Study. A detailed overview of alternative options should also be part of the scoping process to evaluate the advantages and disadvantages of different alternatives.

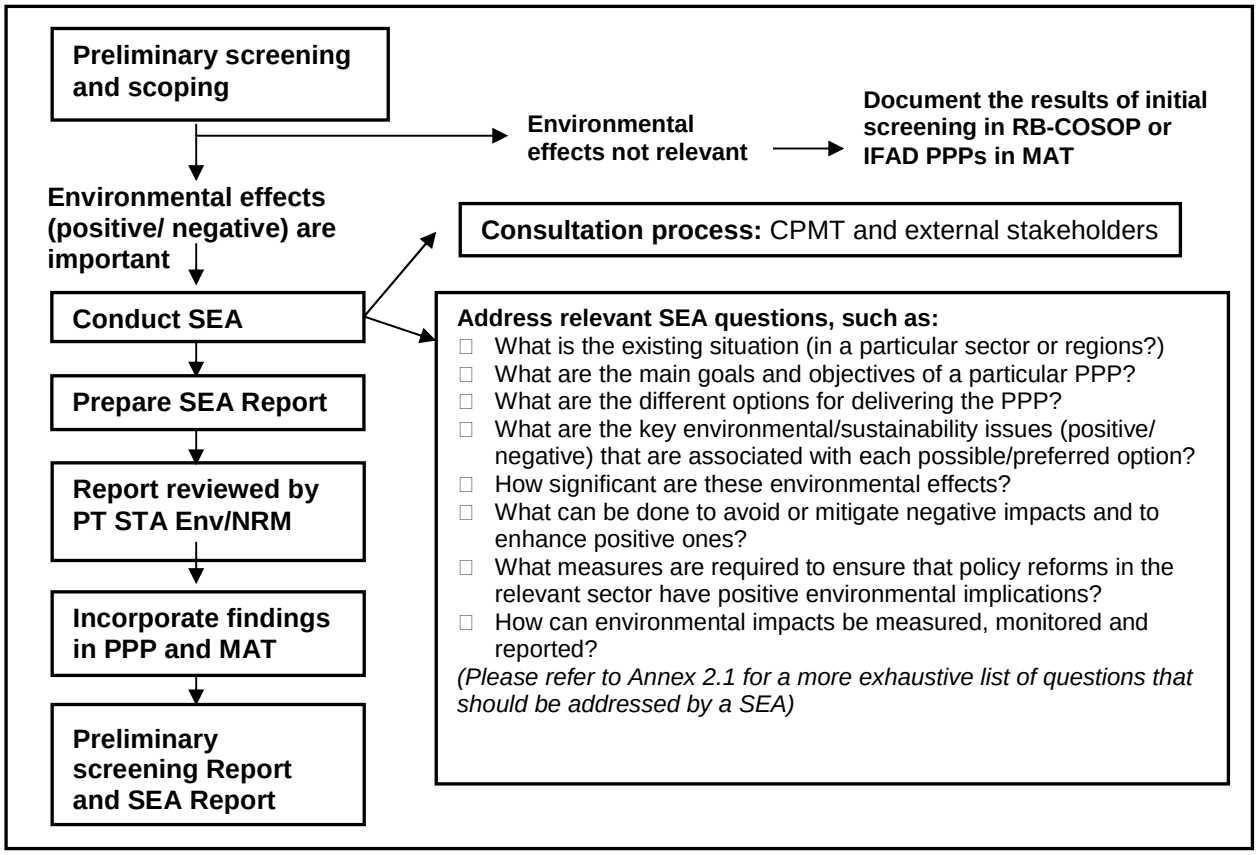
4. SEA Report - The **SEA Report** comprises several stages. The initial environmental baseline report provides an in-depth understanding of both the environmental and socio-economic systems that might be potentially affected by the proposed PPPs. The SEA should then identify and assess the potential environmental impacts of implementing the PPP alternatives under study, in order to propose measures to mitigate negative environmental impacts and optimize positive effects. The results of the SEA should be presented in the form of a concise **SEA Report** (environmental baseline, impacts' assessment, sustainability/environmental indicators, etc), inclusive of a short, non technical summary to ease the sharing of results with stakeholders. The SEA Report should also include recommendations for the implementation of the preferred and improved alternative, as well as M&E indicators of desired outcomes. Once the initial draft Report is prepared it should be reviewed by external expertise and at the same time be made publicly available for a period of time. Actions should be taken in this case to ensure that information is also shared with marginalised communities and that their feedback is included in the final SEA Report.

5. Public Participation – effective and sustained involvement of relevant stakeholders is central to any SEA process. A meaningful public participation process will ensure that stakeholders' knowledge and concerns are integrated into the SEA and that there is general consensus over proposed actions and mitigation measures. It will be therefore essential that particular attention be given to understand the power relations between different stakeholders and what mechanisms need to be established to ensure the

participation of marginalised stakeholders' groups. Public participation needs to be an ongoing process throughout the design and should be an integral part of the consultation in the development of RB-COSOPs.

6. Monitoring and Evaluation – M&E mechanisms should be put in place to assess whether the objectives of the SEA and the recommendations that the SEA Report put forward are being met. Different methods and indicators may need to be developed on a case by case basis and should be aligned to the RIMS. Findings from the evaluation of Country Programmes should be used to inform the revision or the development of new RB-COSOPs and policies.

Figure 3
SEA Steps in the development of COSOPs



(Source: adapted from CIDA, 2004)

53. When conducting a SEA at the country/regional levels, the first step should be the assessment of the extent of SEA awareness and application within the country and the raising of awareness of SEA at the Ministerial & HQ levels in all Govt. Ministries (e.g. through workshops). Another important step should be the identification of similar initiatives by other development agencies to maximize synergies. For example, the UNDAF[2] process could provide a starting point for undertaking SEAs of individual sector initiatives identified in the RB-COSOP, as well as offer opportunities for synergies with ongoing initiatives in the respective country. Important basic sources of information for SEA at the national level are the Country Environmental Analysis and National poverty and vulnerability assessments.

[2] The UNDAF in-country process is supported by a Common Country Assessment (CCA) which analyses the development situation and identifies key developmental issues.

ANNEXES

Supporting Material for

Strategic Environmental Assessment

Annex 2.1
Generic Checklist: Questions for all SEAs

Principles and scope

- ❑ Have adequate principles, criteria and indicators been defined for the SEA?
- ❑ Has the spatial and temporal scope of the SEA been adequately defined?
- ❑ Is there a need/opportunity for donor co-ordination in the conduct of the SEA?
- ❑ Have alternatives (to the proposed PPP) been identified and considered?

Stakeholder engagement

- ❑ Have all relevant stakeholders had an opportunity to engage in the SEA process and to identify potential impacts and management measures?
- ❑ Have the views of civil society, particularly affected communities, being included? What has been their influence in the development of the proposed PPP? Is there adequate environmental education of public? What is the level of public awareness of "SEA"? (especially among rural communities)

Linkage to other strategies, policies and plans

- ❑ Have all relevant strategies, policies and plans – at national to local levels – been reviewed (e.g. PRS, MDG – based strategy, district plan, national expenditure reviews) and is the assessed PPP supportive of and consistent with their goals? Have any conflicts been taken into account in the design of the proposal?

Generic questions and decisions/activities

- ❑ How can sustainable management of natural resources be pro-actively built into proposed programmes and projects?
- ❑ What are the opportunities for support to environment and NRM?
- ❑ What are other development agencies doing to strengthen environment and NRM?
- ❑ If sector wide approaches or other forms of basket funding are included, is there a need for complementary analysis or initiatives to minimize possible negative environmental and social effects?

Linkages/Impacts

- ❑ What are the key environmental problems and opportunities and their relation to rural poverty? How is climate change predicted to affect this?
- ❑ What are the linkages between the environment and other important development themes such as public health (including HIV/AIDS), education, human rights and democracy, land tenure, gender, conflicts and vulnerability?
- ❑ What is the importance of environment for pro-poor growth, environmentally sustainable economic development and attaining the MDGs?
- ❑ What are the partner country's commitment[1] to and actual implementation of the Multilateral Environmental Agreements?
- ❑ How are environmental concerns addressed in key partner country strategies, such as the PRSP, trade policies and sector strategies, and how are they reflected in the national budget?

[1] Especially with regard to Community Empowerment, Community participation in Natural Resource Management, etc.

Effects

- Have the potential direct, indirect and cumulative negative and/or positive effects (short-, medium- and long-term; environmental and social) of the proposed PPP been predicted and analysed?
- Have relevant environmental externalities been identified and internalized?
- Have relevant, specific measures been identified and included to counteract/mitigate these? Alternatively, is it made clear how other national policies/programmes are mitigating the potential negative effects?
- Taking into account differences in power relations and environmental vulnerability, who would be the winners and losers for each course of action?
- Is there potential for enhancing positive effects? Have these opportunities been maximised?
- Has the quality of the assessment been independently reviewed?

Capacity

- Is there an institutional framework to manage environmental risks/impacts and major environmental policy and institutional failures?
- Has the level of awareness of "SEA" among Govt. Staff & Other Stakeholders been assessed? Has there been an effort to educate all stakeholders including Govt. Ministers on "SEA"? Is there sufficient capacity within institutions and agencies, at national and sub national levels, to implement the specific PPP (e.g. to enable them to apply an environmental management framework for sub-elements); and to manage, regulate and be accountable for use of natural resources? How can these institutions be strengthened?

Institutional/Implementation

- What is the institutional capacity at the national level to integrate environment into planning processes?
- What donor harmonisation mechanisms are in place to ensure environment is part of donor coordination?
- What are the challenges and opportunities for civil society organisations and the private sector in relation to environment and NRM? What is their level of awareness of the "SEA" process?

Influence of SEA

- Are there specific points in the process to develop the PPP where the SEA can have influence over decision making?

Data, information and monitoring

- Are there significant data and information deficiencies and gaps? How can these be filled?
- Are measures proposed for monitoring? Are these clear, practicable and linked to the indicators and objectives used in the SEA? Are responsibilities clear?

Source: Adapted from OECD, 2006

Annex 2.2
Possible Structure and Contents of the SEA study

Structure of report	Information to include
Non-technical Summary	▪ Summary of the SEA process; ▪ Summary of the likely significant effects of the PPPs ▪ Statement on the difference the process has made to date ▪ How to comment on the report
Methodology used	▪ Approach adopted in the SEA ▪ How was public awareness on "SEA" raised (workshops, etc.) ▪ Who was consulted, and when ▪ Difficulties encountered in compiling information or carrying out the assessment
Background	▪ Purpose of the SEA ▪ Objectives of the PPPs
SEA objectives and baseline and context	▪ Links to other international, national regional PPPs and relevant environmental and social objectives including how these have been taken into account ▪ Description of baseline characteristics and predicted future baseline ▪ Environmental and social issues and problems ▪ Limitations of the data, assumptions made, etc ▪ SEA objectives, targets and indicators.
PPPs issues and alternatives	▪ Main strategic alternatives considered and how they were identified ▪ Comparison of the significant environmental effects of the alternatives ▪ How environmental issues were considered in choosing the preferred strategic alternatives ▪ Other alternatives considered and why they were rejected ▪ Any proposed mitigation measures.
PPPs	▪ Significant environmental and social effects of the policies and proposals ▪ How environmental problems were considered in developing the policies and proposals ▪ Proposed mitigation measures (institutional strengthening, budgetary issues, etc.) ▪ Uncertainties and risks
Implementation	▪ Links to other tiers of plans and programmes and the project level (ESA, project design cycle, etc) ▪ Proposals for monitoring and feedback mechanism

Source: adapted from ODPM, 2005

GLOSSARY

Glossary

Baseline data: data that describe issues and conditions at the inception of the SEA. Serves as the starting point for measuring impacts, performance, etc, and is an important reference for evaluation. (OECD, 2006)

Biodiversity: the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (CBD, 1992)

Biological Resources: includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.

Cumulative effects/impacts: incremental impact of an action when added to other past, present or reasonably foreseeable actions regardless of what agency or person undertakes such actions. Cumulative impact can result from individually minor but collectively significant actions taking place over a period of time (OECD, 2006).

Desertification: is defined as land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climate variation and human activities (UNCCD 1995)

Ecosystem: means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Ecosystem services: The benefits people obtain from ecosystem. Ecosystem services include all outputs from agricultural activities, including outputs as diverse as food production and climate regulation.

Environment: Environment is considered to include biophysical resources and conditions on which rural communities and their activities depend, and which in turn they influence.

Environmental and Social Assessment (ESA): the process of examining the environmental and social risks and benefits of proposals. Interpretations of the scope of ESA also vary, particularly regarding the social dimensions. It is usual to consider the physical/biological impacts of development on directly affected groups (e.g. Impacts on downstream water supply, displacement, and local communities or vulnerable groups). But many institutions routinely include consideration of social impacts that are mediated by the environment (such as the human impacts of water pollution). Such agencies undertake environmental and social assessments' or separate social assessments' to identify adverse social impacts and promote other social goals, such as social inclusion or poverty reduction. The relative importance of the different dimensions varies depending on the issue involved; in the case of a dam it is increasingly routine in ESA to consider both physical/ecological and social impacts.

Environmental and Social Impact Assessment (ESIA): a process, applied mainly at project level, to improve decision making and to ensure that development options under consideration are environmental and socially sound and sustainable. ESIA identifies, predicts and evaluates foreseeable impacts, both beneficial and adverse, of public and private development activities, alternatives and mitigating measures, and aims to eliminate or minimise negative impacts and optimise positive impacts. (OECD, 2006)

Environmental Services: qualitative functions of natural non-produced assets of land, water and air (including related ecosystem) and their biota. There are three basic types of environmental services: (a) disposal services which reflect the functions of the natural environment as an absorptive sink for residuals; (b) productive services which reflect the economic functions of providing natural resource inputs and space for production and consumption, and (c) consumer or consumption services which provide for physiological as well as recreational and related needs of human beings.

Harmonisation: of aid procedures aims to reduce unnecessary burden in recipient countries and enhancement of development effectiveness and efficiency of aid by reduction of transaction cost of aid procedures among donors and recipient countries. (OECD, 2006)

Mainstreaming/Up-streaming: For the purposes of these ESA Procedures, mainstreaming is "the process of systematically integrating IFAD's Environment and Social Values and Principles into all domains of the Fund's operations to promote both specific and general development outcomes of rural poverty reduction". It implies the integration of environmental and social

approaches and tools in the Programme/project cycle in order to better harmonise economic, environmental and social concerns.

Millennium Development Goals: eight international development goals for 2015, adopted by the international community (UN Millennium Declaration, September 2000).

Policies, Plans and Programmes (PPP): different meanings in different countries:

policies are broad statements of intent that reflect and focus the political agenda of a government and initiate a decision cycle. They are given substance and effects in **plans** and **programmes** (schemes or sets of usually linked actions designed to achieve a purpose). This involves identifying options to achieve policy objectives and setting out how, when and where specific actions will be conducted. (OECD, 2006)

Protected Area: means a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.

Scoping: a procedure for narrowing the scope of an assessment and ensuring that the assessment remains focused don the truly significant issues or impacts.

Screening: a process to determine the nature and extent of the ESA or environmental analysis to be carried out.

Stakeholders: those who may be interested in, potentially affected by, or influence the implementation of a PPP. In the context of an SEA applied to development co-operation, stakeholders may include: internal staff (environment and non-environment) in donor agency and other departments in the donor country, ii) the partner country government, iii) other donor agencies, iv) NGOs, and v) civil society. (OECD, 2006).

Strategic Environmental Assessment (SEA) SEA aims to integrate environmental (biophysical, social and economic) considerations into the earliest stages of policy, plan and programme development (Sadler, 1995). The process of integrating the concept of sustainability into strategic decision making (DEAT 2000)

Sustainable development: using resources in a way which meets the needs of the present without compromising the ability of future generations to meet their own needs (The World Commission on Environment and Development "Our Common Future").

Sustainable Land Management (SLM): Can be defined as conservation and utilisation of land resources such as soils, water, animals and plants to meet the material, aesthetic and spiritual needs of humankind today, while ensuring the future productive potential of these resources, as well as the maintenance of their environmental functions (Shanthikumar, S.R. 2002. Modified from WB, 2000)

Sustainable Use: means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

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IFAD's
OPERATIONAL STATEMENTS
ON ENVIRONMENTAL MANAGEMENT

OPERATIONAL STATEMENT 1
Biodiversity and Protected Area Management

INTRODUCTION

1. Biodiversity or biological diversity refers to the full range and variety of the world's biota, and its living organisms. Biodiversity is usually considered at three levels: (i) generic, (ii) species, and (iii) ecosystem diversity. Conservation of biological diversity aims at maintaining global biological resources to meet the needs of humanity today while ensuring their availability for future generations – a fundamental criterion of sustainable development. Natural resource management which tries to preserve biological diversity is largely focused on the management of protected areas. In certain cases, the areas involved are unprotected by legislation, but they are known to include biologically important ecosystems. National parks and other types of protected areas take first place in efforts to conserve biological diversity. Biodiversity and protected area management are, therefore, two closely linked concepts. However, the traditional "fence-it-off" approach to protecting "biodiversity" is increasingly seen as not sufficient. In addition, rural communities view this type of approach negatively because it often deprives them of their traditional livelihoods (e.g. the case of Maasai in Kenya & Tanzania). Hence, this should be supported by the adoption of "eco-agriculture"—strategies based on the premise that natural ecosystems can be managed to simultaneously protect threatened and/or economically important species and help to feed poor rural communities.

2. Whereas protected areas serve to maintain biodiversity, many of these areas are also essential for maintaining the livelihood of local (indigenous) people. As a result, development projects that include or influence protected areas may in fact be a dilemma of people *versus* nature. How to reconcile conservation efforts with people's needs is a key environmental management issue for which site-specific *ad hoc* solutions need to be developed, tailored to local circumstances, opportunities and needs (e.g. sharing of revenue from eco-tourism with local communities).

3. Biodiversity conservation ultimately is in the hands of the rural communities who live around "protected areas" or in other natural ecosystems with high biodiversity. Unless these rural communities derive benefit from the existence of these "protected areas" etc, biodiversity conservation is unlikely to succeed in the long term, in spite of any regulatory framework. Hence biodiversity conservation & the development of rural livelihoods must go hand in hand. Thus extensive community consultations & involvement and "community ownership" are essential for biodiversity conservation and sustainable rural development.

BIODIVERSITY IN IFAD PROJECTS

4. Unsustainable development in agriculture (mainly crop monoculture), forestry, fisheries and transportation are among the main causes of loss of biodiversity. At the same time, most activities that are currently underway to preserve biodiversity involve establishing and maintaining protected area systems, as part of agricultural or natural resource management projects.

5. Loss of biodiversity is caused by habitat destruction from clearing and burning forests, logging and agricultural encroachment, converting land ecosystems for crop monoculture, draining of wetlands for farming, displacement of wildlife for domestic livestock, heavy use of pesticides, replacement of indigenous farming systems by cash crop monocultures, and expanding human population and settlements. Fishery projects may have negative consequences as a result of conversion of natural breeding sites for aquaculture, introduction of exotic species, and over-fishing. Intensive logging and the construction of access roads in forests and other rural areas, are also leading causes of loss in biodiversity. More recently, increased interest in production of biofuels and its focus on monoculture development over wide areas has raised concerns over its impacts on biodiversity conservation. In addition to biodiversity loss, it might also reduce the land available for food production for the rural poor. Climate change is going to impact biodiversity in terms of redistribution of species and communities and of local and regional extinctions. Rare species that live in fragile or extreme habitats

are already being affected: climate change is disrupting species interactions and ecological relationships.

6. Protected area systems are likely to be the most practical way to preserve the greatest amount of biodiversity, but success will ultimately depend on achieving community collaboration and ownership. Preservation of biodiversity is sometimes done in specific protected area management projects, but increasingly it is done in conjunction with development projects, particularly in agricultural development projects. Value chain development projects may also offer the opportunity for preserving biological diversity by marketing products made from old plant varieties and breeds ("underutilized species") and from local useful plants (e.g. medicinal plants) and animals that are very well adapted to local conditions, reflect traditional knowledge in terms of their development or processing, and are part of the local culture. Short value chains supplied by many small producers, who use considerably more species and varieties than larger farms, are more suitable for the conservation of agro-biological diversity than long value chains served by few large farms with monocultures.

7. IFAD can protect biodiversity by designing its projects appropriately, by ensuring that they are implemented sustainably with full community participation, and by setting forth *sound* recommendations to improve the agricultural policies of borrowing countries, which are very often "top-down". IFAD currently participates in programmes to improve the international gene-bank network. It is also a donor of the Consultative Group on International Agricultural Research (CGIAR), which supports the establishment of storage centres for wild plant, livestock and food crop species. Project components which improve local & export markets for sustainably harvested products from indigenous plants and animals can also help conserve biodiversity while improving the livelihoods of poor rural people (e.g. wild caught shrimps, wild honey, wild fruits & nuts, medicinal plants, etc).

ENVIRONMENTAL ISSUES

8. Biodiversity should be identified at an early stage of project preparation to allow for optimum integration of conservation and development objectives. The following is a list of the most common potential issues for use in this identification process:

a. Ecosystems – does the proposed project drastically change the existing ecosystems or agro-ecosystems? What is the nature of the change (i.e. positive or negative)?

b. Biological specificity – what are the important biological features of the affected ecosystems?

c. Protected areas – does the proposed project directly or indirectly affect formally protected areas or zones of well-known ecological significance?

d. Project components with significant direct impacts – identify the project components that directly negatively and/or positively affect biodiversity (e.g. expansion of agricultural land into wildlands, change of water regime in wetlands, and development of irrigation in drylands).

e. Project components with significant indirect impacts – identify the project components that indirectly affect biodiversity (e.g. migration of people to or from protected areas, promotion of different land use systems).

f. Quantification of impact – determine the extent and degree of the impacts and the cumulative effects of various project components over time, taking into account impacts brought about by future climate changes.

g. People – identify local mechanisms for management of biodiversity resources and traditional practices which have a bearing in this regard (e.g. what is the role of local biodiversity with regard to the livelihoods, food supply & income generation of the local rural communities? Will the project lead to a loss of livelihoods of any segment of the rural poor?).

POTENTIAL MITIGATION

9. Measures for protection of biodiversity must ensure that local populations are not adversely affected and/or actually benefit from environmental opportunities, i.e. through Rewards for Environmental Service (RES) mechanisms. Mitigation measures for those projects which have potentially adverse impacts on biodiversity generally include the following possibilities:

a. Project cancellation – the project as proposed may require drastic change or may be ultimately inappropriate.

b. Community involvement – the project should promote the participation of local people in the identification of suitable alternatives, sustainable management and preservation of protected areas to prevent or reduce negative impacts. Moreover, projects should strive to respect, protect and maintain knowledge, innovations and practices of indigenous and local communities that are relevant for the conservation and sustainable use of biodiversity.

c. Land use plan – develop an environmentally sound and sustainable regional plan, with participation of local communities that integrates biodiversity protection with the requirements of agricultural practices. Projects should include components which enable local communities to manage intact natural forests sustainably to provide multiple alternative livelihoods & income.

d. Compensatory measures – in association with local community groups, to establish new or improved management systems (or strengthening of existing traditional management) for existing protected areas; restore damaged habitats; and offset unavoidable losses of the habitat by ensuring increased benefits to the affected communities.

e. Mitigation measures – establish wildlife corridors and/or protected areas; and improve existing management of biodiversity through training and institutional strengthening programmes. Environmental education of rural communities, especially on issues such as the links between forest destruction, biodiversity loss, climate change and desertification are vital.

INTERNATIONAL LEGAL CONTEXT

10. At the 1992 UNCED Conference, 156 countries signed the Convention on Biological Diversity. Its objectives are “the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.” Provisions of the Convention are legally binding on governments who must ensure that their national legislation on biodiversity is consistent with the Convention, including empowerment of indigenous peoples, especially with regard to ownership/access & management of their local natural resources (see also the 2007 UN Declaration on the Rights of Indigenous Peoples).

11. In April 2002, the Parties to the Convention committed themselves to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national levels as a contribution to poverty alleviation and to the benefit of all life on Earth. This target was subsequently endorsed by the World Summit on Sustainable Development and the United Nations General Assembly and was incorporated as a new target under the Millennium Development Goals.

INTERNATIONAL FINANCING

12. The preservation of biological diversity is one of the main areas of concern of the Global Environment Facility (GEF). GEF provides grants for investments, technical assistance, and some research in support of the preparation and implementation of biodiversity conservation projects. As an executing agency of GEF, IFAD could greatly benefit by including a GEF component in its projects.

GEF support can assist IFAD to achieve its goal of improving the livelihoods of the rural poor while conserving biodiversity for global benefits.

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OPERATIONAL STATEMENT 2
Fertilizer

INTRODUCTION

13. Fertilizers provide plants with nutrients, e.g. nitrogen, phosphorous and potassium, either individually or in combination as food production requires mainly water and arable land that steadily supplies nutrients and the organic substrate for plant growth. These vital resources can be organic (animal manure, humanure, compost and sewage) or inorganic (synthetic chemical compounds). Fertilizers are often distributed unevenly around the world and many soils have been depleted or damaged by modern or inappropriate agricultural practices. For example, the intensity of fertilizer use remains relatively low in most developing countries as shown in Table 1. It is low in comparison with the EC countries and North America, where average dressings are around 175 kg/ha and around 98 kg/ha respectively.

Table 1.
Fertilizer use in developing countries, average 2002/03*

	Kg/ha
Sub-Saharan Africa	8
South America	80
North Africa	69
South Africa	61
East Asia	202

Source: A. Roy, International Centre for Soil Fertility and Agricultural Development (IFDC).
*kg of manufactured plant nutrient per hectare of harvested area

FERTILIZERS IN IFAD PROJECTS

14. IFAD projects deal with fertilizer use in the context of broad agricultural development projects or in agricultural intensification projects which aim at increasing productivity through higher yields per unit area. Environmental concerns with regard to fertilizers focus on water pollution and soil degradation. Continuous use of inorganic fertilizers on farmlands can lead to serious environmental consequences and negative impact on humans and animals. Over application of chemical fertilizer is leading to the contamination of water supplies and soil; inappropriate fertilization can acidify the soil; too little fertilization can allow the soil to be “mined” of its nutrients, threatening sustainability of cropping through a decline in soil fertility. According to a study made by UNEP globally some 2 billion hectare of vegetated land have been degraded since 1945, which is equivalent to 17% of the worldwide productively used land. Inorganic as well as organic sources of plant nutrients can cause water pollution, but in developing countries organic material is unlikely to contaminate water except where manure is sewage or effluent from intensive livestock units.

15. IFAD has supported 2 main projects on nutrient management for 15 years; the first is with **ILRI** on the Improvement of Crop-Livestock Productivity/Efficient Nutrient Management in Mixed Farming Systems of Semi-Arid West Africa. The second has been developed with **IFDC** on livestock manure and nutrient management in West and East Africa.

16. In most developing countries, and essentially for most IFAD beneficiaries, nutrient applications (organic and inorganic) generally remain below levels that are likely to cause major water pollution. This is due to the fact that fertilizer applications are low due to its high cost. For instance, in the US,

the cost of NPK is $150/t; where in landlocked African countries, it is as high as $600/t due largely to the severe underdevelopment of transport infrastructure - rail and road.

17. However, there is a category of poor farmers (most of the time women and child) living in peri-urban areas, that use raw waste water to irrigate small vegetable plots. The water used for irrigation is often heavily contaminated with pathogens such as helminth parasites.

18. The greatest issues associated with fertilizer use are emerging especially in countries such as India which were the vanguard of the Green Revolution (i.e. where large chemical fertilizer doses have been applied for over 20 years).

19. Contamination and risks can be reduced by farmer education and standard crop husbandry practices, which are usually in the farmers' interest as they improve fertilizer use efficiency.

20. In rainfed agricultural areas, poor farmers cannot usually afford chemical fertilizers. Instead they often apply organic materials, but since their livestock numbers are often low, they use too little to avoid long-term decline in fertility, hence the soils are "mined" of nutrients. At present the earth is losing 25 billion tons of nutrient rich topsoil annually (World Watch Report 2005) which results in considerably reduced productivity, and hence decreased food security.

21. Chemical fertilizer use can also be reduced by using indigenous farming practices such as the cultivation of locally adapted indigenous crops, for instance millet & sorghum, multi-cropping, crop rotation with legumes, etc. Cultivation of indigenous crops can reduce environmental pollution from chemical fertilizers, as well as provide highly nutritious indigenous food supplies for the rural poor. These indigenous crops can also replace grains used for producing livestock feed. It should be noted that during the past several decades, there has been an increasing trend in many developing countries to replace drought resistant and locally well adapted crops of high nutritive value by "exotic" food / cash crops requiring high chemical fertilizer input. This was mainly due to a "top down" approach by Governments and has further contributed to the problem of environmental degradation from crop agriculture.

IFAD'S INITIATIVE ON PRODUCTIVE SANITATION SYSTEMS

22. The opportunities to limit soil mining without some use of inorganic fertilizers exists with productive sanitation systems which aims to increase productivity in agricultural yields by reusing hygienised human excreta and urine. Urine is a valuable fertilizer which poor people could use to increase yields and not contaminate their environment. It is a resource, not a pollutant, if correctly managed. Researchers from Burkina Faso (CREPA), Sweden (SEI) or Finland (University of Kuopio) reported that urine treatment yielded vegetables (cabbages, tomatoes) that were bigger than those treated with industrial fertiliser or those treated without any fertiliser. The annual excreta of a single person – 500 litres of urine and 50 litres of faeces – is equivalent to 7.5 kg of NPK fertilizer (nitrogen/phosphorus/potassium), which is the input required to grow 230 kg of cereal-a year's need per person.

23. Reusing humanure has to be done without hygienic threats, to ensure food safety and have an indirect positive impact on health and the environment. Trainings on capacity building and respect of national legislation have to be taken into account.

24. IFAD is currently sharing knowledge and experience on the best ways of optimizing human waste or nutrient recycling with the Stockholm Environment Institute (SEI) and is supporting some pilot projects in sub-saharan Africa (Niger) to test the impact of Productive Sanitation Systems on restoring soil fertility.

ENVIRONMENTAL ISSUES

25. Appropriate fertilizer use has obvious socio-economic benefits since it results in increased crop production, and improved food supply and health conditions. It has important positive impacts on the natural environment as well, as it enables production to be intensified on existing cropland, while reducing the need for agricultural expansion onto other lands having different resource values. Approaching fertilizer with the best practices optimizing nutrient recycling (such as closing the nutrient loop) is very important as 60 % of analyzed ecosystem services have been degraded over the past 50 years. Agriculture is the major driver behind ecosystem change and degradation.

26. Increasing price of chemical fertilizer (in Mauritania, the price of 50 kg NPK has been multiplied by 4 from 2007 to 2008) and increase of energy costs in the long run will limit nitrogen fertilizer use and fossile fertilizer use (P, K). There are natural resource limitations on earth so it appears reasonable and inevitable to approach the food security issue from a perspective of resource recovery. Today's estimated global phosphorus-reserves will last for about the next 50 to 100 years.

27. The major potential negative effects of fertilizer mismanagement in agriculture are:

a. Water pollution – water tables polluted with leaching and runoff of fertilizer and pesticides

b. Soil fertility loss – related to excessive or inappropriate fertilizer application. Acidification of soils by fertilizer use to the degree where yields are diminished has been reported from some IFAD projects but this can be relatively easily avoided or reversed. Many farming systems are using too little fertilizer to avoid a long-term decline in fertility. The threat to sustainability from nutrient mining is widespread and the opportunities to limit soil mining without some use of inorganic fertilizers are limited. However, the adoption of indigenous farming practices can be useful in this regard.

c. Health effects – nitrites can cause methaemoglobinaemia (Blue-Baby Syndrome), but only one elevated case of this has been reported in a developing country (i.e. Namibia), though the scale of the condition may be masked by diarrhea. Nitrosamines and nitrosamides are powerful carcinogens, however, the incidence of gastric cancer in generally low in developing countries. Bladder cancer has a high incidence in Egypt, and is linked with schistosomiasis, bacterial infestation, and nitrate levels in urine, suggesting that nitrate from high fertilizer levels (over 300 N kg/ha) is probably a major cause. Indigenous farming practices and "Organic Farming" (which is currently making a comeback in many developed countries) can help reduce the negative health and environmental impacts of chemical fertilizer use.

28. Water pollution affects both ground and surface water. The most common source is nitrogen fertilizer (both inorganic and organic). Generally, potassium and phosphate are leached less easily from soils than nitrogen, posing less problems – although runoff rather than leaching, may sometimes cause greater fertilizer losses. Nitrates are not directly toxic to animal life but they can become toxic when they are converted. High concentrations of nitrates and phosphates can also lead to eutrophication in rivers, lakes and coastal waters.[1] High levels of nitrogen and phosphorus cause depletion of oxygen in lakes and reservoirs by excessive algal and bacterial growth (eutrophication) eventually reducing aquatic life. The problem is further aggravated by organic effluents; mainly human sewage. In the case of drinking-water reservoirs, eutrophication becomes a public health concern. Furthermore, biological magnification (i.e. bioaccumulation) of toxins is an issue which should not be underestimated. Bioaccumulation implies that toxic levels increase over time and along the "food chain" (i.e. from species to species). Bioaccumulation of toxins as a result of chemical fertilizer use is a very serious issue causing biodiversity loss and disease in both animals and humans.

29. Water pollution is particularly prevalent in irrigation, which uses significant quantities of chemical fertilizers (especially under double or triple cropping systems) and experiences greater leaching,

[1] Gas emission of nitrous oxide may contribute to the depletion of the ozone layer and global warming, but the issue is controversial and requires further study.

intensive fruit and vegetable gardening which often develops around urban centres also carries high risks of nitrate pollution of water supplies. Dressings for most non-irrigated crops in developing countries are below levels which cause serious contamination of water supplies at present. Although nitrate contamination appears to be increasing, the increase may be partly explained by domestic and livestock excrement.

30. Progressive loss of soil fertility is a primary problem in dryland farming where too little or no fertilizer is used. This directly threatens the sustainability of the farming system concerned. Degraded cropland, which has lost its fertility, may retain its capacity to recover through fallowing. However, beyond a critical point, it may not return to its former state without costly soil treatment, such as deep cultivation. It may become an irreversible phenomenon, due to the heavy applications of organic matter and fertilizers; while nutrient mining and a decline in yields can be reversed, the loss of soil depth cannot. Hence dryland farming can greatly benefit from the use of indigenous farming practices including the use of drought resistant indigenous crops and provide sustainable food supplies for the rural poor while conserving the environment.

CRITERIA FOR ENVIRONMENTAL SCREENING AND SCOPING OF PROJECTS

31. There are various ways to identify whether fertilizer applications are causing adverse effects on the environment. Enclosed in a checklist form, are some of the most important factors to look out for.

BY COMPONENT

Pollution

- Heavy annual dressings of chemical fertilizer use, especially nitrogen and to a lesser extent, phosphate.

Acidification

- Use of ammonium fertilizers (ammonium sulphate and ammonium nitrate).

BY RECEIVING ENVIRONMENT

Pollution

- Vulnerable drinking water supplies (for both people and animals):
- Aquifers (thin, sandy strata above aquifers may allow serious water contamination).
- Local wells/informal drinking water sources such as drainage.
- Reservoirs.

Acidification

- Poorly-buffered sandy soils low in organic matter subject to repeated dressings of ammonium fertilizers.

Soil mining

- Use of modern high-yielding varieties (sustainable increases in yield are likely to need increased fertilizer dressings).

POTENTIAL MITIGATION

32. Most pollution risks associated to chemical fertilizer use can be prevented by good farming practices. These involve:

Pollution control

- Good practice will prevent most pollution risks attached to chemical fertilizer use[2].
- Ensuring that dressings do not exceed recommended doses.
- Reducing leaching (appropriate choice of fertilizer to suit soil conditions, split dressings and fertilizer placement).
- Reducing runoff (incorporation of fertilizer into soil; timing of application to avoid erosive rains; soil and water conservation measures).
- Sensitive watersheds serving urban areas may need interventions to limit nitrate use.

Acidification reduction

Selection of non-ammonium sources of nitrogen (such as urea).

Liming (usually to pH 5.5 for tropical crops).

Appropriate management

Is there a potential for increasing production without the use of chemical fertilizers, especially using indigenous technologies, including the use of organic fertilizers?

Community education on improving indigenous practices to maximise production (without using chemical fertilizers)?

Crop management practices which increase nutrients available to crops:

- Increasing fertilizer use (more organic and less inorganic, i.e. humanure).
- Increasing fertilizer use efficiency (type of fertilizer applied, timing, split applications).
- Increasing nutrient recycling (using human urine and excreta, crop residues, livestock grazing after crop harvest, i.e. mixed farming – Livestock & Crops).
- Improving rotations (e.g. inclusion of legumes, multi-cropping)

33. These measures are generally in the farmers' interest as they improve the efficiency of fertilizer use. Sound agricultural practices should be encouraged through inspection and incentives or sanctions. In some watersheds which provide water supply to urban areas interventions to limit nitrate may be appropriate. Research into crop varieties that can maximize nitrogen-fixation, and indigenous farming practices should also be promoted.

34. Fertility loss can be corrected through better fertilization. There are a wide range of technological options available for improving soil fertility. These involve: chemical fertilizers, biological nitrogen fixation, use of organic manures and agricultural practices to increase fertilizer efficiency. Wherever possible indigenous farming practices using indigenous knowledge and locally adapted indigenous crops should be encouraged.

[2] Potential health risks associated with nitrates in developing countries are caused in part by poor nutrition and hygiene. Diets in developing countries are often deficient in vitamin C, which appears to give protection against methaemoglabinaemia and gastric cancer.

INTERNATIONAL LEGAL CONTEXT

35. Water contamination hazards have resulted in restrictions in fertilizer use in some developed countries; notably in watersheds supplying urban areas. Regulations are being enforced to limit nitrate concentrations in drinking water:

- 45 mg nitrate per litre established by the WHO and US Public Health Service; and
- 50 mg nitrate per litre for the European Community.

36. Few developing countries have adopted or enforced standards for nitrates in drinking water, some have restricted the use of fertilizers for health purposes in rain catchment areas used for drinking water supply. Furthermore, experience from developed countries should be used to prevent similar mistakes in developing countries as well as prevent the "dumping" of cheap environmentally unsuitable chemical fertilizers into developing countries.

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OPERATIONAL STATEMENT 3
Fisheries

INTRODUCTION

37. Fisheries projects can be divided in two groups: (i) capture fisheries (harvest of wild stock); and (ii) culture fisheries or fish farming (freshwater aquaculture, brackish water aquaculture and mariculture). Capture fisheries include marine operations (offshore and near-shore) and inland operations (rivers and lakes). Fish farming produces more fish than is normally available from wild stock, by manipulating or managing the fish and food resources (by containment in ponds or specific productive areas, creating new or improved use of natural habitats).

38. The total demand for fish is approaching production limits. Capture fisheries account for 66 percent of total world food fish production of which most commercial stocks are now fully exploited. Inland fisheries yield only 10 percent of the total capture fisheries production and have also reached their limit in most areas. At the same time, available fish and water resources are deteriorating as a result of pollution from agriculture, industry, mining and urbanisation (especially in tourist areas). Increases in fish production are possible through increased fish farming, but this is often associated with considerable environmental problems. However, fish farming using environmentally friendly appropriate technologies adapted to local situations using the existing natural ecosystems can improve production without significant environmental degradation. Most problems are caused by "importing" foreign technologies without adequate research into improving local technologies and adopting "local solutions".

FISHERIES IN IFAD PROJECTS

39. Projects with fisheries improvements are amongst those projects where the proportion of poor beneficiaries is higher than in any other development programme. Development in fisheries directly affect some of the poorest and most marginalized groups of the population as open access fisheries is often used as an employer of last resort. Projects which aim at the development of small-scale fisheries are therefore fully within IFAD's mandate to alleviate rural poverty and are very beneficial to the marginalised rural poor. Successful development of artisanal fishing communities is considered to be one of the biggest challenges that institutions face in fisheries development.

40. Through its investments in well over 30 small-scale fisheries (including aquaculture) projects, IFAD has sought to attain the following objectives:

- increase food production
- improve nutrition & health of fishing communities (& surrounding communities)
- increase incomes and employment
- improve the quality of life in fishing communities
- increase national trade and exports
- reduce immigration of young fishermen to urban areas
- improve the situation of women in fisheries

41. Currently, projects with fisheries components constitute around 23 percent of IFAD's project portfolio. Projects with fisheries components now routinely include provisions to increase fish production within sustainable limits and safeguard against resource depletion.

ENVIRONMENTAL ISSUES

42. Whereas the development of artisanal fisheries has many beneficial effects, the most significant may be the modernization and infrastructural improvements of the area concerned; as the long-term productivity of the resource base may be threatened. This is in fact the most significant negative environmental effect on any fishery activity or fishery project. Below is a list of the most common, potential negative impacts of capture fishery projects.

a. Over-exploitation – results in unsustainable depletion or even extinction of target fish stocks and other species dependent on it. This can have major impacts on biodiversity and biological equilibrium. However, currently this is not a major concern in developing countries because local fish stocks are quite "under-utilised" by poor rural fishing communities due to lack of adequate financial resources & equipment to improve yields.

b. Capture and discarding of non-target species (by-catch) – due to inappropriate equipment use and fishing practices, as well as loss of nets.

c. Habitat damage – oil and fuel spills, direct dumping of debris (gear, twine, food containers, plastic bands, etc.) by fishing fleets and damage from anchors, explosives and poisoning; coastal pollution from processing plants. Additionally, deforestation may occur around fishing villages due to an increase in demand for fuel-wood from those who engage in the production of "smoked fish".

43. Fish farming by its inherent nature of changing natural ecosystems has more significant impacts than capture fisheries. Hence "fish farming" should not be encouraged where there is still potential for improving yields from "capture fisheries" which is much more environment friendly. Furthermore, if "fish farming" is the only option, it should use technologies which are locally adapted and wherever possible utilise the existing intact ecosystems.

The most important negative impacts of fish farming are listed below.

a. Conversion of wetlands – coastal wetlands are cleared involving erosion and siltation problems. They are then converted to fish ponds and can be particularly destructive in mangrove swamps.

b. Siting of ponds in valleys and lowlands – interferes with other uses, such as irrigation, washing, drinking, and urban expansion.

c. Change in hydrology – water quality is affected by stagnation, acidification, and pond effluents. Nutrient and organic enrichment of recipient waters results in build-up of anoxic sediments. The quantity of water available for other uses is also reduced.

d. Introduction of exotics – damage to/extinction of native fish populations by predation, and spread of diseases and parasites; risk of genetic impacts (through escapement of genetically modified species. In developing countries, adequate production through fish farming can be achieved without the use of genetically modified species and should not be permitted. Furthermore, in most developing countries fish biodiversity is very high and the long term impacts of GMOs on local biodiversity is difficult to predict and likely to be very detrimental. Further research is required.

e. Human and Animal Health - the use of antibiotics and other chemicals to control diseases & parasites in fish farming operations is likely to have very serious negative impacts on the health of both animals & people due to the contamination of the environment with antibiotic resistant microorganisms, etc

44. In addition, health impacts associated with fish processing and pollution etc. are relevant.

POTENTIAL MITIGATION

45. Many fishery oriented projects are designed with the clear understanding that there are potential negative impacts, but that these can be avoided or mitigated by good fishery practices. This of course is no guaranteed solution where the capacity to implement or enforce good practices is impaired. Even though the technical mitigation measures – which are known to resolve or alleviate the negative impacts of fisheries (as given below) – are simple and straightforward, it should be kept in mind that considerable monitoring (environmental monitoring capacity in developing countries is rather inadequate and should be improved through the project) of fish and water resources may be necessary during and after project implementation.

46. Mitigating measures in capture fisheries may include:

a. Over-exploitation – development of fishery management plans for optimum sustained yields[1] including capacity reducing measures like selective gear size, limited areas, limited seasons, minimum fish size; promotion of the respect of Marine Protected Areas (MPAs); reduction of post-harvest waste, consideration of artificial habitat technologies, a new focus on aquaculture; promotion of eco-labeled products.

b. Capture of *non-target* species – education of fishermen and control over damaging fishing equipment and practices, and development of markets for *non-target* species; promotion of use of selective gear and improved gear technology (e.g. biodegradable material, collapsible traps).

c. Habitat damage – public education, provision of oil disposal sites, and designation of anchoring sites; banning of destructive fishing practices based on the use of explosives and poison. Environmental impact caused by an increased demand for fuel-wood for "smoked-fish" production may be minimized by the provision of community owned & operated "refrigeration facilities" for fish storage and the development of rural roads to transport fresh fish to nearby towns or cities. Coastal pollution from fish waste may be minimized by encouraging backyard poultry and pig production in fishing communities. Fish waste could be an excellent source of protein for these backyard livestock.

d. Community compliance – Environmental education of rural communities and Community empowerment is extremely vital. Capacity building, education and participation in management contribute to building sense of ownership and support sustainable resource use. Formation of "fishermen co-operatives" can "empower" local communities, ensure compliance and also improve income.

47. Mitigating measure in fish farming may include:

a. Resort to "fish farming" only when improvement in sustainable yields from "capture fisheries" by improved technologies cannot be achieved.

b. Locally adapted technology – Use locally adapted technologies where "fish farming" can be practiced without altering the local ecosystem (avoid importing foreign technologies).

a. Conversion of wetlands – preparation of wetland development plans which set aside areas of particular ecological significance, limit the conversion to ponds, and discourage extensive forms of aquaculture.

b. Appropriate siting – siting of ponds, and development plans to ensure equitable land and water distribution of resources for different users.

c. Change in hydrology – adequate pond water exchange and flushing, and dilution or treatment of pond water prior to release; careful selection and use of feeds and fertilizers,

[1] This measure is confirmed by experiences gained in IFAD funded fisheries projects. Bishay (1990) concludes that "it is imperative that a fisheries resource assessment be carried out as a prelude or part of the IFAD project, linked to the need to create awareness among fishermen of the finite nature of the marine resources and of needs for measures to manage the resource."

and the safe and effective application of drugs (likely to result in the contamination of the environment with drug resistant microorganisms with negative consequences for animal & human health) and chemicals; promotion of responsible aquaculture labeling schemes.

d. Introduction of exotics – to be avoided, and establishment of a regular monitoring programme for disease and parasites; reduction of escapement risk. The introduction of genetically modified species (GMOs) into developing countries should not be permitted until further extensive research is carried out into potential long term negative impacts on local biodiversity, human & animal health.

e. Community compliance – Community education & empowerment is very vital. Capacity building, education and participation in management contribute to building sense of ownership and support sustainable resource use. Establishment of "Fishermens Co-operatives" is extremely beneficial in "empowering" local communities.

48. In fisheries, external environmental factors play a crucial role, more so than in any other economic sector. The discussion above summarized the impact of fishery activities on the environment, emphasizing the need to conserve ecosystems and the sustainable exploitation of aquatic resources. However, the environment also influences fisheries, these impacts are caused by human activities unrelated to fishing and are largely the same for capture and artisanal fisheries. The most important impacts affecting the quality of rivers and seas come from the following sectors:

a. Agriculture – land use changes, including forest cleaning, overgrazing, irrigation development and agricultural chemicals.

b. Mining – discharge of mine tailings into rivers.

c. Industry – release of atmospheric and water pollutants.

d. Urban areas and tourism – untreated waste and sewage disposal.

e. Climate Change – The potential impact of Climate Change on rivers, lakes and sea-levels is likely to have significant impacts on both "capture fisheries & "fish farming" operations and should be taken into account when designing fisheries projects (past local climate change impact data can assist in predicting potential future risks).

49. Environmental analysis of IFAD projects will need to take these external factors into consideration in an integrated planning approach which seeks to reach compromise solutions acceptable to competing interest groups. However, it is important to consider that the competing interests are often stronger than those of the fishing communities. The effective protection of traditional rights to fishing grounds and fish landing areas are critical to design projects that aim at helping the poorest communities defend their livelihood. The most critical problem for fishing communities in developing countries is the lack of financial resources to improve environmentally sound traditional fishing practices to increase yield. The establishment of "fishermens cooperatives" and provision of micro-credit through these and other community organizations can be of immense assistance in this regard and will help improve livelihoods while conserving the environment.

INTERNATIONAL SUPPORT SYSTEM

50. Effective management policies and practices for capture and culture fisheries will require the design of multi-species models for tropical resource systems. Among others, FAO and WorldFish Centre deliver expert knowledge, including code of conducts, collaborative mechanisms, and technical support, to a broad range of needs in fisheries and aquaculture. Developing countries also need assistance to improve the enforcement of international laws to prevent "poaching" in territorial waters by intruding foreign trawlers which obviously deplete national fish stocks (e.g. Somalia).

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OPERATIONAL STATEMENT 4
Forest Resources

INTRODUCTION

51. Forest resources are used and managed for different – often competing – purposes, such as timber and fuelwood production, Non Timber Forest Products (NTFPs) collection, watershed management, shelter and food supply for indigenous people (forest dwellers), emergency shelter and food supply for surrounding farming communities or herders, and conservation of biological diversity. Natural stands of trees and shrubs play an important supportive role in savanna pastoralism and are used as a restorative measure for fertility improvement in shifting cultivation. Tree-based production systems do not require the continuous managing of the soil.

52. Crop production & logging are probably at the forefront of activities most destructive of natural forests and biodiversity. Natural forests can be managed sustainably by rural and indigenous communities to provide livelihoods and adequate income generating activities through alternative livelihood activities such as livestock grazing, natural honey collection/production, collection of fire-wood, medicinal plants, wild fruits & nuts, controlled hunting, etc. The same approach can also be used in rural villages situated in "buffer zones" around "protected areas" to provide sustainable livelihoods for poor rural people while protecting natural forests and the environmental services they provide.

53. Forests also place heavy demands on ecosystems in terms of nutrients, water, and light and therefore the management of natural forests is a complex issue. If well managed, forests can be used sustainably for most of the above purposes, either separately or simultaneously. They can also provide local as well as global environmental services, such as maintaining soil stability, protecting water flow and quality, regulating global climate through carbon sequestration, and serving as the repository of the bulk of terrestrial biodiversity. Overall, deforestation continues at an alarming rate with few signs of a significant decrease over time.[1] Large-scale destruction of forests (crop production, especially monocultures and logging are probably the most destructive practices which threaten the survival of forests in developing countries) occurs as a result of logging, and clearing for other land uses such as for infrastructure (roads, dams) and agricultural or livestock development (large scale forest clearing for livestock grazing is so far only common in South America, but should be discouraged). These changes often take place as a result of demographic transitions (migration and population growth).

FOREST RESOURCES IN IFAD PROJECTS

54. IFAD does not finance logging operations in tropical forests. Instead IFAD project components involve low-impact use of forest resources, or the expansion of agricultural operations, which may inadvertently involve conversion or degradation of forests. The removal of forests in such projects may involve clear-cutting for agricultural purposes or may be a result of project roads which facilitate access to the forest. Clear-cutting of forests for any purpose should be actively discouraged and only done as a last resort. Livelihoods of the rural poor can be improved with intact forests using environmentally sustainable alternatives to crop production including traditional livelihoods of indigenous people (livestock grazing, honey collection, medicinal plants, etc).

55. IFAD projects with a forest dimension often involve forest dwellers, who are among the poorest rural people in the world. They are often severely affected by developments from outside, have no recognized title on the forest lands which they depend on for their livelihood, and are therefore a prime target group to IFAD's mandate to alleviate rural poverty.

[1] About 130 000 km^2 (13 million hectares) per year during the period 1990–2005 (Source FAO 2005).

ENVIRONMENTAL ISSUES

56. Essentially there are two kinds of environmental issues related to IFAD projects which deal with forest resources: (i) the beneficial impacts of projects which specifically attempt to improve the livelihood of poor people depending on forest resources through community forest management and agro-forestry based on sustainable logging practices; and (ii) the projects aimed at increasing agricultural production through the expansion of crop or rangelands, *with or without* the construction of rural roads (activities which may have significant negative impacts on forest resources).

57. Beneficial impacts are those contributions made to the management of natural forests for sustainable production of timber and non-forest products in such a way that these yield sufficient financial returns. This may include the expansion of processing or marketing infrastructure for forest products. It may also include the design and implementation of Rewards for Environmental Services strategies through the creation of national or international markets for local environmental services provided by forest dwellers. The establishment of “grazing reserves” for the exclusive use of pastoralist communities in some developing countries (e.g. Nigeria) has also been found to be extremely beneficial for both marginalized communities and the environment. These are among the most appropriate ways to protect forests and watersheds, relieve pressure on other forests, and conserve their environmental value. Sustainable natural forest management approach and community-based forestry are most likely to succeed under conditions of a stable population.

58. A major concern in IFAD projects with regard to forest resources is the possible induced clearance of forest land for agricultural purposes. This process can be rapid (take a few years) and systematic; in the case of land clearance for specific monoculture crop production (i.e. cotton); or take place as a result of government-sponsored or spontaneous settlement in previously inaccessible or remote areas. The process of conversion to agriculture can also be gradual (decennia), as it is in large areas of the dry tropics, where population pressure is intensifying and where the once-sustainable land uses, such as shifting agriculture, reach unsustainable levels. A concern is raised also by biofuel production if not accompanied by strict land use laws, particularly in countries with tropical forests that are at risk of destruction. Biofuel expansion has in fact the potential to contribute to soil depletion, habitat loss and reduced biodiversity if they are grown on previously wild grasslands or forests.

59. When forests are transformed into cropland or range land (livestock herding can be achieved without forest destruction since animals can graze within intact forests as is the case with pastoralists communities), there can be immediate as well as long term impacts. The obvious benefit conferred by agriculture is increased food production. There are a number of negative environmental effects due to land clearing. These negative impacts are very similar to the indirect effects of road construction in or near forests. The indirect impacts or rural roads are examined in a separate OS. Typical negative effects of forest clearance affect the following areas:

a. Vegetation – loss of trees and undergrowth that is cleared and damage is extended to surrounding wooded areas.

b. Soils – disturbance of soils increasing susceptibility to erosion and loss of top-soil (in particular on sloping lands); creating changes in soil structure; loss of soil fertility; and changes in soil type as a result of temperature increases.

c. Water – greater run-off; increasing the chance of flash floods; creating reduced groundwater recharge; and water pollution from waste associated with agricultural operations; increased erosion along river banks and sea-shores; increased silting of rivers

d. Wildlife – depletion of wildlife; loss of habitat; hazards from agricultural chemicals, machines, and traffic; and imbalance in fish populations as a result of changes in water quality and quantity. This applies to crop production only. Most wild herbivores are browsers while most livestock are grazers and thus livestock can easily co-exist with wild herbivores in intact natural forests

e. People – lack of access or loss of traditional forest use and loss of livelihoods; as well as land tenure conflicts between forest dwellers and new farming communities. Loss of forest derived foods, bush-meat, medicinal plants, etc, will negatively impact the nutrition, health & well-being of indigenous rural communities. Migration of people into virgin forest areas can result in the emergence of new human diseases (e.g. Ebola, Lassa fever)

f. Desertification – forest clearing in arid and semi-arid lands is likely to initiate the desertification process further aggravating the poverty situation in these marginal lands.

g. Climatic Changes – Loss of forest vegetation leads to a decrease in carbon sequestration contributing to global climate change, decline in rainfall, drought, etc. Large scale deforestation contributes to global climatic change through the increase of carbon dioxide and the greenhouse effect. Depending on the scale of deforestation, reduced tree cover may result in water retention capacity of soils, reduction of cloud cover and rainfall.

h. Biodiversity – Loss of unique locally adapted indigenous plants and animals of potential global significance.

60. Potential problems related to pests and diseases can also arise from the introduction of exotic species through reforestation and afforestation initiatives. Unsustainable use of biomass can lead to deforestation.

61. Reforestation practices aim at wood production, protection of soil water regime and the prevention of soil erosion. A key characteristic of reforestation and afforestation therefore is that it enhances environmental quality (stabilizing soil and hydrological quality). Trees are also planted to rehabilitate degraded lands. The environmental issues of tree planting are mainly related to species selection, monocultures and the scale of plantations. Typical negative effects of reforestation/afforestation affect the following areas:

a. Changes in ecosystem – exotic or new tree species will alter the balance of the existing ecosystem. The introduction of new tree species may deprive animal species of food and shelter.

b. Social impacts – improved access to forest may lead to the spread of spontaneous settlement and shifting cultivation in forest areas.

c. Depletion of groundwater – may result in the depletion of soil moisture, lowering of water table and result in decreased groundwater and base flow. Lowering of the water table in surrounding areas may result in reduced water supply. The magnitude of the impacts depends on the water demand of the selected species and scale of the reforested area.

FOREST-BASED INDUSTRIES

62. Mechanical wood processing includes sawmills, veneer and plywood plants. These activities are accompanied by environmental concerns such as noise pollution, sawdust management which may result in serious public health concerns.

POTENTIAL MITIGATION

63. The key to control the adverse impacts of land clearing is careful land use planning. It is difficult to balance the need for natural resources between different users and interested parties. It is particularly difficult to do so for project implementation agencies such as Ministries of Agriculture, which are not normally equipped to handle all the issues. In such cases environmental assessment becomes a valuable process and tool to identify and reconcile the various resource needs and expectations. Land use plans should be based on soil surveys which can identify those forest lands that are most suitable for agriculture. Indiscriminate removal of trees and vegetative cover can thus be avoided.

64. Specific measures to mitigate the negative impacts of agricultural expansion listed above, are as follows:

a. Vegetation – identify and establish protected areas/parks for ecologically significant forest areas; minimize damage to surrounding wooded areas (try to avoid clear felling); and encourage the integration of trees and shrubs that maintain or enhance biodiversity and ecosystem functionality; establish "multi-purpose" forest areas such as "grazing reserves" exclusively for use by Pastoralists (e.g. "Grazing Reserves" for use by Fulani Pastoralists in Northern Nigeria).

b. Soils – limit clearing of land systems solely to those areas that are most suitable for farming; identify areas that should not be cleared; avoid clearing in the rainy season; and protect cleared areas with plants remnants and other material (such as litter, mulch, etc.).

c. Water – maintain vegetation as a buffer zone along all streams and bodies of water (at least 100 meters), and provide adequate facilities for the disposal of agricultural wastes. If appropriate, reward upstream land practices that improve the quality and quantity of water available for downstream users.

d. Wildlife – ascertain the presence of endangered species or ensure that adequate areas are available for the migration of wildlife; and ensure that the conservation measures are in place (i.e. protect the change of status from natural forest to officially protected forest areas).

e. People – include local communities and their leaders in land use planning and project design, define *title-to-land* and identify the tenureship patterns of various groups, and protect significant historic and cultural sites. With regards to indigenous peoples, efforts to promote Free Prior and Informed Consent (FPIC) is recommended. Promote Community Managed Forests for: (i) Alternative Livelihoods (ii) Livestock/Wildlife management – Revenue from both Livestock and "Eco-tourism" (e.g. Maasai Community lands in Kenya & Tanzania)

65. Specific measures to mitigate the negative impacts of waste (sawdust) and noise are compaction of sawdust to form briquettes and provide protective gear (mask, earplugs, etc.) to workers. Provision of micro-credit and technical assistance is relevant here.

SOCIAL ISSUES

66. Indigenous people living in forests have complex rules for use and tenure of forest land, trees, and forest products. Natural forest management improvements and forest clearing may affect the customary rights of men and women differently. Women may end up with a greater work load after the project because they will need to travel further in order to find fuelwood and other resources. Women should be integral participants of land-use planning programmes. Projects promoting community forest management and forest based alternative livelihoods can improve livelihoods & income while ensuring forest and biodiversity conservation.

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OPERATIONAL STATEMENT 5
Irrigation

INTRODUCTION

67. In irrigation, water is managed for agricultural production. Most systems are established to improve crop yields per unit of land. Irrigation systems include: (i) water storage; (ii) water conveyance; (iii) water delivery to plants; and (iv) disposal of drainage water. The major public sector investment is in surface water irrigation. Groundwater irrigation is used on a large-scale in the river basins of China, India and Pakistan, and on a much smaller-scale in oasis farming of desert areas in Africa, Asia and the Middle-east. Irrigation water is conveyed and delivered to plants by gravity, sprinkler or drip irrigation. Facilities for drainage of excess water are not always provided in irrigation systems which may lead to waterlogging and soil salinisation. Salt-water intrusion of groundwater resources along coastal areas is another notorious problem, especially when modern water-pumping technologies are used to expand crop production.

IRRIGATION IN IFAD PROJECTS

68. IFAD no longer finances new, large-scale, irrigation systems in the public sector because of their increasing costs, delays in their implementation, and disappointing performance. IFAD's investment strategy is now mainly focused on support to Farmer Managed Irrigation Systems (FMIS). FMIS are those systems in which all day-to-day activities and decisions are undertaken by the farmers themselves, with the Government Agencies providing (at most) periodic technical and financial assistance. This implies that IFAD's support is not limited to irrigation systems, which were initiated by and managed by farmers themselves, but also includes schemes initiated by governments, but which are, directly or gradually, handed-over to the farmers.

ENVIRONMENTAL ISSUES

69. Irrigation has several important positive impacts. The agricultural benefits are most apparent and include: (i) higher yields and longer growing season (optimised through double cropping); (ii) reliable water supply providing protection against drought and reduction of agricultural risk; and (iii) crop intensification. Irrigation also has social and economic benefits particularly in terms of contribution to the national economy, foreign exchange earnings, avoidance of drought-induced crop losses, and stabilization/modernization of rural economies. In addition, higher crop production under irrigation may reduce the need to convert forest of wildlands for agriculture; land levelling and increased plant cover trends to reduce evaporation and wind erosion.

70. The potential negative impacts of irrigated agriculture development affect several areas and involve soil degradation, water quality, human impacts, public health impacts, and effects on flora and fauna, particularly when introduced on a large scale. It is convenient to consider the environmental impacts for each of the four main phases in irrigation development: (i) siting; (ii) design; (iii) construction; and (iv) operation phase. The impacts are quite different for each phase. To facilitate and focus environmental assessment of IFAD projects (typically large scale gravity and groundwater schemes) possible impacts for each phase are listed below:

a. Siting phase – possible relocation of people, loss of agricultural land, loss of unprotected natural forests & biodiversity, impact on protected areas, impact on historic sites, effect on water resources upstream and downstream of the command area, and loss of access to water by non-irrigation groups (e.g. livestock herders);

b. Design phase – inadequate engineering and design of infrastructure, disruption of existing watercourses, drainage adjustments, and inefficient uses of water;

c. Construction phase – soil erosion at construction and borrow sites, disposal of construction spoils, public health concerns in construction camps, and conflicts between construction crews and the local population;

d. Operation phase – inefficient use of irrigation water, soil degradation (salinisation, waterlogging), pollution by agrochemicals, changes in groundwater levels, changes in surface water quality (return flows), reduction of downstream flows (creating implications for downstream drinking water quality and aquatic biota), intrusion of seawater, and spread of water-borne diseases. Many of the factors presented above may have greater impacts in wetland areas.

POTENTIAL MITIGATION

71. Mitigation of irrigation impacts are as follows:

a. Siting phase – consultation with local people including non-irrigation groups and irrigators; develop land-use plans which minimize encroachment on ecologically sensitive areas, coastal or inland wetlands, wildlife habitat, and historic sites; provide passageways for livestock and humans; minimize relocation of local people and develop resettlement plans; and optimize water use by selecting irrigated areas with suitable soils.

b. Design phase – design or redesign irrigation and drainage systems; design canals to minimize scouring, sedimentation, and stagnant water and to facilitate cleaning; and design all infrastructures to maximize water end-use efficiency; take into account potential future impacts due to climate change

c. Construction phase – limit construction to dry season, where feasible; re-vegetate borrow sites after use; control disposal of construction waste (fuel, oil, containers, and parts); and provide facilities for construction crews and local labourers.

d. Operation phase – avoid overwatering; maintain drainage system; flush soils; use sprinkler or drip irrigation to minimize soil degradation (salinization, waterlogging); maintain levelled irrigation fields; allow access to water by other non-irrigation groups; control the use of biocides and chemical fertilizers; monitor surface run-off and ground water levels for long-term effects and regulate run-off and/or enforce water quality criteria; strengthen public health facilities in the area as well as provide prophylaxis and treatment against water-borne diseases; and correct design weaknesses in a timely fashion to avoid seepage, and overwatering problems, etc.; environmental and public health education of local communities

72. The four phases distinguished above are characteristics of new large scale irrigation development, whereas in irrigation rehabilitation programs only phases b, c, and d would apply. In most phases viable alternatives exist. These need to be evaluated in environmental project design studies. The main alternatives relating to project location, design and management are as follows:

a. Location phase – location of project where social and environmental impacts are minimal.

b. Design phase – rehabilitation of existing irrigation schemes; development of several small-scale irrigation schemes *versus* one large system; use of sprinkler or drip irrigation; use of treated waste-water; use of groundwater.

c. Operation phase – rehabilitation of existing irrigation schemes; private irrigation systems *versus* publicly owned schemes.

73. More than any other type of agricultural project, irrigation projects are vulnerable to external environmental factors. Irrigation schemes are defenceless to events in the upstream watersheds and to changes in river channels. They are also susceptible to natural disasters. Upstream, naturally occurring – or man-made – erosion, affects the sediment load of the irrigation water. *Non-point*

agricultural pollution as well as specific industrial and urban pollution may affect the chemical composition of the irrigation water. Use of water with a high sediment load clogs canals and other irrigation infrastructures. It raises maintenance costs, and eventually, cleaning may no longer be economically feasible. Remedial action includes watershed management measures in the upstream areas and pollution control. Riverbeds may move or destroy irrigation infrastructure (intakes), requiring additional engineering works. Natural disasters of special concern are earthquakes and the occurrence of cyclones and floods. Projects in areas prone to these types of disasters often require emergency measures, special design and construction to protect infrastructure, as well as supplementary analysis to determine their economic feasibility. These projects benefit from careful site selection. External factors must also be taken into consideration in environmental analysis of irrigation projects. The future potential impacts of climate change on the water source and the local ecosystem should be thoroughly examined when designing any kind of irrigation project (past local climate change impact data can be very useful in this regard).

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OPERATIONAL STATEMENT 6
Range Resources

INTRODUCTION

74. Rangelands include grasslands, woodland savannahs, open forest (and in some cases cleared areas of closed forests), shrublands, wastelands, abandoned agricultural areas, and deserts that support domestic ruminants and wild herbivores. The targets of these range areas vary from large-scale commercial ranching to mixed farming or traditional pastoral systems. Hence, depending on the scale of the operation, different measures will be adopted. Rangeland and pastoralist activities are two areas in which IFAD is very active. These areas support a large number of herders and livestock producers, however, open-access to these areas has resulted in grave environmental consequences. Over-grazing is one of the most notorious of these impacts (others include human settlement, roads, and harvesting fuel wood) leading to a loss of surface top-soil and losses in soil fertility. In arid, semi-arid and dry sub-humid lands, human activities such as fuel-wood harvesting, charcoal production and slash and burn crop cultivation (and natural phenomena such as droughts) have huge impacts on rangelands and accelerate desertification.

RANGELANDS AND LIVESTOCK PRODUCTION IN IFAD PROJECTS

75. IFAD projects addressed here are small and medium-scale livestock operations practicing mainly free grazing. These operations may occur in traditional extensive pastoral systems relying mostly on grazing of natural range vegetation or sometimes a mixture of natural and cultivated feed resources. Such livestock projects aim at maximizing food production per unit of land. They occur in semi-arid or sub-humid rangeland areas. IFAD does not finance livestock projects involving clearing of tropical moist forests.

ENVIRONMENTAL ISSUES

76. The single most important potential negative impact on natural resources of a range land management or extensive livestock production related project, is that it may sometimes cause, or contribute to overgrazing or overuse of rangelands. This leads to degradation of the vegetation and soils over extensive areas, and affects sustainable production of the ecosystem. Overgrazing occurs relatively easily because rangelands are generally marginally productive lands to begin with. Other impacts are more localized. Livestock projects may sometimes lead to increased competition with wildlife for forage and water and result in wildlife reduction. However, wildlife and livestock can be sustainably managed together for increased income by using innovative environmentally sound approaches such as “eco-tourism” and wildlife/livestock ranching. Vegetation and soil destruction may also develop around intensively used water sources. Unregulated and improper use of acaricides to reduce ticks for disease control may affect water supplies.

77. A number of social and institutional issues have a direct impact on how rangelands are used and managed, directly affecting the state of the natural resource base. The most important factors to assess in developing new projects are: formal and informal resource tenure arrangements, livestock ownership patterns, land/population ratios, and available/potential locations of water points.

78. Rangeland management projects are subject to external land use changes which affect range resource use in the project area. Agricultural encroachment on rangelands, mining, wildlife conservation measures, tourism, and other uses generally reduce the land available for livestock production and increase the pressure on the remaining resource. Climate change may also impact rangeland resources in the long term, increasing pressure on the resource base and exacerbating conflict between different resource users.

79. A summary listing the potential impacts of range management and livestock production is given in the table below, some form of community participation, empowerment and land use participation is necessary prior to the implementation of the listed mitigation measures.

Current or Potential Negative Environmental Impacts of Rangelands-Based Livestock Production

IMPACT	MITIGATING MEASURES
VEGETATION	
Degradation of vegetation due to overgrazing	Use indigenous practices of livestock management of local Pastoralist communities such as "rotational grazing". Revise assessment of carrying capacity. Limit animal numbers onto land. Control length of grazing time on particular areas. Mix livestock species to maximize use of vegetation resource including wildlife for community managed "eco-tourism". Reseed and increase fodder. Establish "zero-grazing" schemes[1]. Cut and carry. Strategic placement of water points and salt. Hay production during wet season (in restricted areas) for use in dry-season feeding.
SOIL	
Increased soil erosion due to grazing, clearing of vegetation and trampling. Increased siltation/salinization of surface waters.	Restrict livestock access to unstable areas (e.g. steep slopes). Implement soil erosion control measures (e.g. reforestation, reseeding of grasses, land preparation, terracing). Afforestation with multi-purpose indigenous plants such as Acacia Senegal (gum arabic); use of the multi-purpose shrub "Sea Buck Thorn" – excellent for binding soil especially in steep slopes and also provides fodder for livestock and fruits for human use.
Deterioration of soil fertility and physical characteristics through: Removal of vegetation Fire Increased erosion Soil compaction	Restrict livestock access to unstable areas (e.g. steep slopes). Implement soil erosion control measures (e.g. reforestation, reseeding of grasses, land preparation, terracing). Control human activities such as charcoal production (which involves cutting down of live trees).
Increased water runoff due to vegetation clearing and soil compaction (decreased infiltration capacity)	Implement soil and water conservation measures Restrict livestock access to unstable areas (e.g. steep slopes). Implement soil erosion control measures (e.g. reforestation, reseeding of grasses, land preparation, terracing). Limit animal numbers. Control length of grazing time on particular areas. Mix livestock species to maximize use of vegetation resource. Reseed to produce fodder. Cut and carry. Strategic placement of water points and salt.
WATER SUPPLY	
Degradation of vegetation and soil around water points Over-tapping of ground water Lowering of water table and degradation of vegetation locally by drilling and use of boreholes	Develop numbers of small-capacity water sources including storage ponds to store excess water from flash floods. Strategic placement of water points. Control use of water points (animal numbers and time of year) Close permanent water sources when temporary pools and streams are available.

[1] Not a very practical option in semi-arid areas and likely to accelerate desertification.

IMPACT	MITIGATING MEASURES
Excessive salts from increased runoff	Limit well capacity by choice of technologies (e.g. hand pumps or buckets instead of motor pumps). Implement community and ownership of water resources prior to technical implementation (Water User Associations).
WILDLIFE	
Displacement and reduction of wildlife populations by reduction of habitat Disruption of migratory routes Competition for food and water resources Introduction of diseases Impacts of burning Increased poaching and killing of wildlife considered as pests or predators to livestock	Plan and implement a range of management strategies (choice of species, livestock numbers, grazing areas) that minimize impacts on wildlife. Establish compensatory wildlife refugees. Establish management of wildlife ranching which will help protect wildlife resources. Community management of both livestock and wildlife together for "eco-tourism", etc. Careful planning. Provide access ways if needed, gates or stiles. Community education on economic value of wildlife.
POLLUTION	
Pollution environmental disruption and health hazards from disease and pest control measures Distribution and use of manure (especially where a high concentration of livestock occurs)	Choose a chemical that is species-specific, has a short residue time (active period) and has low impact on other biological resources. Community education on proper use of "acaricides" Implement protective measures for field workers. Manage spraying methods and timing / proper management of "acaricide dips" to minimize potential of water pollution. Select disease-resistant / indigenous locally adapted livestock breed. Implement composting or manure disposal. Explore possibilities of using manure to produce biogas at village or house-hold level (will also reduce deforestation).
SOCIOLOGICAL	
Displacement of human population Resettlement conduct in other areas	Design project to avoid any displacement of people to prevent wildlife / people conflicts. Examine alternatives by extensive community consultations.
Interference with traditional rights of access to resources or stock routes (increased pressure on existing scarce resources lead to an escalation of conflicts along these routes, especially between settled communities and nomadic pastoralists).	Provide alternatives or accommodate in clearing – to be done only as a last resort.
War (tribal, rustling and raids)	Community education and dialogue. Introduce government policies and legislation to address community concerns.

MEASURES REQUIRED IN PROJECT PREPARATION

80. A number of the above environmental issues need to be addressed at an early stage before developing any project involving range/livestock production systems. For adequate environmental project design the following should be carried out with extensive consultations and full participation of the local communities:

i. Analyse traditional knowledge and customary practices relevant to range management.

ii. Identify the full geographical area and ecosystems that livestock exploit over a full cycle of wet and dry season/years (taking into account current climate change trends), particularly the resources needed for survival in dry season and drought periods; and identify loss of access or other factors impeding full mobility of herd movements.

iii. Define the area for project intervention on the basis of the full cycle area used by the target herder groups (livestock movement during dry /wet seasons).

iv. Assess present range conditions and potential for intensified use (including biomass availability [quantify] and stocking rates [species and numbers]).

v. Assess the range trend, and the direction of change of range conditions.

vi. Assess present soil conditions (erosion, compaction, decreased fertility).

vii. Assess potential additional locations of water points, considering available water quantity.

viii. Assess present water quality conditions.

ix. Assess present wildlife populations and habitats.

x. Determine the type and degree of all potentially negative impacts of the proposed project interventions on the present vegetation, soils, water, and wildlife resources.

xi. Assess the potentially negative impacts of the proposed project in terms of exacerbating or initiating conflict between resource users.

xii. Assess external planned land-use changes on the project area in conjunction with project interventions.

xiii. Assess external planned water infrastructure changes on the project area in conjunction with project interventions.

xiv. Identify the significant negative impacts of project interventions.

xv. Discuss the potential impacts with the target population to verify their relevance and significance, including potential impacts on women's status and economic control over resources and property.

xvi. Develop an environmental management plan, with population, with recommendations on how significant negative impacts of the project or of specific project components can be avoided, mitigated, or compensated.

xvii. Integrate social issues into recommendations, including consideration of women's role in livestock management.

xviii. Integrate environmental recommendations into project design.

xix. Determine institutional responsibility for implementation of environmental management measures.

xx. Determine the national policy measures required to support project environmental design.

xxi. Determine the costs of implementing environmental management measures.

xxii. If technical solutions are identified, ensure that they consider women's actual needs. Most improvements designed to identify the production system, such as zero grazing, fodder production, improved breeds, have also increased women's workload.

xxiii. Describe the environmental monitoring program of range resources and include it as part of the project.

xxiv. Take into account potential future impact of climate change, prolonged drought and other natural phenomena.

xxv. Include environmental education and "hands on" training components for communities (e.g. rangeland rehabilitation).

MEASURES REQUIRED IN PROJECT IMPLEMENTATION

81. The significant issues which have been identified in project design as negatively impacting the natural resource base, and the effect of mitigation measures, need to be monitored during project implementation. This can best be achieved in a simple monitoring process of the natural resource

base, at intervals, as determined in project design. Important changes in resource conditions as well as in social conditions affecting range resource users, in particular degradation, should be brought to the attention of the project management for remedial action. Community training for community based monitoring of range resources (during and after implementation) should be included.

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OPERATIONAL STATEMENT 7
Rural Roads

INTRODUCTION

82. This operational statement addresses IFAD policy and procedures in projects that include a rural roads component. The directive applies to the planning and financing of projects that include a rural road component and to free-standing rural road projects. Rural roads are generally built to improve transport (including non-motorized transport) and access and provide better communication. Improved mobility for the rural poor enables them to access: (i) services (agriculture, education, health, finance); (ii) markets (inputs, agro-processing, wholesale, retail, export): (iii) income-generating opportunities; (iv) social, political and community activities; and (v) technology transfer. In IFAD projects rural roads may also be called "farm-to-market roads" or "farm-to-village tracks". Rural roads include roads constructed for watershed management, for reforestation, or other single purpose activities.

RURAL ROADS IN IFAD PROJECTS

83. IFAD's policy is to promote effective and environmentally sound design, construction, maintenance, and rehabilitation of rural roads. Road development may have *direct and/or indirect* impacts on the environment. IFAD's policy applies to both the direct and indirect negative environmental impacts of rural road development.

84. Rural road rehabilitation projects do not normally have significant negative impacts on the environment. Such rehabilitation projects often provide the opportunity to correct past mistakes in road design and construction. It allows for elimination of stagnant water areas, inadequate drainage provisions, etc. However, road rehabilitation can also usefully be combined with the construction of (temporary) ponds used for livestock watering, complementary irrigation and/or domestic use of water. It is IFAD's policy to take advantage of road rehabilitation as a means to promote positive impacts on the environment. These measures are best developed through Community Driven Development (CDD) approaches, in close consultation with the affected population living near the road, which know the existing problems. Positive experience with labour-based approaches to roadworks and favourable Government policies for local enterprise involvement in this sector may exist. Where possible, the population and local enterprises should be actively involved through a labour-based implementation of the environmental measures.

85. Rural road construction, maintenance, and rehabilitation may have *direct* negative environmental consequences. The most important are as follows:

a. Soil erosion – road works may cause exposure of soil, poorly maintained roads and tracts may provide initial channels for gully erosion, all leading to uncontrolled drainage with consequential damage of land and vegetation, as well as siltation and sedimentation of water bodies.

b. Damage at borrow sites removal of road construction materials may leave local sites and sources of sand, gravel, rock, or coral reef and their surroundings, exposed to erosion or permanently damaged. The non-restoration of borrow pits may also lead to increased accident risks (through land-slides or drowning).

c. Disturbance of drainage – roads may concentrate and accelerate runoff and increase the risk of flooding by rivers, canals, and lakes.

d. Disturbance of drainage – roads and non-restored borrow pits may create stagnant pools of water, which are habitats for disease vectors (eg. mosquitoes) and are a public health hazard.

e. Water contamination – road construction equipment, road traffic, and chemicals used to control weeds and dust, may lead to oil, grease, fuel, or chemical runoff from roads.

f. Air pollution – vehicle traffic may increase roadside dust (a health hazard) and cause of damage to vegetation.

86. There may be also *indirect* impacts resulting from improved access enabled by rural roads. Indirect impacts are usually more significant than *direct* impacts in their implications for natural resource management, but they are more difficult to predict. The presence of roads and improved accessibility allowed by roads may lead to the following adverse effects:

a. Vegetation and soil losses – improved accessibility may lead to uncontrollable in-migration, which may result in unsustainable land uses, illegal land clearing and logging, farming of unsuitable soils (including steep slopes), potentially accelerating deforestation, and soil erosion. Examples are roads initially constructed for specific purposes (e.g. ranching, mining, logging, soil conservation) which may become formalized to public roads and leading to land-use that is incompatible with land capabilities. Improved accessibility to towns and cities may accelerate charcoal production and deforestation on a large scale because of the high demand for charcoal from urban dwellers.

b. Disruption and loss of wildlife – planned development expansion may increase poaching, interrupt migratory routes, or increase noise disturbance, potentially degrading the wildlife resources. New roads are also likely to increase the illegal supply of “bush meat” to towns and cities leading to wildlife depletion.

c. Social and economic disruption – planned and unplanned settlement and development may cause influx of new settlers competing with local people; this in itself may induce positive feedback creating the need for more new roads. The increase of land value along new roads may also lead to changing land use and ownership, with adverse effects on small landowners and women.

d. Spread of disease – increased movement of human/animal population and plant material, may affect occurrence and patterns of diseases. The spread of HIV/AIDS has been exacerbated by the increased mobility of individuals. Transport hubs, corridors and sites of infrastructure construction represent location of high HIV/AIDS risk.

87. IFAD’s policy of *environmentally sound* road development applies to the *direct* and *indirect* negative impacts of rural roads as indicated above and also to external impacts (i.e. the effects of the environment on rural roads). External environmental impacts are routinely taken into account in road design, construction and maintenance. These impacts, that can be increased by climate variability, concern the protection of the road from environmental hazards, such as erosion damage, flooding, or sandstorms, and require measures which are different from those required to protect the environment.

88. As a consequence of its environmental policy with regard to rural roads, IFAD does not finance rural road development in national parks or other protected areas (except as part of a limited group of projects that involve the management of protected areas), nor does IFAD finance rural road development in support of commercial logging operations in tropical forests.

ENVIRONMENTAL ISSUES

89. The procedures described in the following paragraphs are intended to ensure that the environmental concerns in rural road development are brought to the fore and dealt with in an appropriate manner as early as possible. There are few alternatives to roads to improve access for rural areas (improved water transport facilities may be feasible in certain cases) and therefore projects with a rural road component must rely on mitigation measures to eliminate, offset, or reduce adverse impacts. Such measures should be based on an evaluation of the potential impact of the proposed project.

90. The potential impacts of the proposed project should be ascertained during project preparation, and environmental analysis should be carried out: (i) to verify engineering designs and plans for construction/rehabilitation in order to assess direct impacts; and (ii) to evaluate land-use and land-use plans in the road influence zone in order to determine the potential for negative indirect impacts of the proposed roads. It is also important to always foresee a long-term post project evaluation to assess actual project impacts.

POTENTIAL MITIGATION

91. The mitigation measures for the proposed project should focus on good engineering design and careful siting of the roads, both of which can minimize most adverse effects. Good design practice includes the following mitigation measures:

a. Participatory and/or consultative design of road sites using local knowledge – local users know which tracks (or alignments) offer the best connections to travel safely (flooding, rock fall, animals) as well as whose lands are affected by those alignments. Similarly, the residents around a (rehabilitated) road can also identify suitable borrow pits and construction materials. Not least is early participation required to increase local ownership required for the design and implementation of road maintenance plans and activities (see para. 13).

b. Incorporation of erosion control measures – earth-moving in dry periods; protection of vulnerable soil surfaces with mulch; protection of drainage channels with berms, straw or fabric barriers; and establishment of vegetative cover as early as possible.

c. Installation of drainage works and river crossings – to avoid interruption of subsoil and surface drainage patterns (especially in areas of cuttings or embankments) adequate works must be in place, to minimize changes in surface flows and stabilization of cuttings with structures (walls, gabions, etc.); and special drainage requirements (through small towns) should be incorporated in new rural road designs.

d. Choice and restoration of borrow pits – location of borrow pits should be carefully selected and restoration of borrow pits should be clearly specified in construction contracts, thus ensuring proper drainage of suitable borrow pits.

e. Provision for construction and maintenance operations – essential are: contractual directives in respect of the dealing with surplus materials (particularly in mountainous, erosion-prone areas); collection and recycling of lubricants; precautions to avoid spills; careful siting of construction camps; prudent application of water or chemicals for dust control; reduction of herbicide and dust control chemicals to prevent water contamination; as well as alternative methods (mechanized or manual vegetation cutting) and water for dust control.

f. Disease control – assessment of disease vector ecology; and filling and drainage in works areas to avoid creating vector habitats. The establishment of “quarantine check points” at strategic locations along the road can help minimise the spread of animal and plant diseases. Concerning HIV/AIDS, organize sensitization activities and support community based responses and institutions that have emerged along transport corridors, at hubs, and at locations of infrastructure construction or maintenance, as a response to the HIV/AIDS crisis.

g. Crossing points – inclusion of animal crossing points (on busy roads or in cuttings/embankments). Also “speed bumps” within villages can help to reduce accidents.

h. Provision for Watercourse Buffer zone – in order to prevent water contamination (distance allowed is dependent upon soil type and vegetation cover).

i. Assessment of technology choice and potential for the use of locally available human and material resources for road construction, rehabilitation and maintenance – Such

involvement and an optimum utilization of locally available skills (local enterprises, contractors, artisans) and materials will contribute to a reduction of adverse environmental consequences and the development and implementation of an optimum and sustainable approach to mitigation.

j. A plan for road maintenance should be established in consultation with the responsible authority and the local population, with agreed levels of funding and a clarification of ownership and responsibilities.

92. Alignment or siting of roads and rights of way is the most important measure in road development to avoid or reduce adverse indirect impacts. It largely determines the type and scale of any residual environmental impact. Siting decisions require the use of maps (at the appropriate scale) which provide data on the location of the proposed roads, as well as environmental information (soils, climate, geology, topography, hydrology, ecology, significant historic or cultural sites) and socio-economic factors as well as land use of the project region. Alignment analysis for environmental purposes should be based on land use plans. Land resource analysis (agro-ecological zones and systems) is necessary where detailed plans are not available to determine the likelihood, nature, and extent of negative indirect effects. This land use planning approach is particularly effective to identify areas where agriculture or ranching may be unsustainable, or where protected areas may be threatened. It is noted that full control of farm or range encroachment as a result of road development is rarely achieved.

93. Road alignment analysis for environmental purposes may lead to: (i) cancellation of the proposed construction/upgrading, if undesirable development is judged to be inevitable; or (ii) generally, to alternative alignments that avoid or reduce negative impacts. The key mitigation measure in new road construction is the selection of alternative alignments. This tool is evidently not available in road rehabilitation. Road rehabilitation, on the other hand, requires less mitigation, as the process has, for obvious reasons, less significant impacts on the environment.

94. IFAD rural road projects should include a comprehensive mitigation plan of all feasible measures deemed necessary to reduce significant adverse environmental impacts. This plan ensures that proposed environmental actions are fully incorporated in project design and that they are implemented in phase with other project activities. Most measures may be incorporated in the project design phase, either in an ongoing process or at specific intervals in the design phase. Once remedial measures have been identified care should be taken that these are clearly spelled out in contract documents. Tenders should specify the environmental requirements in detail as work items. Bidders should be requested for detailed descriptions and cost estimates of remedial works proposed to be done. The chain of events triggered by rural roads development may also require long-term companion interventions during project implementation to mitigate undesirable changes. In order to improve design of mitigation measures and increase community participation in implementing the recommendation, the views of the affected population are expected to be taken into account in the development of a mitigation plan. Information gathering should include reviews of experience with comparable projects concerning deforestation impact, changes in land use and tenure, and demographic shifts. Local institutions and particularly agricultural extension officers who have regular contacts with the farmers are generally a good source of information concerning environmental impacts. An active involvement of rural communities and a multisectoral approach that consider many issues (gender and social issues, new concerns such as energy prices and global warming, etc), both in the planning and in the implementation stages, will contribute to: (i) the prevention of potentially harmful design choices; (ii) an optimum use of locally available materials; (iii) sustainability of services, involving a critical mass of users, operators and suppliers; and (iii) the incorporation of locally adapted environmental measures.

95. In IFAD projects, the responsibility for engineering design of rural road components is usually delegated to local authorities, who normally have their own design standards. National authorities may specify measures mitigating environmental damage to public works departments or construction firms, but enforcing compliance and monitoring of environmental protection measures are often weak. In all

cases the project mitigation plan must indicate suitable engineering designs and make provisions to ensure effective implementation of recommended environmental and social actions. Training may be required to minimize environmental and social impacts of road construction, and might be targeted at: road design engineers and technicians; road construction crews and site supervisors; local public works agencies and organizations responsible for road maintenance; and local administrative authorities. Project mitigation plans should assess such institutional needs and include recommendations accordingly. Where necessary, institutional strengthening, capacity development and training should be part of the project in order to ensure that supervising agencies have the authority, skills and means to enforce (contractual) compliance with environmental requirements.

96. In certain rural road projects, alternative environmental procedures are recommended. In many projects, only the total extent of rural roads to be built or rehabilitated is known in project preparation and appraisal, but their exact location is not. The latter, which is critical in environmental assessment, is often decided in the course of project implementation and is essentially an ongoing, continuous process. A conventional project-specific environmental analysis integrated in project design can therefore not be made. For such projects a regional environmental assessment is advocated and must be conducted during project preparation. For this purpose a terrain classification system could be applied that would indicate whether the area is high, medium or low risk from an environmental point of view. The classification should take account of type of vegetation, soil types, climate, drainage situation, land use and type of terrain (from flat through hilly to mountainous). Umbrella criteria can then be formulated for alignment and design of rural roads in the general project area, including treatment of ecologically sensitive areas and region-specific measures to mitigate adverse impacts. These measures can then be applied in the course of project implementation, but require a monitoring mechanism to ensure compliance, and may require limited specific environmental analyses for some roads.

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OPERATIONAL STATEMENT 8
Wetlands

INTRODUCTION

97. Wetlands are “areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters” (UN Convention on Wetlands of International Importance, or Ramsar Convention). Three main categories of wetland habitats exist: (i) marine/coastal wetlands (estuaries, brackish, saline and freshwater lagoons, mangrove swamps, sea cliffs, etc); (ii) inland wetlands (lakes, rivers, waterfalls, marshes, peatlands, etc); and (iii) man-made wetlands (canals, aquaculture ponds, water storage areas, etc).

98. Wetlands are ecosystems of particular economic, ecologic and socio-cultural importance. The resources of wetland (land, water, and biological diversity) are often exploited by a range of users: croppers, grazers, fishermen, hunters, and gatherers. Wetlands perform an enormous variety of functions at global and local levels:

a. Regulation functions – storage and recycling of nutrients and human and organic waste; natural flood and erosion control; coastline protection from storms; groundwater recharge and discharge; water storage and treatment; maintenance of biological and genetic diversity; carbon sequestration and climatic stabilization.

b. Carrier functions – agriculture and irrigation; grazing; energy production, human settlement.

c. Production functions – provide multiple livelihoods and resources such as food (fish, crabs, shrimps, cray-fish, water-fowl etc.), water, raw materials for construction; genetic resources.

d. Information functions – role in cultural heritage; scientific information.

99. The priority when making choices about wetland management is to ensure that the ecosystem services of the wetland are maintained (and, where appropriate, restored). This can be achieved by application of the “Wise use principle and guidelines” of the Ramsar Convention, where wise use is defined as “sustainable utilization for the benefit of mankind in a way compatible with the maintenance of the natural properties of the ecosystem’, and following indications given in the Brisbane Declaration 2007.

WETLANDS IN IFAD PROJECTS

4. Most IFAD interventions in wetlands involve development of the last-choice areas available for farming. Such wetlands are often relatively rich in biodiversity. These lands are under-utilized because of the special engineering or farming expertise required in agricultural exploitation or because of waterborne diseases. Most IFAD interventions consist of new schemes or, more commonly, rehabilitation of old works, that aim at intensifying crop production, usually rice. The scale has been variable, usually less than 1,000 ha and not exceeding 9,000 ha per project.

5. Construction and repair of civil works are the most common IFAD project intervention in wetlands, involving: embankments, dykes, and bunds for the exclusion of floodwaters or containment of water in polders; drainage channels; diversion weirs and canals; valves for controlling water flow; and land-leveling of roads and bridges.

6. Four categories of wetland commonly occur in IFAD projects:

a. Inland swamps – peat swamps, permanent and seasonal swamps (often)

b. Fish and shrimp ponds (occasionally)

c. Riverine wetlands (occasionally)

d. Tidal wetlands (occasionally)

ENVIRONMENTAL ISSUES

7. The key environmental concerns in project areas which contain wetlands are as follows:

a. Conversion of wetlands ("development" and "reclamation") – land use change to agriculture or aquaculture (mangroves for fish ponds); drainage of peatlands that store huge amount of carbon (causing carbon dioxide emission when dry peat oxidates and decomposes)

b. Loss of livelihoods – many groups of people who depend on the wetland's natural resources and those who live downstream of the wetland will loose their main source of food and income.

c. Change of hydrological conditions – as a result of construction of dams, weirs, roads, flood control, lowering of aquifers (by drainage and irrigation), interception by polders, bunds, embankments or irrigation canals creating or exacerbating local flooding, changes in hydrological conditions, harm aquatic ecology including fisheries; deprive water elsewhere; and cause a loss of wetland vegetation and associated fauna.

d. Indirect disturbance of ecological conditions – as a result of pollution flowing into wetland (e.g. effluent from intensive animal production, fertilizer and pesticides), over-pumping for irrigation outside the wetland can cause salinisation (increases in area and duration of inundation of saline water in tidal areas) to the detriment of mangroves, and ground subsidence.

100. In assessing a project's impact on wetlands, it is necessary to have a clear vision of the relative importance of agricultural production and natural resource conservation. Involvement of local people in planning and management is essential, especially where access to wetland resources is essential to livelihood security.

101. Tools such as Environmental Flow Assessment methods (see IUCN 2003, WB 2003), IWMI Approach to determine the Working Wetland Potential (WWP) and the Ecosystem Approach developed by the National Wetlands Programme (NWP) in Uganda help in integrating social, economic and environmental factors and indicate costs and benefits to different development options.

102. In order to assess environmental concerns in wetland areas, remembering that the loss of wetlands magnifies the impacts of climate change, the following should be considered:

a. Importance of the wetland's biodiversity – flora or fauna, rare or endangered species, in local, regional or global context; is the area in the Ramsar List of wetlands of International Importance or in a signatory country of the Ramsar Convention?

b. Importance of people's resilience on wetland resources (water, land, biological) – products and uses of wetlands (i.e. construction material and fibres and fuelwood); household water supply; livestock grazing; capture fisheries; hunting; the socioeconomic value of the wetland (current or improved); and the replacement cost of the free goods and services,

c. Suitability of a wetland for proposed agriculture activities – potential for acidification; potential for subsidence (peat-type inland swamps); iron toxicity in rice (inland swamps); salinity; alkalinity; and low workability (seasonal swamps on mineral soil).

d. Importance of benefits accrued at the landscape scale and at the global scale - use of natural environment and nonstructural measures for flood control, control of water quality and of watershed erosion, carbon sequestration.

MITIGATION MEASURES

103. IFAD projects which are likely to affect wetlands need special analysis. For wetland management usually a mitigation plan and monitoring program is required to reduce or compensate for unavoidable, adverse impacts. Options in wetland management include:

a. Appropriate design: design features to prevent disturbance of flow patterns and hydrologic regimes critical to the conservation of the wetland (e.g. flow regulation works; road crossings on trestles rather than embankments).

b. Livelihoods: devise means of solving the problem of "loss of livelihoods" of the local poor. Provide the affected people with alternative livelihoods (source of food and income).

c. Construct crossings: provide crossings for wildlife, cattle and people, with adequate cover for the concealed movement of wildlife.

d. Improved irrigation systems: design irrigation systems with provision for entry and exit of alternating saline and fresh water and avoidance of excessive periods of drying or high flooding.

e. Conduct studies: conduct studies of soils (e.g. mapping of potentially acid sulphate soils, etc.); catchment studies where soil erosion threatens wetland development; control of soil erosion in upper watershed through on-farm and off-farm soil; and water conservation measures.

f. Institutional and regulatory strengthening – strengthen institutions to manage and protect wetlands, establish appropriate regulatory systems to reduce the detrimental environmental impacts of aquaculture, marine fishery, overuse of agricultural nutrients, etc. A valuable example is given by Uganda's Wetland Policy and legislation that are extremely progressive and innovative.

g. Explore the potential of water markets as a tool for reallocation of water to meet ecosystem needs – Payments for services derived from a river basin can support the management of wetlands or protect catchments that provide wetlands with adequate quantities and qualities of water.

104. Mitigation measures are not usually possible where interventions cause irreversible changes in hydrology, reduce flora and fauna, disrupt migration routes, or encourage human encroachment. The precautionary principle should be applied when the impacts of management options are uncertain. Suggested actions include:

a. Relocation of project – if wetland is on Ramsar list or if it provides a unique habitat not replaced elsewhere locally or regionally or is the exclusive habitat of rare organisms, or is essential for migrating birds.

b. Protection of neighbouring equivalent wetland type, with provision for community conservation education (including potential benefits of tourism); benefits from wetland development conditional on community involvement with conservation; monitoring of the site; fencing corridors or other infrastructures; and anti-poaching patrols.

c. Project cancellation – due to the critical importance of wetlands for many poor rural communities and because of the many essential environmental services they provide, any development of wetlands should be avoided as much as possible. In addition, the long term impacts due to Climate Change and other natural phenomena are difficult to predict,

and any changes to critical and sensitive ecosystems such as wetlands may lead to irreversible damage to surrounding ecosystems and peoples' livelihoods.

INTERNATIONAL LEGAL CONTEXT

105. Designated wetlands, and to some extent all wetlands, have a special international legal status in those countries which have signed the Ramsar Convention. There are some 1.680 designated wetland sites in around 160 countries. Signatories are obliged to ensure that registered sites are managed in a way that protects the ecological values for which they were recognized. Wetlands may have international importance as biological areas and its water resources may be linked to more than one country and be influenced by projects in other countries. Hence management of wetlands and associated water resources shared by more than one country should be preceded by discussions and agreements between the various countries. Conservation measures in one country is not likely to be beneficial without the collaboration of neighbouring countries which share the wetland resources.

All wetland sites, listed of not, could be subject to the broad provisions of the Convention on Biological Diversity negotiated under UNEP and signed by 160 countries at UNCED in 1992. This is the case with wetlands used by wild migratory birds and area of great global significance.

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OPERATIONAL STATEMENT 9
Pesticides

INTRODUCTION

106. IFAD promotes the safe and environmentally sound use and selection of pesticides in IFAD-supported agricultural development. Since agricultural development for increased food production is one of IFAD's central tenets, and the use of pesticides may become necessary, the complex interaction among the resources must be carefully weighed for each environmental and social situation so they can be managed as an integrated system to promote productive and sustainable agriculture for socio-economic development. Exclusive use of pesticides for reducing pest-induced crop injury can result in undesirable soil and water contamination, human health risks, pest resistance, damage to non-target organisms, secondary pest problems, unacceptable toxic residues on agricultural products and unnecessary financial burdens. Hence the use of indigenous technologies and "organic farming" which can eliminate or minimize the use of chemical pesticides should be given priority and promoted wherever possible.

USE OF PESTICIDES IN IFAD PROJECTS

107. Insects, weeds, diseases-causing organisms, and other pests, can be a significant constraint to agricultural production, frequently requiring the use of pesticides for their control. IFAD supports using Integrated Pest Management (IPM) programmes wherever practicable. IPM refers to the balanced use of biological controls (such as the introduction of insect predators or parasites), cultural practices, and selective pesticides (those that are toxic only to specific target pests). IPM programmes should be tailored for particular geographic locations, crops, pest complexes, and resource availabilities. Effective IPM must be built and designed from the farmer up, not from the scientist down. Consideration should be given to how IFAD projects may promote the use of pesticides *directly* as a project component, or more commonly, *indirectly* when the increased availability of short-term credit for farm inputs encourages an increased use of pesticides. Moreover, IFAD projects should strive to improve existing pesticide use practices by requiring the proper selection, application, storage, and disposal of pesticides, since pesticides are designed to be toxic, and can be dangerous if they are misused or handled wrongly. Careful selection of pesticides and control of their use can reduce environmental risk to acceptable levels for the benefit of increased production, and also lower the financial and societal cost of use. Community/farmer education is very important in this regard.

ENVIRONMENTAL ISSUES

108. There are several potential environmental consequences associated with the use of pesticides:

a. Hazards to humans and animals – The World Health Organisation (WHO) estimates that at global level three million severe pesticide poisoning episodes occur annually and, of these, a minimum of 300.000 die with 99% of the cases being from low and middle income countries. Unsuitable application of pesticides and overuse and neglect of safety periods between application and harvest often result in high pesticide residues in food and unnecessary exposure by farmers and their families. Pesticide residues are also known to persist in contaminated clothing. Pesticides may also move off target and poison fish, cattle, beneficial insects, pollinators, and soil organisms. In addition, small amounts of pesticide residues in consumed food of both plant and animal origin can accumulate in the human body over a long period of time leading to toxicity and disease.

b. Bioaccumulation – Those animals at the end of the food chain, e.g., carnivorous mammals, predatory fish, and birds of prey may be killed by bioaccumulation of persistent types of pesticides. Furthermore, the health risk to humans from "bioaccumulation" of toxins in fish, other aquatic organisms, wild waterfowl, etc consumed by people in developing countries,

especially poor rural communities living near aquatic environments, is extremely high and should not be under estimated.

c. Pest resurgence – Misuse of pesticides can cause the elimination or suppression of natural enemies that keep insect pests partly under control, causing a resurgence of pests and secondary pest outbreaks.

d. Pest resistance – The misuse of pesticides has led to the build-up of resistance in insect pests, pathogens, and weeds. This has great economic and ecological consequence since more expensive and toxic pesticide formulations are required in increased amounts to achieve pest control. In some areas of the world, pesticide overuse has created a population of resistant pests which threaten both subsistence and cash crops.

e. Loss of Bees and other Beneficial insects – Pesticides can kill bees and other beneficial insects essential for pollination of indigenous plants, honey production etc. and thus cause negative impacts on food production, livelihoods and income of poor rural communities.

CRITERIA FOR ENVIRONMENTAL SCREENING AND SCOPING OF IFAD PROJECTS

109. Pesticides

Whenever an IFAD project includes the purchase, promotion, or use of pesticides, or when project preparation identifies improper or unsustainable use of pesticides in the project area, the project should include an implicit or explicit Environmental and Social Impact Assessment (ESIA) that deals specifically with the following issues:

a. Identification of specific pests and crops requiring pest management and pesticide and non-pesticide alternatives.

b. Identification of approved pesticides and management techniques for these specific needs.

c. Identification of capacity for safe handling, use, storage, and disposal of pesticide residues, and training needs in these areas (and level of community environmental awareness).

d. Development of an IPM programme aimed at minimizing and optimizing pesticide application, and including provisions for monitoring pesticide residues on crops and in the environment.

The following criteria should serve as a guide when conducting an environmental screening and scoping of IFAD-supported projects:

By component:

a. Will the project include direct financing or short-term credit for pesticide procurement? – Are measures being designed for the support or strengthening of pesticide regulatory institutions, and special training required for the correct use of the pesticides selected?

b. Will the project encourage plant protection, or disrupt indigenous production practices? – Do cultivation practices in the project area require little pesticide input, and will the project likely encourage more pesticide use? Are pest control methods promoted in the project area likely to be easily adopted by the local people, and will the practices be sustainable?[1]

c. Are the crops promoted, suitable for the geographic location, pest complexes, and resource availabilities, and will they require additional pesticide inputs? – Do the crop varieties typically require high pesticide applications (e.g. cotton)? Are native varieties being favoured which may be more suitable to the environmental conditions?

[1] Sustainability is a critical issue here because imported pesticides may be too expensive or not easily available in the long term – after end of the project

d. Will the project require any specialized post-harvest treatments? – Will post-harvest treatments require the use of fumigants which may pose a hazard to operators and the environment, and leave dangerous residues in food?

e. Are the selected pesticides of high toxicity? – Do the selected pesticides require specialized training or application equipment for their safe handling and use? Is the choice of pesticides recognized as being particularly hazardous e.g., WHO Classes la or lb?

f. Are there particular hazards associated with the pesticides selected? Are there any hazards linked to the handling, mixing, field application, transportation and storage, and disposal of unused pesticides and their containers? A major hazard assessment may be necessary whenever substantial quantities of pesticide are to be stored, transported, or disposed of.

Toxicity associated with pesticide properties and application techniques:

a. Do the types and formulation of pesticides pose a hazard to the user? – Low toxicity formulations should be favoured: (from least toxic to the most toxic) granule, dust, wettable powder, flowable, emulsifiable concentrate, Ultra Low Volume (ULV), and fumigant. However, consideration should be given to constraints, e.g. while granule formulations present a lower exposure hazard to workers, they pose a serious hazard to avian species. Moreover, granular and dust formulations may prove unsatisfactory in a climate with high humidity.

b. Are the stray droplet sizes appropriate? – Droplet sizes too small drift away, those too large run from the plant to the ground; in both cases environmental contamination as well as waste result. Conventional hydraulic knapsack sprayers produce a wide range of droplet sizes and are relatively inefficient. Low-volume (LV) and Ultra-low-volume (ULV) methods are more efficient but are more sensitive to error in dosage calibration. As apparent advantage can be a hidden hazard; although mixing may not be necessary when using ULV, higher-concentration pesticides are called for which may increase hazards to the operator.

c. Is aircraft spraying or dusting required? – Aircraft spraying and dusting is likely to result in off-target drift of pesticides, causing injury to non-target organisms, endangering adjacent homes, and schools; and incomplete saturation of target crops compromising the future efficacy of the pesticide product. Due to high cost and the other negative impacts, this is not a sustainable option in the long term in developing countries and should be avoided.

d. Is existing application equipment appropriate? – Inadequate equipment, spare parts, and servicing facilities are often the cause of inefficient pesticide application and intoxication.

e. Are existing application practices adequate? - In the developing countries, the hazards of pesticide exposure are greatly intensified by improper handling and application. Adequate safety equipment, including masks, protective gloves and boots, is rarely available. Moreover, imported personal protective equipment may not be appropriate for tropical conditions.

By receiving environment:

a. Aquatic or other important environmental resources in the proposed project area may be threatened by pesticide use (e.g. underlying aquifers used for domestic water supply; natural or commercial fisheries or breeding grounds downstream; adjacent natural parks or reserves; and endangered species may be affected).

b. Irrigated or high rainfall (naturally flooded) areas where water draining from fields is likely to contain residues of pesticides, affecting aquatic life and polluting downstream drinking-water.

c. Highly subsidized pesticide products which may encourage much higher applications than necessary or recommended.

d. The role of natural predators is especially important in the humid tropics and the consequences of misuse can be more serious than in other areas.

POTENTIAL MITIGATION

110. The mitigation of inappropriate or excessive pesticide applications may be alleviated as follows:

a. If a project includes a comprehensive IPM programme, preparation of this component can serve as an alternative to a formal ESIA. However, inclusion of components that will not actually govern pest management practices adopted in the project (such as institutional strengthening of IPM, research and demonstrations) do not eliminate the need for an ESIA.

b. An IPM approach can reduce pesticide use and their concomitant hazards. IPM approaches have been successfully developed for some crop systems and locations (e.g. rice in Southeast Asia), but generating IPM strategies for some crops is still at an early stage. Judicious pesticide use remains important for plant protection. However, IPM incorporating indigenous technologies which farmers already use are likely to be less expensive, more sustainable and more environmentally sound, and should be adopted wherever possible.

Selection of appropriate pesticides:

a. Pesticides proposed by the project as well as anticipated following the availability of credit for purchase of inputs should be made explicit. The most important criteria for assessing the environmental impact of a pesticide are its toxicity and degree of biodegradability. Consideration should also be given to pesticide tolerance requirements for those countries which intend to export crops. Unregistered, restricted use, or experimental-use pesticides should be avoided unless their use for the purpose has been reviewed and approved by the FAO/WHO Joint Meeting on Pesticide Residues (JMPR).

b. WHO Class la or lb pesticides generally should be avoided if: (i) they are to be used by or are accessible to small farmers or others who may lack the training, equipment and facilities to handle and store them properly; and (ii) in countries where there are no restrictions on their distribution or use. These classes of pesticides are generally accepted only for large-scale operations in which they will be handled and used by trained crews under direct supervision and stored securely to prevent diversion. In-depth project appraisal and supervision are required to ensure adequate training, facilities and supervision. Handlers should be regularly monitored (blood/urine tests) for signs of overexposure to pesticides.

c. For general use, the formulated product should be of a concentration low enough to be in at least WHO Class II.

d. Limited shelf-life of many pesticides and the often inadequate storage conditions in many developing countries means that pesticide purchases should generally be limited to quantities than can be used judiciously within the growing season, or one year, as appropriate. Consideration should also be given to the packaging, labeling, and use instructions (including restrictions) accompanying selected pesticide products.

e. Consider the impact of pesticides on beneficial insects, recognizing the importance of beneficial insects in IPM program, and the potential disruptions that may be caused by the use of pesticides which adversely affect them.

Best practice:

a. Low concentration granular, seed dressing, bait formulations, and pheromone traps, generally present the least hazard to users and are especially suitable for small-scale farmers unfamiliar with pesticide use; they cause minimal environmental contamination and generally minimal adverse effects on non-target organisms.

b. Aircraft application should be avoided whenever possible, and used only when speed to cover large areas is essential (such as in emergency control of migratory pests).

c. Safer application equipment and servicing facilities should be promoted, along with correct calibration of equipment.

d. Protective clothing – especially for pesticides which are absorbed through the skin. Improper use of protective clothing may be even more hazardous: unless it is washed, it can be saturated with pesticides – for example in the liming of boots and gloves – and greatly increase pesticide absorption.

e. Training is crucial to the safety and use (and cost-effectiveness) of pesticides. It is recommended for any project which increases the availability or accessibility of pesticides. Education is needed for a range of actors: users, operators, extensionists, retailers, health workers treating cases of poisoning, and legislators in pesticides law. Project training components should make the subjects and coverage of actors explicit. In addition, education of communities on the environmental and health issues of pesticide use will give farmers the choice of whether to use chemical pesticides or continue the use of indigenous practices to control pests.

f. Monitoring of water quality may be needed to ensure drinking or bathing water is fit for human use.

g. Any application guidelines for pesticide use should be made clear to the borrower and assurances provided in a legal document ensuring that the guidelines will be followed.

INTERNATIONAL LEGAL CONTEXT

111. In many countries, only registered pesticides can be imported, distributed and used; where there is a formalized regulatory system, banned pesticides may not be used at all. If there is no regulatory system in place (or if the mechanism is inadequate or incomplete), the pesticides being considered may be assessed on the basis of the International Code of Conduct on the Distribution and Use of Pesticides (FAO 1991 –Revised 2003). This represents a global consensus on minimal acceptable standards. National regulations may however be stricter. However, pesticides banned in developed countries are often illegally “dumped ” into developing countries and hence pesticide use has to be carefully monitored by Governments

112. Prior Informed Consent (PIC) is an information exchange procedure adopted by both FAO and UNEP, and incorporated into the FAO Code of Conduct. PIC provides for the operation, assistance, training, and technical advice to governments for the implementation of a procedure for obtaining and disseminating decisions of importing countries as to whether they wish to receive future shipments of pesticides or other chemicals that have been banned or severely restricted. The fundamental principle of the PIC system is that international shipment of a chemical that is banned or severely restricted for health or environmental reasons should not proceed without the agreement or contrary to the decision of the importing country. A UNEP-International Register of Potentially Toxic Chemicals (IRPTC) database exists on Prior Informed Consent.

113. If active ingredient formulations are required for specific purposes in a project for which no products have been registered in the country, pesticides generally should not be considered unless their use for the purpose has been reviewed by the FAO/WHO Joint Meeting on Pesticide Residues (JMPR) and an acceptable daily intake and maximum residue levels have been subsequently

recommended to the Codex Alimentaris. A pesticide may be considered acceptable if it is registered for similar use in a country where conditions are comparable and where there are adequate facilities to evaluate their effectiveness, toxicity, and long-term effects (World Bank, 1993).

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International Phytosanitary Portal (IPP): the official web site for the International Plant Protection Convention.
https://www.ippc.int/IPP/En/default.jsp

OPERATIONAL STATEMENT 10
Rural Finance

INTRODUCTION

114. Rural finance includes the provision of a wide range of financial services to farming communities, including savings deposits, money transfers, insurance, and credit. Diverse funding mechanisms such as supplier credit, contract farming, crop and investment loans all provide farmers with external sources of capital during the production cycle. Rural finance is also used by most farming families to support non-farm income generating activities such as food processing, buying and selling, micro-enterprise, and the migration of family members for seasonal employment in cities. And finally, finance also supports critical life cycle needs such as the education and marriage of children, medical emergencies, housing solutions, and the acquisition of assets for old age.

115. Rural finance frequently supports productive activities in rural areas, some of which may degrade the environment as a result of the use of inappropriate natural resource management practices. On the other hand, rural finance is often used to fund the investments needed to improve these practices, fund alternative technologies, and in many cases generate non-farm microenterprises that actually take pressure off sensitive biological resources. Due to the fungible nature of money, it is very difficult to actually control the end use of loans. Nevertheless, we can safely assume that most loans are applied to the highest return activities of the poor. Often, these are the non-farming uses.

116. It is not widely thought that the provision of savings deposit, crop insurance, or money transfer services has any negative effect on the environment, so the remainder of this operational statement will refer exclusively to the provision of credit for the purpose of funding the intensification of agricultural production. Nevertheless, program officers should encourage the overall development of the capacity to deliver a full suite of financial services to rural areas as part of any strategy to reduce the impact of low income families on the environment. Savings, insurance, and money transfers all form part of a strategy that reduces the vulnerability of farm families to economic shocks and, as a consequence, the environmental impact of their alternative survival strategies.

117. Rural Financial Institutions (RFIs) may also be used successfully to channel Payments for Environmental Services. RFIs may open savings accounts for farm families and in some cases, develop a range of savings and loans products that tie into the environmental subsidy and increase the social impact of these payments.

RURAL FINANCE IN IFAD PROJECTS

118. Over 70 percent of IFAD projects support the intensification of agricultural production of families that live on degraded lands in environmentally sensitive ecosystems. A very large number of these projects have incorporated lending components to support the adoption of improved land and crop management practices, alternative technologies, community irrigation and other infrastructure, or investment in new crops or livestock. Some projects have consciously included en environmental focus, while most have focused on natural resources management to the extent that these resources can be made more productive for farmers.

ENVIRONMENTAL ISSUES

119. While, at times, micro-credit may have a negative impact on sensitive biological resources, it may also prove to be an invaluable tool for the adoption of improved natural resource management practices, alternative technologies, and the support of non-resource dependent microenterprise activities. In fact, its positive role may far outweigh any negative effects in well-designed rural development projects. If projects can identify higher return activities than those that directly degrade the local resource base, they can be successfully supported by loans.

120. The most important potential negative impact of the provision of credit in environmentally sensitive areas is that it may accelerate the degradation of natural resources when traditional practices lead to their over-exploitation. If credit leads to the purchase of pesticides, bigger chain saws, more livestock, or better boats and nets, the net effect on the environment may be deleterious. In the long run, if credit is not accompanied by education about improved natural resources practices and incentives for their application, the effect on the farmer's incomes may also be quite negative as depleted resources are less able to sustain the poor.

121. Projects that operate in very marginal areas, where the poor have been concentrated, often through no fault of their own, must take up the dual challenge of generating enhanced livelihoods through intelligent custodianship of the scare natural resource on which the poor depend. In most projects, then staff should be concerned about the type of livelihood activities they are funding and their effect on the environment in which they work. Therefore, clear and well-designed operational policies should contribute to an agency's rural development work within the new paradigm of sustainable agricultural production and triple bottom line.

122. The evaluation of the activities of individual microfinance clients who are on the whole poorer, more rural, and more involved in obtaining sustenance from scarce resources than larger clients or corporations, is not cost effective, except in very clear-cut cases where the damage to the environment is substantial and requires urgent remedy.[1] Project staff should adopt a common sense approach that recognizes the special challenges of improving the environmental stewardship of the poor, while respecting the fact that their incomes must be improved if the nature of their impact on their surroundings is to be shifted to less harmful ways.

123. Small farmers and microenterprises may be able to play a positive role in natural resources conservation through the support of rural finance institutions (RFIs). RFIs may be able to support alternative or improved conservation practices, the acquisition of appropriate technologies, eco-friendly agriculture, and payments for environmental services. The provision of financial services in low income rural areas will can reduce the vulnerability of families to economic and environmental shocks and support income generating activities that often are less harmful than survival strategies. A full suite of financial products that include savings, indexed weather insurance, and remittances from city dwelling members of households, in addition to credit, can all reduce household level economic vulnerability and overall impact on the environment.

POTENTIAL MITIGATION

124. Rural Finance Institutions should refer to the Exclusion List produced by the IFC for the activities that are not to be financed in accordance with a series of international treaties that govern environmental and social concerns. That list is included in the Reference section of this document. Additionally, they may also refer to FAO's Best Practices website for guidelines for agriculture related activities.

125. By focusing on the major practices that generate a negative environmental impact on a community level, microfinance associated activities can use leverage to generate group pressure on individuals to change behavior in much the same way as they enforce repayment contracts. This approach has proven successful in many NRM projects and passes the responsibility for tracking NRM practice to communities, where the only practicable monitoring and enforcement is possible. This relates the cost of the initial environmental assessment to a class of activities, which is easier to estimate and mitigate than if assessments were performed on each individual sub-loan.

[1] Such as trafficking in protected species, charcoal manufacture, and those activities that are part of exclusion lists related to international treaties such as: Agenda 21, the Convention on Biological Diversity, the Ramsar Convention on Wetlands, the Convention to Combat Desertification, the Framework Convention on Climate Changes and its protocols, The Basel Convention on the Control of Transboundary Movements of Hazardous wastes and their Disposal, and the Stockholm Convention on Persistent Organic Pollutants (POPs).

- Guidelines should focus on community level practices and mitigation measures, apart from the standard list of exclusion required by international treaties. One particularly valuable resource is the "Community Natural Resources Management" guideline listed in the references section.

- The list of unsustainable practices should be kept simple - and should recognize that the poor may engage in these practices as a basic survival strategy – so appropriate and effective alternatives must be sought before conditioning support on the suspension of unsustainable activities,

- As a starting point, the number of unsustainable practices that are 'managed' in any given project should be kept to a minimum – focusing only on the most material practices. Those should be managed in rationalized manner, so as to attain an integrated management approach in a future reasonable time. This allows small farmers to test pilots, and subsequently, become comfortable with new practices, to absorb or defer adoption costs.

- Procedures should be kept simple so staff of implementing institutions know and understands EIA requirements and the way in which their execution improves outcomes they are responsible for obtaining.

- EIA and subsequent management practices should be made attractive to end-clients in order to motivate them to implement desired changes through the use of incentives, training, and technical support.

- Programs need to pay attention to getting project design right from the outset by paying great attention to all aspects of triple bottom line results. Design teams should be multidisciplinary and planners need to understand client behaviour and the levers that will most likely produce desired changes.

- Agencies should explore the on-going monitoring feature of EI in its guidelines, given their potential importance for project success, as well for projects that are intended to operate at larger scale.

INTERNATIONAL LEGAL CONTEXT

126. "The Equator Principles" were jointly developed in 2003 by the International Finance Corporation (IFC)[2] and ten of the world's largest banks, including ABN AMRO, Barclays and Citigroup. The principles were developed and later revised in July 2006 in order to define a consistent approach to managing environmental and social risks in project financing. Under the revised Equator Principles, participating banks will require projects of US$10 Million or more to comply with IFC's environmental and social "Performance Standards". The Principles aim to ensure that financiers play a more substantial role in promoting sound environmental management and responsible social development.

127. The Equator Principles and other similar rules were created to respond primarily to the challenges and the environmental impact of large investment projects. One effect has been to accelerate pressure to incorporate micro and small entrepreneurial activities into ESA, in spite of the fact that very little differentiated analysis exists as to the environmental impact of this class of economic activities. IFAD staff should be aware of the general evolution of the Equator Principles and their application by other major organizations, although the mitigation measures proposed in this

[2] Banking on Value: A New Approach to Credit Risk in Africa, The report "Sustainability Banking in Africa" is available on the following website: http://www.unepfi.org/publications/africa/index.html (The IFC is the private sector lending arm of the World Bank)

statement suggest actions that follow a distinct path that is more relevant and cost effective for the mitigation of environmental impact of the communities in which IFAD is likely to work.

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IFC Environmental and Social Review Procedure: http://www.ifc.org/ifcext/sustainability.nsf/Content/ESRP

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United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), the World Bank, and the World Resources Institute. The Wealth of the Poor: Managing Ecosystems to Fight Poverty; “World Resources 2005,”

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CGAP Microfinance Portal is the single best site on best practices in microfinance:
http://www.microfinancegateway.org/

FAO Rural Finance Learning Centre is the best site for rural finance topics: http://www.ruralfinance.org/cabfin.jsp

FAO Best Practices website: http://www.fao.org/bestpractices/index_en.htm

IFC Policy on Social and Environmental Sustainability:
http://www.ifc.org/ifcext/sustainability.nsf/Content/EnvSocStandards

The Environmental Colours of Microfinance is an evolving resource that orients financing organizations on how to manage the environmental risks posed by small and microenterprises:
http://www.gdrc.org/icm/environ/environ.html

The Equator Principles. http://www.equator-principles.com/

The Ohio State University Rural Finance Program. http://aede.osu.edu/Programs/RuralFinance/PROGRAM.htm

OPERATIONAL STATEMENT 11
Micro and Small Enterprise (MSE) Development

INTRODUCTION

1. Micro and Small enterprise development consists of a series of support measures to ease constraints posed by existing MSE policies including, trading laws and regulations, capital and administrative requirements, credit services, legal status etc. Additionally, micro and small enterprise development concentrates on intervention points along the value chain. As such, micro and small enterprise development initiatives do not in and of themselves produce negative environmental impact. They can be used to lessen the impact of small enterprises on natural resources.

2. Though not much research has been done on this topic, poor rural families are not credited with the wholesale degradation of the environment that has been attributed to large logging, fishing and farming enterprises whose intensive method of extracting value from prime natural resources has proven so destructive. Given this, projects that support the growth of small business have not traditionally incorporated environmental impact assessment at the enterprise level.

3. In recent years more attention is being given to the cumulative effect of many hundreds of thousand and millions of small holders on the surrounding natural resource base upon which they depend for their livelihoods. Coming research will likely indicate that their impact is significant, that it can degrade fragile resources, and that this impact should be mitigated in order to protect their incomes.

4. Nevertheless, micro and small enterprise development projects may wish to incorporate messages about improved natural resources management practices or the mitigation of the effects of production processes that pollute the environment as part of their overall approach. Over time, this approach can generate economic activities that are more sustainable, more resistant to the effects of natural or economic shocks, and less risky.

MICRO AND SMALL ENTERPRISE DEVELOPMENT IN IFAD PROJECTS

5. Micro and small enterprise development programmes are likely to be incorporated into large integrated development projects and as such may share a role in the deployment of multiple services. These components frequently offer the opportunity to add messages that encourage improved natural resources management practices, or reduce the contamination of production processes.

6. Many IFAD projects incorporate micro and small business development components, especially those that design activities that intervene along the value chain – in support of improved supply of inputs, cooperative extension services, business practices, and marketing. These components often refer to natural resources management practices in those areas where such practices form part of the objectives of projects. Most often, these practices seek to improve the manner in which small farmers can farm in a sustainable manner.

ENVIRONMENTAL ISSUES

7. Micro and Small enterprises have two types of impact on the environment:

1) Depletion through over-use and inappropriate use, and
2) Pollution through waste generated by the production process.

While micro and small enterprise development initiatives may not themselves generate negative impact on the environment, they should be aware of the natural resource concerns relating to the types of farming and businesses they support and incorporate appropriate messages and mitigation measures into their services. These wide ranging impacts are widely discussed in a number of

documents listed in the references section of this operational statement and project staff may want to refer to these documents to understand more fully the environmental impacts of specific projects in the activities they support.

POTENTIAL MITIGATION

8. Project managers of micro and small enterprise development initiatives should suggest the use of simplified procedures for use in the small enterprise that will mitigate the environmental impact of its activities. There are a number of websites listed in the Reference section that contain information, as it constantly evolves, about the environmental impact of different types of micro and small enterprise activities from which training materials can be developed. The "Environmental Colours" and "ENCAPAFRICA" websites are particularly useful.

9. Another useful guide for use in small enterprises is the "Good Housekeeping Manual" developed by GTZ in September of 2006. This guideline suggests procedures that are common sense and easy to use, and address the most important environmental impacts generated by firms. They might form the basis for a micro and small enterprise development curriculum that addresses the environmental impact of their activities.

Good Housekeeping Manual of GTZ/P3U

The Pilot Programme for the Promotion of Environmental Management in the Private Sector of Developing Countries (P3U), which was implemented by the German Agency for Technical Cooperation (GTZ), has developed the Good Housekeeping Manual on instruments for environmental management to be used by micro, small and medium-sized enterprises (SMEs) in developing and countries in transition. Good Housekeeping refers to a number of practical measures based on common sense that enterprises can undertake immediately and on their own to improve their productivity, obtain cost savings, reduce the environmental impact of their operations, and improve organizational procedures and workplace safety. These measures deal with preventing the inefficient use and loss of raw materials, minimizing off-specification products, trade returns, waste, conserving water, saving energy, preventing accidents, and improving the company's operational and organizational procedures. The implementation of these practices is relatively easy and fast, the cost is usually low, providing an attractive payback period. Thus, they are particularly suitable for SME or any type of company with low level of resource efficiency.

Since 1997, the Manual has been used by entrepreneurs, consultants, trainers, business associations, economic and environmental promotion institutions, as well as universities and schools in more than 30 countries worldwide.

Source: GTZ/P3U. 2006. Good Housekeeping Manual (GHK®). GTZ – P3U and PREMAnet e. V. (revised version 2006).
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Environmental Guidelines for Small Scale Activities in Africa, 2nd Edition; ENCAP, are a thorough compendium of suggestions for different economic sectors: http://www.encapafrica.org/egssaa.htm

Environmental Management Practices for Microcredit Programmes and Different Sectors of Microenterprise Activity: http://www.gdrc.org/icm/environ/plan-3.html

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IFC SME Toolkit has a section devoted to environmental issues for use by small and medium enterprises: http://www.ifc.org/ifcext/sme.nsf/Content/SME_Toolkit

The Environmental Colours of Microfinance is a rich and evolving resource that contains suggestions for MFIs on how to manage environmental risks of small and microenterprises; http://www.gdrc.org/icm/environ/environ.html