Participants' Sourcebook:

Life-of-Project Environmental Compliance and Environmentally Sound Design and Management

An Africa Regional Advanced Training Workshop for USAID Staff

Musanze, Rwanda
23–27 March 2015

Host
USAID/Rwanda

Co-Sponsor
USAID/AFR/SD

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cover photos: A Fox Musanze, Rwanda.

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AGENDA

Life-of-Project Environmental Compliance and Environmentally Sound Design and Management

An Africa Regional Training Workshop for USAID Staff

Musanze, RWANDA
23–27 March 2015

Overall Goal & Objectives:

The overall goal of the workshop is to strengthen environmentally sound design and management of USAID-funded activities in Africa by assuring that participants have the motivation, and knowledge and skills *beyond the introductory level* necessary to: (1) achieve environmental compliance over the life environmentally and programmatically complex projects; and (2) otherwise integrate environmental considerations in project and activity design and management to improve overall project acceptance and sustainability.

Overview:

Day 1 MOTIVATION, CORE EIA CONCEPTS AND SKILLS, PRE-IMPLEMENTATION COMPLIANCE

Day 2 ENVIRONMENTAL COMPLIANCE DURING PROJECT IMPLEMENTATION, ADVANCED IMPACT ASSESSMENT

Day 3 FIELD VISITS AND GROUP WORK: EMMP DEVELOPMENT OR EA SCOPING

Day 4 COMPLIANCE AND BEST PRACTICE FOR INVESTMENT FACILITATION AND SECTORAL ACTIVITIES

Day 5 BRINGING TRAINING TO REALITY

Day/Time	Module	Objective/Content Summary
Sun 22 Mar.	**ARRIVAL**	
6:00 -	**Welcome Reception/Dinner**	
Mon 23 Mar.	**MOTIVATION, CORE EIA CONCEPTS AND SKILLS, PRE-IMPLEMENTATION COMPLIANCE**	
8:00 – 8:30.	**Registration**	
8:30 – 8:45	**Welcome & Opening Statements**	
8:45 – 9:15	**Session 1:** **Intro & Objectives**	Articulate workshop plans, objectives, goals, and participants' introductions and expectations. Review the agenda and logistics.
9:15 – 10:15	**Session 2:** **Environmental Compliance for Environmentally Sound Design & Management** *Part A: Presentation* *Part B:Video short* *Part C: Participant Examples, Brief Discussion*	Achieve a common understanding of "environment." Summarize the legal basis of USAID's environmental procedures and the life-of-project requirements they establish. With illustrations by example, understand the need for such procedures to systematically address environmental issues in development activities—even for activities not primarily focused on "biophysical interventions"
10:15 – 10:30	**Break**	

Day/Time	Module	Objective/Content Summary
10:30-11:30	**Session 3:** **EIA Concepts, Process & Skills, Part I** *Technical presentation and dialogue*	USAID's Environmental Procedures are a specific implementation of the general EIA process. Understanding USAID's procedures requires understanding the general EIA process. Define key concepts —baseline, impact, activity; brief the EIA process; and learn essential classroom theory for baseline characterization, impact identification & mitigation design and how they apply in the EIA framework. We also establish how the EIA process is a framework for achieving ESDM.
11:30 – noon	**Session 4:** **Field Exercise: Practicing EIA Skills** *Part A: Briefing*	Practice observation skills needed to characterize the baseline situation and identify impacts/issues of concern
noon – 13:00	Lunch	
13:00 – 15:00 *(including travel)*	*Part B: Field Visits* *Agropharm (2 groups)* *Ruhengeri Hospital (1 group)*	Synthesize field observations and prioritize impacts/issues of concern; discuss possible approaches for limiting adverse effects on the environment.
15:00 – 16:00 *(coffee break taken at leisure)*	*Part C: Group Work & Plenary Synthesis*	Synthesize field observations and prioritize impacts/issues of concern; discuss possible approaches for limiting adverse effects on the environment.
16:00 – 17:00	**Session 5**: **Reg. 216: USAID's pre-implementation EIA Process** *Technical presentation and dialogue*	Understand USAID's implementation of the EIA process as defined by 22 CFR 216 and the relationship of the process to the program cycle; understand how 22 CFR 216 documents establish environmental management requirements for USAID-funded/managed activities.
Tues 25 Feb.	**ENVIRONMENTAL COMPLIANCE DURING PROJECT IMPLEMENTATION, ADVANCED IMPACT ASSESSMENT**	
8:30 – 8:45	Day 1 review & Day 2 prospectus	
8:45 – 9:45	**Session 6:** **EIA Skills Part II & "Downstream" compliance: Monitoring, EMMPs & Reporting** *Part A: Technical presentation and dialogue*	Review the objective and key principles of environmental monitoring and indicator selection. Understand EMMP purpose, concept, formats & appropriate level of detail. Introduce a key resource: AFR's *EMMP Factsheet.* Understand AFR expectations regarding IP environmental compliance reporting, and the EMMP as the basis for such reporting.
9:45 – 10:00	***Part B:*** *Conditions to Actions: Small Group Exercise*	Practice a key EMMP skill: translating IEE conditions to specific mitigation actions.
10:00 – 10:15	**Break**	
10:15 – 10:45	**Session 7: Effective IEEs** *7a: Discussion: IEE Review Criteria, Common gaps. Briefing: AFR's updated template*	Initial Environmental Examinations (IEEs) are USAID's version of the *preliminary assessment* and the most common type of Reg. 216 documentation. This session will brief the characteristics of effective IEEs, summarize common shortfalls from the BEO/REA perspective, and introduce AFR's draft revised IEE templates.

Day/Time	Module	Objective/Content Summary
10:45—noon	*7b: Review, Group Feedback/Discussion*	AFR's draft revised IEE templates will be reviewed in-depth in facilitated small group format and feedback provided.
Noon – 12:30	**Session 8: Scoping, EA & PEA Basics** *Technical presentation and dialogue*	Understand how USAID Environmental Procedures apply in situations where activities present the potential for significant adverse impacts. Discuss the process and expertise needed to prepare an Environmental Assessment (EA), and meaningful alternatives analysis and consultation as essential to the process.
12:30 – 13:30	**Lunch**	
13:30 – 13:40	**Session 9: Impact Assessment "201"** *Part A: Orientation*	In a series of 15 minute mini-briefings, this session introduces a set of key concepts in impact assessment beyond the introductory level. These concepts are then explored in the integrative case study that follows.
13:40–13:55	*Part B: Cumulative Impacts*	
13:55–14:10	*Part C: Indirect Impacts*	
14:10 – 14:15	**Mini-break**	
14:15–14:30	*Part D: Ecosystem Services*	
14:30 – 14:45	*Part E: Social Impacts*	
14:45 – 15:00	*Part F: GCC & impact assessment*	
15:00 – 15:15	**Break**	
15:15 – 16:30	**Session 10: Integrative Case Study(ies)** The Great Ruaha River (TZ)	In small groups, discuss case study briefing materials and identify cumulative, indirect & social impacts, and GCC and ecosystem services issues. Discuss how USAID should approach programming under regional development plans/initiatives to deliver long-term benefits and not worsen unforeseen impacts.
16:30 – 17:00	**Session 11**: Field-based EA Scoping OR EMMP Exercise *Part A: Site & Exercise Briefing*	Over this extended session, small groups will EITHER (1) develop the outline of a scoping statement using a provided template; or (2) develop an EMMP for an EA. In both cases, the exercise will respond to a provided project scenario and be informed by field visits we undertake at the beginning of Day 3.
17:00 – 17:30	*Part B: Group Preparation*	Groups view briefing materials and discuss overall approach/strategy
Wed 26 Feb.	**FIELD VISITS AND GROUP WORK: EA SCOPING**	
8:00–13:00 (includes return)	*Part C: Field Visits* *Sites:* • *Farmer Dairy Cooperative (milk collection and processing, veterinary services)* • *Pyrethrum plant + farmer cooperatives* • *WB/GoR Land Husbandry, Water Harvesting & Hillside Irrigation site near Musanze?*	Small groups complete site visits near Musanze. The sites are relevant to the provided project scenarios, and are illustrative of the environmental and social issues presented by the proposed projects.

Day/Time	Module	Objective/Content Summary
Return – 2:00	**Lunch & Freshen up**	
14:00 – 17:00 (coffee break taken at leisure)	*Part D: Group work: develop outline scoping statement or EMMP; prepare group presentation* *BEOs available for "office hours" from 16:00 for any groups that may finish early.*	Small groups will synthesize findings and observations from the field visits, working to develop key content of an EA Scoping Statement OR EMMP. Groups will be ready to present first thing on Thursday morning.
Thurs 27 Feb.	**COMPLIANCE AND BEST PRACTICE FOR INVESTMENT FACILITATION AND SECTORAL ACTIVITIES**	
8:30 – 8:45	Day 3 review & Day 4 prospectus	
8:45 – 10:15	*Part E: Group Presentations*	Working groups present their document/findings and recommendations in approx. 20-minute presentations with feedback from facilitators.
10:15 – 10:30	**Break**	
10:30 – 12:15	**Session 12:** **Best Practice & Compliance for Investment Promotion** *Presentation, Small Group Discussions, BEO Panel?*	Discuss how the concept of **indirect impacts** applies to programming approaches in which a donor facilitates private sector investments, but does not fund the investments or have an equity stake. Overview accepted int'l good practice for such programming approaches. Identify and discuss how these practices may/should be reflected in 22 CFR 216 determinations and conditions for these activities.
12:15–12:20	**Session 13: Sector Mini-sessions I** *Part A: Introduction*	Briefings on sector-specific new developments and current issues in the area of ESDM and environmental compliance
12:20–12:30	*Part B: USAID's Construction Assessment and implications for activities involving construction*	
12:30 – 13:30	Lunch	
	(reconvene/housekeeping)	
13:35–13:45	*Part C: AFR's PERSUAP "stocktaking" and way forward*	Briefing on AFR's PERSUAP "stocktaking" effort, and discussion of ways forward for a next-generation PERSUAP to reduce costs of preparing review documents and focus effort on safer use in the field.
13:45–13:55	*Part D: WQAP Assessment and new model WQAP language*	Briefing on AFR's evaluation of the effectiveness of Water Quality Action Plans (WQAPs), findings, and the new model WQAP language that has resulted. Way forward discussion and feedback.
13:55–14:05	*Part E: Medical Waste Management where USAID supports, but does not control, care delivery.*	
14:05 – 14:15	*Part F: Climate Smart Agriculture*	
14:15 – 14:20	Mini-break (session switch)	

Day/Time	Module	Objective/Content Summary
14:20–15:00	**Session 14: Sector Roundtables** *(Breakout format)*	Follow-up on the 10-minute "mini-session" of your choice by joining a follow-on roundtable discussion / Q&A with a BEO/subject expert. *(Multiple roundtables will run concurrently. Choose the one of most interest.)*
15:00 – 15:15	Break	
15:15 – 16:00	**Session 15:** **Roles, Responsibilities & Resources** *Half of session time is reserved for Q&A*	Review Environmental Compliance roles and responsibilities, with reference to ADS requirements & the programming cycle. Introduce the key resources available to support environmental compliance and ESDM.
16:00—17:15	**Session 16: Synthesis Game**	Review of key workshop content in form of a small-team competition
Fri 28 Feb.	**BRINGING TRAINING TO REALITY**	
ATTN: PLEASE arrive at opening session ready for departure		
8:30 – 8:45	Day 4 review & Day 5 prospectus	
8:45 – 9:15	**Session 17: "Parking Lot"**	Address unresolved questions with reference to the issues and questions "parking lot" created over the course of the workshop.
9:15– 10:15	**Session 18:** **Feedback: Updated AFR Best Practice Standard**	As part of its response to the OIG's global environmental compliance audit, AFR has committed its missions to undertaking an environmental procedures best practices review (BPR) every 5 years. BPRs are a voluntary environmental compliance review of a mission's portolio, as well as of mission compliance capacity and processes. With BPRs just entering their second cycle AFR is updating the "best practice standard" against which BPRs are performed. The update reflects lessons learned and ADS and programming changes. This session will review and provide feedback on the current draft.
10:15 – 10:30	**Break**	
10:30–11:30	**Session 19: Stocktaking & Action Plans**	Work individually and in small groups to develop: (1) key issues/items to communicate to mission/team management after the workshop; (2) individual action plans.
11:30 – 11:45	**Session 20: Evaluations**	
11:45 – 12:15	**Certificates and Closing**	
12:15–	Lunch	
13:15	**Departure (Buses to Kigali)**	

Acronyms

ADS	(USAID) Automated Directives System
AFR	USAID Bureau for Africa
AFR/SD	USAID Bureau for Africa, Office of Sustainable Development
AOR	Agreement Officer's Representative
AOTR	Agreement Officer's Technical Representative (now superseded by AOR)
Asia/ME	USAID Bureaus for Asia and the Middle East
BEO	Bureau Environmental Officer
BFS	USAID Bureau for Food Security
BPR	Environmental Procedures Best Practices Review
CEQ	(US) Council on Environmental Quality
CFR	Code of (US) Federal Regulations
COP	Chief-of-Party
COR	Contracting Officer's Representative
COTR	Contracting Officer's Technical Representative (now superseded by COR)
DCHA	USAID Bureau for Democracy, Conflict and Humanitarian Assistance
DO	Development Objective
EA	Environmental Assessment; Eastern Africa
ECL	Environmental Compliance: Language for Solicitation and Awards (ADS 204 Help Document)
ECSR	Environmental Compliance Status Report
EGSSAA	(USAID/AFR's) *Environmental Guidelines for Small-Scale Activities in Africa;* now being superceded by the *Sector Environmental Guidelines (SEG)*
EIA	Environmental Impact Assessment
EMMP	Environmental Mitigation & Monitoring Plan
EMPR	Environmental Management Plan & Report
ENCAP	Environmentally Sound Design and Management Capacity-Building Support for Africa (GEMS predecessor program supporting Africa Region under the EPIQ II IQC.)
ERF	Environmental Review Form
ERR	Environmental Review Report
ESDM	Environmentally Sound Design & Management
FAA	(US) Foreign Assistance Act
FFP	Food for Peace, see "Title I"I
FO	Functional Objective (under the Foreign Assistance Programming Framework)
FTF	Feed the Future (President's Feed the Future Global Health and Food Security Initiative)
GCC	Global Climate Change
GHG	Greenhouse gas
GoR	Government of Rwanda
IEE	Initial Environmental Examination
IQC	Indefinite Quantity Contract
IRS	(Anti-malarial) Indoor Residual Spraying
ITN	Insecticide-Treated (bed) Net
IP	USAID Implementing Partner
LLIN	Long-life Insecticde-treated (bed) net
LOE	Level of Effort
LOP	Life-of-Project
M&E	Monitoring & Evaluation
M&M	(Environmental) Mitigation and Monitoring
MCC	Millennium Challenge Corporation
ME	USAID Bureau for the Middle East
MEO	Mission Environmental Officer
NGO	Non-Governmental Organization (see also PVO)
NRM	Natural Resources Management-
OIG	Office of the (USAID) Inspector General
OMEP	USAID Office of Middle East Programs
PEA	Programmatic Environmental Assessment
PEPFAR	President's Emergency Plan for AIDS Relief
PERSUAP	Pesticide Evaluation Report and Safer Use Action Plan
PMP	Performance Monitoring Plan
PMI	Presidential Malaria Initiative
POC	Point of Contact
ppb	parts per billion
PVO	Private Voluntary Organization
RCE	Request for Categorical Exclusion
REA	Regional Environmental Advisor
RUP	Restricted Use Pesticide
Reg. 216	22 CFR 216
SEG	(USAID's) *Sector Environmental Guidelines* (superceding the EGSSAA)
SO	Strategic Objective
Title II	Title II of US Public Law 480 (Agricultural Trade Development and Assistance Act of 1954); "Food for Peace" program.
USAID	United States Agency for International Development
USG	United States Government

Session 1. Workshop Objectives, Participant Introductions & Expectations

(0:30)

Session Summary & Objectives

This session briefs the workshop and its agenda, introduces us to each other, and establishes expectations. Specific elements of the session are:

- Overview of Course Objectives, Approach, Agenda and Materials (Facilitators).
- Participant & Facilitator Introductions: Please be prepared to introduce yourself briefly in 30 seconds, noting professional background, institutional affiliation, and current responsibilities (All).
- Soliciting expectations and establishing a "learning agreement."
- Logistical details (Facilitators).
- Creating a "Parking Lot."

Workshop Objectives, Structure, and Approach to Learning

This workshop will provide intensive training for USAID Staff in: (1) compliance with USAID's environmental procedures over life-of-project, and (2) in the objectives of these procedures: environmentally sound design and management (ESDM) of USAID-funded activities.

Overall Goal. The overall goal of the workshop is to strengthen environmentally sound design and management of USAID-funded activities by assuring that participants have the motivation and knowledge and skills *beyond the introductory level* necessary to (1) achieve environmental compliance over life-of-project, and (2) otherwise integrate environmental considerations in activity design and management to improve overall project acceptance and sustainability.

Structure & Objectives. Towards this goal, the agenda has five main components, each corresponding to key workshop objectives.

Agenda component	**Corresponding objectives:** By the end of the workshop, we will be able to:
1. **Motivating LOP environmental compliance.** USAID's mandatory environmental procedures exist to assure environmentally sound design and management (ESDM) of development activities. The workshop begins by defining ESDM and establishing why ESDM must be a necessary and explicit objective for successful development.	• Articulate the ESDM concept and common causes of failure to achieve ESDM. • Explain why ESDM must be a necessary and explicit objective for successful development. • Articulate key action principles for achieving ESDM
2. **Building Core EIA Concepts & Skills.** USAID's environmental procedures are a specific implementation of the general environmental impact assessment (EIA) process. An understanding of the basic EIA process greatly facilitates understanding USAID's procedures, and basic proficiency in a set of core EIA skills is required for effective compliance over life-of-project.	• Explain the relationship between ESDM and the EIA process. • Describe the key elements of the EIA process • Demonstrate an understanding of the key EIA concepts of activity, impact and baseline • Demonstrate basic proficiency in the core EIA skills of identifying significant impacts/issue of concern and design of mitigation and monitoring.

3.	**Mastering LOP Compliance Requirements, including roles and responsibilities, and linkage to the programming cycle.** LOP environmental compliance requirements and the. These requirements—and the compliance process—can be divided into "upstream" and "downstream" elements. ***Upstream* compliance** consists primarily of the pre-implementation environmental review process defined by 22 CFR 216 (Reg. 216), which culminates in approved Reg. 216 documentation (RCEs, IEEs and EAs). ***Downstream* compliance** consists primarily of *implementing* the environmental management conditions specified in approved 22 CFR 216 documentation, and *reporting* on this implementation. The *environmental mitigation and monitoring plan (EMMP)* is the key instrument for systematic implementation of these conditions—and thus for achieving ESDM. We will first surveys LOP compliance requirements overall, and then address core requirements in more detail. We will review and provide feedback on AFR's draft update to its IEE Template.	• Describe the basic elements of LOP compliance, attendant roles and responsibilities, and their timing with respect to the programming cycle. • Demonstrate familiarity with the pre-implementation environmental review process established by Reg. 216, • Explain the characteristics of effective initial environmental examinations (IEES) and the key elements of AFR's proposed revised IEE template • Explain the purpose of EMMPs and the characteristics of effective EMMPs. • Articulate the environmental compliance reporting requirements attendant to EMMP implementation. • Understand the trigger, process, and purpose of full EIA studies under 22 CFR 216, including the scoping phase. • Demonstrate proficiency in EITHER (1) developing environmental mitigation and monitoring plans (EMMPs) or (2) scoping statements.
4.	**Exploring Advanced Impact Assessment Concepts,** Assessment and appropriate environmental and social management of more complex and/or larger scale activities often requires addressing cumulative, indirect and social impacts, and appropriately integrating global change and ecosystem services in the impact assessment process. The workshop introduces these "beyond the basics" impact assessment topics and concepts and reinforces them via an integrative case study.	• Demonstrate a basic understanding of a set of critical "beyond the basics" impact assessment topics and concepts: cumulative, indirect and social impacts, ecosystem services, and the integration of GCC in impact assessment. • Identify the importance or necessary application of these concepts in the context of a integrative case study.
5.	**Addressing Environmental Good Practice and Compliance Approaches for Key Sectoral Programming Issues** via brief "poster sessions" and follow-up roundtables.	• Explain the essential good environmental practice and compliance issues in the area of investment promotion and other areas.
6.	**Improving Compliance Processes.** Achieving LOP compliance and ESDM requires both that individual USAID staff & IPs understand their roles and responsibilities and master key skills *and* that internal mission and project processes support and "mainstream" environmental compliance. AFR's environmental compliance best practice standard articulates these requirements and prerequisites for effective LOP compliance across a mission portfolio. We will review and provide feedback on the proposed draft revision to this standard.	• Evaluate strengths and weaknesses of environmental compliance processes in our team/mission against those in the region as a whole. • Undertake or propose improvements to these processes following the workshop.

The workshop leads off with motivation (Component 1) and a brief survey of LOP compliance requirements (Component 3). Components 2 and 3 then alternate over days 1 & the first half of day 2, with EIA skills introduced followed by the compliance processes they support. The second half of Day 2 is devoted to component 4. Day 3 blends objectives 3 & 4, with a field exercise and follow-up group work focused either on development of a scoping statement or an EMMP for a complex project scenario. Following presentations of the group work, Day 4 focuses on environmental good practice and compliance for complex issues in sectoral programming (Objective 5). Day 5 is focused on improving compliance processes (component 6).

Approach to Learning. The workshop is intended to be highly participatory and field-based:

- Skills and processes briefed in the presentations will be built and practiced in hands-on exercises conducted in small working groups. As an advanced workshop, presentations on core EIA concepts and skills, and other basic content are provided for reference rather than slide-by-slide delivery. Presenters will summarize key content quickly, to allow time in each session for discussion and Q&A.
- The key, integrative exercises in Core and advanced EIA skills and LOP compliance are built around field visits and integrative case studies.
- *Even presentation-centered sessions are intended to be interactive*. Please ask questions and, as importantly, share and discuss your own experiences and perspectives relevant to the topic at hand.

Everyone's active participation is encouraged and needed to make this workshop a success!

Learning Agreement

As part of this session, we will collectively review the following principles and add or modify them as necessary to establish a "learning agreement"—an agreement about how we will work and learn together.

General Principles to consider are that each of us should:[1]

1. Participate actively.
2. Ask questions.
3. Respect different points of view.
4. Share many thoughts & ideas.
5. Build upon the ideas presented by others.
6. Join in problem-solving.
7. Make "I" statements.
8. Respect the time—everyone shows up on time, and facilitators commit to end the sessions as scheduled.
9. Silence our phones and do not read or respond to email.
10. Have fun!

Teamwork Principles. Working groups are where we will practice and apply the key skills and ideas of the workshop. Working groups provide the opportunity for detailed discussions, and for learning from experiences and views of fellow development professionals. Working groups are also emphasized because environmental compliance and environmentally sound design and management are intrinsically team efforts.

Successful working groups require effective teamwork. Here are teamwork principles to consider:

[1] adapted from Jawara Lumumba and John Petit, REDSO/WCA, 1995

Twelve Essentials of Teamwork

VALUING DIVERSITY	COMFORTABLE ATMOSPHERE	ACTIVE PARTICIPATION OF ALL MEMBERS	SHARED GOALS AND OBJECTIVES
BALANCED APPROACH TO PROCESS AND CONTENT	**WHAT EFFECTIVE TEAMS NEED**		EFFECTIVE COMMUNICATION
SHARED LEADERSHIP			CONSTRUCTIVE CONFLICT MANAGEMENT
ACTION ACCOUNTABILITY RESPONSIBILITY	MUTUAL TRUST	CRITICAL ANALYSIS AND PROBLEM-SOLVING	A PREFERENCE FOR CONSENSUS

(Adapted from Rees, "How to lead work teams in facilitation skills")

Notes for Working Group Chairs

The chair can be a workshop trainer or participant.

The chair is neutral: she or he should not judge the ideas or contributions of others, but try to focus the group's energy on the common task.

The chair should encourage participation by all working group members, but prevent any one member from dominating. The chair should assist the group to function creatively, energetically, democratically and productively.

The chair must ensure that the group's tasks are accomplished in the time allotted.

When appropriate, the chair should try to achieve agreement or consensus on the task at hand. However, consensus is not required and if the group is unable to reach consensus, areas of agreement and disagreement may be reported.

Notes for Rapporteurs

The rapporteur is responsible for accurately and succinctly recording and reporting the results of group discussions.

Specific responsibilities include:

- **On a flip chart or laptop**, capturing all key points related to the specific theme, and noting comments on cross-cutting themes, as appropriate.
- Make sure that notes and charts are legible, understandable, and after reporting out, turned in to a facilitator.

Session 2. (1:00)
Environmental Compliance for Environmentally Sound Design and Management (ESDM).

Objectives

- Achieve a common understanding of "environment."
- Understand the basic compliance requirements established by USAID's environmental procedures over life of project, and the legal origin of these procedures.
- Understand by example the need for a formal, systematic pre-implementation environmental review process to prevent "environmental failures" in development activities – even in activities NOT formally focused on infrastructure.
- Understand Environmentally Sound Design & Management as a necessary and explicit objective for effective development.

Format

Presentation, solicitation of participant experiences, and short video (TBD).

Important note

Note that in this workshop, the term "USAID Environmental Procedures" does not refer only to 22 CFR 216 (Reg. 216), but collectively to Reg. 216, relevant Foreign Assistance Act (FAA) requirements, and to the mandatory environmental compliance procedures and directives contained in the USAID's Automated Directive System (ADS), which establishes mandatory USAID operating procedures..

Summary

This session will:

- Establish that "environment" includes biophysical, human health, and social dimensions.
- Highlight some of the "big picture" environmental trends affecting human health and livelihoods in the Sub-saharan Africa, including Global Climate Change; and show that much of USAID's portfolio in the region is a direct response to—or directly affected by—these trends. In this sense, we all work in "environment and development."
- Note that there is another dimension to the "environment and development" issue that is the primary concern of this workshop: the potential adverse effects of development activities *on the* biophysical environment, and on human health and welfare.
- Establish that USAID has a formal, mandatory set of environmental procedures whose purpose is to identify potential adverse effects in advance of implementation, and mitigate them during design and implementation.
- Summarize these procedures, noting:
    - USAID is *required by both court settlement and US law* to utilize an EIA-based process to "fully take into account" environmental sustainability in designing and carrying out its development programs:

- The procedures specify an Environmental Impact Assessment process that must be applied to all activities **before** implementation.
- This process is defined by 22 CFR 216 (Reg. 216). Its output is approved Reg. 216 documentation (Requests for Categorical Exclusion, Initial Environmental Examinations (IEEs), and Environmental Assessments (EAs)).
- Most IEEs and all EAs specify environmental management conditions (mitigation measures).
- These measures ("IEE/EA conditions") must be implemented and monitored over the life of the activity (or life of project, LOP). Such implementation is the responsibility of the IP.
- C/AORs have are required to actively manage and monitor compliance with IEE/EA conditions. This requires that IPs *report* on their implementation of these conditions.

- By example, demonstrate that these formal, systematic procedures are needed because otherwise "environmental failures" in development activities are easy and too common.
- Establish that as development professional we must be AWARE of the potential adverse impacts of development activities on ecosystems, environmental resources and environmental quality; and the need to PROACTIVELY seek to limit these adverse impacts, particularly where they affect health and livelihoods—in short that environmentally sound design and management (ESDM) is a necessary and explicit objective for effective development, and that ESDM requires systematic and explicit attention over life-of-project.

USAID FROM THE AMERICAN PEOPLE

SUPPORT GLOBAL ENVIRONMENTAL MANAGEMENT

Life-of-Project Environmental Compliance for Environmentally Sound Design and Management

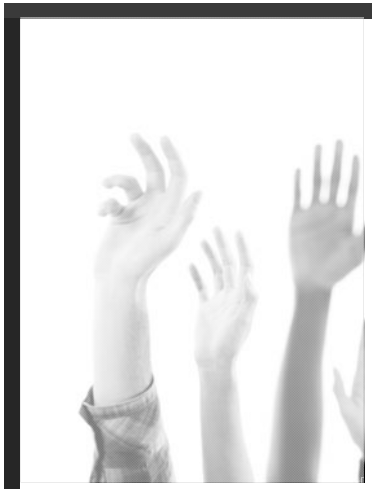
Environment – the Big Picture

What is Environment?

*Webster's defines it as "The **totality of circumstances** surrounding an organism or group of organisms, especially:*

- The complex of **physical, chemical, and biotic factors** (e.g. climate, soil, and living things) that affect and influence the growth, development, and survival of an organism or an ecological community
- The complex of **social and cultural conditions** affecting the nature of an individual or community.

Question:



What are some "big-picture" environmental trends affecting human health and livelihoods in Sub-Saharan Africa?

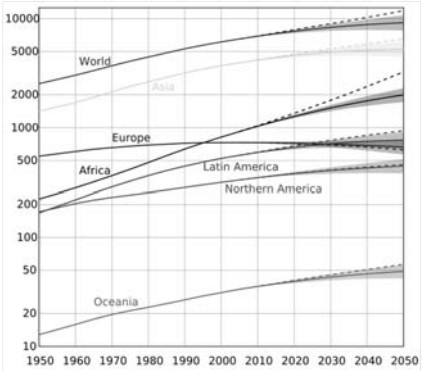
Population growth

UN Population estimates:*

	Today	2050	% change
World	6.9bn	9.15bn	+32%
Africa	1.02 bn	2.19 bn	+114.7%
Asia	4.16bn	5.14bn	+23.6%
M. East	200 mn	372.9 mn	+86.3%
LAC**	590 mn	751 mn	+27.3%
Less-Developed Regions	5.7bn	7.9bn	+40%
LDCs	863mn	1.74bn	+102%

* All data: "medium variant" projection.
UN Population Division http://esa.un.org/unpp

**LAC: Latin America and the Caribbean



Increasing Population in developing areas → **LEADS TO** → **Increased demands for water, land, fish & timber, energy, infrastructure & social services. Increased waste production.**

Urbanization

UN Population estimates:*

	Urban pop as % of total		% change in total urban population
	Today	2050	
World	48.6%	69.6%	+89%
Africa	40.5%	56%	+198%
Asia	42.3 %	66.1%	+93%
M. East	79%	84%	+97.4%
LAC**	79.5%	86.3%	+38.2%
Less-Developed Regions	45.3%	67%	+107%
LDCs	29.4%	55.5%	+280%

* UN Population Division
http://esa.un.org/unup/index.asp

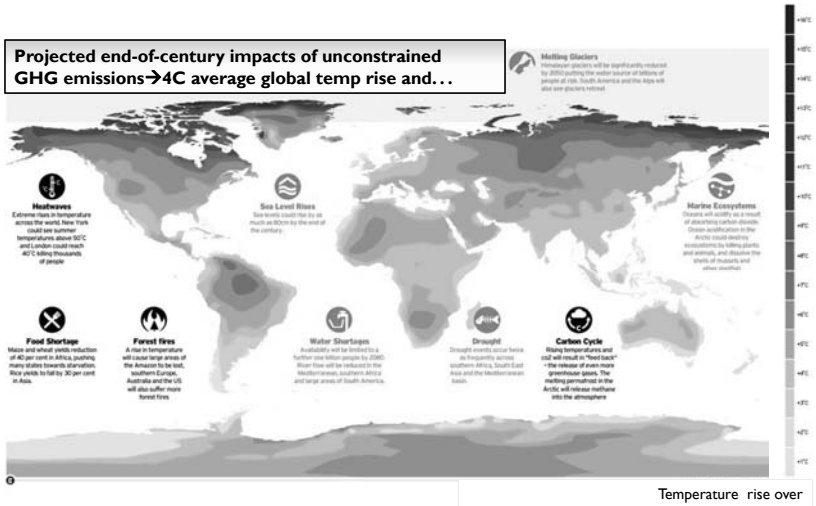
**LAC: Latin America and the Caribbean

Urban population will grow more than 2X as fast as rural population for the foreseeable future

Most urban growth in the next 25 years in developing countries → **LEADS TO** → **Increased urban environmental health hazards (given poor municipal sanitation, waste management capacity).**

Global climate change

Projected end-of-century impacts of unconstrained GHG emissions→4C average global temp rise and…



Temperature rise over pre-industrial climate baseline

Global change: Africa

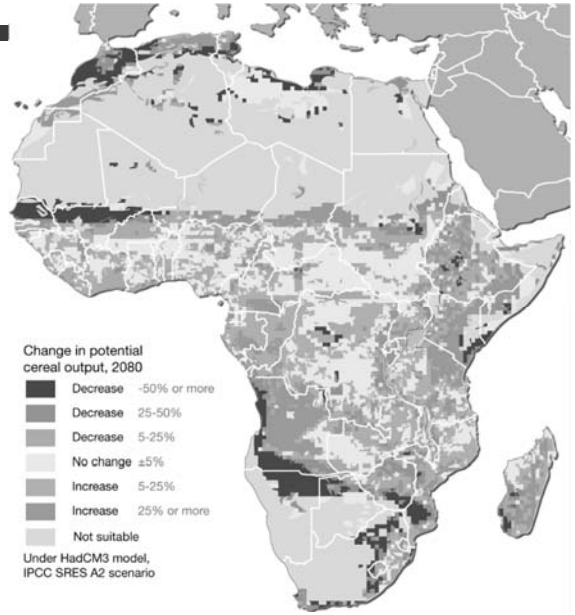
High dependence on rain-fed agriculture

+ Poverty

+ Dependence on already-marginal lands

+ strong shifts in precipitation volumes & timing

Make Africa the most vulnerable continent to global climate change.

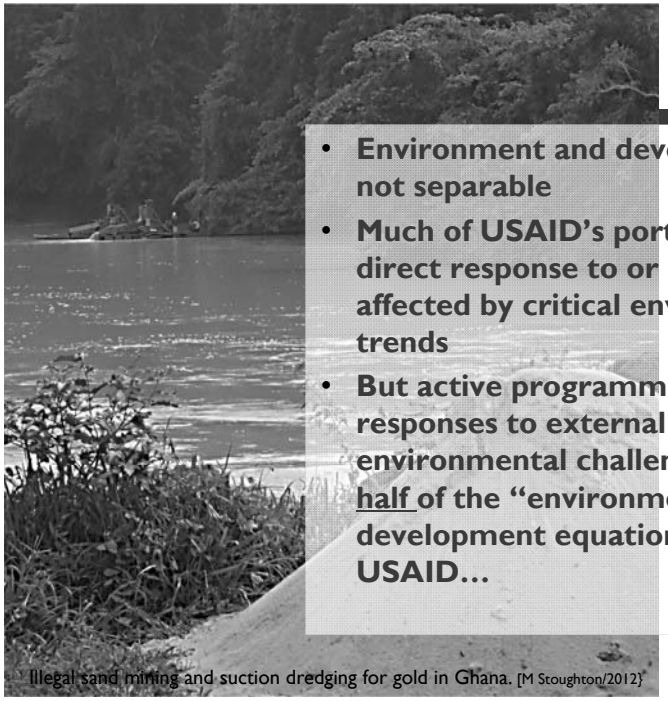


Question:

Relationship between Environment and Development

What examples can you give of development programs or projects that have been affected by the environment?

What examples can you give of where the environment has been affected by development programming?



- Environment and development are not separable
- Much of USAID's portfolio is a direct response to or directly affected by critical environmental trends
- But active programmatic responses to external environmental challenges are <u>only half</u> of the "environment and development equation" for USAID…

Illegal sand mining and suction dredging for gold in Ghana. [M Stoughton/2012]

The other half of the "environment and development equation" for USAID…and our focus.

USAID has mandatory life-of-project environmental procedures to limit adverse impacts of USAID development activities <u>on</u> ecosystems, environmental resources and environmental quality—particularly as they affect human health and livelihoods.

Fires to prepare land for planting in Southern Africa create a regional smoke plumes. Image: NASA

Origin & mandate of USAID's environmental procedures

1974

An "environmental failure"

*In 1974, **<u>USAID provided highly concentrated Malathion to poorly trained field workers</u>** on an agricultural project in Pakistan*

Working without protective equipment in the heat, the workers sprayed each other.

5 died.

1975

Sued by US NGOs for non-compliance with NEPA, **<u>USAID settled out of court, agreeing to develop environmental safeguard procedures</u>**.

1 **First a court mandate**

Then a mandate in law:

2

§117 of the FAA requires that USAID:

utilize an Environmental Impact Assessment (EIA) process to:

"fully take into account the impacts of [its] programs and projects upon the environment and natural resources"

of host countries prior to implementation.

Where are the procedures found?

USAID's Environmental Procedures are the response to these mandates. They consist of:

- **Federal regulations:** 22 CFR 216 ("**Reg. 216**") and
- **Mandatory Agency Policies** as set out in USAID's Automated Directives System (ADS), (especially--but not only--201.3.11, 202.3.6, 204 & 303)

Compliance with the procedures is mandatory. With limited exceptions for disaster assistance, they apply to every program, project, activity, and amendment supported with USAID funds.

What do the procedures require? (the big picture)

1. The procedures specify an **Environmental Impact Assessment** process that must be applied to all activities **before** implementation
2. This process frequently results in environmental management conditions (mitigative & monitoring measures).
3. These measures must be implemented and monitored over the life of the activity/project (LOP).

Objective: Assure Environmentally Sound Design and Management of USAID-funded/USAID-managed activities.

What do the procedures require? (a little more detail)

1. Environmental considerations must be taken into account in activity planning.
2. No activities implemented without **approved Reg. 216 environmental documentation**.
3. Any resulting environmental mitigation and monitoring conditions are:
   1. Written into award instruments.
   2. Carried out by the implementing partner, and this implementation is monitored

The output of the EIA process specified by 22 CFR 216*

USAID monitors via field inspections and review of routine project reports submitted by IPs. To make this possible, <u>project reporting by IPs must provide an auditable record of environmental compliance.</u>

What do the procedures require? (cont'd)

4. Environmental compliance is assessed annually as part of formal Mission (operating unit) reporting.
5. Environmental compliance documentation is maintained by the Mission & each sector team

As part of the program or activity record and used to manage program implementation

In contrast to gender and general sustainability assessment, pre-implementation environmental review is required by law and regulation, not just Agency policy.

Overview: Roles & Responsibilities

USAID	Implementing Partners
Assures Reg. 216 documentation in place. **Establishes/approves** environmental mitigation & monitoring conditions. **Oversees** compliance with these conditions, <u>a core part of AOR/COR responsibilities</u>.	**Implement** environmental management conditions established in Reg. 216 documentation. **Report** on implementation to USAID.

Why be so formal?

Don't we know enough about development that we will "get things right" without a formal environmental review/compliance process?

And why worry in the case of smaller-scale activities anyway?

Getting things right isn't so easy, even when the issues are clear…

June 2011. An open pile of mixed medwaste behind Juba hospital drains to on-site agricultural fields behind the mortuary.

June 2011. Open-air abattoir with uncontrolled effluent & waste disposal features a USAID-branded gate.

Getting things right is even harder when cause and effect are complicated

Photo: UNESCO-IHE

Ponds excavated for fill to build-up ground level in villages for flood protection

Ponds provided a source of organic carbon which settles to bottom of pond, seeps underground and is metabolized by microbes

creates chemical conditions that cause naturally occurring arsenic to dissolve out of the sediments and soils and move into groundwater

Created conditions for mass arsenic poisoning when villages switched from surface water to "cleaner" tube wells.

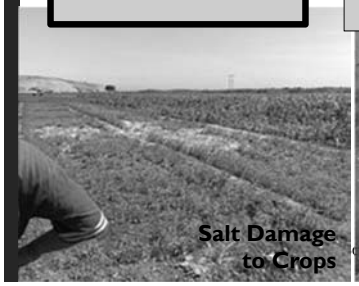
And in environment and development, things are often complicated . . .

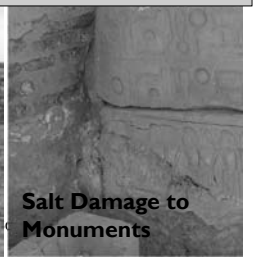
1960 – 1970: Aswan High Dam is built for year-round irrigation; annual Nile floods stop. Salt is no longer washed from soils

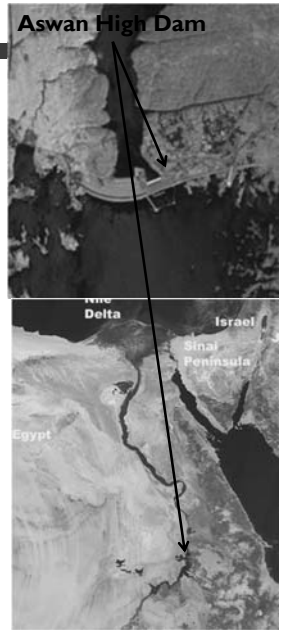
Farmers apply more water to crops, causing the water table to rise

Waterlogging and salination have adverse affects on agriculture and monuments

Significant damage to two industries essential to the Egyptian economy







Bottom line: in development, there are numerous pathways for environmental failure

!

- Failure to implement the most basic good housekeeping practices (first examples)
- Failure to understand system complexity (as we just saw)
- And many others, e.g.:
  - Designing for average conditions, not expected variability
  - Failure to plan for the effects of increased scale

Designing for average conditions, not expected variability

Global change will affect both average conditions & expected variability

This schoolhouse is being **rebuilt** in makeshift fashion with plank walls & split-bamboo roof.

Why? Strong winds ripped the aluminum sheet roofing off the donor-funded "permanent" structure and toppled the landcrete walls.

In this area, one or two storms every 5 years typically have winds of this strength.

Other "average conditions" to be careful of: Rainfall, tides, water tables. . **What else?**

Failure to plan for the effects of increased scale

(Or, failure to plan for success!)

The environmental effects of a small-scale animal husbandry project may be minor

BUT if the project is successful, and many more individuals begin to hold larger numbers of animals, serious problems may arise. . .

Health hazards from animal waste. . .

Fodder shortages (may lead to overgrazing and erosion and/or land conflicts)

Finally, small-scale is not small impact!

- Myth:
  "Environmental impacts of small-scale activities are negligible"
- Reality:
  Impacts of a single poorly designed/implemented small-scale activity may be small in absolute terms
  - But local impacts to people and communities can be very significant
  - If small-scale activities are numerous, together they can have significant <u>cumulative impacts.</u>

Potable water supply near hospital morgue

Total failure of latrines to contain pathogens

The bottom line: yes, we do need a formal, systematic environmental compliance process!

USAID's environmental procedures are a <u>life-of-project</u> process for

- Avoiding environmental failures
- Maximizing environmental benefits

In short, for achieving **environmentally sound design & management** (ESDM)

Environmental Compliance Process Overview

Env considerations integrated in early project design

Pre-implementation EIA process (22 CFR 216)

Results in Reg 216 documentation

Request for Categorical Exclusion, Initial Environmental Examination (IEE), Environmental Assessment (EA) must be approved by Mission Director, Bureau Env. Officer

IP Compliance with IEE/EA conditions required by contracts, agreements

IP implements these conditions & remains within the scope of approved Reg 216 documentation

AOR/COR monitors compliance & modifies or ends activities NOT in compliance

Session 3. Environmental Impact Assessment (EIA) Concepts, Process, & Skills: Part I

(1:00)

Objectives

Establish that familiarity with the EIA process and concepts is important because USAID's environmental procedures are a specific implementation of the general EIA process,

Achieve a common, basic understanding of the EIA process and key EIA concepts.

Understand how the EIA process achieves Environmentally Sound Design and Management.

Become familiar with the principles and processes that constitute the core EIA skills of baseline characterization, identifying issues and impacts of concern, and mitigation design.

Establish that because effective mitigation design must be highly responsive to site conditions, effective mitigation design requires baseline characterization and issues identification skills.

Format

Presentation and worked examples; Q&A

Summary

This session proceeds in 4 parts:

1. **Introduction and basic EIA terminology and concepts**
2. **Baseline Characterization & Determining Impacts of Concern**
3. **Mitigation**
4. **Linking EIA to ESDM**.

Part 1: Introduction and basic EIA terminology and concepts. The session will:

- Define Environmental Impact Assessment (EIA) as a formal process for identifying the:

  likely effects of activities/projects on the environment, and on human health and welfare; and

  means and measures to monitor & mitigate these impacts.

- Establish that EIA-based environmental "safeguard" processes are now standard requirements of nearly all donors and governments, including the US Government/USAID.

- Define key EIA terms and concepts such as *baseline* and *impact*, and summarize the basic elements of the EIA process.

- Identify the following EIA core skills

  1. characterizing the **baseline situation**;
  2. identifying (and evaluating) the potential adverse **impacts** of planned development activities (issues of concern); and
  3. developing mitigation and (4) monitoring measures to address these impacts.

  This session addresses core skills 1-3; the fourth (monitoring) is addressed in a subsequent session.

Part 2: Baseline Characterization & Determining Impacts of Concern. At first thought, characterizing the baseline situation and identifying issues of concern might seem relevant only to the pre-implementation EIA process—not to implementing the conditions that result from that review.

However, conditions specified in USAID IEEs and EAs are often very general. They require IPs to identify issues of concern particular to a site & respond with appropriate, specific mitigation measures. Thus effective mitigation requires a familiarity with all core EIA skills.

The first part of this session explains the basic, logical process behind baseline characterization and identifying issues of concern. We will illustrate the process with a worked example.

An example from a real and typical small-scale construction project will illustrate why the core EIA skills of baseline characterization and identifying issues of concern are directly relevant to effective mitigation.

Depending on the size, complexity and context of the activity, sophisticated environmental models and other tools *can* be required to evaluate impacts in the context of a full EIA study. But for most small-scale activities and preliminary assessments (IEEs), the simple, logical process described here, supported by good judgment and the information contained in the *Sector Environmental Guidelines* (or similar resources), is sufficient.

Part 3: Mitigation. The purpose of the EIA process is not simply to assess potential environmental impacts, but to change project design and implementation so that these impacts are *mitigated*—that is, avoided, reduced or offset.

As such, mitigation is a critical part of ESDM and the EIA process. Monitoring (addressed in a subsequent session) is its essential complement, required to verify whether the mitigation measures are sufficient, effective—and actually implemented.

This part of the session:

- Defines mitigation.
- Provides examples of basic mitigation approaches.
- Explains the principles behind good mitigation design and practice.

Part 4: Linking EIA to ESDM. This final part of the session will show that the EIA process provides a systematic framework to achieve ESDM. More specifically, it operationalizes the following principles for achieving ESDM:

- Be prevention-oriented
- Apply general development best practices to *environmental* aspects of the activity, including:
    - Technical soundness with respect to local environmental conditions
    - Design for the social and policy context
    - Build stakeholder commitment and capacity
    - Practice Adaptive Management
    - Design for Climate Change
- Be systematic

Key resources

The sector chapters of USAID's *Sector Environmental Guidelines* are a key resource for (1) identification of potential adverse environmental impacts and (2) design of mitigation and monitoring measures. http://www.usaidgems.org/sectorGuidelines.htm.

"IV.1: Topic Briefing—Introduction to EIA" in the *Environmental Guidelines for Small Scale Activities*. (USAID/AFR/SD; available at www.encapafrica.org/egssaa.htm) is a general resource for core EIA concepts.

Session 3:
Environmental Impact Assessment: Concepts, Process and Skills Part I

Why this session?

Isn't this workshop about USAID's Environmental Procedures, not EIA?

- USAID's environmental procedures are a specific implementation of the general Environmental Impact Assessment process
- Understanding this process makes USAID's procedures <u>much</u> easier to understand.
- Core EIA skills are required for effective compliance during USAID project design and implementation.

Environmental Impact Assessment (EIA)

Environmental Impact Assessment is

✓ A formal process for identifying:

- likely effects (impacts) of activities or projects on the environment, and on human health and welfare.
- means and measures to mitigate & monitor these impacts

Environmental Impact Assessment: a universal requirement

- From its beginnings in the 1970 US National Environmental Policy Act. . .
- Most countries & almost all donors **(<u>including USAID</u>)** now have EIA requirements
- EIA now extends beyond government works to
  - *Infrastructure and economic development projects funded by the private sector & donors*
  - *Analysis of policies, not just projects*
- In many developing countries, EIA is the core of national environmental regulation

Key EIA concepts

- Defining “impact”
- Characterizing baseline conditions
- Defining “activity”

Key EIA concept: What is an impact?

The impact of an activity is the change from the **baseline situation** caused by the activity.

! To measure an impact, you must know what the baseline situation is.

The **baseline situation** is the existing environmental situation or condition in the absence of the activity.

The baseline situation is a key concept in EIA.

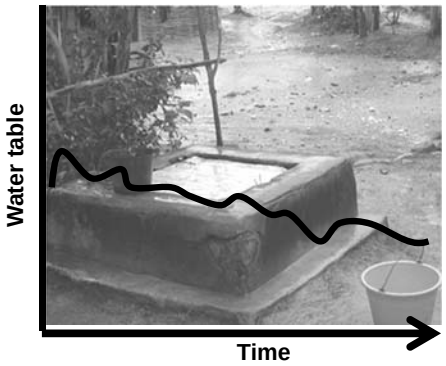
Characterizing the baseline situation. . .

The **environmental components** of interest are those:

- likely to be affected by your activity
- upon which your activity depends for its success

Water?	*Quantity, quality, reliability, accessibility*
Soils?	*Erosion, crop productivity, fallow periods, salinity, nutrient concentrations*
Fauna?	*Populations, habitat*
Env Health?	*Disease vectors, pathogens*
Flora?	*Composition and density of natural vegetation, productivity, key species*
Special ecosystems?	*Key species*

Baseline situation: not just a “snapshot in time”



This chart of groundwater levels shows both **variability** and **a trend over time**.

BOTH are part of the groundwater baseline situation.

Types of impacts & their attributes

The EIA process is concerned with **all types of impacts** and may describe them in a number of ways

- Direct & indirect impacts
- Short-term & long-term impacts
- Adverse & beneficial impacts
- Cumulative impacts

- Intensity
- Direction
- Spatial extent
- Duration
- Frequency
- Reversibility
- Probability

But all impacts are NOT treated equally.

Focus!

! ESSENTIAL to focus on the most significant impacts

You definitely do not have time and resources to analyze and discuss in detail less important ones.

What is an activity?

The EIA process examines the impacts of **activities.**

✓ An activity is:

A desired accomplishment or output

E.g.: a road, seedling production, or river diversion to irrigate land

A project or program may consist of many activities

Accomplishing an activity requires a set of **actions**

ACTIVITY:	ACTIONS:
market access road rehabilitation	**Survey, grading, culvert construction, compaction, etc. . .**

The EIA process

Phase I: Initial inquiries

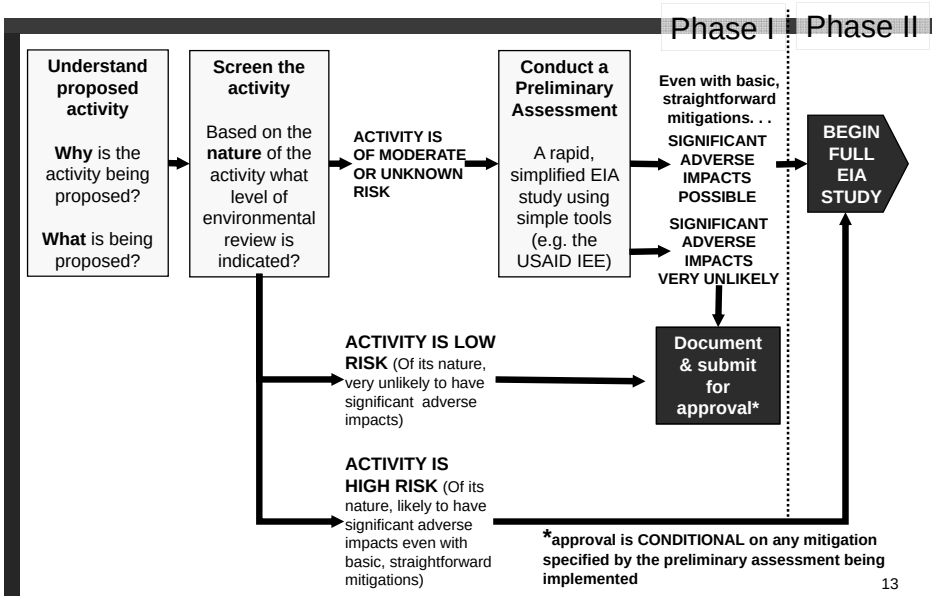
- Understand proposed activities
- Screen
- Conduct preliminary assessment (if needed)

Phase II: Full EIA study (if needed)

- Scope
- Evaluate baseline situation
- Identify & choose alternatives
- Identify and characterize potential impacts of proposed activity and each alternative
- Develop mitigation and monitoring
- Communicate and document throughout

Most USAID activities do NOT proceed to a full EIA study

Phase I of the EIA process



Screen the activity

Screen each activity

Based on the **nature** of the activity, what level of environmental analysis is indicated?

SCREENING asks a very basic set of questions about the activity.

These questions/criteria are <u>defined</u> by the specific EIA law, regulation or policy being implemented.

Example screening questions:

Does the activity involve:

- **Penetration road building?**
- **Large-scale irrigation?**
- **Introduction of non-native crop or agroforestry species?**

These questions do **<u>NOT</u>**:

- require analysis
- require **detailed** knowledge of the proposed sites, techniques or methods

The Preliminary Assessment
(e.g. USAID's Initial Environmental Examination/IEE)

Conduct a Preliminary Assessment

A rapid, simplified EIA study using simple tools (USAID Initial Environmental Examination (IEE)

Purpose is to provide documentation and analysis that:

- **Allow the <u>preparer</u> to determine <u>whether or not significant adverse impacts are likely</u>**
- **Allows the <u>reviewer</u> to agree or disagree these determinations**
- **Sets out mitigation and monitoring for adverse impacts**

! Screening determines whether the preliminary assessment is necessary

The Preliminary Assessment (e.g. the IEE)

Typical Preliminary Assessment outline

1. Background (Development objective, list of activities)
2. Description of the baseline situation
3. Evaluation of potential environmental impacts
4. **Mitigation & monitoring**
5. **Recommended Findings**

For each activity it covers, a preliminary assessment has 3 possible findings:

The activity is. . .

- **<u>very unlikely</u> to have significant adverse impacts.**
- **<u>unlikely</u> to have significant adverse impacts with <u>specified, basic, straightforward mitigation and monitoring</u>,**
- **<u>likely</u> to have significant adverse impacts (full EIA study is required)**

When to Proceed

!

We only proceed to Phase II of the EIA process

IF

Phase I indicates that a FULL EIA STUDY is required

Full EIA study
(e.g. USAID's Environmental Assessment)

The full EIA study has very similar objectives and structure to a preliminary assessment.

However, the full EIA study differs in important ways:

!

A formal **scoping process** precedes the study to **identify issues to be addressed**

Analysis of environmental impacts is much **more detailed**

Alternatives* must be formally defined. The **impacts of each alternative must be identified & evaluated, and the results compared**

Public participation is required

A **professional EIA team** is usually required

**includes the project as proposed, the no-action alternative, and at least one other real alternative*

Core EIA Skills for Environmental Compliance

Baseline Characterization

Identifying Impacts of Concern

Mitigation & Monitoring Design

Impact evaluation process: THEORY

1. **Understand** the activities being proposed
2. **Research** the potential adverse impacts typical of these activities & know **how** they arise
3. Based on the potential impacts, **identify** which elements of the baseline situation are important
4. **Characterize** these elements of the baseline
5. **Given:**
   1. **the baseline conditions,**
   2. **the project concept/design, and**
   3. **How the adverse impacts arise,**

   <u>decide which impacts are of concern</u>

Impact evaluation process: EXAMPLE

1 **Proposed intervention: irrigation scheme**
(wing dam diversion type ▪ water-intensive crops ▪ high fertilizer use, unlined canals & open-channel irrigation)

2 **Key potential impacts:**
- Excessive diversion of water
- Salinization of soils
- Contamination of groundwater & downstream surface water

3 **Key elements of baseline:**
- River flow volume, variability
- Soil & water characteristics & groundwater depth
- Downstream uses

Assessing impact: EXAMPLE

4 **Baseline characterization**
- *River flow volume, variability*
  - Will divert 3% of normal flow
  - low-year flows are 50% of normal
  - Downstream abstraction is <10% of total flow volume.
- *Soil characteristics & groundwater depth*
  - Soils are well-drained but relatively high in salts; groundwater 2m depth
- *Downstream uses*
  - Key water source for community domestic use & livestock, immediately downstream.

5 **Therefore:**

Impacts of Concern: Salinization Downstream contamination

Little Concern: Excess Diversion

Why these conclusions?

Question:

Are these concepts relevant to me? I'm not developing IEEs or EAs.

- IEE conditions often require Implementing Partners to identify issues of concern particular to a site & respond with appropriate, specific mitigation measures.
- C/AORs & M&E specialists must be able to evaluate if IP actions are appropriate

For example. . .

Medium scale construction. . .

ACTIVITY: Development of institutional compound/ training facility (perimeter wall, offices & classrooms, canteen, genset & fuel storage, latrine block, etc.)

IEE Conditions:

1. No construction permitted in protected areas or relatively undisturbed ecosystem areas.

2. Construction & facilities operation may not (a) result in significant adverse impacts on ecosystem services or (b) adversely affect the quality of surface or groundwater tapped for domestic use.

The baseline situation determines the relevance of these conditions & specific issues of concern mitigation must address

Inspection of baseline conditions at the site identifies issues of concern for mitigation. . .

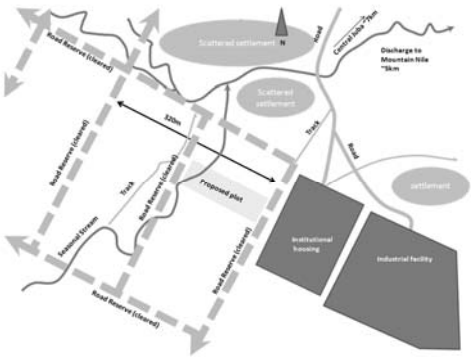
1: Site is in area already allocated for development---ecosystem integrity already disrupted.

2a: Key ecosystem service provided by the land is area drainage

***Implication**: design must assure no reduction in stream capacity & no alteration to local drainage patterns.*

2b. likely domestic use of surface water just downstream of the facility; potentially shallow groundwater also.

***Implication**: must prevent additional siltation of stream, gray and brown water discharge, fuel leaks.*



Where do I obtain information about the the baseline situation?

1. **YOUR ORGANIZATION**
   TALK to staff who know the project, and know the sites.

   OBTAIN project documents and information
2. **DIRECT OBSERVATION**
   Go to the site(s)! Look up publicly available satellite imagery before you go.

3. **UTILIZE OTHER LOCAL TALENT & KNOWLEDGE communities, government, counterparts**

? Aren't we forgetting something?

What about reports by donor organizations and international agencies? What about government statistics? GIS databases?

All these sources can be useful (and sometimes necessary)

But good local information is the most important input

Why direct observation?

We need to SEE

- **Are latrines close to water supplies?**
- **Is there a drainage problem?**

Visual inspection is the quickest and best way to check issues of location, scale and proximity that determine many impacts.

We need to LISTEN

- **Is there a land tenure problem?**
- **How often does the river flood?**

Stakeholders and local communities** have **local knowledge that you need.

And, impacts depend on what those affected value and need!

! Talk to men AND women. Women's perceptions on environmental matters are critical and distinct.

What if I can't travel to the sites?

! If at all possible, DON'T make the site characterization a desk exercise.

But if you can't visit the sites/area, you need:

- **MAPS and PHOTOS to help you visualize the environment.**
- **to TALK to people who have been there**

Mitigation and Monitoring

A critical part of the EIA process—and of environmentally sound design and management

Mitigation is. . .

The implementation of measures designed to eliminate, reduce or offset the undesirable effects of a proposed action on the environment.

Monitoring . . .

Environmental and activities measurements to tell you if your mitigation measures are:

1.Being implemented
2. Sufficient and effective

How does mitigation reduce adverse impacts?

Type of mitig measure	How it works	Examples
Prevention and control measures	Fully or partially prevent an impact/reduce a risk by: ▪ ***Changing means or technique*** ▪ ***Changing or adding design elements*** ▪ ***Changing the site*** ▪ ***Specifying operating practices***	PREVENT contamination of wells, by SITING wells a safe distance from pollution sources Add wastewater treatment system to the DESIGN of a coffee-washing station and train in proper OPERATIONS
Compensatory measures	Offset adverse impacts impacts in one area with improvements elsewhere	Plant trees in a new location to COMPENSATE for clearing a construction site
Remediation measures	Repair or restore the environment after damage is done	Re-grade and replant a borrow pit after construction is finished

… and sometimes you may need to redesign the project to modify or eliminate problem components

Siting & design features to PREVENT impacts

Water Supply
(Well provision)

- **Potential impacts: Contamination of water supplies; spread of disease**
- **Mitigations needed: Fence to keep out livestock**

  Site away from contamination sources

  Provide separate water point for livestock

What is wrong with this intervention?

Proper treatment system OPERATIONS

Agricultural Processing
(Coffee Washing)

- **Potential impacts: Contamination of water supplies; excessive water draw**
- **Mitigations:**

  Wash water recycling

  Basic wastewater treatment (pictured)

! **Proper treatment system *operation* is essential**

Stream (community water supply)

Must EVERY impact be mitigated?

Mitigation specified by Phase I or II of the EIA process (IEE/EA) must be implemented

Often env management conditions require judgment in designing specific mitigations. Apply the following principle:

Prioritize!

Potentially serious impacts/issues	Easily mitigated impacts
These must ALWAYS be mitigated to the point that the impact is non-significant	**Then, there may be other impacts for which mitigation is easy and low-cost**

Effective mitigation usually requires a MIX of mitigation techniques

Example: ROAD REHABILITATION

Some typical adverse impacts:

- Alteration of natural watershed drainage
- Erosion of road surface materials into habitats, productive agricultural land
- Roadside gully formation→ damage to adjoining land
- Dust→ respiratory problems, crop damage
- Inappropriate extraction of materials for road surfacing
- Increase in disease transmission (HIV)
- Increased non-sustainable logging, charcoal extraction

Combining mitigation techniques: Road rehabilitation

Some typical good-practice mitigations

Avoid steep grades, Follow contours	Siting
Culverts or Rolling dips for water drainage and diversion Side drainage to prevent flooding washout Slope stabilization via plantings, grading/terracing & riprap Dust reduction barriers Paving of vulnerable stretches	Design elements
Community Maintenance	Operating Practice
Grading/planting/draining borrow pits	Remediation

Gullying can be serious!

Prevention is best

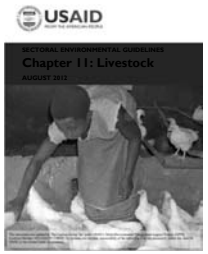
!

Where possible, PREVENT impacts by changes to site or technique.

CONTROL of impacts with Operation & Maintenance (O&M) practices is more difficult to monitor, sustain.

How do I learn about potential impacts and mitigation measures?

KEY RESOURCE: USAID's Sectoral Environmental Guidelines



- **Covers more than 20 typical development sectors**
- **Each sectoral write-up identifies potential impacts & discusses how they arise.**
- **Impacts are matched to mitigation actions.**
- **The annotated bibliographies provide URL links to additional key resources**
- **Over 2012-13, AFR, LAC, Asia Guidelines being consolidated into a "global version."**
- **See www.usaidgems.org.**

Summary

- **Environmental compliance (and achieving ESDM) requires "core EIA skills"**
  - Baseline characterization
  - Identifying impacts of concern
  - Mitigation design
  - Monitoring (coming up)
- **Effective mitigation design is site-specific. It requires a knowledge of the baseline situation.**
- **Mitigate by prevention where you can.**

3 rules for Environmentally Sound Design & Management (ESDM)

1. **Be prevention-oriented**
2. **Apply best development practices to environmental aspects of the activity**
3. **Be systematic**

Properly done, the EIA process makes them a reality.

1 Be prevention-oriented

- Prevention occurs across the project lifecycle. . .
  . . but starts with DESIGN
- DESIGN starts with the **choice of method**
- **Environmental impacts are 1 factor considered**

Project objective:

Improve agricultural productivity

Possible *methods*

How do we choose?

EIA assures a "prevention orientation"

1

Be prevention-oriented

- Prevention begins with choice of **method.**
  "Consider alternatives" is a key principle of EIA.
- EIA forces formal consideration of environmental issues during project design.
  Early consideration is key to prevention—because that is when design changes can be made

2 Apply general best development practices. .

Using a technically sound design…

That is suited for the local social & policy context

Building beneficiary capacity & stakeholder commitment

Adjusting what we do as results come in

. . .to environmental aspects of the activity

AND design for climate change

Best Practice #1: Technically sound design

The design must be appropriate for local environmental conditions ….

… Rainfall, temperature, soils, flood, drought and earthquake potential. . .

For example. . .

? Appropriate choice of crops or trees?

? Appropriate choices of construction materials and methods?

Best Practice #2: Design for the policy & social context

Environmental applications:

Compliance

with national and local environmental laws and policies

Language, literacy

Environmental management measures must be matched to capabilities

Natural resource manngagment and land tenure

Activities utilizing land and other natural resources must be compatible with local NRM and land tenure

land and resource rights are often gender-specific

Best Practice #3: Build commitment & capacity. . .

! **Environmental application:**

Proper maintenance and operation are critical to controlling environmental impacts.

Local beneficiaries need to be trained and committed to:

- environmentally sound operation.
- maintaining the equipment/ structure

Who will maintain it?
Who will operate it?

. . . and involve the local community

Ethics require it (environmental justice) → **Local residents must live with the environmental impacts of activities!**

LOCAL KNOWLEDGE is critical

- **How often does the river flood?**
- **How often are crops rotated?**
- **Is there a land tenure problem?**
- **What do people value and need?**

→ **LISTEN to the community**

TALK to both men and women

Best Practice #4: Practice Adaptive Management

"Adjust what we do as results come in"

Environmental dimension: If our activity has unintended adverse environmental consequences, **we need to DO SOMETHING ABOUT IT!**

Requires:

- **Funding for environmental monitoring in project budget**
- **flexibility to adapt the project in response to unanticipated adverse impacts**
- **Adjusting implementation based on the experiences of others**

Communities are often essential to monitoring results from the field

Best Practice #5: Design for Climate Change

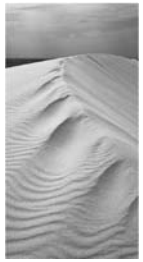
Already mentioned: future baseline conditions will change—design projects to be ROBUST to meet these changes

But in addition

While individual projects are rarely significant contributors to gobal climate change. . .

. . .climate change is driven by the sum of many small actions.

So even small-scale projects should seek to reduce greenhouse gas emissions/ increase sequestration/ reduce climate vulnerability in the local area in a manner consistent with their development objectives.



Best Practice #5: Design for Climate Change

Example actions in small-scale projects:

Reduce greenhouse gas emissions	**Use alternative energy (PV, windmill water pumping, etc)** **Improve thermal performance in building design**
Reduce climate vulnerability in the local area	**Prioritize water efficiency to reduce a project's contribution to the area's future water stress**
Increase sequestration	**Tree-planting** **Land management sustainable grazing, cropping**

Soil carbon measurement by hand in Senegal

How does EIA make "Rule 2" a reality?

2

Apply best development practices to <u>environmental</u> aspects of the activity

Technical soundness	**EIA requires characterizing environmental conditions**
Stakeholder commitment	**Stakeholder consultation is central to EIA**
Adaptive management	**EIA requires a systematic approach to field monitoring**

Rule 3 for achieving ESDM. . .

3

Be systematic

Take a **systematic look at:**

- **the possible adverse environmental impacts of an activity**
- **ways to reduce these impacts**.

The best way to be systematic: **EIA!**

EIA: Good practice – and the law!

Session 4. (3:30)
Field Visit #1: Practicing Core EIA Skills

Objectives
Undertake a field visit exercise to build and apply the core EIA skills briefed in Session 4.

Format:
0:30 classroom preparation/briefing
2:00 field visits (including transit)
1:00 working groups & brief report-out/plenary synthesis

Summary/Instructions
The previous session presented the basic theory of baseline characterization, impact evaluation, and mitigation. This session, which involves a field visit and classroom follow-up, practices these skills. We will:

1. Identify key elements of the baseline situation at the visited sites.
2. Identify and evaluate potential impacts/issues of concern of the ongoing activities at these sites.
3. Identify mitigation measures that have been put in place and their adequacy.
4. Identify mitigation measures that can improve the overall design/implementation of the activity and thus help reduce or alleviate potential adverse impacts.

By using sector guidance from the *Sector Environmental Guidelines* as a key resource, the session also builds familiarity with the *Guidelines*.

Team Assembly and Site(s)

The training team will brief the site visit and divide us into working teams. The site(s) to be visited are briefed on the following pages.

1. Classroom Preparation (0:30)

As a team review the briefing for your site (following pages).

Identify the most critical <u>potential</u> environmental impacts of the activity(ies) you will encounter at your site, and other ways in which design and management of such activities can be environmentally UNsound.

(Key reference: relevant Sector Environmental Guideline).

Based on this discussion, **identify** together the most relevant elements of the baseline situation to observe and assess on our field visits.

(That is, what information does the team need to decide whether a *potential* impact or ESDM "deficit" is real and significant for the facility/site in question?)

For any sites that are already in operation or advanced construction, note that the baseline situation includes both the environment around the facility *and* the facility itself.

2. Field visit (2:00, including travel time)

Each team will visit their assigned site where they will receive a guided tour, have the opportunity for independent observation, and have a question and answer session with their host.

During the site visit:

1. **Observe**: (1) What exists and what is happening at the site (the baseline situation); (2) How has the activity at the site affected the environment? Do the issues appear serious? (3) Are there any mitigation measure in place to mitigate adverse impacts and how adequate are they?

   (If relevant, be on the lookout for hygiene or occupational safety and health issues that may may affect staff or community health and safety.)

2. **Talk with & Listen to people at/around the site**. This will be accomplished through informal interviews with those you find around the site. Those to be consulted may include: the local community, government officers, some of your colleagues who may have had experiences with that project or similar ones). Remember to talk to both men and women and any disadvantaged groups.

We may observe ESDM deficits at each site. But please remember that we visit as observers and invited guests, not auditors or inspectors. We should observe, listen, and by all means ask questions— but not offer criticism to our hosts.

Also, we must <u>not</u> give the impression that additional assistance will follow from our visit!

3. Classroom follow-up & synthesis (1:00)

Each team will re-convene in the classroom at the beginning of Day 2. Using the information from the site visit, each team will:

- Organize and analyze the information/ data collected from the field to summarize (1) the most relevant elements of the baseline situation and and (2) ongoing environmental management efforts and measures (if any).
- On this basis, decide which of the potential adverse impacts and other potential "ESDM failures" are real and present serious concerns.
- Of these, which are not being addressed with mitigation/environmental management measures? (Or are being inadequately addressed?)
- Suggest corrective measures (mitigation) to address these issues.

Teams should record their findings in bullet form. The relevant *Sector Environmental Guideline* will be the key reference for potential impacts and mitigation measures. Facilitators will serve as resources throughout the process.

Note that this session is intended to practice basic observation, impact identification and mitigation design skills—not to practice development of Reg. 216 environmental documentation. Thus (for those who already know these terms), working group outputs are ***not*** *expected to be in the form of an IEE outline or phrased in terms of "recommended determinations."*

Teams will not present their findings, but the facilitator will lead a brief (~15 minute) synthesis session, soliciting a sample of individual and group comments and observations.

Site Briefing: Agropharm Africa Ltd (Pesticide Factory)

Location	Musanze, Northern Province, Rwanda
Contact	Jean Marie Vianney Ulamugura, Factory Manager; +250 788303282; jmuzamugura@agropharmafrica.com
Sector	Agriculture/ Health
Factory products	The Agropharm factory purchases pyrethrum extract and produces, among others, the following pyrethrum-based pesticide products:- ➢ Pyrethrum 5EW, a contact insecticide for use on all outdoor and protected crops against chewing and sucking pests including aphids (blackfly and greenfly), caterpillars, whitefly, red spider mite, capsids, cocoa borer and antestiopsis Lineaticollis. It can be used on all edible and non-edible plants. ➢ Agrothrin – a free flowing powder for amateur use that has very low toxicity and is very effective in stored grains and indoors in sensitive areas ➢ Inkuyo – a mange and tick grease that is used on cattle's sensitive areas for immediate relief. ➢ PreVent – repels, inhibits the insect biting mechanism and kills insects, giving protection against mosquitoes, midges for up to 7 hours. ➢ Protector Natural – a water based insecticidal space and surface spray. *See attached pesticide info sheet: pyrethrums.* *See attached MSDSs: pyrethrum extract; Pyrethrum 5EW Product*
Company Self-Description	http://agropharmafrica.com/ accessed 2 Mar 2015: Agropharm Africa Limited, in Musanze District Northern Province, is the only manufacturer of liquid and powder organic and eco-friendly pesticides in Rwanda. Agropharm Africa Limited manufactures products for use in the agricultural, horticultural, veterinary and public health pest control sectors including mosquito control. A key botanical insecticide active ingredient is Pyrethrum Pale Extract, containing pyrethrins, from Pyrethrum flowers grown by local farmers and processed locally by SOPYRWA, a subsidiary of Horizon Group Ltd. Over 7,000 farmers from Musanze, Nyabihu, Rubavu, and Burera depend on pyrethrum growing for household income. Agropharm products that use this powerful non-persistent pesticide include water emulsified concentrates Pyrethrum 5EW & Pyrethrum EWC, Inkuyo Tick Grease and Agrothrin Dust. Agropharm seeks to develop partnerships with its customers through the provision of technical advice on the most cost effective spraying techniques and guidance on Integrated Pest Management IPM. Similarly, the company has close links with Government and Aid Agencies working towards solutions to control insect pests in ways that minimise risks to operators and the environment as well as providing the

	nation with cleaner and healthier food. Local manufacture creates employment, saves valuable foreign exchange and offers a highly flexible customer service. It also allows the development of product formulations tailored to local demands. Agropharm Africa Ltd was established in 2011 in Musanze, Northern Province, Rwanda. The partners in the joint venture company are Agropharm Ltd of the United Kingdom and Horizon Group Ltd, Rwanda. Agropharm Africa Ltd benefits from having refined top quality Pyrethrum Pale Extract locally available from Horizon Group's subsidiary SOPYRWA. Agropharm's modern manufacturing facilities produce both liquid and powder products which have a key part to play in Integrated Pest Management IPM and organic programmes. Such products allow farmers to supply clean food produce which leads to a healthier population. Agropharm also supplies consumer and public health pesticides for the control of flies, mosquitos and crawling insect pests. In 2012, Agropharm Africa Ltd received attestation by ECOCERT under European Union regulations EC No. 834/2007 & 889/2008 for Pyrethrum 5EW. This product is of huge benefit to coffee farmers in the control of the Antestia Beetle. Organic insecticides allow farmers to benefit from the opportunity to supply organic produce at premium prices. Agropharm Ltd was established in the United Kingdom in 1974 with the objective of providing pest control products that meet customer needs in the agriculture, horticulture and public health sectors. Since that time the Company has grown and developed a range of strong brands and innovative products based on botanical ingredients. The focus is on eco-friendly products designed for powerful pest control with minimum impact on the environment. Organic pesticides benefit farmers financially because premium prices are paid for organic produce.

Photos & Images

Natural Organic Insecticide

Ideal for use in organic cocoa, tea and coffee farming

An advanced natural formulation for the control of insect pests in organic crops based on natural pyrethrum from African chrysanthemums *(Tanacetum cineriaefolium)*.

Pyrethrum is a contact insecticide with a broad spectrum of activity against antestia, aphids, blackflies, borers, caterpillars, capsids and mirids.

Advantages of Pyrethrum 5EW

- Water based solvent free
- Non flammable
- Contains no piperonyl butoxide
- 24 hour harvest interval with no residues in the harvested crop
- Designed for use by organic farmers
- Compatible with IPM systems
- Approved by international organic farming organisations such as Organic Farmers & Growers and Ecocert
- Does not contaminate the environment.
- Extremely rapid environmental breakdown to biodegradable materials

ORGANIC FARMERS & GROWERS

Approved by ECOCERT INPUTS

Agropharm Africa Ltd

www.agropharmafrica.com

Site Briefing: Ruhengeri Hospital

Location	Musanze, Northern Province, Rwanda (minutes from workshop venue)
Sector	Health
Background	**Ruhengeri Hospital,** began with the opening of a dispensary in 1964. Today, it has 409 beds, including a 100-bed maternity ward, and serves a population of more than 350,000. The hospital is in principle slated for upgrade to referral hospital status in future; this would likely involve some new facilities and demolition of some existing ones. *See article below.* Fistula patients come to Ruhengeri from all corners of Rwanda, and some arrive from the Democratic Republic of Congo's eastern provinces. Surgical repair and training in repair for fistula is primarily available at Ruhengeri during fistula workshops led by visiting surgeons. Routine services are available for simple repairs. The facility recently renovated a pre-post op ward for fistula patients with support from Fistula Care. (see http://www.fistulacare.org/pages/sites/rwanda.php#Ruhengeri)
Related Article	**Rwanda: Binagwaho Tips Ruhengeri Hospital Staff On Service Delivery** *(The New Times/Rwanda 24 Nov 2014 on allAfrica.com: http://allafrica.com/stories/201411240029.html* *By Jean d'Amour Mbonyinshuti* The Minister for Health, Dr Agnes Binagwaho, has urged Ruhengeri Hospital personnel to work hard so that the hospital is upgraded to a referral status. The minister made the call last Friday after touring the hospital. The visit aimed at enlightening health personnel on what it takes to be designated as a referral hospital. She said while the entire process takes not less than six years, the hospital needs to do more to change the working system. She added that the government had put more efforts in training health specialists to serve in all the provinces. Binagwaho challenged the hospital to make good use of the specialists. "The hospital has to use the specialists on difficult cases and carry out better supervision. They need to supervise health centres to educate the staff on better treatment and the need to refer cases in time to save lives," she said. "A portion of the hospital will be brought down and a new building will be erected. Another part of the hospital will be renovated so that we have a full functioning referral hospital," she

	added. Dr Deo Ndekezi, the hospital director said they still need more staff and modern facilities to deliver well as a referral hospital. He added that while the hospital has got more specialists, it still lacks scanners and other modern equipment. In reaction, Binagwaho said the hospital will soon get scanners after the other designated hospitals such as Kibungo and Kibuye have got them since Ruhengeri is not far from Kigali hospitals where the patients can be referred. She also urged the hospital administrators to deliver better services and generate money to complement government budget. "If you offer good customer care, people will love coming to see doctors here instead of going to Kigali," she said.

Photos


PYRAMID
PYRAMID
CELLPACK
CELLPACK
CELLPACK

PYRETHRINS

GENERAL FACT SHEET

What are pyrethrins?

Pyrethrins are pesticides found naturally in some chrysanthemum flowers. They are a mixture of six chemicals that are toxic to insects. Pyrethrins are commonly used to control mosquitoes, fleas, flies, moths, ants, and many other pests.

Pyrethrins are generally separated from the flowers. However, they typically contain impurities from the flower. Whole, crushed flowers are known as pyrethrum powder.

Pyrethrins have been registered for use in pesticides since the 1950's. They have since been used as models to produce longer lasting chemicals called pyrethroids, which are man-made.

What are some products that contain pyrethrins?

Currently, pyrethrins are found in over 2,000 registered pesticide products. Many of these are used in and around buildings and on crops and ornamental plants. Others are used on certain pets and livestock. Pyrethrins are commonly found in foggers (bug bombs), sprays, dusts and pet shampoos. Some of these products can be used in organic agriculture. Pyrethrins are also found in some head lice products regulated by the Food and Drug Administration.

Always follow label instructions and take steps to minimize exposure. If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 1-800-222-1222. If you wish to discuss a pesticide problem, please call 1-800-858-7378.

How do pyrethrins work?

Pyrethrins excite the nervous system of insects that touch or eat it. This quickly leads to paralysis and ultimately their death. Pyrethrins are often mixed with another chemical to increase their effect. This second chemical is known as a synergist.

How might I be exposed to pyrethrins?

Exposure can occur if you breathe it in, get it on your skin or eyes, or eat it. For example, exposure can occur while applying sprays or dusts during windy conditions. This can also happen if you apply a product in a room that is not well ventilated. People using foggers may be exposed, especially if they come back too early or fail to ventilate properly. Exposure can also occur if you use a pet shampoo without wearing gloves. You can limit your exposure and reduce your risk by carefully following the label instructions.

What are some signs and symptoms from a brief exposure to pyrethrins?

In general, pyrethrins are low in toxicity to people and other mammals. However, if it gets on your skin, it can be irritating. It can also cause tingling or numbness at the site of contact.

Children who have gotten lice shampoo containing pyrethrins in their eyes have experienced irritation, tearing, burns, scratches to the eye, and blurred vision. When inhaled, irritation of the respiratory passages, runny nose, coughing, difficulty breathing, vomiting and diarrhea have been reported.

Dogs fed extremely large doses of pyrethrins have experienced drooling, tremors, uncoordinated movement, and difficulty breathing. Increased activity, exhaustion, convulsions, and seizures have also been reported with high doses.

When exposed to pyrethrins, people have reported some of the same symptoms that are associated with asthma. These include wheeze, cough, difficulty breathing, and irritation of the airways. However, research has not found a link between exposure to pyrethrins and the development of asthma or allergies.

What happens to pyrethrins when they enter the body?

When eaten or inhaled, pyrethrins are absorbed into the body. However, they are absorbed poorly by skin contact. Once inside, they are rapidly broken down into inactive products and are removed from the body. In a study with mice, more than 85 percent left the body in feces or urine within two days. Removal of pyrethrin 1, a major component of pyrethrins, from goats and hens was also very rapid. However, studies have found very small amounts in the milk and eggs of exposed animals.

Are pyrethrins likely to contribute to the development of cancer?

In two studies, mice and rats were fed low to high doses daily for 1.5 to 2 years. At the highest dose, some rats had an increased number of liver tumors. However, the changes in the liver leading to tumors only occurred above a certain threshold. Based on these studies, the EPA has classified pyrethrins as not likely to cause cancer. However, this rating is limited to doses below this threshold.

Has anyone studied non-cancer effects from long-term exposure to pyrethrins?

In separate studies, rats and dogs were fed low to moderate daily doses of pyrethrins for one to two years. At moderate doses, there were effects to the thyroid in rats and the liver in dogs. In another study, rats breathed in low to moderate doses daily for several months. At low doses, damage to tissue along the nasal and respiratory passages was observed. At moderate doses, lower body weights, difficulty breathing, and tremors were observed.

Scientists have also tested whether pyrethrins cause developmental or reproductive effects in rats and rabbits. In these studies, animals were fed low to moderate doses daily throughout their lives or during their pregnancies. Effects were only observed at moderate doses. These included lower body weights in some adult rats and their young. Drooling, unusual postures, and difficulty breathing were observed in one adult rabbit. Also, two rabbits lost their pregnancies. However, it is unclear if the lost pregnancies were related to pyrethrins. No effects were observed in rats or their young when fed solely during their pregnancies.

Are children more sensitive to pyrethrins than adults?

Children may be especially sensitive to pesticides compared to adults. However, there are currently no conclusive data showing that children have increased sensitivity specifically to pyrethrins.

What happens to pyrethrins in the environment?

In the presence of sunlight, pyrethrin 1, a component of pyrethrins, breaks down rapidly in water and on soil and plant surfaces. Half-lives are 11.8 hours in water and 12.9 hours on soil surfaces. On potato and tomato leaves, less than 3% remained after 5 days. Pyrethrins do not readily spread within plants.

In the absence of light, pyrethrin 1 breaks down more slowly in water. Half-lives of 14 to 17 days have been reported. When water was more acidic, pyrethrin 1 did not readily break down. Pyrethrins that enter the water do not dissolve well but tend to bind to sediment. Half-lives of pyrethrin 1 in sediment are 10.5 to 86 days.

Pyrethrins also stick to soil and have a very low potential to move through soil towards ground water. In field studies, pyrethrins were not found below a soil depth of 15 centimeters. However, pyrethrins can enter water through soil erosion or drift. In the top layers of soil, pyrethrins are rapidly broken down by microbes. Soil half-lives of 2.2 to 9.5 days have been reported. Pyrethrins have a low potential to become vapor in the air.

NPIC is a cooperative agreement between Oregon State University and the U.S. Environmental Protection Agency (U.S. EPA, cooperative agreement # X8-83560101). The information in this publication does not in any way replace or supercede the restrictions, precautions, directions, or other information on the pesticide label or any other regulatory requirements, nor does it necessarily reflect the position of the U.S. EPA.

OSU Oregon State UNIVERSITY

Can pyrethrins affect birds, fish, or other wildlife?

Pyrethrins are practically non-toxic to birds but highly toxic to honey bees. However, some of the risk to pollinators is limited by their slight repellent activity and rapid breakdown.

Pyrethrins are highly to very highly toxic to fish. They are also very highly toxic to lobster, shrimp, oysters, and aquatic insects. This may be partly due to their higher toxicity at lower temperatures. There is evidence that long term exposure to pyrethrins can cause reproductive effects in fish and aquatic insects. In separate studies, minnows and water fleas were exposed to very small amounts of pyrethrins for one month. Fewer minnow eggs hatched and fewer water flea young were produced.

Where can I get more information?

For more detailed information about pyrethrins please visit the list of referenced resources or call the National Pesticide Information Center, between 8:00 AM and 12:00 PM Pacific Time (11:00 AM to 3:00 PM Eastern Time), Monday - Friday, at 1-800-858-7378 or visit us on the web at http://npic.orst.edu. NPIC provides objective, science-based answers to questions about pesticides.

Date Reviewed: November 2014

SAFETY DATA SHEET

Version 3.10
Revision Date 02/27/2015
Print Date 03/02/2015

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Pyrethrum extract

Product Number : 82670
Brand : Aldrich
Index-No. : 613-022-00-6

CAS-No. : 8003-34-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 3), H311
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H227	Combustible liquid.
H301 + H311	Toxic if swallowed or in contact with skin
H332	Harmful if inhaled.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P322	Specific measures (see supplemental first aid instructions on this label).
P330	Rinse mouth.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

CAS-No. : 8003-34-7
EC-No. : 232-319-8
Index-No. : 613-022-00-6

Hazardous components

Component	Classification	Concentration
Pyrethrins including cinerins		
	Flam. Liq. 4; Acute Tox. 3; Acute Tox. 4; Acute Tox. 3; Aquatic Acute 1; Aquatic Chronic 1; H227, H301 + H311, H332, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Pyrethrins including cinerins	8003-34-7	TWA	5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Lower Respiratory Tract irritation Liver damage Not classifiable as a human carcinogen		
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Lower Respiratory Tract irritation Liver damage Not classifiable as a human carcinogen		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Pyrethrum is a variable mixture of Cinerin, Jasmolin, and Pyrethrin.		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Colour: dark brown
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	170 °C (338 °F) at 0.129 hPa (0.097 mmHg)
g)	Flash point	75 °C (167 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available

k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	0.92 - 0.94 g/cm3
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 200 mg/kg

LD50 Dermal - Rabbit - 300 mg/kg

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as

probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Reproductive toxicity - Rat - Oral
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: UR4200000

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.05 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia pulex (Water flea) - 0.02 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2810 Class: 6.1 Packing group: III

Proper shipping name: Toxic, liquids, organic, n.o.s. (Pyrethrins including cinerins)
Reportable Quantity (RQ): 1 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2810 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC LIQUID, ORGANIC, N.O.S. (Pyrethrins including cinerins)
Marine pollutant:yes
IATA
UN number: 2810 Class: 6.1 Packing group: III
Proper shipping name: Toxic liquid, organic, n.o.s. (Pyrethrins including cinerins)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Pyrethrins including cinerins	8003-34-7	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Pyrethrins including cinerins	8003-34-7	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Pyrethrins including cinerins	8003-34-7	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Flam. Liq.	Flammable liquids
H227	Combustible liquid.
H301	Toxic if swallowed.
H301 + H311	Toxic if swallowed or in contact with skin
H311	Toxic in contact with skin.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	2
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	2
Reactivity Hazard:	0

Health hazard:	2
Fire Hazard:	2
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.10 Revision Date: 02/27/2015 Print Date: 03/02/2015

SAFETY DATA SHEET
Pyrethrum EWC

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name Pyrethrum EWC

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

Supplier
Agropharm Africa Limited
Muhe Village
Ruhengeri Cellule
Muhoza Sector, Musanze District
Northern Province
Rwanda
+250 252 546 357
+250 788 384 846

1.4. Emergency telephone number

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (1999/45/EEC) N;R50/53.

2.2. Label elements

Contains POTASSIUM SORBATE

Labelling

Dangerous for the environment

Risk Phrases

R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases

S29	Do not empty into drains.
S61	Avoid release to the environment. Refer to special instructions/safety data sheets.

2.3. Other hazards

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

ALKYL POLYGLYCOSIDE **1-5%**

CAS-No.: 68515-73-1 **EC No.:**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Not classified.	Xi;R41.

POTASSIUM SORBATE **< 1%**

CAS-No.: 24634-61-5 **EC No.: 246-376-1**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Not classified.	Xi;R36/37/38.

PYRETHRINS INCLUDING CINERINS **1-5%**

CAS-No.: 8003-34-7 **EC No.: 232-319-8**

Classification (EC 1272/2008)	Classification (67/548/EEC)
Acute Tox. 4 - H302	Xn;R20/21/22.
Acute Tox. 4 - H312	N;R50/53.
Acute Tox. 4 - H332	
Aquatic Acute 1 - H400	
Aquatic Chronic 1 - H410	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation
Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

Ingestion
Immediately rinse mouth and provide fresh air. DO NOT induce vomiting. Get medical attention immediately.

Skin contact
Wash skin thoroughly with soap and water. Continue to rinse for at least 15 minutes. Get medical attention if irritation persists after washing.

Eye contact
Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Continue to rinse for at least 15 minutes and get medical attention. Contact physician if discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

4.3. Indication of any immediate medical attention and special treatment needed

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media
Water spray, foam, dry powder or carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Unusual Fire & Explosion Hazards
No unusual fire or explosion hazards noted.

Specific hazards
When heated and in case of fire, toxic vapours/gases may be formed. When heated and in case of fire, irritating vapours/gases may be formed.

5.3. Advice for firefighters

Special Fire Fighting Procedures
Keep run-off water out of sewers and water sources. Dike for water control. Dike and collect extinguishing water. If risk of water pollution occurs, notify appropriate authorities.

Protective equipment for fire-fighters
Self contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear suitable protective clothing as specified in section 8.

6.2. Environmental precautions

Avoid discharge to the aquatic environment.

6.3. Methods and material for containment and cleaning up

Absorb spillage with suitable absorbent material. Collect in containers and seal securely.

6.4. Reference to other sections

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid spilling, skin and eye contact.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and animal feeding stuffs. Store in tightly closed original container in a dry and cool place.

7.3. Specific end use(s)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	STD	TWA - 8 Hrs		STEL - 15 Min		Notes
PYRETHRINS INCLUDING CINERINS	WEL		1 mg/m3			

WEL = Workplace Exposure Limit.

8.2. Exposure controls

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Creamy liquid.
Colour	Cream.
Odour	Characteristic.
Solubility	Miscible with water
Relative density	0.98-0.99
pH-Value, Conc. Solution	6.5
pH-Value, Diluted Solution	7.8 (Diluted 1:40 Tap Water)
Flash point	> 80 CC (Closed cup).

9.2. Other information

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

10.2. Chemical stability

Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

Hazardous Polymerisation

Will not polymerise.

10.4. Conditions to avoid

10.5. Incompatible materials

10.6. Hazardous decomposition products

When heated, toxic and corrosive vapours/gases may be formed.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Toxic Dose 1 - LD 50

Pyrethrins: 900-2000 mg/kg (oral rat)

Inhalation

May cause irritation to the respiratory system.

Ingestion

May cause irritation to throat and stomach.

Skin contact

Liquid may irritate skin. Prolonged contact may cause redness, irritation and dry skin.

Eye contact

May cause temporary eye irritation.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

The product contains a substance which is harmful to aquatic organisms.

12.1. Toxicity

12.2. Persistence and degradability

12.3. Bioaccumulative potential

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements. Do not allow runoff to sewer, waterway or ground.

SECTION 14: TRANSPORT INFORMATION

14.1. UN number

UN No. (ADR/RID/ADN)	3082
UN No. (IMDG)	3082
UN No. (ICAO)	3082

14.2. UN proper shipping name

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

14.3. Transport hazard class(es)

ADR/RID/ADN Class	9
ADR/RID/ADN Class	Class 9: Miscellaneous dangerous substances and articles.
ADR Label No.	9
IMDG Class	9
ICAO Class/Division	9

Transport Labels

14.4. Packing group

ADR/RID/ADN Packing group	III
IMDG Packing group	III
ICAO Packing group	III

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant

14.6. Special precautions for user

EMS	F-A, S-F
Emergency Action Code	•3Z
Hazard No. (ADR)	90
Tunnel Restriction Code	(E)

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.2. Chemical Safety Assessment

SECTION 16: OTHER INFORMATION

Date	26/September/2012

Risk Phrases In Full

R20/21/22	Harmful by inhalation, in contact with skin and if swallowed.
R36/37/38	Irritating to eyes, respiratory system and skin.
R41	Risk of serious damage to eyes.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Hazard Statements In Full

H332	Harmful if inhaled.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H410	Very toxic to aquatic life with long lasting effects.
H400	Very toxic to aquatic life.

Session 5. (1:00)
Reg. 216: USAID's Pre-Implementation EIA Process

Objectives

Understand Reg. 216 as USAID's mandatory pre-obligation EIA process, and further understand that environmental mitigation and monitoring conditions established by this process become required elements of activity design and implementation. Become familiar with the entire Reg. 216 process.

Understand the relationship of the 22 CFR 216 process to the programming cycle.

Format:

Presentation, Q&A and informal Quiz

Summary

Reg. 216 (22 CFR 216) is a US federal regulation that sets out USAID's mandatory pre-obligation/ pre-implementation EIA process. The Regulation applies to all USAID programs or activities, including non-project assistance *and* substantive amendments or extensions to ongoing activities.

The Reg. 216 process results in *Reg. 216 documentation* (a Request for Categorical Exclusion (RCE), an Initial Environmental Examination (IEE), an Environmental Assessment (EA)), that must be approved by the Mission Director and by the BEO. The IEE is USAID's version of a preliminary assessment. The EA is a full EIA study.

No "irreversible commitment of resources" can occur to implement an activity unless the activity is covered by appropriate, approved Reg. 216 documentation.

When IEEs are approved with mitigation and monitoring conditions attached to one or more activities, those conditions become a required part of project design/implementation. (EAs always have such conditions.) . Note that unless IEE and EA conditions are implemented, (1) the activity is out of compliance; (2) the Reg. 216 process is largely meaningless; and (3) the objective of the environmental procedures (ESDM) is not achieved.

For this reason, the ADS requires C/AORs to REMEDY or HALT activities where IEE/EA conditions are not being implemented, or which are otherwise out of compliance.

This session briefs Reg. 216 as a specific implementation of the EIA process, with particular attention to (1) the *screening process and criteria* established by the Regulation, and (2) the nature of the environmental documentation determined by this screening process.

Reg. 216 documentation is developed by Mission staff, IPs, or 3rd-party contractors, depending on the situation. Most IEEs that cover a sector portfolio in a mission (SO- or FO-level IEEs) are developed by Mission staff or 3rd-party contractors. .

Partners are often asked to develop Reg. 216 documentation for new project components. 3rd-party contractors are almost always engaged to undertake EAs.

USAID
FROM THE AMERICAN PEOPLE

Session 5:
22 CFR 216 (Reg. 216):
USAID's Pre-implementation EIA Process

Session Objectives:

- Identify the pre-implementation environmental review process defined by 22 CFR 216;
- Identify this process as a specific implementation of the general Environmental Impact Assessment process;
- Practice deciding determinations for given USAID-funded activities.

What is 22 CFR 216 (Reg. 216)?

- **Sets out USAID's pre-implementation EIA process**
- **Applies to:**
  - ***All*** *USAID programs or activities, (including non-project assistance.)*
  - *New activities*
  - *Substantive amendments or extensions to ongoing activities*

!

Reg. 216 (22 CFR 216) is a US FEDERAL REGULATION. Compliance is mandatory.

Documentation & Approval

IMPORTANCE:
No activities may be implemented without APPROVED Reg. 216 environmental documentation in hand.

APPROVED =
Mission Director
(or Washington equivalent) &
Bureau Environmental Officer (BEO) signatures

BEO concurrence *not* automatic or guaranteed

Dialogue is sometimes required

Who signs?

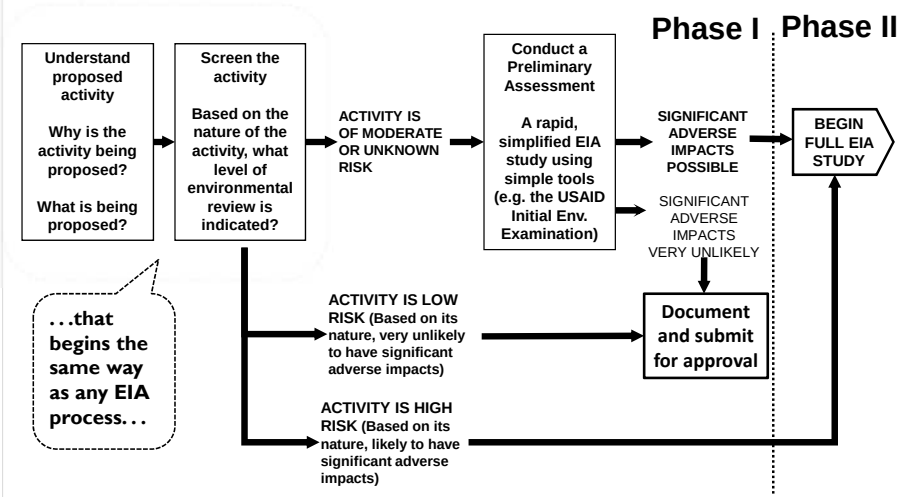
Clearances:
- COR/AOR or Team leader
- Mission Environmental Officer (for Missions)
- Regional Environmental Advisor (depending on mission)
- Mission Director or Washington equivalent*

Concurrence
- Bureau Environmental Officer*

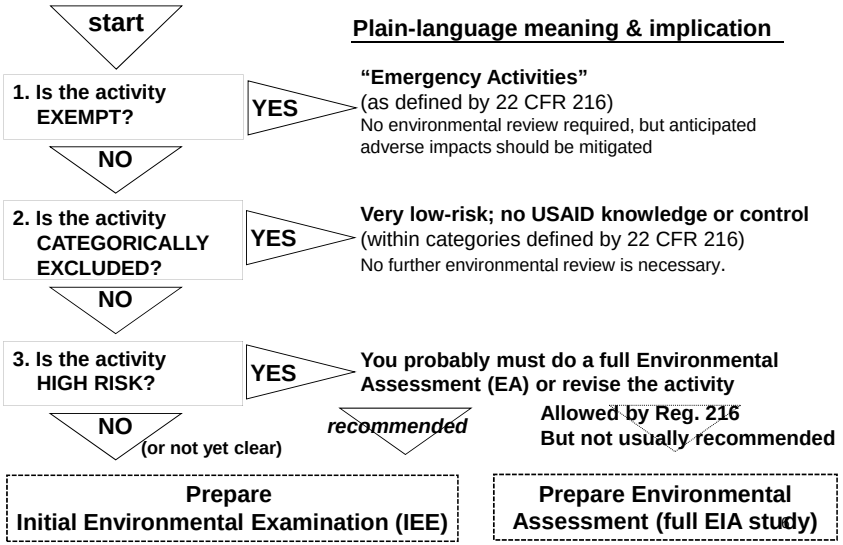
Approval
- General Counsel (rarely)

*required by Reg 216

Reg. 216: specific USAID implementation of general EIA process. . .

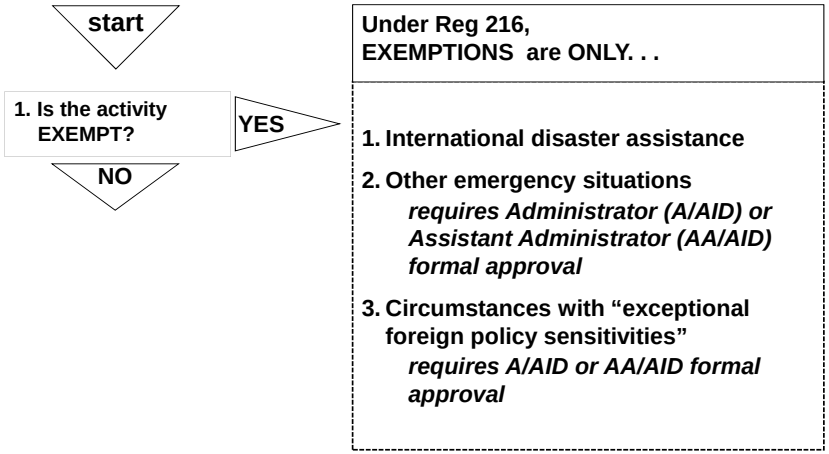


Screening under Reg. 216

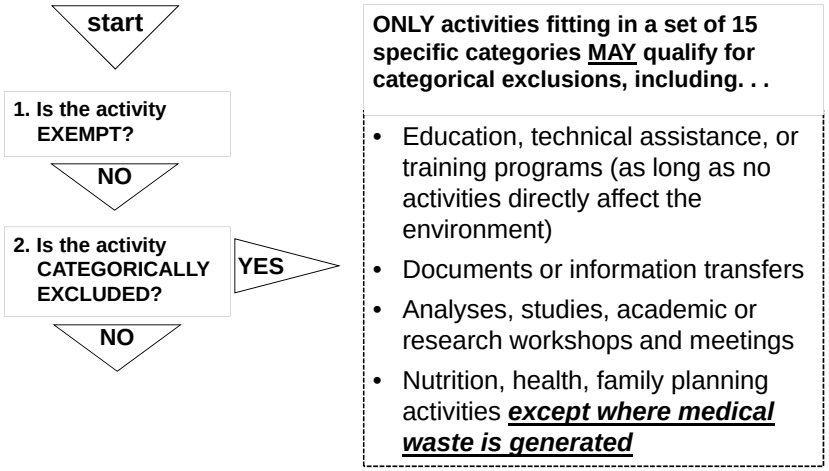


Screening under 22 CFR 216:
Exemptions

! "Exempt" activities often have significant adverse impacts.
Mitigate these impacts where possible.



Screening under 22 CFR 216:
Categorical Exclusions



Categorical Exclusions: LIMITATIONS

start

1. Is the activity EXEMPT?

NO

2. Is the activity CATEGORICALLY EXCLUDED?

YES

NO

! No categorical exclusions are possible when an activity involves pesticides. (22 CFR 216.2(e))

An activity may "fit" into a categorically excluded class. . .

. . . but if adverse impacts are reasonably foreseeable, the activity will NOT receive a categorical exclusion.

Why would categorical exclusions NOT apply if USAID funds. . .

- A technical advisor to the ministry of environment & energy with co-signature authority over mining concession awards?
- Midwife training in management of 3rd-stage labor?
- Credit support to large-scale agro-processing?

Screening under 22CFR216

"High Risk" (EA Likely Required)

start

1. Is the activity EXEMPT?

NO

2. Is the activity CATEGORICALLY EXCLUDED?

NO

3. Is the activity HIGH RISK?

YES

NO

"HIGH RISK" = activities "for which an EA is normally required" per 22 CFR 216

<u>OR</u> other activities which clearly present high environmental risks

- Penetration road building or improvement
- Irrigation, water management, or drainage projects
- Agricultural land leveling
- New land development; programs of river basin development
- Large scale agricultural mechanization
- Resettlement
- Powerplants & industrial plants
- Potable water & sewage, "except small-scale"

What if my activity is "high risk"?

3. Is the activity HIGH RISK?

YES → You probably must do a full Environmental Assessment (EA) or revise the activity

NO (or not yet clear) → Prepare Initial Environmental Examination (IEE)

recommended

Allowed by Reg. 216
But not usually recommended → Prepare Environmental Assessment (full EIA study)

Can proceed directly to an EA (USAID's full EIA study)

But unless the activity is VERY clearly "high risk", do an IEE (USAID's preliminary assessment) instead

WHY a preliminary assessment?

An IEE will:

- Allow you to determine if impacts can be easily controlled below a significant level—if so, an EA is not necessary
- Gather information needed to jump-start the EA process

What is clearly "high risk"?

EA DEFINITELY REQUIRED	NOT CLEAR—proceed to IEE
New 500Ha irrigation scheme	Rehabilitation of 50Ha irrigation scheme
Major expansion of a 100MW thermal power plant & construction of new transmission lines	Mini-hydro installations of 500 kw total
Widening 30km of a 2-lane road to 6-lane tollway thru an urban area	Rehabilitation of multiple short segments of rural feeder road
Sections 118 & 119 of the Foreign Assistance Act REQUIRE an EA for. .	
Activities involving procurement or use of logging equipment	
Activities with the potential to significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas	

Once each activity has been screened…

Activity*	Exempt	CatEx	IEE Req'd	EA Req'd
1. Small clinic rehabilitation			X	
2. Borehole Installations			X	
3. Training in patient record-keeping		X		
4. Construct provincial medical waste disposal facility				X

*Use a table like this. It helps.

Develop your 22 CFR 216 documentation. . .

. . .as determined by the outcome of your screening process

Overall screening results	**22 CFR 216 documentation required**
All activities are exempt	Statement of Justification
All activities categorically excluded	**Categorical Exclusion Request** + FACESHEET
All activities require an IEE	**IEE** covering all activities + FACESHEET
Some activities are categorically excluded, some require an IEE	An **IEE** that: ▪ Covers activities for which an IEE is required AND ▪ Justifies the categorical exclusions + FACESHEET
High-risk activities	▪ Initiate scoping and preparation of an EA

CATEGORICAL EXCLUSION REQUEST

Very simple; 1-2 pages. Describes the activities. Cites 22 CFR 216 to justify the catex.

Initial Environmental Examination (USAID's preliminary assessment)

Timing of 22 CFR 216 documentation. . .

Program Cycle

CDCS

Project Design Process

Stage 1:Concept Paper

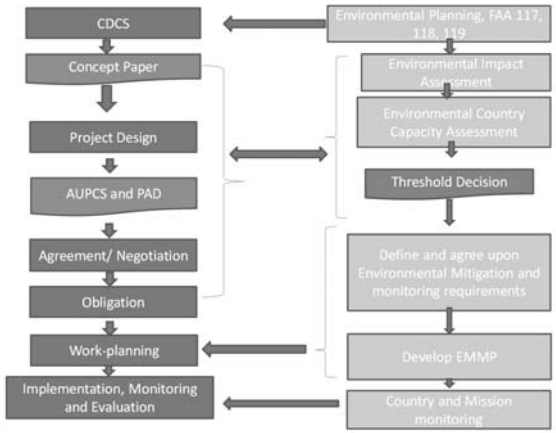
- Steps 1-10
- Review
- Approve/Disapprove
- if yes then Stage 2

Stage 2: Analytical (PAD)

Gender/ Env/Sust Analysis
7. Anal. & Sust. Considerations
Annex b. Log Frame
Annex k. Env Thresh. Decision
Annex m. Waivers (AUPCS)

Stage 3: Project Authorization

AUPCS
mitigating measures in the PAD



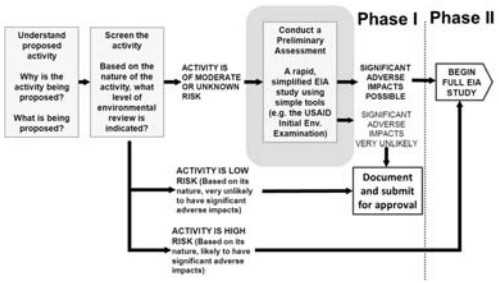
Initial Environmental Examination: What it looks like

Basic IEE outline

1. **Background & Activity Description**
   - Purpose & Scope of IEE
   - Background
   - Description of activities
2. **Country & Environmental information**
   - Locations affected
   - National environmental policies and procedures
3. **Evaluation of potential environmental impacts**
4. **Recommended threshold decisions and mitigation actions**
   - Recommended threshold decisions and conditions
   - Mitigation, monitoring & evaluation

! The IEE is very similar to preliminary assessments required by other donors and governments.

Purpose of Initial Environmental Examination



Provides documentation and analysis that:

- Allows the **preparer** to determine <u>whether or not significant adverse impacts are likely</u>
- Allows the **<u>reviewer</u>** to agree or disagree with the preparer's **determinations**
- Sets out mitigation and monitoring for adverse impacts

What determinations result from an IEE?

For **each** activity addressed, the IEE makes one of 4 recommendations regarding its possible impacts:

If the IEE analysis finds. . .	**The IEE recommends a. . .**	**Implications (if IEE is approved)**
No significant adverse environmental impacts	**NEGATIVE DETERMINATION**	No conditions. Go ahead.
With specified mitigation and monitoring, no significant environmental impacts	**NEGATIVE DETERMINATION WITH CONDITIONS**	Specified mitigation and monitoring must be implemented
Significant adverse environmental impacts are possible	**POSITIVE DETERMINATION**	Do full EA or redesign activity. Conditions imposed by the EA must be implemented.
Not enough information to evaluate impacts	**DEFERRAL**	You cannot implement the activity until the IEE is amended
PLUS, the IEE will address any CATEGORICAL EXCLUSIONS carried over from the screening process.		

When the IEE is duly approved. . .

<u>Recommended</u> determinations & categorical exclusions become THRESHOLD <u>DECISIONS</u>

Conditions become REQUIRED elements of project implementation & monitoring (ADS 204.3.4(b))

The IEE is posted to USAID's environmental compliance database*

Conditions are written into or referenced in solicitation & award documents (ADS 204.3.4(a)(6))

AORs/CORs oversee implementation (ADS 204.3.4(b))

*www.usaid.gov/our_work/environment/compliance/database.html

What if I need to do an Environmental Assessment*?

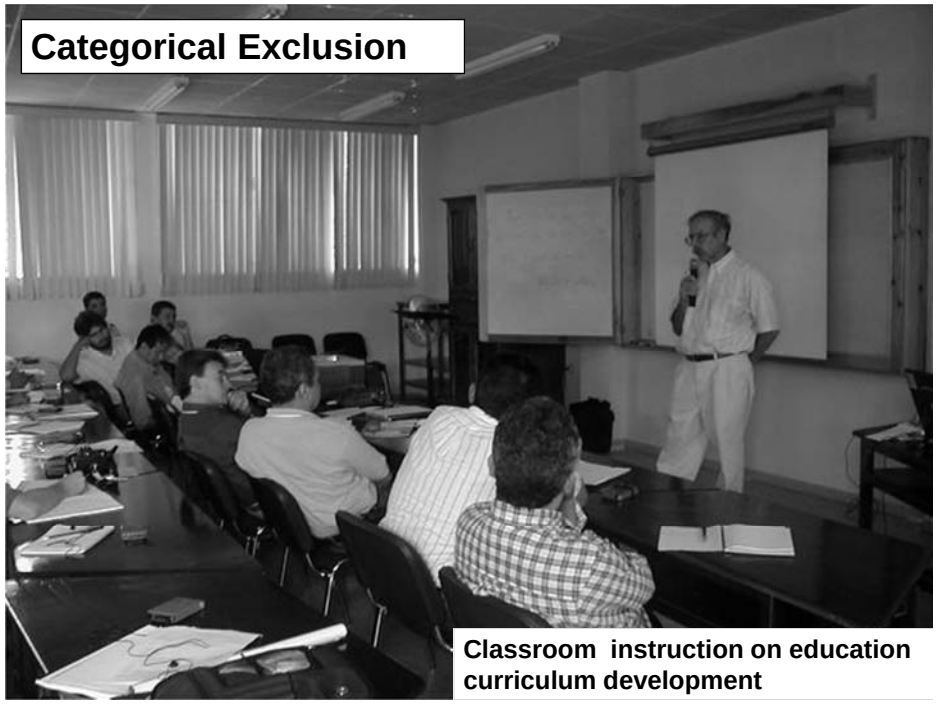
- First step: a formal scoping process (22 CFR 216.3(a)(4))
- Scoping statement must be approved by Mission Director, Bureau Environmental Officer.
- Informs the SOW for the Environmental Assessment itself.
- EAs are far more detailed than IEEs. They must address alternatives to the proposed activities. Public consultations are required.

**If a proposed action may affect the <u>US environment</u> or the <u>global commons</u>, an EIS is required, not an EA. (EIS = <u>Environmental Impact Statement</u>, per the US National Environmental Policy Act (NEPA)). This is RARE. (22 CFR 216.7.)*

And now: A QUIZ!!

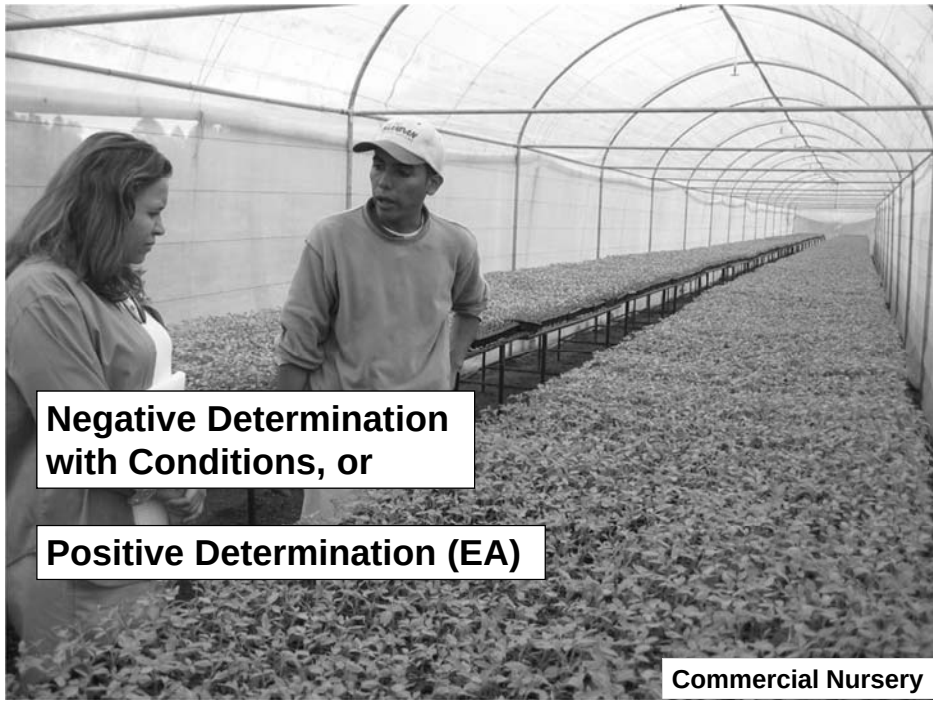
What will the 22 CFR 216 threshold decision likely be?

- **Categorical Exclusion?**
- **Negative Determination?**
- **Negative Determination w/ Conditions?**
- **Positive Determination?**
- **Exemption?**



Classroom instruction on education curriculum development

Market feeder road rehabilitation on Liberia



Commercial Nursery

Negative Determination with Conditions

Promoting Cacao cultivation

Positive Determination (EA)

Forestry activity

Initial – Exemption

Long term – Positive Determination or Negative Determination with Conditions

Hurricane disaster response:
- Initial?
- Long term reconstruction?

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Positive Determination or

Negative Determination with Conditions

Pesticide Procedures

Pesticide use,

Central America

Reg. 216 at the sector/Project Appraisal Document level

Reg. 216 written for the **project/activity level**

But many RCEs/IEEs written at the **Sector Portfolio** level

- To better consider environment in program design
- To satisfy the need for pre-obligation threshold decision
- AND NOW, program design guidance requires Reg. 216 documentation to be in place for the Project Appraisal Document (PAD). Each PAD covers multiple procurement actions.

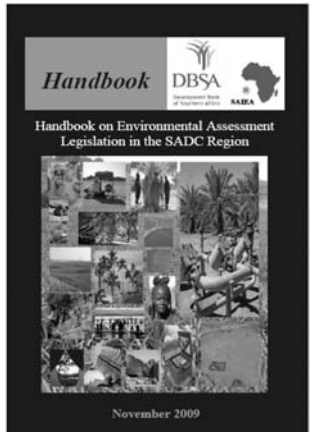
RISKS:

- failure to apply IEE at project level;
- project-level activities outside the scope of the IEE

Operating Units must have a system in place to assure conditions from high-level IEEs are applied at the project level.

What about host-country EIA procedures?

- Most host countries have domestic EIA requirements;
- USAID projects must also comply with these requirements;
- So, during screening, also screen against host country categories.
- If a host-country preliminary assessment or full EIA is required, the objective is to create **one document that satisfies both systems.**



Summary

- 22 CFR 216 defines USAID's pre-implementation environmental review process;
- It is a specific implementation of the general EIA process;
- It begins with a systematic screening and decision-making process that leads to more detailed review, if necessary;
- Documentation and approval processes are clear and mandatory.

Session 6. (1:15)
EIA Skills Part II & Downstream Compliance:
Environmental Monitoring, EMMPs and Reporting

Objectives

Establish the objective of environmental monitoring (determining clearly and cost-effectively if mitigation is sufficient and effective); brief the two types of environmental monitoring indicators; and achieve a common understanding of the principles of environmental monitoring design.

Brief the EMMP concept; establish that EMMPs are critical to effective and systematic implementation of IEE/EA conditions; explain the mechanisms by which USAID is requiring IPs to develop and implement EMMPs.

Practice translating general IEE conditions into specific mitigation actions.

Achieve a common understanding of the two basic elements of IP environmental compliance reporting: (1) providing USAID with an auditable record of IP environmental compliance; and (2) "mainstreaming" critical elements of environmental soundness/compliance into one or more core program performance indicators.

Understand the relationship between the EMMP and IP environmental compliance reporting.

Format

Presentation & Q&A (1:00); short group discussion/exercise (0:15)

Summary

This session continues our acquisition of core EIA skills critical to life-of-project compliance. It has four major parts:

1. Principles of Environmental Monitoring,
2. Environmental Mitigation and Monitoring Plans,
3. Translating general IEE or EA conditions to mitigation actions.
4. EMMP-based environmental compliance reporting.

Part 1. Environmental Monitoring

Definition. Environmental monitoring is both:

A. Systematic verification of the implementation of mitigation measures.

B. Systematic observation of key environmental conditions.

Environmental monitoring is a necessary complement to mitigation. Its purpose is to tell us clearly and cost-effectively if mitigation is sufficient and effective.

Throughout this session, we will see that environmental monitoring must be highly targeted.

A. Verifying Implementation of Mitigation Measures. We can verify (and quantify!) implementation of mitigation measures in two ways: via paper reports and via field inspection. In each case, we use **mitigation implementation indicators**. For example, monitoring of medical waste management in a clinics activity

could ask the beneficiary clinics to attach their waste management plan. A field inspection would spot check that key elements of the plan were being implemented.

Good environmental monitoring is targeted and takes the simplest effective approach. It usually requires a combination of environmental conditions indicators and mitigation implementation indicators.

B. Observing environmental conditions. The environmental conditions observed are those:

- That correspond to impacts and mitigation measures. For example, a key potential impact of an irrigation project is groundwater contamination. Therefore, **ground-water quality** is monitored.
- Upon which the project depends for its success. For example, a water supply project depends on clean source water. Therefore, **source water quality** is monitored.

We observe and measure environmental conditions by using **environmental indicators,** which are signals of or proxies for the stock and quality of key environmental resources, or of environmental health and ecosystem function.

Indicators can require complex equipment to measure (e.g. testing water for pesticide residues), but they can also be very simple—and often for small-scale activities simple indicators are best. (For example, groundwater levels can be measured in a shallow well using a rope and bucket.)

A key principle of monitoring is choosing the simplest indicator that meets your needs.

NOTE: environmental indicators are NOT "F" indicators or core program performance indicators.

To distinguish the impacts of your activity from other factors, thought needs to go into the times and places that indicators are measured.

For example, consider an agricultural processing facility that draws water from a stream. The facility has potential to adversely impact surface water quality. A good monitoring approach would:

- Take water samples from the stream at the intake point and downstream from the seepage pits.
- Take samples from these different locations at the same time.
- Take samples during both high and low flow periods during the processing season.

What is the relationship of monitoring to environmental compliance? Initial Environmental Examination and Environmental Assessment conditions are <u>mitigation</u> requirements. IEEs (and EAs) are useless unless the conditions they establish are implemented! USAID's environmental procedures therefore <u>require</u> implementation of IEE/EA conditions (mitigation) and <u>monitoring</u> this implementation.

Part 2. Environmental Mitigation and Monitoring Plans (EMMPs)

The need. Across USAID, implementation of IEE and EA conditions is the weakest element of life-of-project environmental compliance.

A key lesson learned from 40 years of EIA experience world-wide is that it is almost impossible to systematically carry out the mitigation measures that result from the EIA process unless an EMMP exists, and is incorporated into a project's workplan and budget.

The concept. Environmental Mitigation and Monitoring Plans (EMMPs) are a framework for specifying and organizing mitigation and monitoring, and assuring that it responds systematically to IEE/EA conditions.

In their most basic form, EMMPs are a simple table that sets out:

- ALL the mitigation measures being implemented in response to IEE/EA conditions

- The monitoring that will determine whether the mitigation is sufficient and effective.
- Who is responsible for both mitigation & monitoring..

EMMPs may also include **budgeting** information for mitigation and monitoring and a **monitoring log section where** monitoring results can be recorded. We illustrate the EMMP concept at the end of the *session with an extended example*.

(Note that EMMPs are also known as EMPs (Environmental Management Plans), EMPRs (Environmental Mitigation Plan and Report), and similar acronyms. EMMP is the most widely used term. EMMP formats likewise vary. IEEs or awards sometimes specify an EMMP format, but more often in AFR the IP has flexibility in designing/adopting/adapting a format that meets the needs of the particular project. The formats used in this workshop are the most common and are acceptable in most contexts.)

AFR IEEs requiring EMMPs. USAID's environmental procedures require that environmental mitigation required by IEEs and EAs is implemented and monitored, but do not require EMMPs *per se*. However, almost all new AFR IEEs (and those in other regions as well) require that EMMPs be developed and implemented.

This requirement can be operationalized either as technical direction from the C/AOR or as a provision of new contracts and agreements.

(Title II Cooperating Sponsors are required to develop EMMPs by the Agency's DFAP guidance.)

EMMP submission and approval. EMMPs should be approved by the C/AOR; sometimes there is additional review by the MEO or REA. C/AORs should require that they are submitted together with the project's workplan or PMP.

Part 3. Translating IEE Conditions to Mitigation Actions

IEE conditions are often written very generally. For example, an IEE might specify that "wells shall be sited to minimize the possibility of contamination." (Or even more generally: wells shall be sited and constructed consistent with good practices.")

Implementing this IEE condition (which begins with developing an EMMP) requires that it be translated into specific mitigation actions.

In this case, the project would need to develop or adopt a set of specifications for well location that can then be referenced in the EMMP.

For example, the project might adopt the following, based on the *Sector Environmental Guidelines:*

The following MINIMUM distances from potential sources of contamination will be observed for well siting:

- 150 ft (45.7 m) from a preparation area or storage area of spray materials, commercial fertilizers, or chemicals that may cause contamination of the soil or groundwater.
- 100 ft. (30.5 m) from a below-grade manure storage area.
- 75 ft (22.9 m) from cesspools, leaching pits, and dry wells.
- 50 ft (15.2 m) from a buried sewer, septic tank, subsurface disposal field, grave animal or poultry yard or building, privy, or other contaminants that may drain into the soil.
- The distance between a septic tank leach field and a down-gradient well should be greater than 100 ft (30.5 m) if

the soil is coarser than fine sand and the groundwater flow rate is greater than 0.03 ft/day (0.01 m/day).[2]

The EMMP could then list the concrete mitigation action as "compliance with project well siting criteria," and attach those criteria as an Annex.

In this session, we will work in groups through a set of actual examples of "general IEE conditions" and discuss how to translate them into specific mitigation actions.

Part 4: EMMP-based IP Environmental Compliance Reporting

ADS 204 requires that C/AORs monitor and evaluate on an ongoing basis whether the environmental mitigation required by the governing IEE(s)/EA is being implemented and is effective. (In other words, C/AOR oversight responsibilities extend to environmental compliance, just as they do to other elements of project implementation.)

Practically, this requires that IPs not only systematically comply with IEE/EA conditions by developing and implementing EMMPs, but that they *report* to USAID on this implementation.

IP environmental compliance reporting consists of two elements—one required and one recommended:

1. **Project reporting must provide an auditable record of environmental compliance.**

   Generally, IPs' quarterly or semiannual reports should contain a separate environmental compliance section. The section must provide sufficient information on the status of EMMP implementation for USAID to effectively fulfill its oversight and performance monitoring role.

   If the EMMP contains a "monitoring log" section, then the EMMP itself, updated with current monitoring results, can simply be appended to the report.

   For large projects with complicated EMMPs, a text summary/short analysis of EMMP implementation is needed. This should highlight key mitigation activities underway in the reporting period, any significant issues encountered, and corrective actions/adjustments made.

   Any specific reporting requirements imposed by the IEE or EA must also be satisfied.

2. **Strongly recommended: One or more key project performance indicator(s) (project results framework) reflect overall environmental soundness/ environmental compliance.**

   In other words, the most critical elements of environmental soundness/ compliance should be "mainstreamed" into the project results framework. For example:

   In a water point provision project, the IP might use the indicator "number of protected water points established with zero fecal coliform after 6 months" rather than "number of water points established."

   In a road rehabilitation project, the IP might use the indicator "km or road rehabilitated under environmentally sound practices" rather than "km of road rehabilitated."

   In both cases, the "environmentalized indicator" demonstrates the core project activities are being executed with attention to environmental soundness/compliance. It is NOT expected or appropriate to "environmentalize" every key indicator, or to capture every mitigation measure.

   (This best practice applies to new awards. Where EMMPs are developed after the PMP is established, it may not be possible to change key performance indicators.)

[2] Source: Driscoll, Groundwater and Wells, Second Edition, as cited in the *Small Scale Guidelines*.

Missions should not rely on IP progress reports alone to track environmental compliance. Field visits at minimum should include a quick check for significant environmental design/management problems (for small-scale wat/san, health care, construction, or rural roads activities, use the *Visual Field Guides*). For environmentally complex activities, specific field visits should be made to verify EMMP implementation.

Key resource

The *Sector Environmental Guidelines* are a key resource for design of mitigation and monitoring measures.

The *EMMP Factsheet* is included as an annex to this sourcebook. It includes formats and how-to guidance.

Session 6:
EIA Skills Part II
& "Downstream Compliance"
(Environmental Monitoring, EMMPs and Reporting)

Session Objectives

- State the two key elements of environmental monitoring
- Become familiar with indicators for each and the basic principles of monitoring design
- Relate mitigation and monitoring to environmental compliance
- Identify the nature and compliance role of the Environmental Monitoring and Mitigation Plan (EMMP)

Definition of environmental monitoring

Environmental monitoring is always BOTH…

1. **Determining whether mitigation is being implemented as required**
2. **Determining whether mitigation is working**

! Environmental monitoring should be a normal part of project monitoring and evaluation

Monitoring: Part 1

1. **Determining whether mitigation is being implemented as required**

This includes quantifying mitigation:

- How many staff trained?
- How many trees planted?

There are two basic ways to get the information required: **paper reports** & **field inspection**

For example…

Verify that mitigation is implemented

Mitigation measure is:
"Clinic staff shall be trained to and shall at all times segregate and properly incinerate infectious waste."

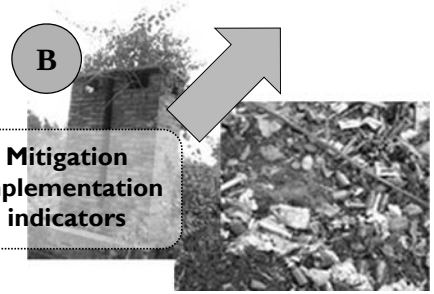
Desk assessment:
Clinics are asked to report:

Percentage of staff trained

Spot inspections of waste disposal locations carried out?
The result of these inspections?

Field inspection

shows waste is segregated at point A, but not incinerated at point B.



Mitigation implementation indicators

Monitoring: Part 2

2. Determining whether mitigation is <u>working</u>

= Systematic observation of key environmental conditions. . .

(1) that correspond to impacts & mitigation measures and/or

(2) upon which the project depends for its success

Example: a road project may lead to stream sedimentation. **Stream turbidity** is monitored.

Example: A water supply project depends on clean source water. **Source water quality** is monitored.

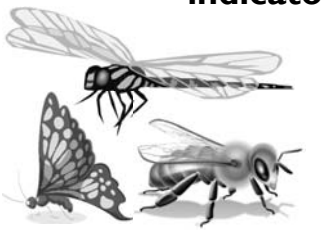
Monitoring environmental conditions

<u>Systematic observation</u> of key environmental conditions

= systematically choosing and assessing <u>environmental indicators</u>

environmental indicators are

Signals of/proxies for
- **Environmental health**
- **Ecosystem function**
- **Community well-being**



They are NOT "F" indicators or core program performance indicators

For example…

Environmental indicators: sometimes complicated, often simple

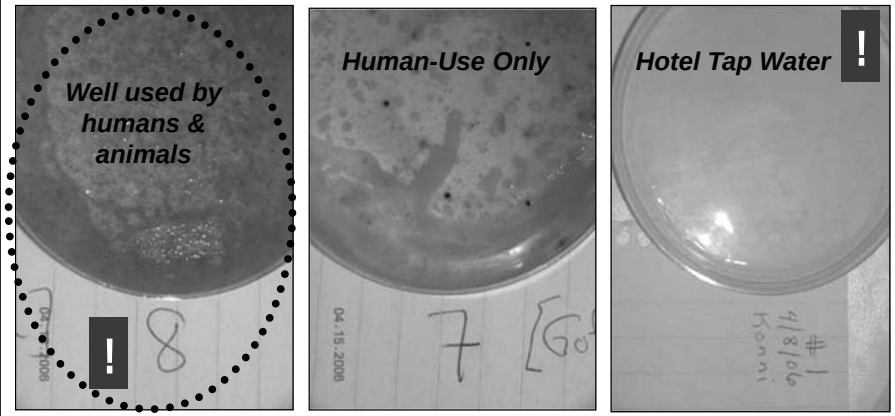
- **Environmental Indicators <u>may</u> require laboratory analysis or specialized equipment & techniques**
  - Testing water for pesticide residues
  - Automatic cameras on game paths for wildlife census
  - Etc.
- **But <u>indicators are often VERY SIMPLE</u>, especially for small-scale activities**

! Simple indicators can be more useful and appropriate than more complicated ones!

For example. . .

Example Indicator: coliform contamination

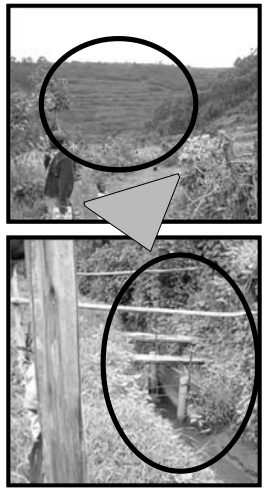
Water quality tests with simple, inexpensive test kit . . .



Purple Color = Fecal Coliforms | Pink Color = Other Coliforms

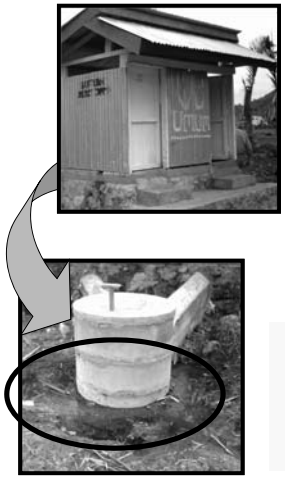
Examples of simple environmental indicators

Measuring erosion



Topsoil loss from slopes upstream in the watershed **(top)** is assessed with a visual turbidity monitor **(bottom).**

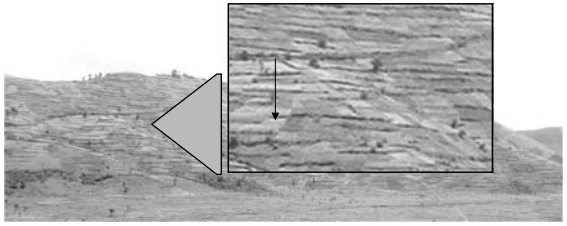
Surface contamination by sewage



Visual inspection behind the latrine **(top)** reveals a leaking septic tank **(bottom).**

What are the limitations of this indicator?

Examples of simple environmental indicators



Soil depletion.
Visual inspections show fertility gradients within terraces.

(Dark green cover indicates healthy soil; yellow cover indicates depletion)

Groundwater levels
Are measured at shallow wells with a rope and bucket.

! Choose the simplest indicator that meets your needs!

Systematically assessing environmental indicators

Monitoring often requires SYSTEMATIC measurement of indicators to <u>distinguish the impacts of the activity from other factors</u>

This requires decisions about:

1. **Location of measurement**
2. **Timing & frequency of measurement**

and often. . .

3. **Other factors**

For example…

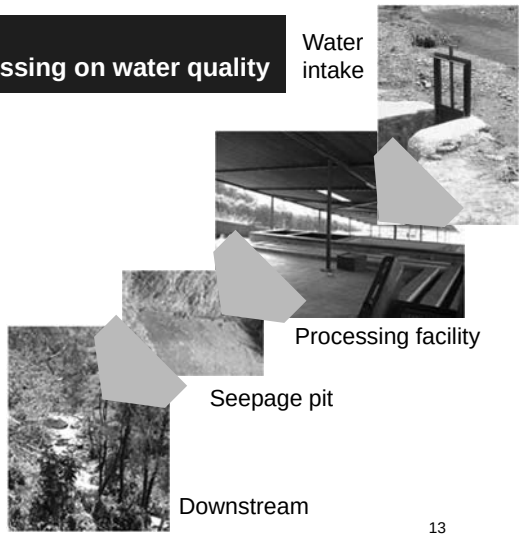
Systematically assessing environmental indicators

Example:
Impact of agricultural processing on water quality

1. **Location**
   Water samples should be taken at the intake, and downstream of seepage pits.

2. **Timing & frequency**
   Samples at different locations should be taken at the same time.
   Samples should be taken at **high & low flow** during the processing season

3. **What else?**



Being systematic

Sometimes monitoring can be more complicated.

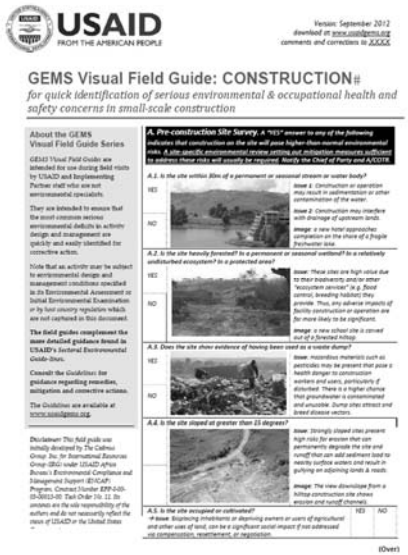
Some common monitoring strategies:

- **Monitor the actual project, plus a similar non-project area (a "control")**
- **Monitor at multiple stations/ sampling locations**
- **Do research to obtain good baseline data**

→ **All are intended to help distinguish impacts from NORMAL VARIABILITY and other factors**

Good environmental monitoring. . .

- Tells you clearly and cost-effectively if **mitigation is sufficient and effective.**
- Usually requires a **combination** of:
  - Environmental indicators
  - Mitigation implementation indicators
- Do no more than needed: Prioritize the most serious impacts & issues.


USAID
FROM THE AMERICAN PEOPLE

Version: September 2012
download at www.usaidgems.org
comments and corrections to XXXX

GEMS Visual Field Guide: CONSTRUCTION
for quick identification of serious environmental & occupational health and safety concerns in small-scale construction

About the GEMS Visual Field Guide Series

A. Pre-construction Site Survey. A "YES" answer to any of the following indicates that construction on the site will pose higher than normal environmental risks. A site-specific environmental review setting out mitigation measures sufficient to address these risks will usually be required. Notify the Chief of Party and A/COTR.

A.1. Is the site within 30m of a permanent or seasonal stream or water body?

A.2. Is the site heavily forested? Is a permanent or seasonal wetland? Is a relatively undisturbed ecosystem? Is a protected area?

A.3. Does the site show evidence of having been used as a waste dump?

A.4. Is the site sloped at greater than 15 degrees?

A.5. Is the site occupied or cultivated?

(Over)

GEMS visual field guides
(www.usaidgems.org)

Applying monitoring & mitigation to environmental compliance

- Initial Environmental Examination and Environmental Assessment conditions are mitigation requirements
- IEEs (and EAs) are useless unless the conditions they establish are implemented!
- **USAID's environmental procedures require implementation of IEE/EA conditions (mitigation) and monitoring this implementation**

Practically, implementation of IEE/EA conditions requires that. . .

1. USAID communicates applicable IEE/EA conditions to the Implementing Partner
2. A complete **Environmental Mitigation and Monitoring Plan** (**EMMP**) exists
3. Workplans and budgets integrate the **EMMP**
4. Reporting on **EMMP** implementation is part of project performance reporting

40+ yrs of EIA experience worldwide tells us: NO EMMP = No implementation

EMMPs are critical.

What are they?

Environmental Monitoring & Mitigation Plans: simple in concept

An EMMP:

- **(If needed) TRANSLATES IEE conditions into specific mitigation measures to implement IEE/EA conditions**
- **SETS OUT indicators/criteria for monitoring implementation & effectiveness of mitigation**
- **ESTABLISHES Timing & responsible parties**
- **Usually in table form. Formats are usually flexible; sometimes specified by the IEE.**

See EMMP templates in AFR EMMP Factsheet

What does "translate IEE conditions into specific mitigation measures" mean?

Often, implementing IEE conditions requires first translating them into specific mitigation actions

How to do this?

For example:

"Wells shall be sited to minimize the possibility of contamination."

Or even more generally:

"Wells shall be sited consistent with good practices."

Let's practice!

In small groups, take 15 minutes to begin to "translate" these IEE conditions into specific, implementable, monitorable mitigation actions. Bullet out results. Make any assumptions needed regarding the project context.

Health Services Capacity & Policy

"Capacity-building and policy development support to public health delivery & management systems must involve all practicable efforts to assure that these systems address and support proper waste management (including handling, labeling, treatment, storage, transport and disposal of medical waste).

Direct Financial or Technical Assistance to Agroprocessing Enterprises

"Existing enterprises/facilities receiving direct USAID support will be reviewed to identify any significant environmental management deficiencies and these deficiencies promptly corrected."

Question:

How are EMMPs required & approved?

EMMPs are not required by 22 CFR 216, but they are required by most newer IEEs across most Bureaus.

Requirement implemented by any of three mechanisms:

1. Technical direction from C/AOR
2. Required by contract/agreement

Generally approved by: COR/AOR

EMMP-based Environmental Compliance Reporting

So an IP has a high-quality EMMP AND is implementing it rigorously. . .

USAID needs to know.*

1. *Project reporting must provide an auditable record of environmental compliance*
2. *One or more key project performance indicator(s) should reflect overall environmental soundness/ env compliance.*

*** ADS requires C/AOR to actively manage and monitor compliance with any IEE/EA conditions.**

Let's look at #1 first:

"Project reporting must provide an auditable record of environmental compliance"

Quarterly or semiannual reports should contain a separate environmental compliance section.

The section must provide sufficient information on the status of EMMP implementation for USAID to effectively fulfill its oversight and performance monitoring role

(In addition, IEEs may contain specific reporting requirements that must be addressed.)

Note: Title II CSs must submit an Annual Environmental Compliance Status Report.

If the EMMP contains a "monitoring record" section:

The EMMP itself, updated with current monitoring results, can simply be appended to the report.

Design requirement	Incorporated in final technical specifications		Built-as specified? (confirmed by field inspec.)			Notes (Issues & resolution)
	Date Confirmed	Initials	Y/N	Date of inspection	Initials	
GRADING, SEPTIC & DRAINAGE. If construction results in substantially increased slope of any land within 10m of the stream, that slope must be protected with berms, plantings, etc.)						
Site grading and drainage shall be designed and constructed to prevent accumulation of standing water						
Aprons must be installed and drainage provided at water supply point(s)—no standing water allowed.						
No direct gray or brown-water discharge to stream is allowed. All drainage with the exception of storm runoff and water point drainage must be channeled to the septic system.						
If septic tank design is a pump-out tank without leach field, assure impermeable tank construction or min 30m separation between tank and stream and nearest shallow well.						

Excerpt of EMMP with monitoring record for medium-scale construction project.

If the EMMP contains a "monitoring record" section:

The EMMP itself, updated with current monitoring results, can simply be appended to the report.

Mitigation Measure	Responsible Party	Monitoring Scheme			Est. Cost	Monitoring Log		
		Indicators	Data source/ Method	How Often		Date	Result	Follow-up
3. Install & properly operate canal-level flow regulation structures	Project agricultural technician	• # of doors and other flow-control structures installed •% of Ha. under flow control •% of secondary & tertiary canals showing significant erosion damage after each growing season	Reports Field visit	Quarterly				
4. Protect upper slope with fruit (mangoes, citrus, avocado) and forest trees	Project agricultural technician	# of trees planted and survived • % of at-risk upper slope land protected • total m3 of sediment removed from canals over each rainy season.	Reports Field visit Comparison with baseline information	Quarterly /Annual				

An irrigation rehabilitation EMMP

- **For large projects with complicated EMMPs, a text summary/short analysis of EMMP implementation is needed.**
  - *Highlight key mitigation activities underway in the period, any significant issues encountered, and corrective actions/adjustments made.*

Now on to requirement #2:

"Mainstreaming" environmental issues into the project results framework

"One or more key project performance indicator(s) <u>should</u> reflect overall environmental soundness & compliance."

This does NOT mean that:

- **Every mitigation measure must be captured in core indicators**
- **Every core program indicator must be "environmentalized"**

This IS to say that *overall*, project success must be partly measured on the most critical elements of environmental soundness/ compliance

This applies to new awards.

Where EMMPs are developed after the PMP is established, it may not be possible to change key program indicators.

"Mainstreaming" environmental issues into the project results framework

EXAMPLE:
Water Point Provision

<u>Key Program Indicators</u>:

- **Protected* water points established**
- **# beneficiaries receiving water from protected water points**
- **% of water points with no fecal coliforms per 100 ml**
- **% of water points established that are clean after 6 months**

*** Protected = fenced against livestock, drained**

Again, this intervention will NOT show good performance. . .

"Mainstreaming" environmental issues into the project results framework

EXAMPLE:
Food for Peace

How much firewood does a typical Food for Peace (FFP) program use?

~1 kg firewood/person/day x 70,000 beneficiaries x 365 d

~30,000 MT of firewood /yr

Mitigation:
Improved cookstoves and cooking practices

Added to key program indicators :

- **Amount of fuel saved by improved practices**
- **Amount of time saved by improved practices**

NOT just number of stoves distributed

"Mainstreaming" environmental issues into the project results framework

EXAMPLE:
Road rehabilitation

Typical Indicator:

- **Km of road rehabilitated**

Strengthened, "Environmentalized" indicator:

- **Km of road rehabilitated under environmentally sound practices.***

***provide definition of environmentally sound practices from EMMP**

Who reviews EMMPs & environmental compliance reporting inside USAID?

Will environmental compliance checks be part of Mission M&E?

As with all other aspects of the project, the A/COR is the primary reviewer. But the MEO and M&E function may also be involved.

Environmental Compliance Verification/Oversight by USAID

1. Prior Review/Approval of partner-developed → **EMMP→** **ensure responsive to IEE/EA conditions** → **Budgets and workplans→** **ensure EMMP implementation planned & funded** → **Project Reporting Framework→** **ensure environmental compliance reporting requirements are met**	**Primary responsibility for ensuring compliance lies with C/AOR.** MEO will also review/clear where activities are env. sensitive &/or IEE/EA conditions are complex. Rarely, IEE mandates REA or BEO review
2. Ongoing review of partner progress reports to monitor EMMP implementation	MEO on distribution list for IP's quarterly/semi-annual project reports.
3. Field visits: → **at a minimum, all visits integrate a quick check for significant env. design/management problems** → **For environmentally sensitive activities, specific visit(s) to audit against EMMP.**	Most field visits are by C/AOR or M&E Officer MEO should visit the most environmentally sensitive activities (REA may assist)

Effective mitigation and monitoring must be…

Realistic Achievable within time, resources and capabilities
Well-targeted Mitigation measures and indicators must respond to IEE conditions (and thus correspond to impacts.)
Considered early **Preventive mitigation** is usually cheapest and most effective. Prevention must be built in at the design stage. If mitigation and monitoring budgets are not programmed at the design stage, they are almost always inadequate.
Funded Funding must be adequate over the life of the activity

Session 7. Effective IEEs. (1:45)

Objective

Initial Environmental Examinations (IEEs) are USAID's version of the preliminary assessment and the most common type of Reg. 216 documentation.

Understand the basic structure of an IEE and the characteristics of well-written, well-considered IEEs by critiquing draft IEEs based on the field visits.

Format

Discussion & Instructions (0:30)

Group Work (1:15)

Background/Review

A well-considered, well-written IEE is the basis of good mitigation and monitoring and the foundation of sound environmental management (and compliance) during activity implementation.

The responsibility for assuring that good-quality environmental documentation is developed lies with team leaders, A/CORs, and activity managers—this is true even when a 3rd-party contractor or the implementing partner develops the IEE.

Again, **Reg. 216 documentation is developed by Mission staff, Partners or contractors,** depending on the situation:

- Most IEEs that cover a Mission's sector portfolio (sector- or DO-level IEEs) are developed by Mission staff or 3rd-party contractors.
- Partners are often asked to develop Reg. 216 documentation for new project components.
- 3rd-party contractors are almost always engaged to undertake EAs.

But when the IEE is approved, USAID takes ownership for the content---no matter who wrote it.

In the Mission, the MEO should serve key roles as (1) a resource for Reg. 216 documentation development; (2) reviewer/gatekeeper for this documentation.

Summary

In this session, we discuss the characteristics of effective IEEs. BEOs and REAs offer their perspectives on common IEE gaps and shortfalls they encounter as IEE reviewers, followed by a moderated discussion..

Following this discussion, we introduce, review and provide feedback on AFR's draft updated template for complex IEEs. The template:

- Reflects the alternative outline that has been used for a number of DO-level and sector-portfolio IEEs over the past several years.
- Spells out the criteria against which BEOs and REAs review IEEs

- Contains significant additional guidance and expectations regarding the content of each section, including how GCC issues are to be addressed.
- Attempts to reduce redundancy and increase clarity, including by placing activity descriptions, impact evaluation, and recommended determinations in close proximity.

Characteristics of effective IEEs/IEE Review Criteria. IEEs are reviewed against the following criteria:

1. Conformity with required IEE content, as per this annotated IEE template and the AFR template for simpler IEEs. (Alternate IEE structures that provide the same information and present a logical flow of analysis may be acceptable.)
2. Conformity with 22 CFR 216 & ADS implementing provisions.
3. Conformity with current sectoral environmental good practice (including, but not limited to, the *USAID Sector Environmental Guidelines* at www.usaidgems.org/sectorGuidelines.htm).
4. Conformity with current AFR expectations regarding (a) treatment of complex and/or consequential activities such as potable water supply), and (2) general implementation conditions such as EMMPs.
5. Clarity, integrity and sufficiency of the analysis presented, and on that basis, the appropriateness of the recommended determinations and conditions/mitigation measures. IEEs must:
    a. Address the full scope of proposed activities
    b. Characterize the aspects of the baseline situation critical to evaluating the significance of impacts
    c. Identify and adequately evaluate key potential impacts.
    d. Set out mitigation measures that are (1) adequate and (2) *within the scope of USAID's reasonable authority*. (For example, we cannot impose conditions on actors over whom USAID has no control.)
    e. Make recommended determinations that are reasonable, defensible and in accordance with Reg. 216.
    f. Use clear, uncluttered language and parallel organization in the presentation of activities, analysis of impacts, and recommended determinations.

Instructions for Review & Feedback on the DRAFT updated "Annotated AFR Template for Complex IEEs"

We will brief the overall outline and the key guidance it contains in plenary.

We will break into small groups and, individually, each take 15-20 minutes to review the outline.

Facilitators will guide the small groups to identify and synthesize key feedback, which will be briefly reported back in plenary and taken on-board to further revise the template.

Note that an abridged IEE using this format is provided in this section of the sourcebook.

ANNOTATED AFR TEMPLATE FOR COMPLEX IEEs

(version 26 January 2015)

download via http://www.usaidgems.org/compliance.htm

Purpose:

This template is intended for complex AFR IEEs that cover multiple classes of activities (e.g. most sectoral or DO-level IEEs). For simpler IEEs, the AFR Standard IEE Template is recommended.

Instructions

Prior to submission,
(1) delete this page.
(2) delete section descriptions in yellow highlight.
(3) delete explanatory notes in gold highlight.
(4) modify text in green as appropriate.

Note: IEEs are reviewed against the following criteria:

1. Conformity with required IEE content, as per this annotated IEE template and the AFR template for simpler IEEs. (Alternate IEE structures that provide the same information and present a logical flow of analysis may be acceptable.)
2. Conformity with 22 CFR 216 & ADS implementing provisions.
3. Conformity with current sectoral environmental good practice (including, but not limited to, the *USAID Sector Environmental Guidelines* at www.usaidgems.org/sectorGuidelines.htm).
4. Conformity with current AFR expectations regarding (a) treatment of complex and/or consequential activities such as potable water supply), and (2) general implementation conditions such as EMMPs.
5. Integrity and sufficiency of the analysis presented, and on that basis, the appropriateness of the recommended determinations and mitigation measures.

Note: Integration of Climate Change Considerations

As of this 26 Jan 2015 revision and as specified herein, AFR IEEs must specifically address climate change considerations. This is consistent with sound impact assessment, evolving NEPA guidance and practice, the integration of climate change impacts in decision-making, and USAID compliance with Executive Order 13677 "Climate-Resilient International Development."

Climate change considerations are integrated throughout the IEE, not in a separate climate change section. Generally, i*nformation presented in the IEE should be based on a previous risk assessment or application of USAID's climate-resilient development framework. There is limited need for additional climate change analysis.* As in impact assessment generally, the necessary level of detail for climate change information and analysis is commensurate with the climate risks presented by the activities.

Assumptions, assistance and information:

The annotation in this template assumes a working familiarity with USAID's environmental procedures and with the principles of impact assessment. For an overview of both, visit *www.usaidgems.org/lop.htm*.

AFR Regional Environmental Advisors and the Global Environmental Management Support (GEMS II) project (*gems@cadmusgroup.com*) are available to answer questions regarding IEE development and practice.

USAID's *Environmental Compliance Database* of approved 22 CFR 216 documentation is a reliable resource for IEE language.

Examples of IEEs using this template

To be inserted

FACESHEET
INITIAL ENVIRONMENTAL EXAMINATION/
REQUEST FOR CATEGORICAL EXCLUSION

(forthcoming)

INITIAL ENVIRONMENTAL EXAMINATION

PROGRAM/ACTIVITY DATA:

Program/Activity Number: **Insert**
Program/Activity Title: **Insert**
Country/Region: **Insert**

USG Foreign Assistance Framework: **Functional Objective Number & Name**
Program Areas
Program Elements, as appropriate.

Period covered: **insert**
Life of Project Amount: **insert**

Note: Acronyms list is provided as Annex 1 (optional, delete if not relevant)

1.0 BACKGROUND AND ACTIVITY/PROGRAM DESCRIPTION

1.1 Purpose and Scope of IEE

In this section, explain what activities the IEE covers, and why the IEE is needed. Note if the IEE is an amendment—if so, explain why. If there are other RCEs/IEEs/EAs that cover this activity area for the mission or operating unit, explain how this IEE relates to them.

Recommended text:
The purpose of this document, in accordance with Title 22, Code of Federal Regulations, Part 216 (22CFR216), is to provide a preliminary review of the reasonably foreseeable effects on the environment of [activities under XXX project/program], and on this basis, to recommend determinations and, as appropriate, attendant conditions, for these activities. Upon final approval of this IEE, these recommended determinations are affirmed as 22 CFR 216 Threshold Decisions and Categorical Exclusions, and conditions become mandatory elements of project/program implementation.

Explain in one paragraph the nature of the activities/project/program, including duration and approx. LOP funding amount, and how this IEE relates to any other RCEs/IEEs/EAs that cover this activity area for the mission or operating unit,

This IEE is a critical element of a mandatory environmental review and compliance process meant to achieve environmentally sound activity design and implementation.

1.2 Background (Context and Justification)

In this section, describe why the activities/project/program covered are desired and appropriate, with some relevant context.

1.3 Summary of Activities (and Implementation Mechanisms)

In this section, provide a high-level summary only of the key proposed activities, with indicative funding level if available. Note that a more detailed description of the activities will be provided in section 3. Generally, this description is paraphrased and abridged from the most current version of the project document. However, activities must be described in a way that is meaningful to environmental analysis.

For example, "technical assistance targeting agricultural value chains" is NOT an environmentally relevant activity description.

Implementation mechanisms by which the DO or sector program will be implemented may be described here or annexed to the IEE.

1.4 Intervention Categories for Purposes of Environmental Review (if needed)

If the intervention categories being used for purposes of environmental review are different than the results framework, identify these categories in this section. (see notes box immediately below)

NOTES: Why might intervention categories in the IEE be different than the results framework?

Organizing activities by IRs/sub-IRs is preferable, when consistent with an IEE that minimizes redundancy and internal cross-references. However, organizing by IRs/sub-IRs is not always consistent with these objectives.

For example, consider a health portfolio that includes interventions in (1) Family planning/reproductive health (FP/RH); (2) Maternal, neonatal and child health (MNCH); (3) HIV/AIDS; (4). Malaria treatment; and (5) Tuberculosis control. The program has an IR for each of these health "sectors."

Many types of interventions will be undertaken in more than one—and sometimes several—of these health sectors. For example, procurement of pharmaceuticals may be supported in the malaria, HIV/AIDS, maternal and child health, and tuberculosis areas, all of which also include training of care providers and strengthening health care commodity supply chains.

The potential adverse environmental and health impacts of concern for pharmaceutical procurement, health care provider training, etc. are similar across health sectors. Analyzing these impacts separately for each sector would be highly redundant and make for an inefficient and unmanageably long IEE. Therefore, for purposes of environmental review, interventions in this health portfolio could be organized and assessed in intervention categories like these:

1. *Direct Provision of Healthcare*
2. *Healthcare Worker/Delivery Agent/Workforce Training; Strengthening, and Development*
3. *Procurement and Supply Chain Strengthening Activities*
4. *Behavior Change Communication, community mobilization, and education/outreach*
5. *Health System strengthening, excluding commodity procurement/supply chain strengthening*
6. *Rehabilitation and Small-Scale Construction, other than water/sanitation activities*

Each intervention category has a number of entailed activities; these will be listed, and, where not self-explanatory, explained in Section 3 of the IEE.

2.0 BASELINE INFORMATION AND APPLICABLE HOST COUNTRY REQUIREMENTS

(Subheadings are recommended. Others may be appropriate.)

2.1 Locations Affected

In this section, briefly describe the biophysical and social environment in which the activities are to be implemented. See notes box immediately below.

NOTES: Scope and Needed Relevance of Information in this section.

***Where specific activity sites are known**, site-specific information (usually including annexed maps and photos) must be provided. Site specific information should serve as an environmental baseline for future environmental monitoring and evaluation.*

***Where specific sites are not known** and for more general information, this section should draw on the CDCS and supportive analyses such as the Environmental Threats and Opportunities Assessment or FAA 118/119 Assessment, Conflict Vulnerability Assessment, etc.*

Address climate change. *The section must describe reasonably expected changes in relevant baseline conditions (see below) due to climate change. Where the project can reasonably be expected to affect existing sinks and sources of greenhouse gases in a total amount equal to or greater than 25,000 metric tons/year, these existing sinks and sources should be described and quantified.*

Include relevant information only. *All information in this section must be relevant to the environmental analysis that follows in section 3. Irrelevant "fill material" should NOT be included. Depending upon the activities proposed, relevant information could include, but is not limited to:*

land use, geology, topography, soil, climate, groundwater resources, surface water resources, terrestrial communities, aquatic communities, environmentally sensitive areas (e.g., wetlands or protected species), agricultural cropping patterns and practices, infrastructure and transport services, air quality, demography (including population trends/projections), cultural resources, the social and economic characteristics of the target communities, environment-conflict linkages, key ecosystem services provided by the proposed site(s).

2.2 Applicable Host Country Environmental and Social Laws, Regulations and Policies

In this section, summarize host country environmental, health and safety laws as well as land tenure, regulations and policies relevant to the proposed activities. Host country EIA processes

3.0 POTENTIAL ENVIRONMENTAL IMPACTS & RECOMMENDED DETERMINATIONS, INCLUDING CONDITIONS

This section addresses each intervention category in turn: describing the activities, evaluating their potential adverse impacts, and on that basis recommending determinations (including conditions, as appropriate.)

Suggested introductory text;
As set out in section 1.4, for the purpose of environmental review, activities of the XXXX program addressed by this IEE are grouped into the following intervention categories.

(list intervention categories)

Each category contains a number of entailed activities. In sections 3.X-3.Y, the entailed activities are described and their potential impacts analyzed. On this basis, Recommended Determinations are made. In most cases, Negative Determinations entail conditions. Upon approval of this IEE, implementation of these conditions becomes mandatory.

3.1 General Impacts of XXX Activities (optional)

Before assessing the specific activities in each intervention category, an analysis of the general adverse impacts of the sectoral activities at issue is often helpful. (For example, the "adverse impacts of health care service delivery due to failure to properly manage resulting wastes".) This general analysis, performed once in this section, can be referred to as needed in the sections that follow, saving the need for repetitive analyses in multiple sections and reducing the length of the IEE.

3.2 Intervention Category 1: [insert name of category]

This section enumerates and describes (if necessary) the activities in the first intervention category. It then assesses their potential impacts and identifies considerations regarding recommended determinations and conditions. Finally, it sets out recommended determinations and conditions.

Entailed activities. This intervention category consists of the following activities:

- *Enumerate activities in this category Describe when they are not self-explanatory.*

Potential Adverse Impacts & Considerations Regarding Recommended Determinations.

See notes box below. Analysis should be parallel to the enumeration of activities, immediately above.

Recommended Determinations. Per the above analysis, the following determinations are recommended for activities in this intervention category:

Activity or Activity sub-category	***Recommended Determination***
Nutrition education	***Categorical exclusion*** *, per 22 CFR 216.2(2)(c)(2)(viii)*
Training of midwives in management of third-stage labor	***Negative Determination****, subject to the* ***conditions*** *that* *(specify conditions, using "will," "must" or "shall")*

Following from the analysis immediately above, this sub-section recommends a categorical exclusion, negative determination (with or without conditions), positive determination, or deferral for:
- *each activity OR*
- *for clusters of interventions in this category*
- *for the intervention category as a whole.*

The level of aggregation/disaggregation at which determinations are recommended will follow from the analysis of potential adverse impacts. For clarity, use a table to present recommended determinations, including, conditions. Note that the supporting clause of Reg. 216 is cited for categorical exclusions. Presentation should be parallel to the "entailed activities" and "potential adverse impacts" discussions immediately above. See notes box below.

3.3 Intervention Category 2: [insert name of category]

Proceed as with intervention category one.

Entailed activities. This intervention category consists of the following activities
- *Enumerate activities in this category Describe them when they are not self-explanatory*

Potential Adverse Impacts & Considerations Regarding Recommended Determinations

Recommended Determinations. Per the above analysis, the following **determinations** are recommended for activities in this intervention category:

Activity or Activity sub-category	***Recommended Determination,***

3.3 Intervention Category 3: [insert name of category]

Add sections in this format until all intervention categories are addressed.

Entailed activities.

Potential Adverse Impacts & Considerations Regarding Recommended Determinations

Recommended Determinations. Per the above analysis, the following **threshold determinations** are recommended for activities in this intervention category:

Activity or Activity sub-category	***Recommended Determination,***

NOTES: "Potential Adverse Impacts & Considerations Regarding Recommended Determinations"

- ***Adverse impacts:*** *This sub-section of the IEE identifies and evaluates all reasonably foreseeable potential adverse environmental, human health, and social impacts of the proposed activities. This includes but is not limited to direct, indirect, short-term, long-term, and/or cumulative impacts*
- ***Address Climate Change.*** *The following must be identified/addressed when identifying and evaluating adverse impacts:*

  1. Document whether or not the proposed activities will emit 25,000 metric tons or more of CO2-equivalent greenhouse gas emissions on an annual basis. This includes induced changes in existing sinks/sources.

  2. Potential adverse impacts of the proposed activities on local resilience/vulnerability[1] in the context of climate change. E.g. an irrigation project may place additional stress on local water resources already expected to diminish due to climate change. This analysis should be

  3. Potential adverse impacts of changing baseline conditions on activity outcomes or sustainability—i.e. vulnerability of the proposed activities to reasonably anticipated climate changes.[2].
- ***Considerations regarding recommended determinations and conditions.*** *The analysis should address the extent to which impacts may (or may not) reliably be held or reduced to a non-significant level with mitigation measures within the manageable interest of USAID, and the nature of these measures. Where straightforward mitigation measures can control impacts to a non-significant level with high reliability, this is grounds for a negative determination with conditions rather than a positive determination, even if the impacts, if left unmitigated, are potentially significant.*

  Emission of more than 25,000 metric tons of CO2-equivalent/year does not, of itself, trigger a positive determination. However, this level of emission does require conditions or integrated design features that mitigate emissions to the extent practicable.

  In the case of activities that belong to a class eligible for categorical exclusion, the analysis should specifically state whether or not impacts, including indirect impacts, are foreseeable, that would render the activity ineligible for categorical exclusion. See 22 CFR 216.2(c)(3).

NOTES: Recommended Determinations and Conditions.

- ***Beneficial impacts do not affect determinations.*** *Under 22 CFR 216, determinations are made solely on the basis of the potential for significant adverse impacts arising from the proposed activities. While it is useful to identify beneficial impacts, the analysis cannot argue against a positive determination because beneficial impacts outweigh adverse ones.*
- ***Conditions.*** *Conditions can be assigned ONLY to Negative Determinations. Conditions are EITHER (1) specific mitigation measures to avoid, minimize, eliminate or compensate for environmental and social impacts, or requirements to develop such measures.*

  Conditions must be (1) technically sound (a key reference is the USAID Sector Environmental Guidelines; http://www.usaidgems.org/sectorGuidelines.htm); (2) commensurate with the anticipated impact; and (3) within USAID's manageable interest. (E.g. USAID cannot impose conditions on parties over which the agency has no control.) Conditions must follow logically from the analysis in Section 3.

  Conditions, like the determination itself, are recommended in the IEE, and affirmed by the final clearance of the IEE. Upon final clearance, they become mandatory elements of activity implementation. Thus, they are written in the imperative, using "shall," "will," or "must" — not "should" Where flexibility is required to recognize limitations in USAID control over the activity or other factors, use modifiers like "to the greatest extent practicable," or "wherever appropriate."

[1] Vulnerability is the degree to which something can be harmed by or cope with stressors such as those caused by climate change. It is a function of:

- Exposure: the extent to which something is subject to a stressor.
- Sensitivity: the extent to which something will change if it is exposed to a stressor.
- Adaptive capacity: the combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities

[2] Ibid.

- ***Climate Change and Conditions.*** *Conditions must address, as relevant, potential adverse impacts OF the project on local resilience/vulnerability (e.g. additional stress on water resources) AND potential adverse impacts of changing baseline conditions on the project.)*

- ***Do not "bundle" activities by recommended determination.*** *Present recommended determinations once, clearly and succinctly. Present them in the same order that activities are listed and adverse impacts assessed. Do NOT use statements such as:*

  "Activities involving education, technical assistance, or training, except to the extent they directly affect the environment (such as construction of facilities, etc.) are recommended for categorical exclusion per 22 CFR 216.2(c)(2)(i)"

  Such statements are not substantive. They do not make clear which specific activities or fall into this category. The use of "involving" is also incorrect. It is only activities that consist exclusively of education, TA or training that may be eligible for categorical exclusion.

4.0 GENERAL IMPLEMENTATION AND MONITORING REQUIREMENTS

This section of the IEE establishes overall implementation procedures intended to assure that conditions in the IEE are translated into activity-specific mitigation measures, and to assure systematic compliance with the IEE during activity implementation. These procedures are themselves a general condition of approval for the IEE, and their implementation is therefore mandatory.

While the general conditions language below may be edited as appropriate, the intent of each must be preserved in the submitted language.

Recommended text (edit conditions as appropriate):
In addition to the specific conditions enumerated in Section 3, the negative determinations recommended in this IEE are contingent on full implementation of the following general monitoring and implementation requirements:

1. **IP Briefings on Environmental Compliance Responsibilities.** The XXX team shall provide each Implementing Partner (hereinafter IP), with a copy of this IEE; each IP shall be briefed on their environmental compliance responsibilities by their C/AOR. During this briefing, the IEE conditions applicable to the IP's activities will be identified.

2. **Development of EMMP.** Each IP whose activities are subject to one or more conditions set out in Section 3 of this IEE shall develop and provide for C/AOR review and approval of an Environmental Mitigation and Monitoring Plan (EMMP) documenting how their project will implement and verify all IEE conditions that apply to their activities.

   These EMMPs shall identify how the IP shall assure that IEE conditions that apply to activities supported under subcontracts and subgrant are implemented. In the case of large subgrants or subcontracts, the IP may elect to require the subgrantee/subcontractor to develop their own EMMP.
   (Note: The AFR EMMP Factsheet provides EMMP guidance and sample EMMP formats: http://www.usaidgems.org/Documents/lopDocs/ENCAP_EMMP_Factsheet_22Jul2011.pdf)

   Note: in some cases, the development, approval and implementation of project environmental compliance procedures may be required instead of an EMMP.

   In general, EMMPs are developed by IPs concurrent with workplan development, after clearance of the IEE. In some instances, where the IEE addresses activities or sites with a high degree of specificity, the IEE may include a draft or final EMMP. While IEEs may specify one, the AFR BEO does not require a specific EMMP or reporting template. EMMPs are typically reviewed and approved by the MEO and COR. For more environmentally complex and consequential activities, the IEE may require review and approval by the REA or, more rarely, the BEO.

3. **Integration and implementation of EMMP.** Each IP shall integrate their EMMP into their project work plan and budgets, implement the EMMP, and report on its implementation as an element of regular project performance reporting.

IPs shall assure that sub-contractors and sub-grantees integrate implementation of IEE conditions, where applicable, into their own project work plans and budgets and report on their implementation as an element of sub-contract or grant performance reporting.

4. **Integration of compliance responsibilities in prime and sub-contracts and grant agreements.**
    a. The XXX team shall assure that any future contracts or agreements for implementation of activities covered by this IEE, and/or significant modification to current contracts/agreements shall reference and require compliance with the conditions set out in this IEE, as required by ADS 204.3.4.a.6 and ADS 303.3.6.3.e.
    b. IPs shall assure that future sub-contracts and sub-grant agreements, and/or significant modifications to existing agreements, reference and require compliance with relevant elements of these conditions.
5. **Assurance of sub-grantee and sub-contractor capacity and compliance.** IPs shall assure that sub-grantees and subcontractors have the capability to implement the relevant requirements of this IEE. The IP shall, as and if appropriate, provide training to subgrantees and subcontractors in their environmental compliance responsibilities and in environmentally sound design and management (ESDM) of their activities.
6. **XXX team monitoring responsibility.** As required by ADS 204.3.4.b.(1), the XXX team will actively monitor and evaluate whether the conditions of this IEE are being implemented effectively and whether there are new or unforeseen consequences arising during implementation that were not identified and reviewed in this IEE. If new or unforeseen consequences arise during implementation, the team will suspend the activity and initiate appropriate, further review in accordance with 22 CFR 216. USAID Monitoring shall include regular site visits.
7. **New or modified activities.** As part of its Work Plan, and all Annual Work Plans thereafter, IPs, in collaboration with their C/AOR, shall review all on-going and planned activities to determine if they are within the scope of this IEE.

    If activities in the XXX portfolio outside the scope of this IEE are planned, the XXX team shall assure that an amendment to this IEE addressing these activities is prepared and approved prior to implementation of any such activities.
    Any ongoing activities found to be outside the scope of the approved Regulation 216 environmental documentation shall be modified to comply or halted until an amendment to the documentation is submitted approved.

8. **Compliance with Host Country Requirements.** Nothing in this IEE substitutes for or supersedes IP, subgrantee and subcontractor responsibility for compliance with all applicable host country laws and regulations. The IP, subgrantees and subcontractor must comply with host country environmental regulations unless otherwise directed in writing by USAID. However, in case of conflict between host country and USAID regulations, the latter shall govern.

Annex 1: Acronyms List (optional)

Session 8.
Scoping, EA & PEA Basics

(0:30)

Objectives

Understand how full EIA studies (e.g. Reg. 216 EAs) differ from preliminary assessments (e.g. IEEs) and how they are triggered.

Understand the key process steps of developing a full EIA study, and how meaningful alternatives analysis and consultation are essential to the process

Understand contracting options, timing and management/oversight requirements for Reg. 216 EAs.

Format

Presentation and Q&A)

Summary

In session 3, we briefly addressed "Phase II" of the overall EIA process—the full EIA study. In session 5, we addressed how full EIA studies are triggered under 22 CFR 216, where there are terms *Environmental Assessments* or *Programmatic Environmental Assessments.*

In this session, we review this earlier material and quickly move to a more in-depth examination of the content and process for scoping and full EIA studies under 22 CFR 216, their relationship to full EIA studies required under host country procedures, and an orientation to contracting options, timing requirements, and other considerations for USAID staff charged with procuring and overseeing tushc studies.

22 CFR 216 Scoping & EA language

22 CFR 216.3(a)(4)
Scope of Environmental Assessment or Impact Statement

(i) **Procedure and Content**. After a Positive Threshold Decision has been made, or a determination is made under the pesticide procedures set forth in §216.3(b) that an Environmental Assessment or Environmental Impact Statement is required, the originator of the action shall commence the process of identifying the significant issues relating to the proposed action and of determining the scope of the issues to be addressed in the Environmental Assessment or Environmental Impact Statement. The originator of an action within the classes of actions described in §216.2(d) shall commence this scoping process as soon as practicable. Persons having expertise relevant to the environmental aspects of the proposed action shall also participate in this scoping process. (Participants may include but are not limited to representatives of host governments, public and private institutions, the A.I.D. Mission staff and contractors.) This process shall result in a written statement which shall include the following matters:

(a) A determination of the scope and significance of issues to be analyzed in the Environmental Assessment or Impact Statement, including direct and indirect effects of the project on the environment.

(b) Identification and elimination from detailed study of the issues that are not significant or have been covered by earlier environmental review, or approved design considerations, narrowing the discussion of these issues to a brief presentation of why they will not have a significant effect on the environment.

(c) A description of

(1) the timing of the preparation of environmental analyses, including phasing if appropriate,

(2) variations required in the format of the Environmental Assessment, and

(3) the tentative planning and decision-making schedule; and

(d) A description of how the analysis will be conducted and the disciplines that will participate in the analysis.

(ii) These written statements shall be reviewed and approved by the Bureau Environmental Officer.

(iii) **Circulation of Scoping Statement**. To assist in the preparation of an Environmental Assessment, the Bureau Environmental Officer may circulate copies of the written statement, together with a request for written comments, within thirty days, to selected federal agencies if that Officer believes comments by such federal agencies will be useful in the preparation of an Environmental Assessment. Comments received from reviewing federal agencies will be considered in the preparation of the Environmental Assessment and in the formulation of the design and implementation of the project, and will, together with the scoping statement, be included in the project file.

(iv) **Change in Threshold Decision**. If it becomes evident that the action will not have a significant effect on the environment (i.e., will not cause significant harm to the environment), the Positive Threshold Decision may be withdrawn with the concurrence of the Bureau Environmental Officer. In the case of an action included in §216.2(d)(2), the request for withdrawal shall be made to the Bureau Environmental Officer.

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22 CFR 216.6 Environmental assessments.

(a) **General Purpose**. The purpose of the Environmental Assessment is to provide Agency and host country decision-makers with a full discussion of significant environmental effects of a proposed action. It includes alternatives which would avoid or minimize adverse effects or enhance the quality of the environment so that the expected benefits of development objectives can be weighed against any adverse impacts upon the human environment or any irreversible or irretrievable commitment of resources.

(b) **Collaboration with Affected Nation on Preparation**. Collaboration in obtaining data, conducting analyses and considering alternatives will help build an awareness of development associated environmental problems in less developed countries as well as assist in building an indigenous institutional capability to deal nationally with such problems. Missions, Bureaus and Offices will collaborate with affected countries to the maximum extent possible, in the development of any Environmental Assessments and consideration of environmental consequences as set forth therein.

(c) **Content and Form**. The Environmental Assessment shall be based upon the scoping statement and shall address the following elements, as appropriate:

(1) **Summary**. The summary shall stress the major conclusions, areas of controversy, if any, and the issues to be resolved.

(2) **Purpose**. The Environmental Assessment shall briefly specify the underlying purpose and need to which the Agency is responding in proposing the alternatives including the proposed action.

(3) **Alternatives Including the Proposed Action**. This section should present the environmental impacts of the proposal and its alternatives in comparative form, thereby sharpening the issues and providing a clear basis for choice among options by the decision-maker. This section should explore and evaluate reasonable alternatives and briefly discuss the reasons for eliminating those alternatives which were not included in the detailed study; devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits; include the alternative of no action; identify the Agency's preferred alternative or alternatives, if one or more exists; include appropriate mitigation measures not already included in the proposed action or alternatives.

(4) **Affected Environment**. The Environmental Assessment shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives. Data and analyses in the Environmental Assessment shall be commensurate with the significance of the impact with less important material summarized, consolidated or simply referenced.

(5) **Environmental Consequences**. This section forms the analytic basis for the comparisons under paragraph (c)(3) of this section. It will include the environmental impacts of the alternatives including the proposed action; any adverse effects that cannot be avoided should the proposed action be implemented; the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity; and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented. It should not duplicate discussions in paragraph (c)(3) of this section. This section of the Environmental Assessment should include discussions of direct effects and their significance; indirect effects and their significance; possible conflicts between the proposed action and land use plans, policies and controls for the areas concerned; energy requirements and conservation potential of various alternatives and mitigation measures; natural or depletable resource requirements and conservation potential of various requirements and mitigation measures; urban quality; historic and cultural resources and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures; and means to mitigate adverse environmental impacts.

(6) **List of Preparers**. The Environmental Assessment shall list the names and qualifications (expertise, experience, professional discipline) of the persons primarily responsible for preparing the Environmental Assessment or significant background papers.

(7) **Appendix**. An appendix may be prepared.

(d) **Program Assessment**. Program Assessments may be appropriate in order to assess the environmental effects of a number of individual actions and their cumulative environmental impact in a given country or geographic area, or the environmental impacts that are generic or common to a class of agency actions, or other activities which are not country-specific. In these cases, a single, programmatic assessment will be prepared in A.I.D./Washington and circulated to appropriate overseas Missions, host governments, and to interested parties within the United States. To the extent practicable, the form and content of the programmatic Environmental Assessment will be the same as for project Assessments. Subsequent Environmental Assessments on major individual actions will only be necessary where such follow-on or subsequent activities may have significant environmental impacts on specific countries where such impacts have not been adequately evaluated in the programmatic Environmental Assessment. Other programmatic evaluations of class of actions may be conducted in an effort to establish additional categorical exclusions or design standards or criteria for such classes that will eliminate or minimize adverse effects of such actions, enhance the environmental effect of such actions or reduce the amount of paperwork or time involved in these procedures. Programmatic evaluations conducted for the purpose of establishing additional categorical exclusions under §216.2(c) or design considerations that will eliminate significant effects for classes of actions shall be made available for public comment before the categorical exclusions or design standards or criteria are adopted by A.I.D. Notice of the availability of such documents shall be published in the *Federal Register*. Additional categorical exclusions shall be adopted by A.I.D. upon the approval of the Administrator, and design consideration in accordance with usual agency procedures.

(e) **Consultation and Review**.

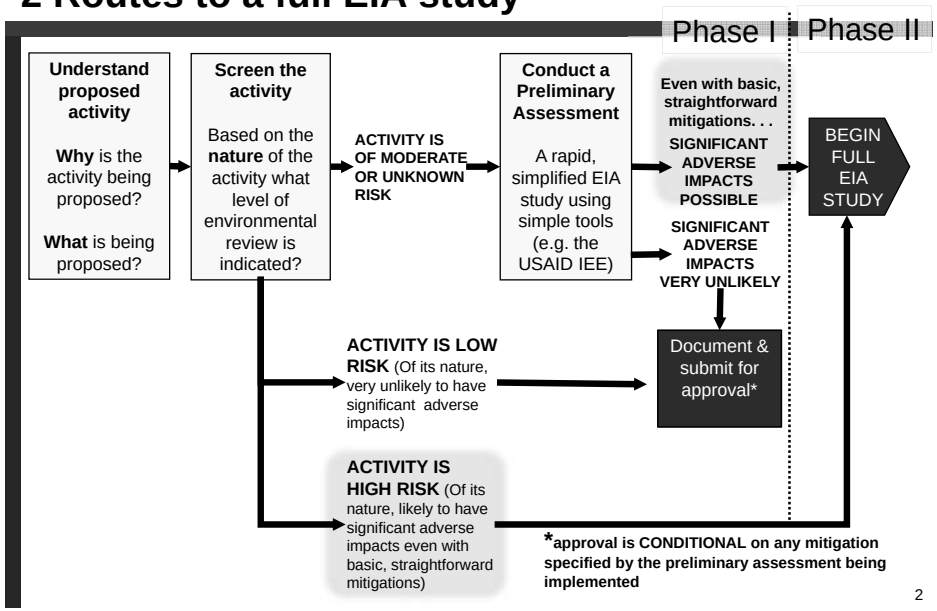
(1) When Environmental Assessments are prepared on activities carried out within or focused on specific developing countries, consultation will be held between A.I.D. staff and the host government both in the early stages of preparation and on the results and significance of the completed Assessment before the project is authorized.

(2) Missions will encourage the host government to make the Environmental Assessment available to the general public of the recipient country. If Environmental Assessments are prepared on activities which are not country specific, the Assessment will be circulated by the Environmental Coordinator to A.I.D.'s Overseas Missions and interested governments for information, guidance and comment and will be made available in the U.S. to interested parties.

Session 8: Scoping, Environmental Assessments & Programmatic Env Assessments

(full EIA Studies under Reg. 216)

EIA Process Review: 2 Routes to a full EIA study



Review: Phase I leads to a full EIA Study when. . .

Phase II: Full EIA (if needed)

- Scope
- Evaluate baseline situation
- Identify & choose alternatives
- Identify and characterize potential impacts of proposed activity and each alternative
- Develop mitigation and monitoring
- Communicate and document

1. When a preliminary assessment indicates that significant adverse impacts are possible
2. When screening indicates an activity is high risk*

*But in most cases we still recommend doing a preliminary assessment!

Review: What is clearly "high risk" per Reg 216 screening criteria*?

EA DEFINITELY REQUIRED	NOT CLEAR—proceed to IEE
New 500Ha irrigation scheme	Rehabilitation of 50Ha irrigation scheme
Major expansion of a 100MW thermal power plant & construction of new transmission lines	Mini-hydro installations of 500 kw total
Widening 30km of a 2-lane road to 6-lane tollway thru an urban area	Rehabilitation of multiple short segments of rural feeder road

Sections 118 & 119 of the Foreign Assistance Act REQUIRE an EA for. .
Activities involving procurement or use of logging equipment
Activities with the potential to significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas

*"Classes of actions. . .determined generally to have a significant impact on the environment" (22 CFR 216.2(d))

Review: the IEE = USAID's "Preliminary Assessment"

An approved IEE = an approved determination for each activity covered

	Meaning
NEGATIVE DETERMINATION	Significant adverse environmental impacts very unlikely
NEGATIVE DETERMINATION WITH CONDITIONS	With specified mitigation and monitoring, significant adverse environmental impacts very unlikely
POSITIVE DETERMINATION	Significant adverse environmental impacts are possible
DEFERRAL	Not enough information to evaluate impacts

A **positive determination** triggers a full EIA

IMPACTS NEED NOT BE DIRECT. SIGNIFICANT ADVERSE INDIRECT OR CUMULATIVE IMPACTS WILL TRIGGER A PD.

Under host country procedures, what activities typically require an EA?

- **Larger-scale infrastructure, e.g. water treatment facilities, dams, power plants and transmission lines; pipelines, roads, landfills, etc.**
- **Other large scale programs with significant total biophysical impact, e.g., large agricultural programs; extensive use of pesticides in public health**
- **Activities resulting in significant withdrawals from fresh water bodies or aquifers**
- **Construction or land conversion in protected areas, wetlands, critical habitat.**

USAID: Reg. 216 specifies 3 types of full EIAs:

The Environmental Assessment (EA)

Used to assess a single, specific project or action, e.g.
- a single dam or irrigation project
- a gas or oil pipeline

Programmatic Environmental Assessment (PEA)*

Used to assess a **class of similar actions**, e.g.,
- Multi-country IRS programs
- Water or sanitation interventions to be replicated in a larger number of locations

Environmental Impact Statement

For activities affecting the US environment or the global commons.

(Very Rare)

Reg 216 does not discusses the content of the PEA in detail. However, the regulation states:
"To the extent practicable, the form and content of the PEA will be the same as for EAs."

*The term in Reg. 216 is "Program Assessment"

How is an EA different than an IEE?

The EA has very similar objectives and structure to an IEE.

However, the EA differs in important ways:

- ! A formal scoping process precedes the EA to ID issues to be addressed
- ! Analysis of environmental impacts is much more detailed
- ! Alternatives* must be formally defined. The impacts of each alternative must be identified & evaluated, and the results compared.
- ! Consultation with the host country is required (216.6(e)).

A professional EIA team is usually required.

**includes the project as proposed, the no-action alternative at least one other real alternative*

First step in preparing an EA: Scoping

1. **Prepare Scoping Statement**
2. BEO review
3. Prepare TORs
4. Assemble Team

Scoping determines the significant issues, **physical and time boundaries, associated facilities and alternatives to be assessed by the EA.**

The deliverable for the scoping process is the **scoping statement**.

Per 22 CFR 216.3(a)(4), the statement includes:

- Scope and significance of issues to be analyzed--includes social impacts**.**
- Issues that do not need to be addressed
- Schedule and format of EA, expertise needed

IF AN IEE HAS BEEN PREPARED, IT IS A KEY INPUT TO THE SCOPING PROCESS.

! Public consultation is not required by Reg. 216. However, good practice & most host countries require it during scoping.

First steps in preparing an EA

1. Prepare Scoping Statement
2. **BEO review**
3. **Prepare SOW/TOR**
4. **Assemble Team**

The scoping statement must be approved by the BEO.

STRONGLY RECOMMENDED:
Consult with the REA or BEO before beginning the Scoping process.

Terms of Reference for the EIA team are based on the types of issues and analysis required by the scoping statement

Assemble a team based on the TORs.
Frequently requires contracting with one or more experts, or an EIA consulting firm.

The EA outline

Reg. 216 specifies that an EA contains:

1. Summary
2. Purpose
*3. Comparison of alternatives***
4. Affected Environment
5. Environmental Consequences
6. List of Preparers and appendices
Appendices (as indicated)

* 22CRR 216.6.
** Reg. 216 uses the term:
"Alternatives Including the Proposed Action"

Section contents

- **Summary**
- **Purpose**
- Comparison of alternatives
- Affected Environment
- Environmental Consequences
- List of Preparers

Major conclusions
Areas of controversy
Issues still to be resolved.

Describes the **development need** or **objective** that the proposed actions (and its alternatives) are intended to address

Section contents

Summary

Purpose

Comparison of alternatives

Affected Environment

Environmental Consequences

List of Preparers

Present the alternatives considered

- Includes the no action alternative
- Explain why certain alternatives were not considered

! ALTERNATIVES MUST BE MEANINGFUL

Compare the environmental impacts of these alternatives

- Summary of the analysis presented in "environmental consequences"
- Include mitigation actions

Identify the preferred alternative

Section contents

Summary

Purpose

Comparison of alternatives

Affected Environment

Environmental Consequences

List of Preparers

Succinctly describe the environment of the area(s) to be affected

Note that different alternatives may affect different geographic areas or aspects of the environment. The description here must cover all alternatives AND associated facilities

Section contents

Summary

Purpose

Comparison of alternatives

Affected Environment

Environmental Consequences

List of Preparers

Presents the environmental impacts of each alternative

Includes the proposed action and the no action alternative

Should include*

- Any adverse effects and their significance (including those that cannot be avoided)
- Relationship between short-term uses of the environment and maintenance/ enhancement of long-term productivity
- Conflicts with other policies, plans or controls for the areas under consideration
- Recommended mitigation measures

*See 216.6.(c)(5) for full list

REMEMBER:

WHEN ASSESSING IMPACTS, TOO MUCH INFORMATION IS AS BAD AS NOT ENOUGH

!

Provide the most detailed analysis for the more significant impacts.

Summarize or reference for lesser impacts

*See 216.6.(c)(4)

Annexes can be useful in organizing the EA so that only the most critical information for decision-making is in the body of the EA

Coordination with host country procedures

1 ***The large majority of host countries now have EIA policies and procedures***

&

2 ***Most projects that require an EA under Reg. 216 will also require a full EIA under host country procedures***

Implications:

- *Make one document to satisfy both USAID & host country procedures*
- *Will require discussions in the scoping process with host country EIA regulatory agency.*

Note: Reg. 216 REQUIRES collaboration with host country "to the maximum extent possible" in developing EAs.

Gaps in the Reg. 216 EA requirements

- **Reg. 216 <u>does not</u>**
  - ***Require public consultation***
  - ***Clearly require an EMMP***

! However, both are essential to make the EA effective—and usually required by host country procedures.

www.saiea.com

Timing, Procuring & Overseeing EAs

***"Good News" EA Case Studies**: Illustrations of the Value of EA in Development*

<u>www.saiea.com/Case_study_book_09.htm</u>

NEED should be identified NLT PAD stage & <u>funds set aside</u>

Procurement options:

- **Undertake scoping internally, and**
  - ***Engage independent contractor for EA; or***
  - ***Include EA in IP's SOW***
- **Engage independent contractor for scoping and EA**
- **Include Scoping + EA in IP's SOW (but has drawbacks)**

Note: GEMS can provide sample SOWs

BE AWARE

EAs <u>can</u> lead to abandonment or redesign of the "preferred alternative" – therefore best to do BEFORE the project RFP is issued

2-phase budgeting is required: the SOW for the EA is determined by the scoping process/statement

Activities to be covered by the EA cannot be implemented until EA is completed and approved.

Like all 22 CFR 216 documents, team leader has responsibility for EA completion & approval (activity manger or COR/AOR if assigned)

USAID takes full ownership for EAs once signed: they are USAID documents, not the contractor's.

EAs also submitted to host countries authorities: firm registration; substantial involvement in EA by a local firm often required.

Session 9. Impact Assessment 201

(1:25)

Objective

Gain a working familiarity with a set of key concepts in impact assessment beyond the introductory level.

Format

0:10 Part A: Orientation
0:15 Part B: Cumulative Impacts
0:15 Part C: Indirect Impacts
0:15 Part D: Ecosystem Services
0:15 Part E: Social Impacts
0:15 Part F: GCC & Impact Assessment

Instructions

In this session, we are introduced, via a series of 15 minute mini-briefings, to key concepts and analytical approaches in impact assessment beyond the introductory level.

These key concepts—cumulative impacts, indirect impacts, ecosystem services, social impacts, and Global Climate Change (GCC) and impact assessments—have important application in impact assessment generally, as defined both by professional good impact assessment practice and EIA laws and regulation, including those of the US Council on Environmental Quality (CEQ) that govern USAID implementation of 22 CFR 216. They are frequently particularly critical in the assessment of more complex and/or larger scale activities. They are often inadequately addressed in EIA processes generally, including in USAID IEEs and EAs.

The 15 minute mini-briefing for each concept or analytical approach will provide a focused and fast-paced overview, conveying the essential principles of the concept and how it is considered and incorporated into the impact assessment process.

USAID FROM THE AMERICAN PEOPLE

GLOBAL ENVIRONMENTAL MANAGEMENT SUPPORT

Session 9:
"Impact Assessment 201"

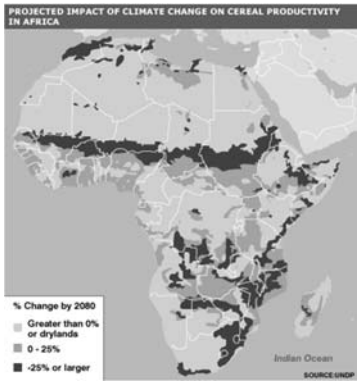
GEMS Environmental Compliance-ESDM Training Series
Africa-Asia-Latin America-Middle East 2012-2014

Session Objectives:

Introduce key "beyond the basics" topics in impact assessment in 5 mini-sessions

- ✓ *Cumulative impacts*
- ✓ *Indirect impacts*
- ✓ *Ecosystem services*
- ✓ *Social impacts*
- ✓ *Addressing GCC in Impact Assessment*

These topics will be explored further in the integrative case study.



Climate change: cumulative impact on a grand scale

Cumulative Impacts

impacts that result from the successive, incremental, and/or combined effects of an action, project, or activity when added to other existing, planned, and/or reasonably anticipated future ones.

Key points

- **Combined, incremental effects of human activity (spatial or temporal)**
- **Accumulate <u>over time from one or more sources</u>**
- **May be beneficial or adverse**

Individual minor actions that are insignificant on their own can collectively result in significant impacts over a period of time.

Implementing IEE/EA Conditions. Visit www.usaid.gov/our_work/environment/compliance/ane/index.htm & www.encapafrica.org

Examples of Cumulative Impacts

- **Use of agro-chemicals on multiple small farms → Increases in pollutant concentrations in a surface water & sediments**
- **Multiple withdrawals from small irrigation schemes → Reduction of water flow in a watershed due to multiple withdrawals.**
- **Many instances of similar land use changes on small parcels of private land → Increases in sediment loads on a watershed and/or interference with migratory routes or wildlife movement**
- **Multiple logging concessions → Deforestation, habitat loss, increase in erosion and sediment loads in a watershed**

Adapted from IFC *Good Practice Handbook Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets (August 2013)*

Types of Cumulative Impacts

Interactive :

Greater than the sum of individual impacts

- **Magnification**
- **Synergistic**

Additive:

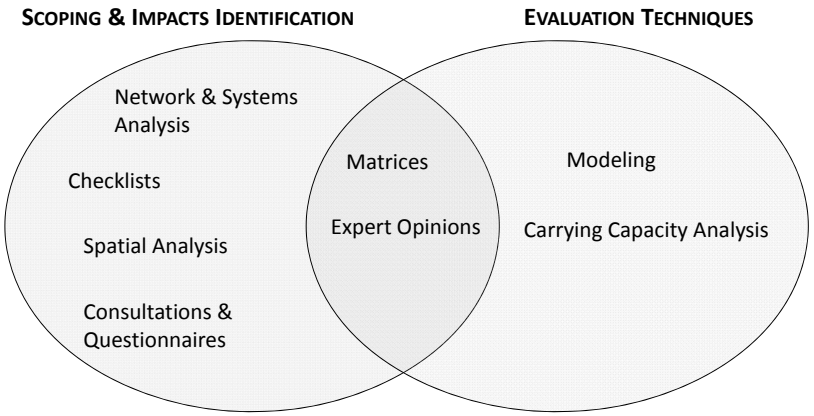
Equal to the sum of individual impacts

Why consider cumulative impacts?

- **Required under US NEPA**
  - *And thus in 22 CFR 216 documents*
- **Required element of MDB ESIA studies**
- **Required under most host country ESIA laws and regulations**
- **Well-established element of ESIA good practice**
- **Not doing so can lead to serious failures of development *even at small scales***

Source: FAO: duckweed treatment of biodegester effluent

What tools do we use in cumulative impact assessment?



Adapted from European Commission,1999

Uncertainties in Cumulative Impact Assessment

- ❖ Boundaries
- ❖ Timeframe
- ❖ CIA procedure
- ❖ Methods
- ❖ Tools
- ❖ Data requirements
- ❖ Complexity of the analysis
- ❖ Temporal and geographic boundaries
- ❖ Predictive abilities

Summary

- ✓ **Cumulative impacts are the additive AND interactive impacts of various projects and activities on environmental and social systems, temporally and geographically**
- ✓ **Limited information or knowledge is a major challenge in cumulative impact assessment**
- ✓ **Cumulative impacts assessment should be adapted to the context.**
- ✓ **Uncertainty is part of the process.**

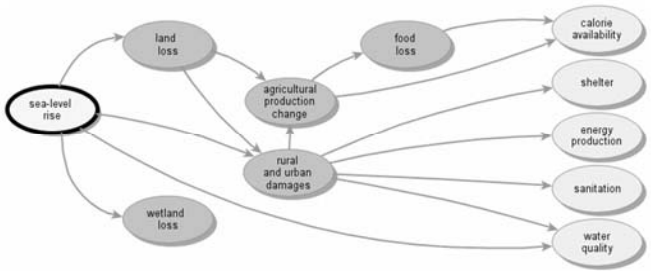
Market access road rehabilitation → increased illegal charcoal extraction

Indirect Impacts

impacts that result in whole or in part from the <u>chain of causation</u> caused by an activity, but are not the first link in that chain.

What do we mean by a "chain of causation"?

Chain of causation:
climate change→sea-level rise→???



Source: ci:grasp Climate Information Service. Ci:grasp 2.0 module demonstrator. http://www.pik-potsdam.de

Indirect Impacts: Key points

Also referred to as secondary impacts or second/third level impacts

- path of cause and effect ("chain of causation") may be complex
- May be "later in time or farther in distance"
- May have other contributing causes
- Criteria for including indirect impacts in analysis is that they be reasonably foreseeable given an expert understanding of the affected environmental, social and economic systems

Source: NY Times. Fishing with LLINs in Lake Victoria.

Examples of indirect impacts

- Improving women's education → lower birthrates
- Regulatory and policy changes to facilitate investment in the power sector → (1) higher economic growth, and (2) toxic levels of mercury in surface waters
- Creation of reservoirs for hydropower/ irrigation → higher local rates of malaria
- Investment in cold stores/cold chain → higher rates of illegal fishing
- Market access roads rehabilitation → increased forest conversion & illegal extraction of timber, charcoal & bushmeat.

The "development hypothesis" behind many programs is based on beneficial indirect impacts.

Implementing IEE/EA Conditions. Visit www.usaid.gov/our_work/environment/compliance/ane/index.htm & www.encapafrica.org

Why consider indirect impacts?

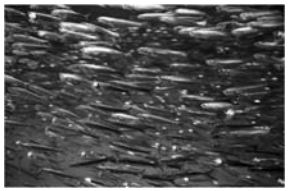
- Required under US NEPA,
  - *And thus in 22 CFR 216 documents. Specifically required for EAs by 22CFR216 .6*
- Required element of MDB ESIA studies
- Required under most host country ESIA laws and regulations
- Well-established element of ESIA good practice
- Not doing so can lead to serious failures of development *even at small scales*

Ecosystem Services

Any positive benefit that wildlife or ecosystems provides to people. These benefits can be direct or indirect – small or large

Ecosystem Services: 4 Main Categories

provisioning services
regulating services
cultural services, &
supporting services



Provisioning Services: benefits provided by the physical extraction or harvesting of a resource

E.g., food, drinking water, timber, fuel wood, plants that can be made into textiles or pharmaceuticals.

REGULATING SERVICES

Benefits provided by ecosystem processes that moderate natural phenomena.

e.g., water purification; erosion and flood control; carbon storage and climate regulation

Mangroves & coral reefs provide important regulating services: protection of coastlines, dissipation of storm surge.

CULTURAL SERVICES

"A non-material benefit that contributes to the development and cultural advancement of people including,

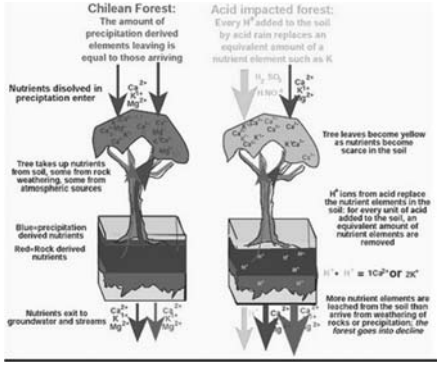
- *Roles of ecosystems in local, national and global cultures;*
- *Building of knowledge and spreading of ideas;*
- *Creativity born from interactions with nature (music, art, architecture, etc.)*
- *Recreation*

SUPPORTING SERVICES

Ecosystems themselves could not be sustained without the existence and integrity of <u>underlying natural processes, such as photosynthesis, nutrient cycling, soil creation, and the water cycle.</u>

With these supporting services, provisional, regulating, and cultural services cannot exist!

Human actions can disrupt and degrade supporting services.



www.learner.org/ Annenberg Foundation

Wetlands: Multiple, Critical Ecosystem Services

- Many important food fish spend at least part of their lifecycle in wetlands
- Wetlands retain and control flood waters
- Wetland plants absorb nutrients and chemicals from water and act as a natural filtration system
- Wetland soils store large amounts of carbon, that, if released will contribute to global climate change.
- Vital habitat for migratory species.

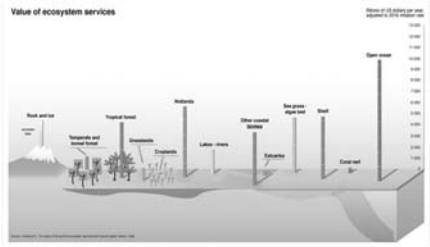
Ecosystem services, impact assessment & valuation

In any IA process, adverse impacts on ecosystem services must be identified and assessed.

At the full EIA study level, requires VALUATION.

Many approaches for valuation of ecosystem services. Often based on an ecological-economic model

Results are used to evaluate potential losses/gains of ecosystem services relative to a proposed project



Riccardo Pravettoni, UNEP/GRID-Arendal
http://www.grida.no/graphicslib/detail/value-of-ecosystem-services_defb

Forced relocation is a significant social impact, no matter the cause

Social Impacts

The effect of an activity on the social fabric of affected communities and the well-being, economic and otherwise, of individuals and families.

Not exhaustive

Types of Social Impacts

Social Impact = Changes to one or more of these factors

- Personal & property rights
- Fears & Aspirations
- Way of life
- Security/Safety
- Culture & Heritage
- Governance
- Community
- Livelihoods
- Health and well-being*
- Environmental health

With particular attention to how a factor changes for groups/communities who are often disadvantaged: indigenous peoples, women and children, minority groups, etc.

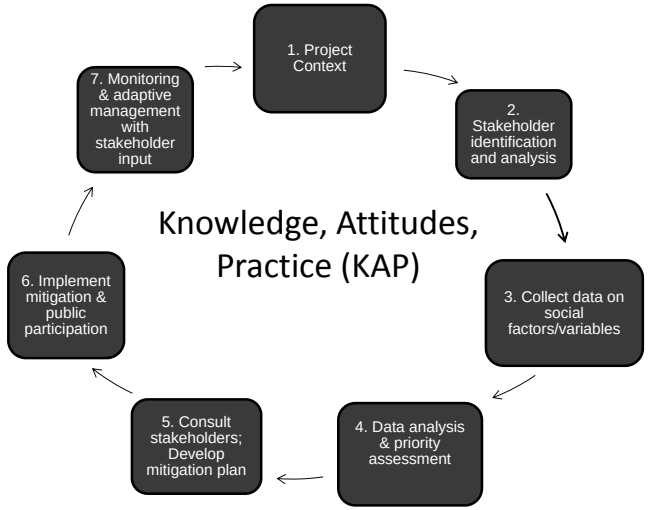
•Including Worker and Community Health & Safety; safety from crime, etc.

What is social impact assessment?

A framework to assess or estimate, in advance, the social impacts (both beneficial and adverse) likely to result from projects, programs, policies or activities.

May be integrated with EIA (ESIA) or a distinct exercise

Social Impact Assessment Process

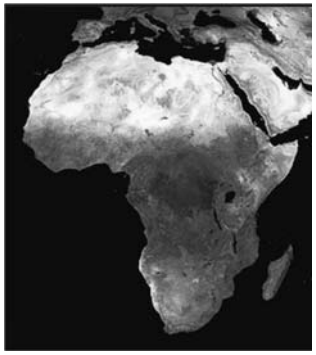


Adapted from Rietberg-McCracken and Narayan 1998

Why social impact assessment?

- **Assessment of social impacts required under US NEPA**
- **Most host country procedures require that both social and (biophysical) environmental impacts be assessed**
- **MDB requirements are for fully integrated ESIAs**
- **USAID requirements**
  - *22 CFR 216.6(a) Environmental Assessments s ("urban quality, historic & cultural resources and the design of the built environment.")*
  - *22 CFR 216.7(b)(i) Pesticide Procedures (health risks)*
  - *ADS 201 Integrating Gender into Health Programs*
  - *ADS 205 Integrating Gender Equality and Female Empowerment in USAID's Program Cycle*

Gender analysis is one dimension of SIA



Climate Change & (E)IA

Climate change = change in baseline conditions.

Key points

Very few projects will produce or prevent GHG emissions that make a significant change to global totals.

However, sound IA practice requires:

- **Factoring likely GCC-driven changes into future baseline conditions**
- **Evaluating the significance of impacts in light of these changes**
  - *E.g. watershed withdrawals by an irrigation scheme may be sustainable now --- but what if GCC is expected to reduce water availability?*
- **Identifying opportunities for GHG mitigation, consistent with activity objectives**
  - *Quantify GHG emissions & reductions if above threshold.*
- **Considering whether the proposed actions/ design choices are robust to anticipated changes in baseline conditions—and identifying measures to make them moreso.**
  - *Why? Because environmentally driven project failure will be an adverse social impact.*

Illustration: pumped irrigation w/ groundwater

CC now being observed:
slightly hotter temperatures;
slightly more variable and less overall rainfall

IA should identify:
Irrigation needs will increase. With project withdrawals, negative synergistic effects on groundwater recharge will likely occur.

CC 20-50 years out:
much hotter temperatures,
highly variable and less rainfall

IA should identify:
Higher capacity irrigation system needed but groundwater not always available. Target crop no longer suitable for climate zone.

Sound IA practice with respect to GCC has multiple benefits

- **Quantify emissions and reductions: achieve climate objectives**
- **Compliance with applicable laws, regulations & mandates**
- **Better assure design for resilience of projects to a changing climate**
- **Better assure projects are contributing to low or no emissions development and making people less vulnerable to climate change.**

Resources: Cumulative impacts

- **IFC, Good Practice Handbook: Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets, August 2013 http://www.ifc.org/wps/wcm/connect/3aebf50041c11f8383ba8700caa2aa08/IFC_GoodPracticeHandbook_CumulativeImpactAssessment.pdf?MOD=AJPERES**
- **U.S. Council on Environmental Quality http://ceq.hss.doe.gov/NEPA/ccenepa/ccenepa.htm**
- **The World Bank http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/0,,contentMDK:20742999~pagePK:148956~piPK:216618~theSitePK:244381,00.html**
- **IAIA CEA Wiki http://www.iaia.org/iaiawiki/cea.ashx**
- **Cumulative Effects Assessment Practitioners Guide (Canada) https://www.ceaa-acee.gc.ca/Content/4/3/9/43952694-0363-4B1E-B2B3-47365FAF1ED7/Cumulative_Effects_Assessment_Practitioners_Guide.pdf**

Resources: Ecosystem Services

- Costanza R et al. 1997. The value of the world's ecosystem services and natural capital. http://www.esd.ornl.gov/benefits_conference/nature_paper.pdf
- Costanza R. 2014. Changes in the global value of ecosystem services. http://www.sciencedirect.com/science/article/pii/S0959378014000685
- USAID. 2007. Payment for Ecosystem Services Handbook. http://www.oired.vt.edu/sanremcrsp/wp-content/uploads/2013/11/PES.Sourcebook.pdf
- USDA Valuing Ecosystem Services 2015 http://www.fs.fed.us/ecosystemservices/
- US EPA. 2014. Ecosystems Research: Ecosystem Services http://www2.epa.gov/eco-research/ecosystems-services
- UNEP. Ecosystem Services Economics. 2012.http://www.unep.org/ecosystemmanagement/UNEPsWork/EcosystemServicesandEconomics/tabid/514/Default.aspx
- WAVES. 2015. Wealth Accounting and Valuation of Ecosystem Services. http://www.wavespartnership.org/en/about-us

Resources: Social Impacts & SIA

- World Bank Environmental Assessment Sourcebook http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTENVASS/0,,contentMDK:20282864~pagePK:148956~piPK:216618~theSitePK:407988,00.html
- Guide to Social Impact Assessment http://unpan1.un.org/intradoc/groups/public/documents/cgg/unpan026197.pdf
- Guidelines and Principles for Social Impact Assessment http://www.nmfs.noaa.gov/sfa/social_impact_guide.htm
- UNEP Social Impact Assessment Tools and Methods http://www.unep.ch/etu/publications/EIA_2ed/EIA_E_top13_hd1.PDF
- IAIA Social Impact Assessment http://www.iaia.org/iaiawiki/sia.ashx?HL=social,impact
- World Bank http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPSIA/0,,contentMDK:20415258~pagePK:210058~piPK:210062~theSitePK:490130,00.html
- USAID Gender Analysis http://www.usaid.gov/sites/default/files/documents/1865/201sac.pdf

Session 10. Integrative Case Study

(1:15)

Objective

Deepen our understanding of the key impact assessment concepts briefed in the preceding session by illustrating how these concepts manifest and why they matter in a complex, consequential, real-life case.

Examine implications of the case for USAID programming, particularly as a collaborating or contributing partner in larger regional or sectoral development programs or initiative.

Format

Small group work/desk-based case study

NOTE: requires reading case study articles in advance

Summary

We will deepen our understanding of the key impact assessment concepts briefed in the preceding session (cumulative and indirect impacts, ecosystem services and treatment of GCC issues) by identify how these concepts manifest and why they matter in a complex, consequential, real-life case.

Instructions

Following review of the materials associated with the case study, your task as a group is to respond to the following questions, as well as to consider how the case study lessons could be applied to current or anticipated USAID projects, particularly where USAID is a collaborating or contributing partner in a larger regional or sectoral development program or initiative.

Report-out will take the form of a facilitated discussion.

Case Study Questions:

1. Who are the stakeholders in the region?
2. What are the primary activities occurring in the water basin/impacted area?
3. What are cumulative, indirect, direct impacts to this system related to the activities occurring?
4. What ecosystem services are being impacted via the various activities in the region?
5. Identify social impacts/issues of concern arising from these activities.
6. How does climate change affect the severity or significance of these impacts?
7. Identify3-4 " lessons learned" that could be applied more generally to USAID projects, especially where USAID is a collaborating or contributing partner in a larger regional or sectoral development program or initiative.

Key resources

Case study briefing and articles that follow.

Impact Assessment Concepts Integrative Case Study: Great Ruaha River Basin (Tanzania)

The case study of the Great Ruaha River basin is intended deepen our understanding of the key impact assessment concepts briefed in the preceding session (cumulative and indirect impacts, ecosystem services and treatment of GCC issues) by illustrating how these concepts manifest and why they matter in a complex, consequential, real-life example.

Instructions. Following review of the materials associated with the case study, your task as a group is to respond to the following questions, as well as to consider how the case study lessons could be applied to current or anticipated USAID projects, particularly where USAID is a collaborating or contributing partner in a larger regional or sectoral development program or initiative.

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6. How does climate change affect the severity or significance of these impacts?
7. Identify3-4 " lessons learned" that could be applied more generally to USAID projects, especially where USAID is a collaborating or contributing partner in a larger regional or sectoral development program or initiative

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SETTING

The Great Ruaha River (GRR), located in south-central Tanzania, flows through the Usangu wetlands and the Ruaha National Park east into the Rufiji River. The Ruaha River supplies approximately 22% of the total flow of the Rufiji River catchment system. The basin catchment area of the Ruaha River is ~84,000 km2[1]; it is one of three major tributaries of the Rufiji River. The inhabitants of the basin depend upon irrigation and water-related livelihoods, such as fishing and livestock, while it is a biologically diverse and important area. Thirty-eight species of fish have been identified in the Great Ruaha River system.

From 1993-1999, the population of river basin inhabitants doubled from 3 to 6 million people, increasing pressure on water resources and other ecosystem services. Irrigated rise has increased from about 3000 ha in 1958 to around 40,000 ha in 2005.

Temperature ranges from lows around 15-18C up to 32C in October/November/December. From January-August high temperatures are around 29C, while lows are around 19C in January-May and 15C June-September. The rainy season generally runs from November through April, with the heaviest rains occurring December through March. The plains area is semi-arid and the rainfall has considerable variability from year to year, while the highlands area is much wetter (1.47 m annual rainfall vs 0.72 m annual rainfall).

[1] *Estimate varies depending on the source and how the basin is measured. Another figure is 63,000 km2*

The Ruaha River's headwaters are in the Kipengere Range. From there, the river descends to the Usangu wetland plains, an important region for wildlife, irrigated agriculture and livestock in Tanzania. The wetlands are a Ramsar wetland site and an important wildlife area, particularly for large wildlife herds and birds. The park is home to Tanzania's largest elephant population, as well as large herds of buffalos, greater and lesser kudus, Grant's gazelles, wild dogs, ostriches, cheetahs, antelopes, and more than 400 species of birds. The Ruaha National Park is unique in that it encompasses a transition zone between East African savannah lands and the miombo woodlands, which are more common to the south. The park is home to plant and animal species from both ecological zones.

The wetlands cover about 2000 km2 and the core wetlands support a high species diversity of birds. The eastern wetlands are located inside the Usangu Game Reserve and from the outlet of the reserve, the river flows northeast through the Ruaha National Park and its buffer zones of wildlife reserves to finally discharge into Lake Mtera, formed by one of two dams on the river. Two dams are located on the river, the Mtera Dam (80 MW) and the Kidatu Dam (240 MW), which generate approximately 50% of Tanzania's electricity. Further downstream, it joins the Rufiji River.

The GRR is of national importance for rice production, maintenance of ecological function of the wetlands and national park, while providing enough flow for generation of electricity via two dams downstream. Resource users have been identified as:

1. Farmers who depend on rainfall and domestic water users in the high catchment area
2. Irrigators in the plains at the base of the escarpment;
3. Domestic users and rainfed maize cultivators in the plains;
4. Pastoralists, fishermen, and women in the central wetland;
5. Wildlife and tourists in the Ruaha National Park
6. Mtera/Kidatu hydropower dams

Surface water flows are used for domestic and agricultural purposes; most of the irrigation is located in the upper parts of the plains and consists of several different types of farms including large-scale state-owned farms; traditional smallholder; "improved" smallholders and smallholders peripheral to the state farms.

Long-term trends

Decreased flows in the Great Ruaha have been recorded since the early 1990s and some sections of the river have dried up completely at different times throughout the year. The once perennial river flows have become more unpredictable with negative impacts on ecological and socioeconomic aspects in the region. For example, the dry periods coincide with peak tourism and wildlife season, where viewing of game is a primary economic driver for the park. However, without water in the river, the wildlife now seek water elsewhere outside of the park. Furthermore, competition for water was not only noted among wildlife, but amongst inhabitants of the basin leading to conflict and sometimes violence. Uncontrolled and poor water management coupled with large rice irrigation schemes have been attributed for the drying of the river. Originally, the rice cultivation areas released water back into the GRR through irrigation canals, however in at least the last decade this water has been captured for use by other farmers (both with and without water licenses).

The drying of the river has severe socio-economic consequences, including hindering hydroelectricity production and causing a phase-shift in the Ruaha National Park; the ecosystem is shifting from a wet tropical environment to a dry tropical environment, with significant consequences for wildlife as well as tourism.

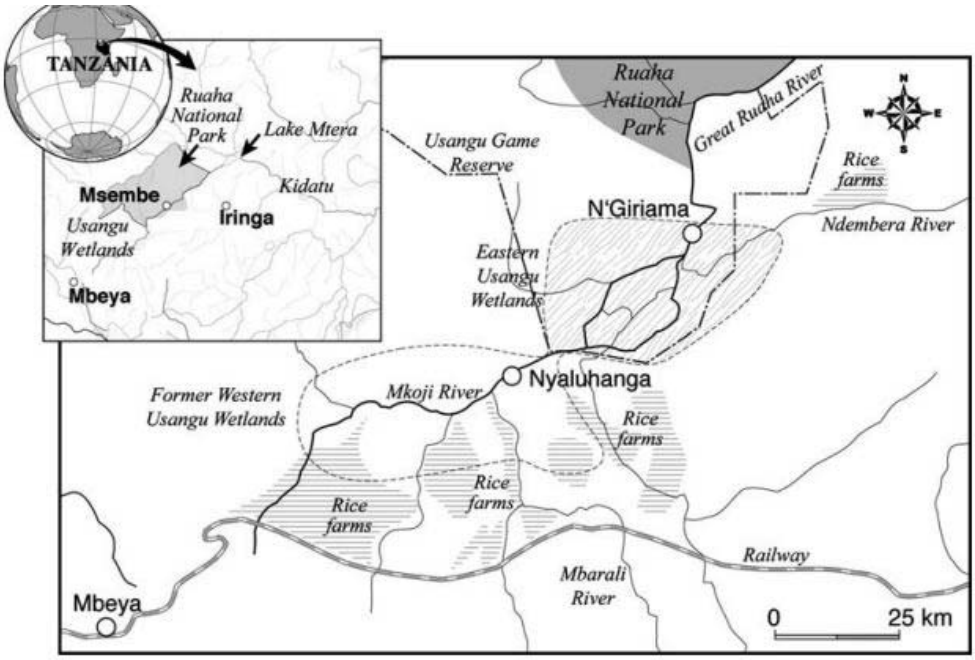

Figure 1. Map of the Usangu plains, showing the drainage pattern, key locations, and approximate location of rice farms. The inset is a general location map of the GRR. Nyaluhanga and N'Giriama are river gauging stations located at, respectively, the inlet and the outlet of the eastern Usangu wetlands. Much of the eastern Usangu wetlands are located in the Usangu Game Reserve. Msembe is the river gauging station in the RNP. The GRR flows into Lake Mtera, and this water is used to generate hydroelectricity at the Mtera and Kidatu plants.

RESOURCES

Provided in sourcebook: Global Water Partnership. Tanzania- Critical Analysis of River Basin Management of the Great Ruaha Case #121. http://www.gwp.org/Global/ToolBox/Case%20Studies/Africa/Tanzania.%20Critical%20analysis%20of%20river%20basin%20management%20in%20the%20Great%20Ruaha%20(%23121).pdf

Provided in sourcebook: Kiishweko O. 2013. Great Ruaha river that helps feed Tanzania under 'alarming stress.' The Guardian January 15, 2013. http://www.theguardian.com/global-development/2013/jan/15/great-ruaha-river-tanzania-stress

Mtahiko et al. 2006. Towards an ecohydrology-based restoration of the Usangu wetlands and the Great Ruaha River, Tanzania. Wetlands Ecology and Management. http://www.coppolillo.com/uploads/1/1/2/3/11231708/mtahiko.et.al.2006.ruaha.ecohydrology.pdf

Kashaigili JJ et al. 2005. Environmental flows allocation in river basins: Exploring challenges and options in the Great Ruaha River catchment in Tanzania. Physics and Chemistry of the Earth, Parts A/B/C Vol 30: 11-16, pp 689-697. http://www.sciencedirect.com/science/article/pii/S147470650500080X

Map credit: Mtahiko et al. 2006. Towards and ecohydrology-based restoration of the Usangu Wetlands and the Great Ruaha River, Tanzania. Wetlands Ecology and Management.DOI 10.1007/s11273-006-9002-x

http://www.theguardian.com/global-development/2013/jan/15/great-ruaha-river-tanzania-stress

The Guardian Newspaper

Great Ruaha river that helps feed Tanzania under 'alarming stress'

Deforestation, farming and poor irrigation infrastructure lead to worryingly long dry spells in Tanzania's Great Ruaha river basin

In recent years, the Great Ruaha river has been completely dry for three months at a stretch. Photograph: Thomas Kruchem/IPS

Orton Kiishweko for IPS (www.ipsnews.net), part of the Guardian development network

Tuesday 15 January 2013 09.31 EST Last modified on Thursday 19 June 2014 12.31 EDT

Avelina Elias Mkenda, a 52-year-old small-scale farmer in the Mbarali district of Tanzania's south-western Mbeya region, can sense a change in her environment.

A resident of the Great Ruaha river basin, she has never had trouble watering her crops and livestock. But over the past few years, the river has been delivering less and less of the precious resource; the grass that was once plentiful is now scarce, leaving cattle hungry, while production of coffee, the region's prize crop, has plummeted.

Referred to as Tanzania's "ecological backbone", the Great Ruaha river originates in the Kipengere mountains and stretches roughly 84,000 kilometres, flowing through the wetlands of the Usangu valley and the Ruaha national park, eventually emptying into the Rufiji river.

Its basin catchment area waters a huge expanse of the Tanzanian countryside. More than a million small-scale farmers produce a significant portion of the country's food on the lush soil in the Ruaha basin, which also provides 70% of Tanzania's hydroelectric power, according to government sources.

But officials from the Rufiji Water Basin Office (RWBO), which administers the Ruaha basin, along with academics from Tanzania's leading Sokoine University of Agriculture (SUA), are warning that the river is under "alarming stress".

"The river has been drying up for lengthy periods of three months [at a stretch], up from the short period of three weeks," Damian Gabagambi, an agricultural economist at SUA, told IPS. He believes the crisis is largely due to an increasing number of farmers diverting the river for irrigation purposes.

"Prior to 1993, the river was never dry," said Andrew Temu, an SUA professor, adding that the three-month-long dry spells began in 1999. During this period, river basin inhabitants increased from 3 to 6 million people.

"With the increasing population, there is a corresponding demand for more water," he said. Intensive grazing and deforestation have also contributed to the looming crisis. Furthermore, a lack of proper irrigation infrastructure means much of the water goes to waste, Gabagambi added.

RWBO community development officer David Muginya told IPS that agricultural projects by both large and small-scale farmers have failed to honour the 2009 Water Resources Management Act, which obliges all water users to deploy proper infrastructure to avoid waste.

A University of Dar es Salaam report released last July, Vulnerability of people's livelihoods to water resources availability in semi-arid areas of Tanzania, found that water wastage is also making the 1 million people dependent on the water resources downstream of the Great Ruaha river extremely vulnerable to an acute water shortage.

All the signs suggest that the current management of natural resources is unsustainable and could result in irreparable damage to the environment.

"The situation has been endangering the lives of millions of people living in south-central Tanzania, who are at risk of growing poorer if the environment is left in a dilapidated state," Gabagambi warned. Experts believe the impact on agriculture and food production will extend far beyond the immediate vicinity of the river basin, affecting a huge portion of Tanzania's 46 million people.

Meanwhile, RWBO officials are concerned about the future of the country's hydroelectricity supply.

Who is to blame?

Large-scale agriculturalists in the region, who say they plan to build adequate irrigation infrastructure, claim that smaller farmers access water channels illegally and should be made to pay for their water use.

Managing director of the Kilombero Sugar Company Limited, Don Carter Brown, told IPS that small-scale farmers "stress the water resources because they are all farming and illegally drawing water without paying for these rights".

But small farmers like Mkenda, from the Mbarali district, say they have no choice. With changing weather patterns, more intensive sun and now a shortage of river water, her coffee crop has suffered, resulting in even lower income. "We do not have the money to put [irrigation infrastructure] in place," she said.

Ironically, it is these small farmers that will be most affected by the water shortage as they struggle to eke out a living beside a dying river.

Other experts like Bariki Kaale, an environmental and energy specialist with the UN Development Programme, blame the problem on "mankind's destruction of water sources". He said the Ruaha basin used to have a plentiful water supply until all the trees were felled.

His opinion is substantiated by the findings of a report submitted to WWF Tanzania on the causes of biodiversity loss in the Ruaha catchment area, which stated: "Locals [from the] Makete District believe tree plantations (especially various species of cypress and eucalyptus) are associated with the environmental degradation that is taking place in this area.

"Due to excessive tree felling for timber, some of the areas have been cleared and exposed to erosion agents. Tree felling for timber and logs has also contributed to widespread deforestation in the area leading to soil erosion and siltation in the rivers," the report added.

"We now don't have water for hydropower [and] we will have no water for drinking in the near future," the UN specialist warned.

Guardian Global development is supported by the Bill & Melinda Gates Foundation.

TANZANIA – CRITICAL ANALYSIS OF RIVER BASIN MANAGEMENT IN THE GREAT RUAHA
Global Water Partnership (GWP) CASE #121

http://www.gwp.org accessed 3 March 2015
http://www.gwp.org/en/ToolBox/CASE-STUDIES/Africa/Tanzania-Critical-analysis-of-river-basin-management-in-the-Great-Ruaha-121/

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IWRM is a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare without compromising the sustainability of ecosystems and the environment.

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TANZANIA – CRITICAL ANALYSIS OF RIVER BASIN MANAGEMENT IN THE GREAT RUAHA CASE #121

Analysis of existing river basin management frameworks, multi-user perspectives and competition for water resources in the Great Ruaha River Basin, Tanzania.

ABSTRACT

Description

This case study describes different responses to growing water scarcity in the dry season in the Usangu Plains, a catchment of the Great Ruaha River in South-West Tanzania. The analysis – based on results of two DFID (Department for International Development) projects, SMUWC (Sustainable Management of the Usangu Wetlands and its Catchment) and RIPARWIN (Raising Irrigation Productivity and Releasing Water for Intersectoral Needs) – incorporates a critical examination of the appropriateness of newly established river basin management structures to the problems and issues found.

The Great Ruaha River is of national importance in terms of the utilisation of its water for significant rice production, maintaining a RAMSAR wetland site, meeting the ecological needs of the Ruaha National Park and the generation of hydro-electric power. Thus six main water resource users from upstream to downstream can be differentiated here:

- Rainfed farmers and domestic water users in the high catchment;
- Irrigators in the plains at the base of the escarpment;
- Domestic users and rainfed maize cultivators in the plains;
- Pastoralists and fishermen and women in the central wetland;
- Wildlife and tourists in the Ruaha National Park that surrounds the riverine reach;
- The Mtera/Kidatu hydropower schemes.

During the early nineties, a series of zero flows in this previously perennial river alerted the authorities to hydrological and environmental change in the Usangu Plains in the Upper Ruaha Basin. The research projects, in collaboration with the Ministry of Water and Livestock Development and other partners, examined the causes of the drying up of the river and proposed solutions.

Lessons learned

Several lessons are provided by this case study:

- The critical role and benefits of long-term, large-scale, interdisciplinary research;
- The difficulty in addressing entrenched views of 'normal professionalism' (a term used to describe a rather inflexible discipline-focussed approach) or the powerful local elite that result in maldistribution of water or inappropriate natural resource management;
- The need for local water development solutions to manage basin-level water scarcity.

Importance for IWRM

A key conclusion is that managers of IWRM should continuously review and enrich the knowledge base, perceptions and processes of hydrological and system change in river basins with the aim of refining 'an appropriate institutional response'. In other words, we should not be satisfied with what *appears* to be an integrated water resources management approach, but critically unpack its components and identify modes of IWRM that are fully cognisant of the science, issues and responses at stake, and therefore deliver effective tailored solutions.

Main tools used

B1.3 River basin organisations;
B2.2 IWRM capacity in water professionals;
C1.2 Water resources assessment;
C6.2 Regulations for water quantity.

MAIN TEXT

1 Background and problems

The background to the issues is best described via the rationale for the project "Sustainable Management of the Usangu Wetland and its Catchment" (SMUWC) which resulted from national and local concerns about the management of water and other natural resources in the Usangu Basin in Southern Tanzania (see Figure 1). In particular, national power shortages in the mid nineties were attributed to low flows to the Mtera/Kidatu hydropower schemes from the Ruaha River. A reduction in low flows in the Great Ruaha, where it passes through the Ruaha National Park, was also noted. There has now been a succession of years in which the river in the park has dried up completely during the dry season, and for increasing periods. An increase in competition for water was noted in Usangu itself, leading to conflict and sometimes violence. Concern was also expressed that the wetlands in the project area were diminishing and were becoming degraded, and that a valuable natural asset was being lost.

The Usangu Basin, or Upper Ruaha Basin, covers an area of 21,500 km^2 and forms the headwaters of the Great Ruaha River, itself forming a major sub-basin of the Rufiji River. Usangu may be broadly divided into the central plain and a surrounding higher catchment. On average, the plain receives 600-800 mm annual rainfall, and the high catchment up to 1500 mm. Most of the rain falls in one season from mid-November to May.

Six water resource users are differentiated:

- Rainfed farmers and domestic water users in the high catchment;
- Irrigators on the plains at the base of the escarpment (see Figure 2);
- Domestic water users and rainfed maize cultivators on the plains;
- Pastoralists and fishermen and women in the central wetland;
- Wildlife and tourists in the Ruaha National Park that surrounds the riverine reach;
- The Mtera/Kidatu Hydro Electric Power (HEP) stations of the Tanzania Electricity Supply Corporation (TANESCO).

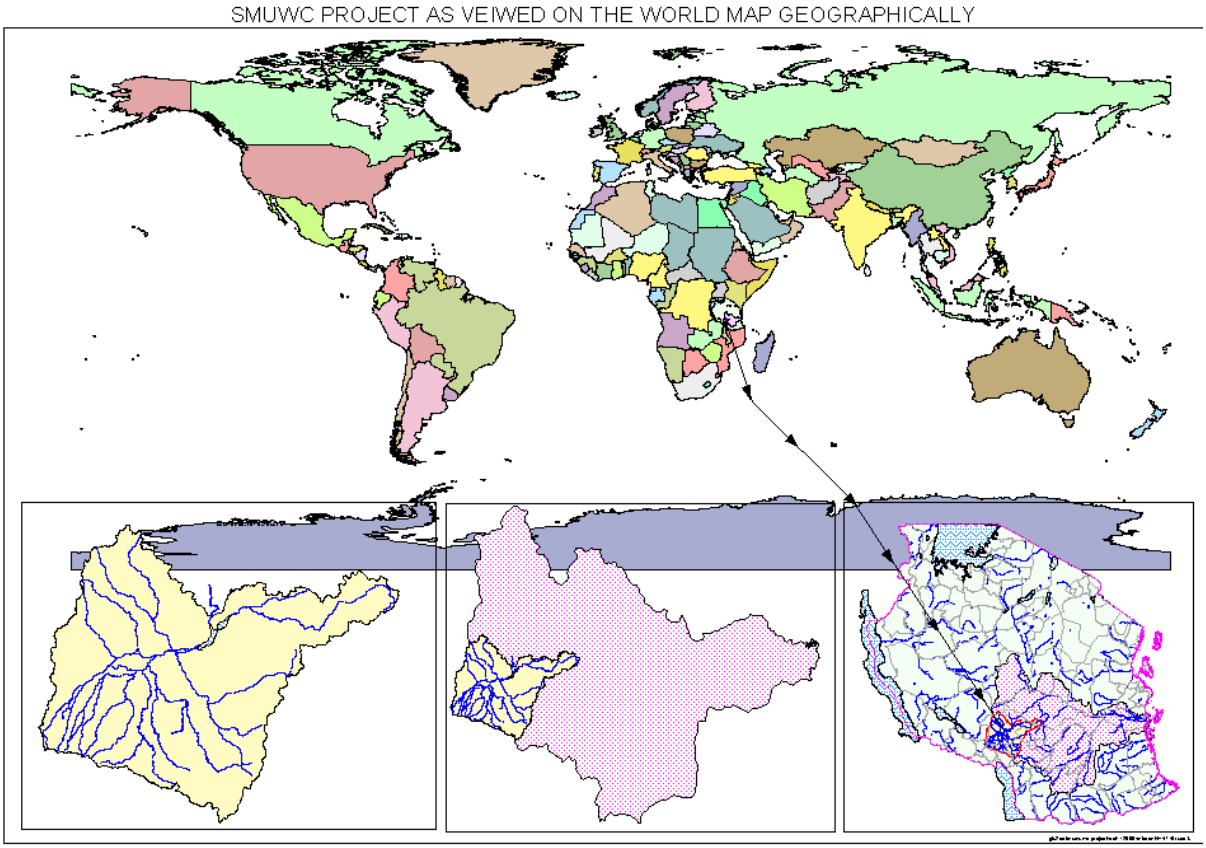
Below the HEP stations, the river has no further significant user, and after joining the Kilombero River, it flows perennially to the sea with practically no depletive use.

There are five perennial rivers and a large number of seasonal streams draining from the high catchment. Surface flows, rather than groundwater, are used for domestic and agricultural purposes because there is less groundwater and it is more difficult to determine its location. Most irrigation is located on the upper parts of the plains and consists of a number of different types of farms including large-scale, state-owned 'farms'; traditional smallholder; improved smallholder, and smallholder peripheral to the state farms. The total irrigated area ranges from 20,000 to 40,000 ha depending on annual rainfall. The large state farms are Kapunga (3000 ha), Mbarali (3200 ha), and Madibira (3000 ha).

Downstream of the irrigated areas, drainage discharges into smaller streams and swamps located towards the tail of the alluvial fans. Some streams reach the Ruaha River, the main channel supplying the wetland. Beyond the alluvial fans, the plain consists of savannah, woodlands and seasonal wetlands, and at the deepest point, a perennial wetland. At the end of the perennial wetland, there is a rock bar. When the water level in the perennial wetland is low, no water leaves the wetland. As the water level rises, water spills over the lip into the Great Ruaha River. Although the swamp is a maze of channels and lagoons, many of which are at different levels, it can be represented conceptually as a simple reservoir with a fixed spillway. After leaving the wetland, the Great Ruaha River is joined by a number of ephemeral rivers as it flows through the Ruaha National Park. Downstream, the Great Ruaha and a number of other rivers discharge into the Mtera Reservoir. Besides having an 80 MW generating capacity of its own, the Mtera Reservoir also acts as a regulating reservoir for the larger 204 MW Kidatu hydropower scheme further downstream.

Mbarali District is the largest district in the basin, covering 54% of the area. Other districts in the project area are Iringa Rural, Mufindi, Njombe and Makete in Iringa Region, and Mbeya Rural and Chunya in Mbeya Region.

Figure 1: Location of the Usangu Plains or Upper Ruaha Basin as a sub-catchment of the Rufuji Basin in Southern Tanzania



2 Decisions and actions taken

In the Usangu Plains, essentially three key river basin programmes have been devised and implemented under the Ministry of Water and Livestock Development (MoWL) within the last five years. These are:

1) *The Rufiji Basin Water Office (RBWO).*
   Basin Water Offices represent the new basin structure that the MoWL is gradually implementing nation-wide, with the Rufuji, the Pangani and Lake Victoria as the first pilot basins. A sub-office for the Usangu Plains in Rujewa, Mbarali District, was opened in 2001. The main activity of this sub-office is the issuing of water allocations.

2) *The River Basin Management and Smallholder Irrigation Improvement Project (RBMSIIP).*
   This project started in 1996 and is funded via a World Bank loan. The aims are:
   (i) To strengthen the government's capacity to manage water resources and address water-related environmental concerns both at the national level, and in the Rufiji and Pangani Basins (the river basin management (RBM) component under the MoWL);
   (ii) To improve the irrigation efficiency of selected traditional smallholder irrigation schemes in these two basins principally by the construction of concrete weirs and intake structures with control gates (the SIIP component under the Ministry of Agriculture and Food Security).

In the Usangu Plains, the RBM component is funding the sub-office of the Rufiji Basin Water Office. Also, two concrete intake structures have been constructed in streams shared by a number of traditional irrigation schemes under the SIIP component of the project.

3. *The "Sustainable Management of the Usangu Wetland and its Catchment" (SMUWC)*. SMUWC ran from 1998 to 2002. The direct client of this DFID-funded project was the MoWL (Rufiji Basin Water Office). The project also worked closely with the district administrators of the project area, as well as with the Ministry of Agriculture and Food Security. SMUWC intended to investigate the nature and causes of hydrological changes, and to assist the Government of Tanzania and key stakeholders (both local and national) in the development of a sustainable natural resource management strategy. Ultimately, it expected to contribute to the maintenance and improvement of rural livelihoods. It had four main outputs:
   i) Understand the hydrological behaviour and water quality functions of the Usangu wetlands and their catchments;
   ii) Assessment of the land resource utilisation, biodiversity and environmental impacts of management options in the Usangu wetlands and their catchments;
   iii) Assessment of causes of conflict, community management options and institutional process relating to the natural resources of the Usangu Wetlands and their catchments;
   iv) Increase local capacity (at different levels and in different institutions) to develop and implement an integrated natural resource management strategy, i.e. assist Rufuji Basin Water Office (RBWO) and provide policy guidance for the World Bank River Basin Management and Smallholder Irrigation Improvement Project (RBMSIIP).

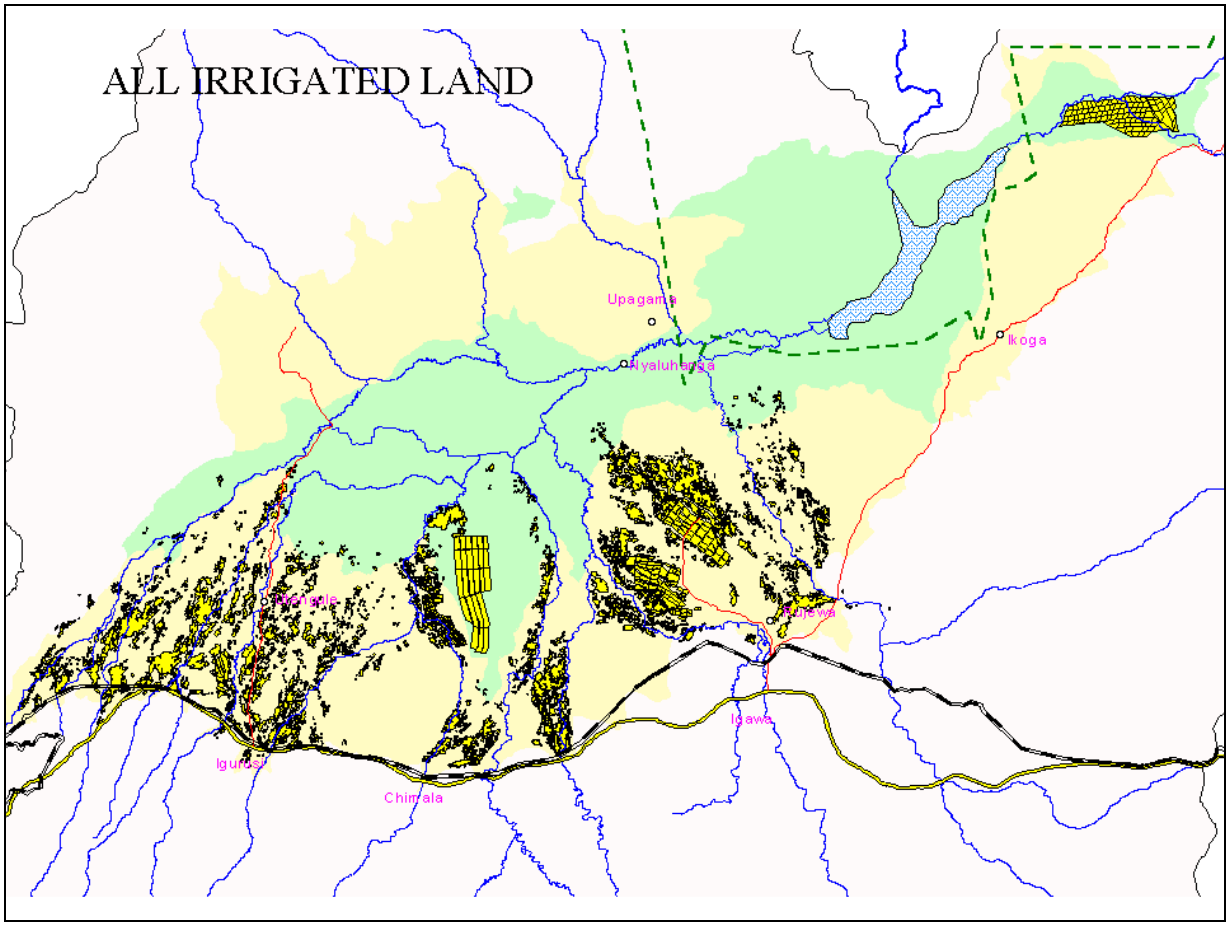
In partnership with the World Bank project, SMUWC contributed to the drafting of a national water policy, strengthening of basin management institutions and the rehabilitation and upgrading of the hydrometric network. In addition there were a number of specialist studies, the outcomes of which were shared. These included: groundwater assessment, catchment degradation and conservation studies, surveys of water use and water rights, participatory basin management, and water quality and environmental pollution monitoring. In partnership with the Rufiji Basin Water Office, SMUWC initiated a canal closure programme, designed to ensure that there was less water abstraction from three key rivers feeding the wetland. To this end, negotiations with three main state farms reduced their water allocations during the dry season to distribute just enough water for domestic uses.

To a lesser extent, the DFID/IWMI (International Water Management Institute)-funded 'Raising Irrigation Productivity And Releasing Water for Intersectoral Needs' project aims to continue to study the role of irrigation efficiency and productivity in releasing water for intersectoral needs. The main partners in this collaborative research are Sokoine University of Agriculture, the Overseas Development Group of the University of East Anglia, and the International Water Management Institute.

Besides these programmes, the Mbarali District Local Government, with the support of the Ministry of Natural Resources and the Ruaha National Park, pursues far-reaching land use measures to control livestock on the plains (so-called "Botswanisation"). These actions aim to conserve the Usangu Wetland and return to a perennially-flowing Great Ruaha. For example, in 2000, the area between the permanent wetland and the Ruaha National Park was defined as the Usangu Game Reserve. This implies that, formally, all human activity is prohibited. Also, in March 2001 the Tanzanian Prime Minister (probably galvanised by WWF Tanzania) declared to the Rio+10 Summit in London that the river should return to year-round flow by 2010. Since 2001 in the permanent wetland, major force has been applied to oust pastoralists and poor fishing families.

In addition, other possible projects are being formulated that seek to support the return of a perennially flowing Ruaha.

Figure 2: Location of irrigated lands within the Usangu Plains



Yellow area: irrigated lands; Green area: seasonal wetlands; Blue area: permanent wetlands

3 *Outcomes*

This section critically describes three important outcomes of the above actions.

Contested Water Resources Assessment

SMUWC and the Ministry of Water and Livestock developed a hydrological model and a monitoring programme that suggested multiple causes of the changes in the Ruaha and wetland flow regimes. The model tested results of "what if" scenarios, such as the canal closure programme designed to ensure that dry season flows were untapped by major irrigation users. In addition, by undertaking monthly spot measurements in key locations throughout the plains, SMUWC pinpointed the exact losses of water.

These assessments challenged the original assumptions that the wetland shrinking and the zero flows in the Ruaha were mainly due to overgrazing and excessive consumption of water by livestock and a reduced ability of the wetland to act as a 'sponge' holding back water for later release into the Ruaha. The studies also refuted the strongly held belief that climate change and deforestation had caused a reduction in the baseflows of rivers flowing off the escarpment. Thus, the presence of an estimated 40-50 cumecs abstraction capacity from a total of 100-130 intakes on the plains was shown to play a more important role in dry and wet season hydrological change than climate change or deforestation. Yet the probable major cause of the electricity cuts in the Mtera/Kidatu hydropower plants was not water shortages in the Upper Ruaha (irrigation in Usangu uses 25-35% of the Great Ruaha, itself a proportion of the inflows into Mtera) but, rather, mismanagement of the drawdown curve and excessive releases to maximise electricity generation. In addition, the analysis showed how evaporation from rivers flowing onto the plains and feeding wetlands results in significant *natural* water losses. This factor makes outflow from the Usangu wetland highly sensitive to abstraction during the dry

season when natural river flows are already diminished. Thus, below a certain threshold of about 6 to 7 cumecs entering the wetland, effectively no flow leaves the area.

Yet powerful downstream stakeholders contested these results in order to protect and even expand their existing land and water use and practices, blaming poor farmers upstream in the basin of overuse, thereby expecting them to release water. The electricity corporation continues to maintain that upstream irrigation reduces water inflows. Ruaha National Park's interest groups continue to seek dry season compensation flows. Similarly, in the case of the Usangu wetland, political expediency regarding the hydrological analysis 'allows' the Mbarali District Government to actively seek the removal of vulnerable fishermen and women and pastoralists whose livelihoods depend on the wetland. The Government argues that these users degrade the wetland by having too many livestock (another analysis that is contested).

Contested Water Allocations

The Rufiji Basin Water Office has been charged with the introduction of water allocations and fees at all irrigation intakes on the Plains and has records of approximately 300 irrigation users. These allocations are flow rate based (e.g. 0.6 cumecs), and focus on wet season rice – though allocations are generally halved for the dry season. Interestingly, few irrigators interviewed by the SMUWC team had ever met an RBWO officer and irrigators rarely knew if their association or co-operative possessed a traditional or formal RBWO water right.

While the water allocations promoted widely by the RBWO appear elegant (a simple flow rate) and may have worked in other countries, they may not be appropriate in Usangu. This is for a number of reasons.

In some cases, the allocations are simply water duties (command area multiplied by 2.0 l/sec/ha) without being reconciled with available water or downstream needs, in which case such water is not effectively available. In other cases, allocations are not determined in a transparent way; they are not related to the command area or crop water requirements, but appear to be based on traditional rights, de facto rights, whatever is available during the peak flow period, or on unexplained reasons. In addition, because rivers change dramatically from wet to dry seasons, and from wet to dry years, the Usangu approach of fixed allocations only works for 'statistically mean' flows. In dry years, the allocation is greater than the available water, legitimising the abstraction of water until the river is left dry. Conversely, for wet years, the allocation is less than the water available, and probably less than the actual abstracted amount, because intake gates are surcharged with high flows.

Relating water use to allocation is problematic, as it is unlikely that water will ever be metered or monitored and so farmers may take more than they have been allocated. Furthermore, with a fixed payment for their allocation, farmers may be inclined to use more water than necessary.

RBWO resources – for staff and transport to monitor water use – are restricted and are unlikely to increase, and access during the rainy season is difficult. Fees are rarely paid to the RBWO and so do not augment the finances required to manage water. It therefore appears that the RBWO's intent to fund itself through the collection of fees is highly unlikely. In summary, the water allocations appear to be so poorly attuned to the situation that they are at the very least having no effect, or worse, may be undermining the very outcomes they purport to achieve.

Contested Intake Structures

The pursuance of an irrigation intake upgrading programme by the World Bank project utilising irrigation-focussed engineering procedures is another case of mixed and unintended outcomes. Whilst this is supposed to raise irrigation efficiency, under close examination, the provision of concrete weirs and intake works shows that reliance on intakes alone does not, and cannot, raise irrigation efficiency to the levels expected by RBMSIIP (from 15% to 40%).

Secondly, such a programme, conceived as it is, is counter to a river basin perspective. Evidence indicates that the modernisation of indigenous traditional smallholder schemes does

not necessarily result in improved water control, greater equity and reduced user conflict. Indeed, such programmes may aggravate these issues by not sufficiently understanding the complex situation. The concrete intakes reduce downstream compensation flows through the weir and enable upstream farmers to abstract water throughout the year. Thus, while the intake farmers are pleased to see less labour and time needed to maintain their intake, the downstream irrigators are deprived of water – acutely so during dry seasons and periods.

4 Lessons learned

The need for large-scale, long-term interdisciplinary research

This case study reveals the critical role and benefits that long-term, large-scale, interdisciplinary science, in partnership with key stakeholders, has in identifying complex factors underlying environmental and hydrological change. Yet more detailed hydrological studies are required, particularly covering two more dry seasons – the critical period of the year – to isolate with sufficient certainty the relative effects of drivers on hydrological and environmental change.

Another issue that urgently requires careful empirical analysis is the assumption that irrigation efficiency can be raised considerably and that the generated water savings can be delivered to 'more needy' non-agricultural sectors. The efficiency of irrigation may already be high, and savings unlikely to be forthcoming. Furthermore, even if possible, the outcome of transferred water is not guaranteed because of the social costs involved and because local irrigators may recapture 'spare' water.

Hydrological and irrigation research should be complemented by participatory socio-economic research on the role of water on people's livelihoods, and on formal and informal water management institutions. A close examination of issues such as local arrangements of water allocation on rivers where water is under competition from several users and of the de facto consequences of formal water rights may considerably reorient current directions of basin-level water management by the Ministry of Water and Livestock.

Challenging entrenched normal professionalism

Despite attempts, it has proved difficult to address the effects of 'normal water science professionalism' that results in the maldistribution of water during the dry season. The hallmark of normal professionalism is that which inflexibly pursues conventional, over-simplified or mono-disciplinary interpretations of policy. In other words, the interventions on water allocations and intake infrastructure improvements, as mentioned above, *initially* appeared to be technically correct, but were then inadequately tailored and refined by formal river basin institutions to the local situation and conditions.

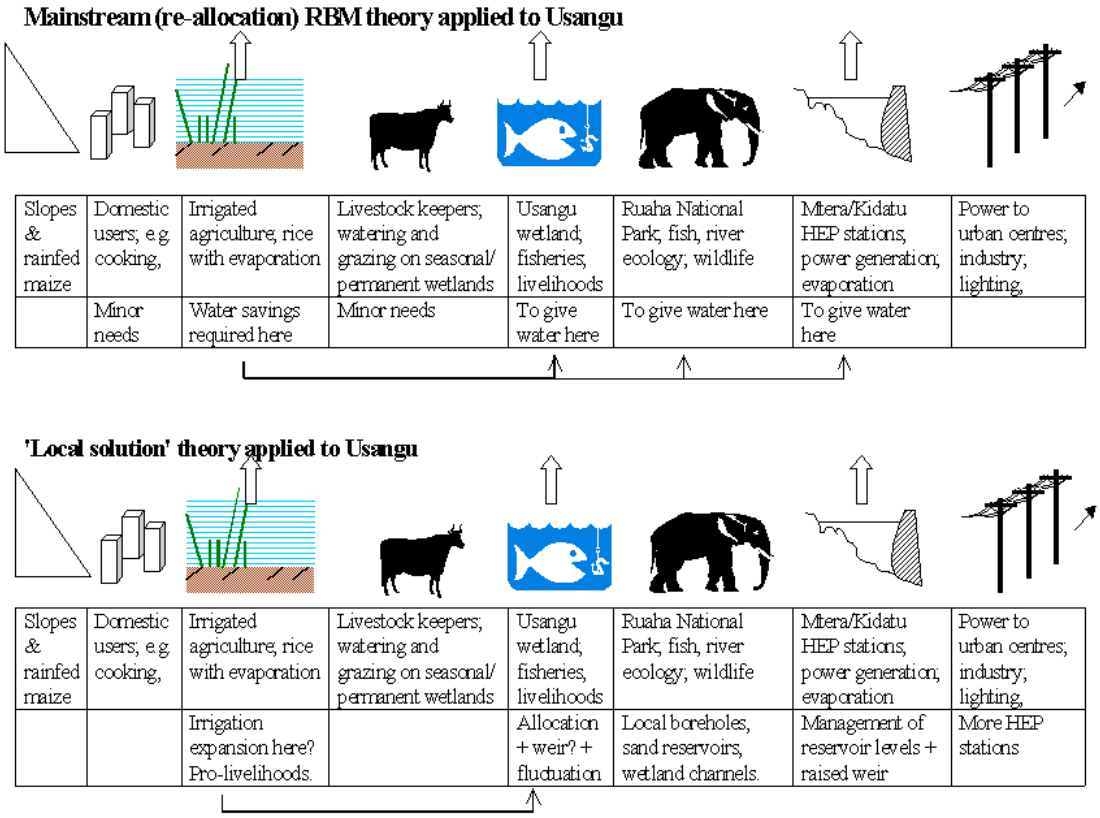
Understanding the role of the powerful elite

Related to the previous point are lessons gained from the role of the local, regional and national elite in decision-making and effecting change, although this does not fit with the mainstream notion that advocates local level user participation. It is clear that the statement by the Tanzanian Prime Minister in March 2001 to the Rio+10 Summit in London that the river should return to year-round flow by 2010 has ensured a surprising level of support for the canal closure programme at the District level. Also, the defining of the Usangu Game Reserve allows District officers to justify the forced removal of vulnerable fishermen and women and pastoralists. Equally, it has proved difficult to communicate fully with electricity corporation officials in ways that promote a more open understanding of why Mtera/Kidatu reservoirs became exposed to shortfalls of recharging inflows. This too allows TANESCO to claim a priority need of Ruaha waters. Similarly, SMUWC found that the delivery of messages of conditional and multiple causes of environmental change was only successful through its 'project champion' working amongst high-level stakeholders within Dar es Salaam.

The need for local water development solutions in managing basin-level water scarcity

Last but not least, a major lesson learned is that the Upper Ruaha Basin is still an open basin in the sense that physical water resources are still available, but need to be harnessed for human use. Therefore, downstream water scarcity can be solved locally by developing locally available untapped water resources, such as boreholes or stock dams in the Ruaha National Park or by improving the water management of the electricity-generating reservoirs. Even in the Usangu Plains, water scarcity during the dry season does not preclude further expansion of water use for irrigation during the wet season through new infrastructure development. The construction of more storage capacity or groundwater development could mitigate dry-season water scarcity especially for domestic users. From a livelihoods' perspective, such local water development is certainly a more desirable solution for basin-level water scarcity than the originally proposed reallocation of water from poor to powerful water users (see Figure 3).

Figure 3: Schematic representation of local water development versus basin water reallocation approaches to IWRM.



Replicability/relevance in other areas or situations

The applicability of these lessons to other river basins depends on the configuration of rivers within those basins – on socio-economic aspects, institutions dealing with the rivers, and hydrology and environmental issues. For example, in Tanzania, these lessons apply to the Pangani River Basin which is the focus of similar Ministry of Water and Livestock projects. It might be possible to apply lessons in other Sub-Saharan rivers with comparable characteristics, such as a contrasting wet and dry season hydrology. For example, the Kafue sub-basin of the Zambezi would appear to be a possibility. Internationally, cases with contested hydrological interpretations and those requiring inter-disciplinary, multi-faceted solutions could draw on the lessons outlined here.

5 References

In the first instance please see reports and information held on the SMUWC website: www.usangu.org. Acknowledgments are given to the SMUWC team particularly Tom Franks, Mary Gillingham, Geoff King, Julie Thomas, Nick Mandeville, Lawrence Mbuya, Peter Baur, Paul Devitt, Alistair Graham, Jeremy Berkoff, Stan Western and Tom Boyd.

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WORLD RESOURCES REPORT

Maintenance of Hydropower Potential in Rwanda Through Ecosystem Restoration

World Resources Report Case Study

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OVERVIEW

In Rwanda, hydroelectric power production is widely recognized as having a significant role to play in achieving its economic development and poverty reduction goals. The "Land of a Thousand Hills," with its numerous rivers and lakes, is highly suited to the establishment of hydropower to meet the growing demand for electricity from its expanding population,[1] industries/factories in urban areas and rural agro-processing investments. Only 10 to 11 percent of households in Rwanda presently have access to electricity—and 60 percent of these households are located in the capital of Kigali. Rwanda's 2011-2017 Energy Policy and Strategy sets a target of ensuring 50 percent of households have access to electricity by 2017, which would amount to a five-fold increase in energy demand in seven years (MINIFRA, 2010a).

Although hydropower plants have the lowest production costs for electricity in Rwanda, its reliance upon this energy source presents some challenges. Among these is that it makes the country vulnerable to changing hydrological conditions—whether caused by climate change or other factors. This vulnerability was demonstrated in the mid-2000s when Rwanda experienced an electricity supply crisis that adversely affected its development prospects. This crisis was spurred in large measure by a steep decline in generation capacity at Ntaruka hydropower station which, along with the downstream Mukungwa station, provided 90 percent of the country's electricity. Ntaruka's reduced electricity generation was attributed to a significant drop in the depth of Lake Bulera, which acts as the station's reservoir. This decline in water levels in turn was precipitated by a combination of factors, including: poor management of the upstream Rugezi Wetlands, the headwaters of the watershed; degradation of the surrounding Rugezi-Bulera-Ruhondo watershed due to human activity; poor maintenance of the station; and reduced precipitation in prior years.

At the time, concern was expressed that this reduction in precipitation might foreshadow the future impact of climate change in Rwanda. Climate projections suggest that average maximum annual temperatures will increase in Rwanda by 1.5 to 3.0°C by the 2050s, but there is less certainty regarding future changes in precipitation (SEI, 2009). Although some researchers have stated that climate change will likely cause prolonged droughts in the country (particularly in the southeastern

[1] Rwanda's current population is just over 11 million and growing at an estimated rate of 2.82 percent per year (CIA, 2010).

region; MLEFWM, 2005), others suggest that average annual rainfall will increase (SEI, 2009). Despite these divergences between projections, most models do agree that there will be an intensification of rainfall during the rainy season, potentially leading to flooding, increased risk of landslides and erosion (MLEFWM, 2005; SEI, 2009). Although it is not possible to state with confidence how climate change may alter precipitation patterns in Rwanda, it is clear that this process will affect the management and generation capacity of its hydroelectric sector in the future. Resiliency needs to be built into the hydroelectric system to enable it to adapt to either future increases or decreases in precipitation on an annual and seasonal basis.

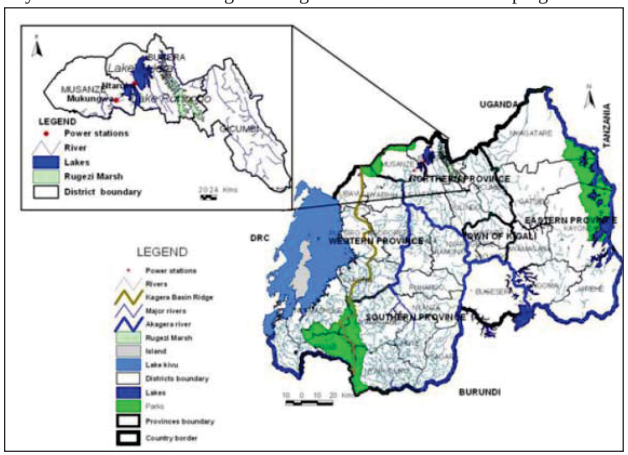

Figure 1. Map of Rwanda (Hategekimana and Twarabamenye, 2007: 3)

In response to its electricity crisis, the Government of Rwanda sought to restore the degraded Rugezi-Bulera-Ruhondo watershed by halting on-going drainage activities in the Rugezi Wetlands and banning agricultural and pastoral activities within and along its shores, as well as along the shores of Lakes Bulera and Ruhondo. These actions were enabled first by the country's existing Environment Policy (2003) and subsequently by its National Land Policy (2004), Environment Law (2005) and Land Law (2005). These response measures, however, also meant that rural households in the region were no longer able to access key resources, adversely affecting the productivity of their livelihoods. Recognizing this, the Government implemented a suite of agricultural and watershed management measures to offset the initial adverse impacts of their watershed protection policies and render rural livelihoods more sustainable in the longer-term. These measures included the construction of erosion control structures; the establishment of a belt of bamboo and Pennisetem grasses around the Rugezi Wetlands; planting of trees on the surrounding hillsides; the distribution of improved cookstoves; the promotion of integrated and environmentally sound farming practices; and promotion of income-generating activities such as beekeeping.

Today, through protection of the watershed surrounding the Ntaruka hydropower station, the plant has returned to full operational capacity. But the electricity crisis also spurred Rwanda to diversify its energy portfolio with support from the private sector. These initiatives include the capture of methane gas from Lake Kivu, use of geothermal energy and promotion of the country's abundant peat deposits for electricity production. The story of Rwanda's electricity sector demonstrates the need for diverse approaches to addressing complex problems and, in particular, the importance of integrated watershed management in promoting energy security. Through appropriate investment

strategies, the well-being of the watershed and its lakes can be improved such that the efficiency and sustainability of hydropower sources are maximized. These actions also help reduce vulnerability to future climate changes that may adversely affect the country's hydro-potential.

SETTING

In the early part of this century, the energy profile of Rwanda was dominated by the use of biomass (firewood, charcoal and agricultural residues) for cooking, lighting and other needs. Approximately 97 percent of the country's total energy was supplied through these traditional sources (MINIFRA, 2009). The remainder of the country's energy came from electricity generated by seven hydropower production stations located in the western half of the country. The electricity generated through these hydro stations was used, and continues to be used, primarily to support commercial, institutional and household activities in Rwanda's urban areas—particularly in the capital, Kigali. By way of illustration, in 2006, only 0.5 percent of rural households in Rwanda had access to electricity for lighting, while the corresponding figure in urban areas was 23 percent (CITT, 2006).

The primary generators of hydroelectricity in Rwanda were, and remain, the Ntaruka and Mukungwa power stations located in Rwanda's Northern Province. Together, these two stations supplied 90 percent of Rwanda's domestic hydroelectric capacity (CITT, 2006). Ntaruka was the country's first hydropower station, built by Belgium in 1959, and has an installed capacity of 11.25 MW. Mukungwa was built in 1982 and has an installed capacity of 12 MW for an annual production capacity of 48 GWh of electricity.[2]

The Ntaruka and Mukungwa stations are located within and rely upon the Rugezi-Bulera-Ruhondo watershed (see Figure 1). Located in the highlands of Rwanda's Northern Province, this watershed is dominated by the Rugezi Wetlands, a Ramsar-recognized Wetland of International Importance. The wetlands is one of the headwaters of the Nile River Basin, which covers about two-thirds of Rwanda's surface area and holds 90 percent of the country's water (Hategekimana and Twarabamenye, 2007; Liu, 2008; RMNR n.d.). The Rugezi Wetlands cover an area of 67.35 km² with a catchment area of 190.70 km² (Hategekimana and Twarabamenye, 2007), all of which is located in Rwanda. Water from the Rugezi Wetlands flows downstream first into Lake Bulera[3]—supplying nearly half of its inflow[4]—and then into Lake Ruhondo[5] before entering the Mukungwa River. The Ntaruka hydroelectricity plant is located between Lakes Bulera and Ruhondo, and the Mukungwa plant is situated downstream from Lake Ruhondo on the Mukungwa River (UNEP, 2006). The Rugezi Wetlands play a key role in determining the rate, quantity and quality of water flow into Lake Bulera and, therefore, the hydropower potential of its downstream power stations. As such, they are intrinsically tied to Rwanda's energy security and economic development.

The Rugezi-Bulera-Ruhundo watershed is also one of the most densely populated regions of Rwanda—which in turn is the most densely populated country in Africa (RMNR, n.d.). Burera District, which contains much of the watershed, currently has a population density of about 522 people per square kilometer (Burera, n.d). In 2000 the population the Rugezi Wetlands' catchment area was about 517,715 people, and expanding (Hategekimana and Twarabamenye, 2007).[6] This situation has promoted fragmentation of land holdings; the

[2] The country's two other significant hydropower stations in the 2000s were Gihira (1.8 MW) and Gisenyi (1.2 MW) (MINIFRA, 2010a).

[3] Lake of Bulera occupies a total area of 5,280 hectares and has a maximum depth of 174 meters (CITT, 2006).

[4] Source: Hategekimana and Twarabamenye, 2007.

[5] Lake Ruhondo has a total area of 2,610 hectares and a maximum depth of 68 meters (CITT, 2006).

[6] Between 1978 and 2000, the population density in the Rugezi area grew by over 70 percent, rising from 337 to 577 inhabitants per square kilometer (UNEP, 2006; Hategekimana and Twarabamenye, 2007).

average size of land holdings in the highland zone of Rwanda ranges from 0.15 to 0.2 hectares per household (CITT, 2006). With 90 percent of the population surrounding the wetlands depending upon agricultural activities for their livelihoods, this land fragmentation combined with over-cultivation has led to soil degradation. This, in turn, has pushed the growing population to increasingly cultivate the watershed's steep slopes, some of which exceed 60 degrees (CITT, 2006). The fragile soils on these slopes are easily eroded by runoff during the rainy season, causing declines in crop and livestock productivity that further push farmers to seek new land for cultivation (CITT, 2006). Rural dependency on biomass for cooking and light has only exacerbated this degradation by putting immense pressure on the country's forest resources; approximately two-thirds of Rwanda's natural forest cover has been depleted since 1960 (FAO 2010). Collectively the region has experienced a downward spiral of deforestation, soil degradation, declining agricultural productivity and deepening poverty. Indeed, the population surrounding Rugezi is among the most impoverished in the country, with 60 percent of the population considered to be malnourished (REMA, 2009).

FACTORS LEADING TO THE 2004 ENERGY CRISIS

In 2003-04, Rwanda experienced a significant electricity supply—and by extension, economic—crisis. This crisis was triggered by a decision by Electrogaz, a parastatal organization mandated to produce and distribute power and water in Rwanda (now known as RECO-RASCO), to significantly reduce production from the Ntaruka hydropower station. As the depth of water in Lake Bulera had fallen too low for Ntaruka's three turbines to be safely operated, Electrogaz began to operate only one turbine at a time. The potential for an electricity supply crisis had been looming for a number of years due to the continued over-exploitation of the country's hydropower resources and degradation of the Rugezi-Bulera-Rohundo watershed. Electrogaz's decision was therefore the culmination of a series of events and circumstances that collectively undermined Rwanda's capacity to produce sufficient energy to meet its growing needs.

A central contributing factor to this crisis was the declining state of Rwanda's electricity generation capacity. Existing hydropower stations suffered from inadequate servicing and maintenance, due to a combination of poor planning and limited human and financial resources. For example, the Government had not invested in the Mukungwa station was built in 1982 (CITT, 2006). This situation was compounded by the Ntaruka station being overbuilt for the average inflow it receives.[7] The fragility of the country's electricity system was compounded in the late 1980s when Rwanda's economy began to grow, leading to over-use of existing capacity to meet growing demand (CITT, 2006).

A second factor contributing to the country's electricity crisis was land degradation within the Rugezi-Bulera-Ruhondo watershed. Population growth, limited governance capacity and unclear tenure regimes contributed to cultivation on steep slopes which, combined with deforestation, increased surface runoff, soil erosion and siltation of the wetlands. In addition, since the 1960s, irrigation canals had been built in certain arms of the wetlands to support the cultivation of cash crops (Hategekimana and Twarabamenye, 2007).[8] The watershed has also been infested by water hyacinth and other aquatic weeds that increased turbidity and caused water loss through evapotranspiration (CITT, 2006). Furthermore, eucalyptus trees, which

[7] Built by the Belgians during colonialism, the Ntaruka station contains three turbines that require a flow rate of 12 cubic metres per second for the station to achieve its full capacity of 11.25 MW. However, the Rusumo tributary links the Rugezi Wetlands to Lake Bulera has a flow rate of only 2 cubic metres per second during the rainy season. As such should the station be operated at its full potential it has the potential to directly contribute to a decline of the water level in Lake Bulera (CITT, 2006).

[8] For example, in 2000, the Buberuka Rural Spaces Management project created a deep central canal in two arms of the Rugezi Wetlands to enable potato and corn production (Hategekimana and Twarabamenye, 2007).

draw significant amounts of water, were planted within and around these water bodies. Collectively these processes of drainage, siltation and greater evapotranspiration contributed to a decline in the wetlands' water table (CITT, 2006; Hategekimana and Twarabamenye, 2007). The declining health of the wetlands disrupted fishing, transportation, handicrafts, and other important local livelihood activities.[9]

An additional source of stress was declining rainfall in preceding years. Based on information collected at Rwanda's only source of long-term climate data,[10] a meteorological station at Kigali airport, the period of 1991 to 2000 was the driest since 1961 (Mukubwa, 2009).

Collectively these ecological and climate conditions led to a drop in water levels in Lakes Bulera and Ruhondo. Hydroelectric production capacity at Ntaruka and Mukungwa stations declined substantially from 1998-2000, as illustrated in Table 1. By 2000, Electrogaz was experiencing water shortages at the Ntaruka power plant that prevented efficient operation of its three turbines. In response, Electrogaz undertook additional efforts in 2000 to drain the Rugezi Wetlands (Hategekimana and Twarabamenye, 2007). This shortsighted measure further reduced water levels in Rugezi, opening up new areas of the wetlands for cultivation and cattle grazing.[11] It also reduced the supply of water from Rugezi to Lake Bulera in subsequent years, resulting in a further decline in the lake levels. By 2004, water levels in Lakes Bulera and Ruhondo had fallen to 50 percent of their average depth between 1957 and 1970 (UNEP, 2006). Under these circumstances, Electrogaz was forced to significantly restrict power production from Ntaruka station.

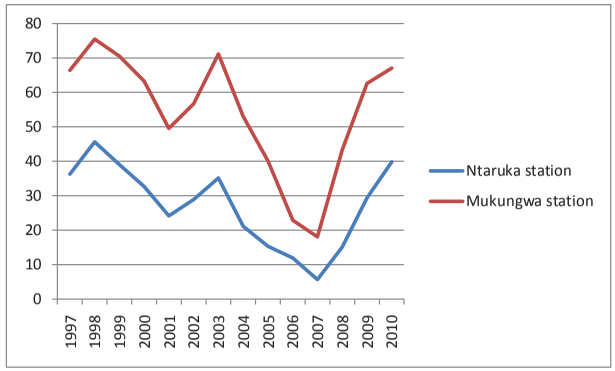

Figure 2. Power production from the Ntaruka and Mukungwa hydropower stations (GWh/Annum) (RECO, 2011)

With a significant drop in its internal capacity to produce electricity, Rwanda experienced widespread and sustained load shedding in 2004 and subsequent years. The country was also forced to install diesel generators to compensate for the electricity shortfall. Starting from zero in 2004, thermo-electricity constituted 30 percent of the country's power generation in 2005, and 56 percent in 2006. Operation of these generators cost the country up to USD 65,000 per day (UNEP 2006). These events had significant immediate economic costs for the country. Electricity rates doubled in 2004-05, from

[9] According to a report by UNEP (2006), fishing activity in the area fell by 87 percent, and 72 percent canoeists stopped their daily activity and lost their incomes, among other factors.

[10] Monitoring the degree to which precipitation patterns in the Rugezi-Bulera-Ruhundo watershed have changed and their contribution to the country's 2003-04 electricity crisis is difficult given the absence of long-term data sets. During the 1990 to 1994 war and genocide, over 90 percent of Rwanda's (then) 50 meteorological stations were destroyed or vandalized, and have largely not been re-established (CITT, 2006). Thus precipitation data at the Mukungwa station is not available between 1992 and 2002 (Mukubwa, 2009).

[11] Personal communication, representative of the Rwandan Ministry of the Environment, December 4, 2010.

7 to 14 US cents/kWh, and rose again in 2005-06 to 22 US cents/kWh. Rwandans continue to have among the most expensive electricity rates in the world (GoR, 2010).[12]

RESTORATION EFFORTS

As Rwanda's hydroelectric potential decreased and the cost of accessing electricity increased, the Ministry of Environment, Lands and Mines approached the Cabinet to make the case that restoring the Rugezi Wetlands would help address the situation.[13] In doing so, the Ministry called for the enactment of certain provisions within existing and emerging policies developed since the late 1990s to address environmental and land tenure issues.

The Ministry of the Environment, Lands and Mines had long recognized the strain that unsustainable land use practices were placing on the country's natural environment, and especially on its wetlands. As a result, in the early 2000s and parallel to the events leading to the electricity crisis, the Ministry[14] undertook a series of consultations with state institutions, United Nations agencies, and Rwandan civil society to formulate an environmental protection policy. Rwanda's National Environment Policy was subsequently released in 2003, and entails a series of policy statements and options for the restoration of the natural environment through land-use management, natural resource management, and other measures (MLRE, 2003). The policy contains an entire section on wetlands in which a number of commitments are made, including establishing measures to protect wetlands and prevent their further degradation; and establishment of wetlands as state-owned property (MLRE, 2003).

Many of these principles were later promulgated in Rwanda's *Organic Law N° 04/2005: "Determining the Modalities of Protection, Conservation, and Promotion of the Environment in Rwanda"* or the Environment Law (GoR, 2005a). The law entails a number of specific measures aimed at reversing the degradation of wetlands. In particular, articles 85 and 86 of the Environment Law limit agricultural and pastoral activities around bodies of water, requiring these activities be undertaken at a distance of 10 meters from the banks of streams and rivers and 50 meters from the banks of lakes (GoR, 2005a). Article 87 of this law also stipulates that it is "forbidden to construct houses in wetlands (rivers, lakes, big or small swamps) in urban or rural areas" (GoR, 2005a).

At the same time the environment policy and law were being developed, Rwanda was pursuing efforts to formalize land ownership. A series of internal and external consultations were undertaken to formulate the Rwanda Land Policy in 2004, the stated purpose of which is to "guarantee a safe and stable form of land tenure, and bring about a rational and planned use of land..." in the country (MLEFWM, 2004). The land policy states that wetlands constitute a special category of public land, the classification of which is the responsibility of the Ministry of Lands and Environment, and that "all marshlands must be governed by a special legislation which must be vigorously enforced" (MLEFWM, 2004, p. 44). The policy acknowledges that although certain wetlands may be used for agricultural purposes they must first undergo an adequate planning and environmental impact assessment. And the policy implies that the Rugezi Wetlands and other similar ecosystems should be left undisturbed through the statement: "any form of disturbance of very fragile environmental sites should be avoided, such as highly peaty zones and marshlands found on high land which often

[12] Still, the production of macro hydropower remains among the least cost options in Rwanda. The production cost of macro hydropower (1 MW and above) ranges from 5.4 to 10 US cents per kWh, compared to: micro hydro (less than 1 MW) at an average of 15 cents per KWh; methane gas at 12 cents per KWh; and geothermal at 5 to 10 cents per kWh (MINIFRA, 2010b).

[13] Personal communication, representative of the Rwandan Ministry of the Environment, December 4, 2010.

[14] Then called the Ministry of Lands, Resettlements and Environment.

constitute water reservoirs or water towers" (MLEFWM, 2004, p. 45).[15]

Following publication of the Land Policy in 2004, Rwanda's parliament passed the *Organic Law (N° 08/2005) "Determining the Use and Management of Land in Rwanda,"* or the Land Law. This legislation sought to establish more formalized land tenure and management practices in the country that would complement customary law, and aimed to modernize Rwanda's agricultural sector. Among other measures, this law designates lakes and swamps as state land. The law also makes the controversial assertion that land may be confiscated if its owners are found to be managing it in an unsustainable manner.[16]

With Rwanda's Environment Policy in place, the Ministry of Environment called upon the Cabinet in 2003 to enact some of its provisions to ensure restoration of the Rugezi Wetlands—and thereby address one of the critical factors leading to the country's electricity crisis. In particular, Ministry officials argued that the scale of the crisis required dramatic action to protect the wetlands and prevent their further degradation. These actions included implementation of the provisions restricting agricultural activities within and surrounding the wetlands and the removal of existing drainage channels. On the basis of the Environment Policy, approval of this plan of action was granted by the Cabinet.[17]

The subsequent passage of the Environment Law on 1 May 2005 further strengthened the legal authority of the government to control activities within the Rugezi Wetlands and along the shores of Lakes Bulera and Ruhondo. Specifically, this law enabled the government to restrict agricultural and pastoral activities to 10 meters away from the banks of streams and rivers and 50 meters away from the banks of lakes. In 2008 the Government also declared the Rugezi Wetlands a protected area.

Perhaps the most significant challenge facing the Government as it began to act upon its Cabinet decision was the need to gain the support and cooperation of the population living in and relying upon the wetlands, including some large landholders. The introduction of these restrictions naturally had a significant adverse impact in the short-term on the livelihoods of the population that had depended on the wetlands and lake shores for cultivation and grazing purposes (McGray et al, 2007). According to one source, nearly 70 percent of the population of Rugezi cultivated a parcel of land in or near the wetlands prior to the government's interventions (Willetts, 2008). Another source suggests that restrictions on cultivation near the shores of Lakes Bulera and Ruhondo led to a 10 percent increase in the landless population in these areas (CITT, 2006). Those who lost access to land due to the enforcement of these rules were not provided compensation for their loss.[18]

Building upon prevailing practices in Rwanda, among the first steps taken by the Ministry of Environment to address this situation was to raise local awareness and initiate community engagement by leading community work ("travaux communautaires UMUGANDA") within Rugezi on World Environment Day on 5 June 2004. This involved engaging the local population in efforts to fill in existing drainage ditches and cut down and remove the roots of eucalyptus trees. This step was

[15] The policy also discusses the factors that hindered the effective use of land in Rwanda at the time, including: limited land resources, the country's dependence on agriculture, a land tenure system characterized by customary law, landless persons, and antiquated land registration systems, among other issues (MLEFWM, 2004).
[16] For information regarding Rwanda's water, agriculture and energy policies at this time, see Willetts (2008).
[17] Personal communication, representative of the Rwandan Ministry of the Environment, December 4, 2010.

[18] The government has introduced similar restrictions on the cultivation of lands near other water bodies, such as Lake Kivu. In this case, the government awarded compensation to local populations displaced as a result of the implementation of the 10 and 50 metre rule. Compensation was not provided to farmers in the Rugezi-Bulera-Ruhondo watershed (personal communication, ibid).

followed by a number of initiatives aimed at improving agricultural production, protecting hillsides and diversifying incomes in the Rugezi-Bulera-Ruhondo watershed. Implementation of these activities involved various government ministries, including those responsible for the environment, agriculture, livestock, forestry and defense.[19]

For example, the Ministry of the Environment provided funding to Helpage Rwanda, a local non-governmental organization, to undertake a project focusing on reforestation, anti-erosion measures and rehabilitation of the hillsides surrounding the Rugezi wetlands (REMA, 2009). Through these conservation efforts, the project had created employment for around 13,000 people by March 2009 (Helpage, 2010). In addition, the World Agroforestry Centre, OXFAM, Care International and Hydropower International have implemented projects in the Rugezi area aimed at restoring the wetlands, including activities related to agroforestry, sustainable pastoralism, anti-erosion measures and social development (REMA, 2009).

Restoration of the Rugezi Wetlands has further been promoted through the Integrated Management of Critical Ecosystems (IMCE) project.[20] Implemented through the Rwanda Environmental Management Authority, the IMCE project aims to assist farmers around four critical ecosystems, including Rugezi, to implement sustainable agriculture measures and improve their livelihoods. Through this project Rwanda has established local watershed management committees and developed community-based management plans for endangered swamps. It has also supported the construction of terraces to reduce soil erosion, established a belt of bamboo and Pennisetum grasses around Rugezi, and put in place a system to decrease the flow of water through the wetlands' central channel (Uramutse, 2009). These and other initiatives continue to be implemented in the watershed in an effort to simultaneously rehabilitate the watershed, improve agricultural and land management practices, and enhance the sustainability of local livelihoods.

OUTCOMES

> *"We simply could not continue with business as usual. In the case of the Rugezi Wetlands, resettlement of human population, removal of cattle, and tree planting has seen the resurgence of this national asset with multiplier effects on other socioeconomic sectors," President Kagame said. "Not only is the biodiversity recovering, so is the economic infrastructure that had previously ceased to operate. Today the hydropower plants supported by the Rugezi marshland are operating at nearly full capacity, reducing by half the use of diesel generators."* (Kagire, 2010)

Over time, the combination of policy interventions and complementary restoration activities initiated by Rwanda in 2004 has contributed to the gradual rehabilitation of the Rugezi Wetlands and an increase in hydroelectricity production in the country. The actions taken within the wetlands enhanced their filtering capacity, reducing siltation rates and increasing water flow into Lake Bulera. Combined with strong rains in 2006-07 and, in particular, restricting generation from the Ntaruka power station by alternating use of one of its three turbines, water levels in Lake Bulera have risen. A key milestone in Rwanda's efforts occurred in October 2007 when the Ntaruka hydropower station again began to operate fully. By 2009, its power production had reached 7 MW and the Mukungwa station's was 11 MW (MINIFRA, 2009). Rwanda's achievements with respect to restoration of the

[19] Personal communication, representative of the Rwandan Ministry of the Environment, December 4, 2010.
[20] Funding for this project was provided by the Global Environment Facility, and is being implemented through the World Bank.

Rugezi Wetlands were internationally recognized in 2010 when it was awarded the Green Globe Award (Kagire, 2010).

It should be noted that the degree to which the specific laws of 2005 are responsible for the ecosystem's restoration is debatable; certain sources indicate that the 10 meter and 50 meter rules were not adequately enforced in Rugezi in the years following their adoption, and the government's State of the Environment report makes the same admission with respect to the application of these rules within Rwanda's wetlands as a whole (RMNR, n.d.; Willetts, 2008). However, it has also been suggested that local authorities have considerable discretion over the interpretation and implementation of laws (Pottier, 2006), creating the possibility for more strict enforcement of the provision contained in the Environment Law in Rugezi given its importance to the country's broader energy concerns.

The impact of efforts to restore the Rugezi-Bulera-Ruhondo watershed on the local population is a more challenging question to answer. Initially, the livelihoods of many in the area were adverse affected as households lost access to land for cultivation. Since this time, however, the restoration efforts appear to have started to provide some benefits. Radical terracing and agroforestry activities have increased crop productivity; grasses planted on managed terraces and lake banks are providing fodder for livestock; flora and fauna has increased in the Rugezi Wetlands; and eco-tourists are now visiting the area.[21] Thus although the local population largely did not benefit from the country's improved production of electricity,[22] these changes have the potential to restore livelihoods that were lost due to the degradation of the Rugezi Wetlands (fishing, handicrafts, honey production, etc.) as well as introduce new opportunities (in the area of tourism, for instance). Efforts to improve agricultural production, combined with the on-going process of land titling, may also further improve livelihoods and increase capacity to deal with future climate shocks and climate change. The full consequences of efforts to restore the Rugezi-Bulera-Ruhondo watershed on the local population will only be known over time and will depend in part on broader population growth and socio-economic factors within the region.

FACTORS THAT LED TO THE GOVERNMENT'S ABILITY TO ADOPT AND ADVANCE THE INTERVENTION

The ability of Rwanda to act swiftly and implement decisive and, at the time, controversial actions (such as resettlement of people living within the Rugezi-Bulera-Ruhondo watershed) in order to restore the ecological services provided by the Rugezi Wetlands may be attributed to a number of sources. First and most prominently was the urgency created by the 2004 electricity crisis. The high cost of diesel-powered electricity, the lack of energy alternatives and the disruption in economic activity created an environment ripe for considering strong action. As well, discussion around land use management and its impact on natural resources had ensued for a number of years in the country as its National Land Policy and Land Law were being formed. Land use management was (and is) of great national concern in Rwanda, and the government was expected to establish new measures in these areas. In addition, there was considerable international interest in efforts to rehabilitate the Rugezi Wetlands, as witnessed by the number of international donors willing to fund projects that would serve to reinforce and enhance implementation of the country's Environment and Land Laws. The considerable authority of the executive arm of Rwanda's government over legal

[21] Personal communication, representative of the Integrated Management of Critical Ecosystems project, December 2010.

[22] As noted previously, about 10 to 11 percent of households in Rwanda have access to electricity, and the majority of these households are in Kigali and other urban centres (MINIFRA, 2010a). The rural communities in the Rugezi-Bulera-Ruhundo watershed generally do not have access to electricity.

decisions and policy implementation also enabled the advancement of these policy decisions.

BARRIERS TO GOVERNMENT'S ADOPTION AND ADVANCEMENT OF THE INTERVENTION

A number of barriers may have interfered with the government's adoption and advancement of its efforts to restore its northern watershed. Although these barriers were generally overcome, it is possible that they slowed adoption of the government's interventions and made their implementation more onerous.

Early action by the government to prevent the electricity crisis might have been impeded by a lack of coordination between Electrogaz and Rwanda's Ministries responsible for infrastructure, environment, agriculture, economic planning etc. (Willetts, 2008). Greater exchange of information on current power demand, and corresponding needs with respect to water resources, may have led to more timely interventions.

This situation may have been compounded by the absence of meteorological information in the Rugezi area, along with information on water flow and other relevant data. Following the crisis, this lack of meteorological and hydrological data may have made it difficult for the Ministry of Environment to effectively monitor and enforce interventions undertaken in the wetlands. In its National Adaptation Programme of Action Rwanda identified the installation and rehabilitation of hydrological and meteorological stations as a key adaptation priority (MLEFWM, 2006), and a project currently being funded by the Least Developed Country Fund is contributing to the achievement of this objective.[23]

The "continuous modification" of Rwanda's environment policy framework since the beginning of this century also created challenges (Willetts, 2008). Government ministries had been shuffled considerably in the years preceding the intervention, resulting in unclear designations of responsibility at times.

A lack of institutional capacity to oversee, implement and monitor the intervention is also noted as a barrier to the effective implementation of the 10 and 50 meter rule by certain sources (ARD Inc., 2005), although the government has indicated a greater commitment to ensuring compliance with the country's Environment Law.[24] The absence of monitoring also impedes a comprehensive assessment of the impact of the government's interventions on the local population.

In addition to the above, the high population density of the area and the country's reliance on agriculture for local livelihoods was a key barrier to the adoption and implementation of land use management measures in the Rugezi Wetlands. The country's agricultural policy at the time encouraged the cultivation and drainage of wetlands to expand arable land in the country and, as mentioned above, a number of agricultural projects in the area—some with funding from international donors—had a stake in the ongoing cultivation of the wetlands (Hategekimana and Twarabamenye, 2007). It is likely that the combination of these factors interfered with the adoption and implementation of land use management policies in the Rugezi Wetlands.

[23] This project is entitled "Reducing Vulnerability to Climate Change by Establishing Early Warning and Disaster Preparedness Systems and Support for Integrated Watershed Management in Flood Prone Areas," and is being implemented by UNEP and UNDP. Further information is available here: http://www.thegef.org/gef/node/3340

[24] In a February 2011 announcement by the Rwandan Policy Force and the Rwanda Environmental Management Authority (REMA), the government committed itself to enforcing the Environment Law. The Director General of REMA note that "We have been sensitizing the public about this law but some people decided to give us deaf ears" and that punishment could no longer be avoided. The police are noted to have a responsibility to protect and prevent environmental degradation through the Environment Protection Unit under the Criminal Investigation Department (see: http://www.police.gov.rw/spip.php?article237)

CONCLUSIONS AND LESSONS LEARNED

The factors leading to Rwanda's 2004 electricity crisis, and the multiple actions taken by the Government in response, provide a number of lessons-learned for adaptation decision-making. One of these lessons is the value of an integrated approach to solving complex problems. Restoration of the Rugezi-Bulera-Ruhondo watershed required interlinked efforts to address ecological, social, economic and cultural issues, and needed to be complemented by actions within the electricity sector to improve its performance and management. This situation also points to the need for effective interaction and cooperation across ministries and between the national, district and local levels for success to be achieved.

The 2004 electricity crisis also emphasized the need for and reinforced Rwanda's commitment to diversifying its energy portfolio. Since this time, Rwanda has embarked on an ambitious and progressive effort to diversify its energy supply through development of its methane gas, geothermal, peat, solar and biogas resources.[25] The country has set a goal of generating 1,000 MW of power for domestic use and export by 2017, and is making progress towards achievement of this target.[26] Hydropower remains an important part of Rwanda's energy mix, providing half of the country's total electricity generation capacity (which is now 85 MW (MINIFRA, 2010a). Rwanda has also identified 333 micro-hydro sites that have a combined capacity of 96 MW. Twenty-eight of these sites are currently under construction and will provide the country with an additional 20 MW of electricity. The Government has also put in place strategies to ensure effective routine maintenance, rehabilitation and replacement of spare parts for all existing power plants. Today Rwanda's electricity sector is one of the most effective by regional standards, although progress in generation and access needs to speed up to meet a number of government targets (MINIFRA, 2010a).

Finally, it should be recognized that although the policies and actions taken by Rwanda were not explicitly designed to promote adaptation to climate change, improving the health and function of the Rugezi-Bulera-Ruhondo watershed should make the country more resilient to the longer-term effects of climate change. Land-use management practices that minimize soil erosion and protect sensitive ecosystems are often critical to reducing vulnerability to future climate shocks and stresses. Similarly, integrated watershed management can also support adaptation to climate change, particularly with respect to the maintenance of hydropower potential.

This case study also points to the potential for trade-offs between short- and long-term adaptation goals, and the need for intermediary measures to mitigate some of the adverse short-term impacts. The loss of agricultural plots in and around the wetlands led to short-term economic costs for the community. However, over the longer term and if combined with efforts to diversify the local economy, these land use management measures have the potential to contribute to improved livelihoods in the area through enhanced soil quality and agricultural productivity as well as the restoration of other wetland-based livelihoods (such as fishing) that were lost due to its degradation.

[25] It is intended that these energy sources will be used as follows: (1) methane gas – for electricity, fertilizer and converted to liquid for use as gasoline and diesel; (2) geothermal – for electricity and for production of heat and steam for heating, drying, food processing, etc.; (3) peat – for electricity, charcoal/briquettes suitable for households, and peat-fired steam/heat generation for processing industries (boilers); (4) solar – for electricity and heating (e.g., solar water heaters); and (5) biogas – for lighting and heating at the household and institutional level (Personal communication, representative of the Ministry of Infrastructure, February 2011).

[26] For example, Rwanda has begun to exploit the potential generation of 300 MW of methane gas from Lake Kivu; a plant producing 4.2 MW of energy is now operational. The country is also seeking opportunities to exploit the geothermal potential west of the Karisimbi Volcano, which has an estimated potential of more than 300 MW, and its 150 million tons of peat that could produce more than 100 MW. Biomass remains the country's largest source of energy, accounting for about 86 percent of the energy balance in Rwanda and over 95 percent of households energy demand (MINIFRA, 2010a).

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Session 11. (10:30)
Field-Based EA Scoping
OR
EMMP Development Exercise
(includes Field Visit #2)

Objectives
Integrate, build and apply all skills required for either 1) developing the outline of a scoping statement or 2) preparing an EMMP. In both cases mentored field observations will serve as the basis for preparation.

Format
0:30 11a. Exercise & site briefing (day 2)
0:30 11b. Group preparation (end of day 2)
5:00 11c. Field visit (day 3)
3:00 11d. Scoping statement outline or EMMP Development group work (day 3)
1:30 11e. Team presentations of scoping statement outline and EMMPs (time limit per team provided by facilitators) & wrap-up discussions

Summary
From session 6, we understand the EMMP concept and its critical function as an organizing framework for systematic implementation of IEE and EA conditions. In earlier sessions, we also developed the core EIA skills required for development of an EMMP. From session 8, we understand the scoping process and its essential role in determining the content and technical approach of a full EIA study.

In this session, we will integrate and strengthen these skills by developing either 1) a scoping statement outline or 2) an EMMP in a scenario-based, small-team exercise. The session includes a field visit, which provides the observations that inform EMMP/scoping statement development.

Teams and Sites. The training team will brief the site visits and divide us into working teams. The sites to be visited are briefed on the following pages.

General Exercise/Scenario.

- Teams undertaking the **SCOPING STATEMENT** will play the role of an environmental consultant team developing a PEA scoping statement for a large development project
- **Teams undertaking the EMMP EXERCISE** will play the role of a prime contractor (IP) managing a large multi-site project for which a PEA was completed prior to award. The IP is now planning to roll out implementation at a new project site. The PEA establishes conditions that the project must implement and provides a template site-specific EMMP. The IP must submit an EMMP for COR, MEO & REA review and approval, and their workplan and budget for this site roll-out must provide for EMMP implementation.

After initiating scoping statement or EMMP development "at the office", each team has the opportunity to visit either the site for this hypothetical project or a *similar project already in implementation.* (Visiting a similar project helps to understand the likely impacts of your hypothetical project, the typical environmental

management practices involved, and the environmental management challenges posed by this type of activity.)

Informed by its field observations, each team will return to the "office" and develop a Scoping Statement or EMMP. Each team will then present in plenary.

Instructions

A. Exercise & Site Briefing (0:30)

The training team will brief the overall exercise, the project scenario(s), and the field sites.

B. Group Preparation (0:30)

Teams will orient themselves to exercise with reference to the following **key resources**:

- Site briefings (following pages)
- Project Scenarios for Scoping AND EMMP exercises (following pages)
- Sector Environmental Guidelines (copies of relevant sectors available)
- EMMP Teams: AFR EMMP Factsheet (see annex to this sourcebook.)
- Scoping Teams: Example scoping statement (copies available) & 22 CRF 216.3(a)(4)

Before the end of the session, teams should discuss and agree on their strategy for the site visit, including:

- Identification of key conditions to observe at the site/questions to answer.
- Assignment of roles and responsibilities.

Please Note:

EMMP teams: *The PEA conditions are quite general. Therefore, as part of EMMP development, the team must translate them into more specific mitigation measures that are responsive to specific field conditions.*

Because time will not be sufficient to develop a full EMMP, teams will need to focus on carrying at least a few conditions thru to completion. That is, translating the measure into specific mitigation conditions, identifying appropriate monitoring, and estimating budget and resource requirements both for mitigation and monitoring.

SCOPING teams: *Time will not be sufficient to develop a full-text scoping statement. The desired output is a bullet-point outline with some annotations.*

Homework

Before the start of Day 3, all participants and facilitators should review these instructions and the relevant above-listed key resources.

C. Field Visit (5:00)

The field visit is intended to provide a "reality check" on initial scoping statement outline and EMMP development, thus making sure that the final output is well-grounded in field reality.

Towards this end, in the field each team should:

- Observe baseline conditions at the site, particularly those that could affect the significance of impacts and the design of mitigation (for example, are people living in close proximity to the site? Is there domestic use of groundwater or discharge? Etc.)
- Understand the different sub-activities that happen at the site, and who is responsible for them— with particular emphasis on the sub-activities most responsible for adverse environmental impacts.
- Understand the environmental management procedures currently in place, and look for evidence that they are effective (or not).

It is possible that we will observe certain deficits in environmental management at the sites. But please remember that we visit as observers and invited guests, not auditors or inspectors. We should observe, listen, and by all means ask questions—but not offer criticism to our hosts.

D. Group Work: Scoping statement outline/EMMP Development, continued (3:00)

Back in the classroom, each team will continue their work to develop either their scoping statement outline or EMMP responsive to realities observed in the field.

Teams should use the last portion of this session to finalize their presentation

E. Group Presentations & Wrap-up discussion (1:15)

Each group will present its scoping statement outline or EMMP in plenary.

Facilitators will provide the time limit for the presentations.

Key Resources

See "B. Group Preparation," above.

Site Briefing

Bigogwe Milk Collection Center (MCC)

(USAID Rwanda Dairy Competitiveness Program II- Land O' Lakes)

Location	Nyabihu District, Musanze area
Contact	• Liliane Gasana, Land O' Lakes; 0788303697 • Tegeria Gad Choumain (uprocenya), Land O' Lakes; 0788840892 • Irumva Celestin, Accountant; 0788726314 • Daniel Klakieru, Technician; 0789308904, 0722236013
Sector	Agriculture
Rwanda Dairy Sector Profile	The dairy sector contributes about 33% to Rwanda's agricultural GDP and 6% to the national GDP. With a population of 11.1 million people, Rwanda has a per capita milk consumption of 40 litres per annum which is below those some East African countries such as Kenya but aims to reach an annual per capita consumption of 80 litres by the year 2017.In-country milk production steadily increased from about 112.5 million litres in 2003 to about 445 million litres per year in 2012 now estimated to be 503 million litres. Consistent with this increase has been the growth of the cattle herd size which is now close to 1.5 million (2013). The proportion of improved dairy breeds has also increased and 82% of milk marketed is from improved breeds that make up 28% of the total cattle herd. The national herd increase has been from cattle imports and a massive state subsidized artificial insemination campaign in which hundreds of thousands of cows have been bred. The Rwanda National Dairy Strategy seeks to increase per capita milk consumption from40 litres/year to 80 litres/year through promotion of consumption by current milk consumers and the one third of the Rwanda population that does not consume milk. In addition, it seeks to formalize the dairy value chain and, considering the health benefits, orient consumers to consume processed milk instead of the raw milk currently being consumed. The NDS further envisions, improved value addition (e.g., through product diversification) that is expected to use the anticipated milk surplus The Rwanda dairy sub-sector contributes to regional milk supply largely through informal exports to Burundi and the Democratic Republic of Congo. The informal milk exports can be as much as one million litres of fresh and fermented milk per month. Because the price of milk from Rwanda is high, Rwandan milk cannot compete in milk markets in Uganda and Kenya. However, opportunities for export of value added products, particularly cheese , to all East African countries exists because of lower product prices. Challenges that have precluded formal exports include the poor quality of raw milk and weak enforcement of milk standards. However, this challenge is being tackled through the introduction of milk and dairy products certification programs and milk quality regulations for the whole dairy value chain. The cold chain is being extended and improved to assist in maintaining milk quality along the whole dairy value chain.

	(abridged from "Rwanda" in *White gold: Opportunities for dairy sector development collaboration in East Africa.*" Centre for Development Innovation, Wageningen (Netherlands), March 2014 http://edepot.wur.nl/307878
RDCP II Project Overview	The Rwanda Dairy Competitiveness Program II (RDCP II) is designed to reduce poverty through expanded marketing of good quality milk that generates income and employment, and improves nutrition of rural households. RDCP II aims to achieve this by linking existing and new smallholder dairy producers to expanding market demand driven by improved quality, reduced transaction costs and increased investment all along the dairy value chain. A key implementation approach for RDCP II is support to milk cooperatives, as in the case of Bigogwe. Benefits of cooperative membership include: • Superior prices on stock feeds • Veterinary services- Animal treatment on credit and recover payment from milk sales from farmers • Market linkage
Bigogwe MCC Operations	Operations started in 2013. Farmers purchase cows privately. Four cooperatives with approximately 400 people each bring milk to the Milk Collection Centre before 7 am each day. Between 600 and 700 litres/day are collected and processed into yoghurt, cheese or sold as fresh milk. Milk collected from farmers is tested for freshness, and mastitis.(see endnote) It is stored in tanks cooled to $3^{O}C$ by an engine that is run for 3-4 hours a day before being switched off until the next day. After the bulk milk is collected, tanks are cleaned using a detergent and the floor is mopped up. The effluent is collected into a septic pit about 50 meters away. The centre also serves as a veterinary drugs store, including antibiotics, dip, de-wormers, and vaccines. (dipping is done at the farmer's homestead, not on MCC premises.)
Mastitis	Mastitis is the inflammation of the mammary gland and udder tissue, and is a major endemic disease of dairy cattle. Milk-secreting tissues and various ducts throughout the udder can be damaged by bacterial toxins, and sometimes permanent damage to the udder occurs. Severe acute cases can be fatal, but even in cows that recover there may be consequences for the rest of the lactation and subsequent lactations. Practices such as close attention to milking hygiene, the culling of chronically-infected cows, good housing management and effective dairy cattle nutrition to promote good cow health are essential in helping to control herd mastitis levels. Mastitis is most often transmitted by contact with the milking machine, and through contaminated hands or other materials, in housing, bedding and other equipment.

	Mastitis treatment and control is one of the largest costs to dairy industries worldwide. Losses arise from: • Milk thrown away due to contamination by medication or being unfit to drink. • A reduction in yields due to illness and any permanent damage to udder tissue. • The extra labour required to tend to mastitic cows. • The costs of veterinary care and medicines. • The cost of reduced longevity due to premature culling. *(abridged from http://www.dairyco.org.uk/technical-information/animal-health-welfare/mastitis/#.VPZFzOGMC60. DairyCo is non-profit UK dairy producer organization funded by statutory levy on all milk sold.)*

Photos

Site Briefing:
Land Husbandry, Water Harvesting & Hillside Irrigation Project (LWH)—Nyabihu Site

Location	Nyabihu, Rwanda (about 25 minutes from workshop hotel)
Sector	Agriculture
Agricultural Context	Rwanda is a hilly country with 90% of the population dependent on agriculture for their livelihoods. The rural population density is on average 416 persons/km2, making Rwanda one of the most populated countries in Africa. Farm sizes average only about 0.6 ha, often fragmented amongst several parcels; many households manage as little as 0.4 ha; production is generally for subsistence targeting the household's own food consumption. Population pressure has encouraged people to move on to steeper slopes making agriculture difficult. Lands of 16 – 40 % slope cover nearly 45 % of the country. Moreover, the country loses approximately 1.4 million tons of fertile soils per year due to soil erosion. Soils moreover are often excessively acidic and have limited water holding capacity/high infiltration. While slopes in some hillside areas exceed recommended slopes for cultivation, population pressure compels their cultivation. This causes severe soil erosion and yields decline. In order to sustain cultivation and productivity on such steep-slopes, considering soil conservation measures such as land husbandry become a necessity. The government has targeted increasing productivity in these areas and bring abandoned areas back into productive use. On the other hand, Rwanda has 589,713 ha of irrigation potential out of which 63% is on hillsides (Rwanda Irrigation Master Plan, 2010). Annual rainfall ranges between 700mm- 1600mm, which is divided between 2 rainy seasons (February-May and September- December). Production is severely affected, both in terms of quantity and quality, by lack of water for crops during the dry seasons. Farmers inform that production could have doubled and vigor of their crops improved if they were able to use irrigated agriculture. However, hillside-irrigation has been insignificant in Rwanda.
Project Overview	**Funding:** Multi-donor basket funding as follows: GoR (US$7.33 Million), World Bank IDA (US$34 Million), Global Agriculture and Food Security Program (GAFSP) (US$50 Million), USAID (US$13.265 Million) and Canadian CIDA (US$7.8 Million), totaling US$112.4 Million. **Performance period**: June 2009 thru December 2015 (expected close). **Overview:** LWH is a Government Project under MINAGRI in Program 1 in the new Sector Wide Approach (SWAP) structure aimed at increasing the productivity and commercialization of hillside agriculture. It utilizes a holistic approach of land-

	husbandry, water-harvesting and hillside irrigation (LWH). The project implements a comprehensive watershed approach (but adaptable to the particularities of each site) to facilitate soil erosion control and increase land productivity. The Project uses several techniques and technologies in land management through developing appropriate land husbandry practices on both rain-fed and irrigated area and provides modern agricultural techniques for higher production of annual and perennial crops. Project activities include extensive community sensitization and participatory approaches. Communities are further supported to form self-help groups based on land proximity which after their maturity form a business oriented cooperative. A wide range of capacity building programs are carried out for farmers themselves and their structures as well as other institutions that support agriculture like Districts, financial institutions and the private sector. With the current financing, the project will target about 12,940 ha for land husbandry and 1,865 ha for irrigation.
Project Activities:	• LWH has piloted different techniques on three ecological zones in the sites of Karongi-12, Karongi-13 in Western province, Nyanza 23 in Southern province and Gatsibo-8 Eastern province. • After successful first-round implementation, the project scaled up its intervention to 3 mores sites of Rwamagana 34 and 35, and Kayonza 4 in Eastern province in March 2012. In September 2013, the project rolled out its intervention in Northern Province in both Muyanza and Gicumbi sites of Rulindo and Gicumbi Districts. So far, the project has over 22,689 families (over 100,000 people) benefiting from the Project activities. • Strong farmer groups were formed in these sites and trained on the subjects of agricultural technologies, post-harvest handling, marketing , business planning, compost making, tree nursery maintenance and saving. • These groups have now formed cooperatives in different sites which are now linked to financial institutions and are enjoying financial services for agriculture value chain. Farmers in project areas are now working with 21 financial institutions which has significantly improved financial literacy, saving and input financing. • Yields of different crops have tripled and in some areas like Karongi increased 5 times after the land treatment. Farmer net income from sales has also tripled as farmers now market 74% of their produce from 30% before the project. • Post-harvest infrastructures have been constructed to minimize post-harvest losses and improve the quality of produce.
Nyabihu site visit	- The visit will start from the Sector Office (where the LWH offices are located) which will include few minutes of introduction with the Executive Sector, and a presentation of the project before going on the sites. - The visit will include a visit (or observation) of activities of land husbandry (erosion control through radical terracing) and water ways. - The site is still being developed, we will see interventions-in-progress, including a closer view of irrigation channels and the construction of the hillside irrigation

	system**. NOTE: requires ~10-min walk on to hillside. Sturdy shoes required; the hike can be slippery!**

Photos

Site: USAID/Rwanda Pyrethrum Program (Pyramid II) Abakundibireti Cooperative

Location	Musanze
Contact	• Jean-Paul; 0788568513 • Isa Gisagara, Technician & Factory Manager
Sector	Agriculture
Background	 A few types of Chrysanthemum flowers, but especially *Chrysanthemum cinerariifolium* naturally contain a mixture of six chemicals (pyrethrins) that are toxic to insects, acting on their nervous systems. They also often have a repellent effect even in less-than-fatal concentrations. Pyrethrins are specifically contained in the seed cases of the flower. Extracting the pyrethrins involves a process of drying, grinding to powder, and (usually) extraction with solvent, and then dilution to a level of 25% or 50% pyrethrin active ingredient. This resulting product is called **Pyrethrum Pale Extract.** See pyrethrum factsheet & pyrethrum extract MSDS in session 4 materials.

Project briefing	Project began in June 2012 and ends June 2015
	
	• Farming
	  ○ Pyrethrum rotated with Irish potato
	  ○ Farmers were given plots by the government in the 1970's
	  ○ Farmers located on volcanic soil fertile belt
	  ○ Don't use any synthetic pesticides/chemicals (pyrethrum is natural pesticide)
	  ○ Each farmer has around .2 ha of land
	  ○ Land has been reduced due to population growth
	  ○ Issues:
	  ▪ Fungal growth a problem during high rains
	  ▪ Need concrete flooring under drying racks so they don't lose flowers
	  ▪ Buffalo ruining some crops
	• Pyrethrum growing cycle is February-February
	  ○ Planting from March-April
	  ○ Harvesting from August/September until January/February (every 2 weeks)
	  ○ February begin prepping for planting again
	• 30,000 farmers in 7 cooperatives
	  ○ Every cooperative has 200-300 members (not every farmer is member)
	  ○ Cooperatives receive management training
	  ○ Membership fee: 10,000 RWA (one-time payment)
	  ○ Member benefits:

	▪ Best practice training ▪ Inputs (fertilizers and seeds for free) ▪ Cooperative helps may medical insurance every year ▪ Provides small loans without interest (mostly for children's school fees) ▪ Cooperative provides driers • Non-members use matts to dry, which worsens quality • Cooperative buys flowers from farmers at 1085 RWA/kilo ○ Cooperatives buy from farmers at 1012 RWA/kilo, so they make a margin of 42 RWA/kilo • Farmers harvest flowers every 2 weeks ○ Horizon/Sopyrwa picks up dried flowers from cooperatives and brings to processing plant ▪ 2 metric tons collected every 2 weeks • Processing: ○ Flowers are not stored long (receive and process every 2 weeks) ○ Flowers are grinded into Glist powder (some powder sold to Agropharm) ○ Power goes through channel to refinery, where it is mixed with solvents (either exon or methanol) ▪ Quality increases up to 70% ○ Buyers buy product at 50%, so concentration needs to be reduced ○ After refinery, oil is extracted, the solvent is recaptured, and concentration is reduced to 50% • Market ○ Some oil sold to Agropharm ○ Most buyers are from the US ○ Some Asian buyers (Korea, India)
Cooperative visited	**Abakundibireti, 12 km from Musanze in Kinigi** President: Phil Belt Gender Program • Composting • Empowerment/Capacity building • Women gather in the evenings to discuss issues and collect funds to distribute as needed to eachother

(see photos next page)

Photos

Session 12. Best Practice & Compliance for Investment Promotion

(1:45)

Objective

Understand the key elements of international environmental and social best practice in investment promotion. Explore how these do (or should) manifest in USAID programming, and how they should be addressed in the context of 22 CFR 216 determinations and conditions.

Format

Presentation, Q&A, and Discussion

Summary

Investment promotion is an increasingly common and important element of USAID programming in multiple sectors. Investment promotion comes in many "flavors," but its objective is to stimulate private (and sometimes public-sector) investment in a particular sector, industry or service, without USAID itself directly funding these investments.

Investment promotion is critical both because it leverages limited USAID resources and because sustained economic development is impossible without a self-sustaining "economic culture" of investment in key sectors and opportunities.

Investment promotion may come in the form of:

- Enhancing availability of credit via DCAs or other mechanisms
- "Matchmaking" TA in which vetted prospective investors are paired with vetted prospective investmens/investees
- TA to help enterprises, early-stage or otherwise, develop business cases and loan applications
- Capitalization of revolving loan funds to support early stage businesses
- Support to policy development/reform to reduce transaction costs, uncertainty and risk of investments in given sector(s)
- Etc.

The justification for USAID investment promotion programming is that current levels of investment are inadequate to meet human or economic needs, and the agency strives to measure investment promotion success by the overall, attributable increase in targeted types of investments.

By that same logic, investment promotion brings with it a set of <u>indirect</u> and <u>cumulative</u> environmental and social impacts for which USAID has some responsibility. Typically USAID has only very limited (or no) control over the actions of individual investors on the ground. .

This session will explore the key elements of international environmental and social best practice in investment promotion, how these do (or should) manifest in USAID programming, and how they should be addressed in the context of 22 CFR 216 determinations and conditions.

Session 13. Sector Mini-Sessions

(1:00)

Objectives

Gain a basic understanding of a set of important sector-specific developments and current issues in the area of ESDM and environmental compliance.

Format

Quick "poster-session"-style briefings.

Part A: Introduction (0:05)

Note: briefing topics were being finalized at press time and are subject to change. Provisionally, they are:
Part B: USAID's Construction Assessment (0:10)
Part C: AFR's PERSUAP "stocktaking" and way forward (0:10)
Part D: Water Quality Assurance Plan (WQAP) Assessment (0:10)
Part E: Medical Waste Management (0:10)
Part F: Climate Smart Agriculture (0:10)

Summary

A series a short briefings will introduced a set of important sector-specific developments and current issues in the area of ESDM and environmental compliance.

These introductory "poster sessions" will serve as a prelude to the following session, in which participants will join an informal roundtable discussion on the topic of their choice.

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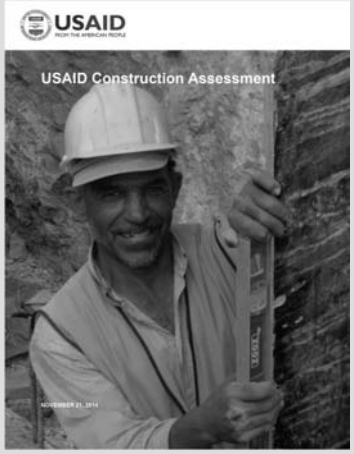


Global Review of USAID Construction Portfolio 2011-2013: Outcomes to Date

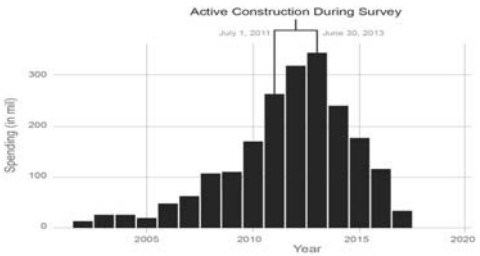
USAID/AFR ESD&M Workshop Rwanda March 2015

USAID Construction Portfolio 2011-2013

$5.6Billion

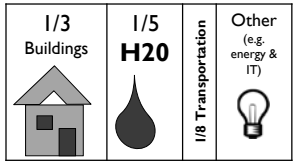
Estimated Construction Value

June 1, 2011- June 30, 2013 -- period assessed



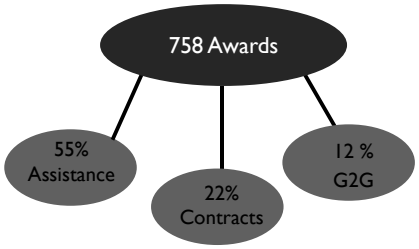
Highlights

- $1.6 Billion construction ≤ half of award
- $2.9 Billion Conflict
- $1.5 Billion Government to Government (G2G)
- $5.4 Billion managed by Missions
- 3,304 Subawards



Construction Awards

Number and Estimated Value of Construction		
Large > $50 million	23 awards	$3 billion
Medium $1-10 million	271 awards	$2 billion
Small < $ 1 million	318 awards	$0.1 billion



Estimated Construction Values and Total Number of Awards

GEOCENTER

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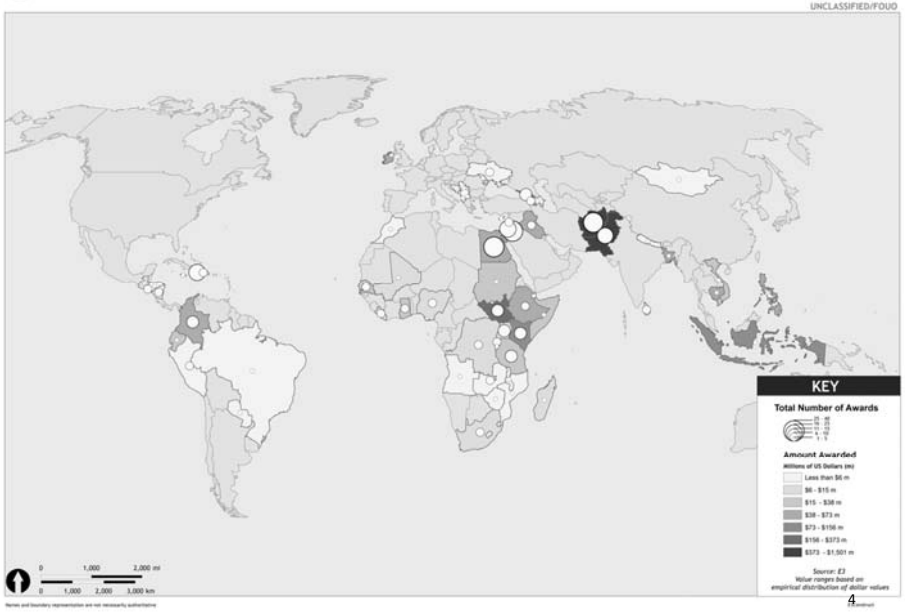
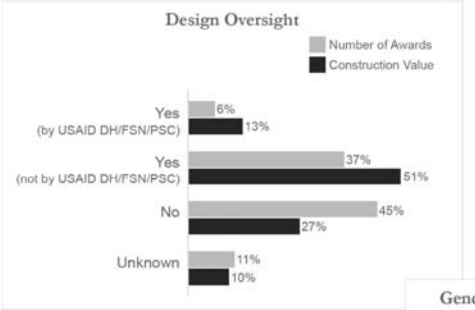
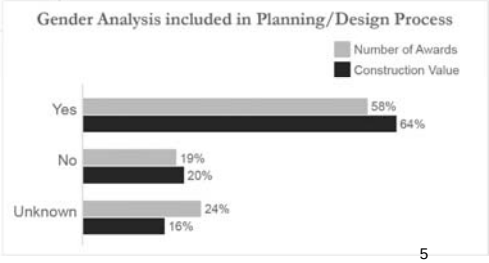


Construction Design

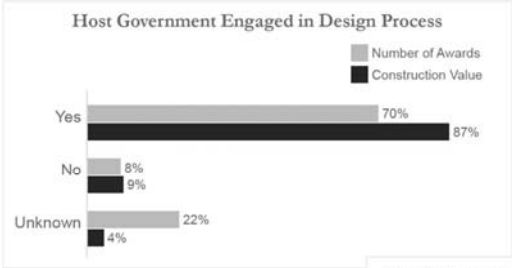


Over half of the value of awards included USAID engineering design oversight.

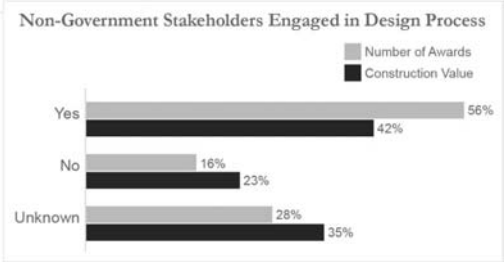
Opportunities exist to better ensure our infrastructure is suitable to all needs.



Stakeholder Engagement in Design

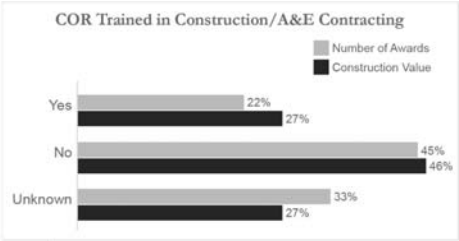


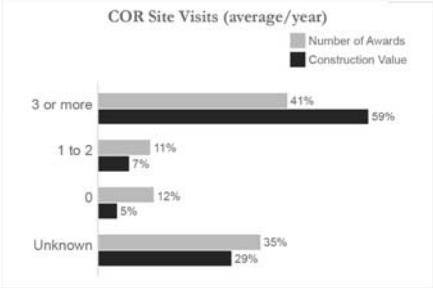
USAID excels in stakeholder engagement in the design process.



COR Role

"Greater COR/AOR experience and knowledge of managing construction projects resulted in statistically fewer budget overruns."





Recommendations

1. Introduce Construction Risk Management Plans as an integral part of all project design
   - Scalable and flexible for size, complexity and urgency
   - Risk Management Working Group established (inter alia)
2. Develop and Launch Construction Management Info System
   - MIS should support field & Agency in tracking risk mitigation
3. Address staff issues through hiring and training
4. Design and implement standard A&A and program processes for construction
   - Adjustable for large, complex and small, simple projects
   - Build into existing systems and processes
5. Revise Policy to pull it all together

6. USAID's 2012 Construction Policy: construction allowed only under **direct Contracts** or carefully defined C.A.s

USAID FROM THE AMERICAN PEOPLE

GLOBAL ENVIRONMENTAL MANAGEMENT SUPPORT

Stocktaking and Re-Imagining of the Pesticide Evaluation Report and Safe Use Action Plan (PERSUAP)

Musanze, Rwanda - March 2015

PERSUAP Stocktaking – Overview

- **A consultative stocktaking to inform the best approach for AFR to take in implementing USAID's "Pesticide Procedures" (22 CFR 216.3(b)**
  - *24 total interviews undertaken (mostly by phone):*
    - PERSUAP preparers ; PERSUAP reviewers; USAID environmental officers; Implementing Partners (8)
- **Primary Interviewee Concerns**
  - *A. PERSUAP length and complexity*
  - *B. IP Funding and capacity for implementation*
  - *C. Limited relevance to project context – too US-centric*
  - *D. Redundant preparation and review effort*
  - *E. PERSUAP review bottlenecks*
  - *F. Lack of complete, current PERSUAP preparation guidance*
  - *G. Lack of integration and mainstreaming*
  - *H. Lack of mission capacity to support/oversee pesticide compliance/safer use*

PERSUAP Stocktaking – Findings

- **Consultant's Evaluation – A Flawed System**
  - *After review & approval, PERSUAPS are typically technically sound documents*
  - *High, duplicative transaction costs of PERSUAP development*
  - *Pesticide/Pest management resources are improperly weighted toward PERSUAP preparation rather than IPM and safer use in project implementation*
  - ***Most serious problem: actual implementation/compliance with safer use conditions is limited, and largely unmonitored.***
- **Root Causes**
  - *PERSUAPs "wear too many hats"*
  - *Requirements PERSUAPs place on IPs are not always clear or manageable*
  - *PERSUAPs repeat much of the same technical analysis*
  - *Lack of preparation guidance creates additional burden during both preparation and review*
  - *RFQs & program designs place insufficient emphasis on IPM and pesticide safer use*

PERSUAP Stocktaking – Consultants' Recommendations

1. **Separate the PER from the SUAP, with mandatory BEO clearance only for the PER**
2. **Via a PEA, develop a set of pesticides preapproved for specific uses and with specific use conditions in AFR programs.** Preapproval is subject to host country registration & identified pest control need.
3. **Put the output of the PEA** ("preapproved" pesticides, uses, use conditions, toxicological profile information, env. fate**) into an IP-accessible database, updated annually.**
4. **Develop a streamlined structure/template for the PER.** This would be based on a standard information form for each pesticide, <u>elements of which could be automatically populated by the database.</u>
5. **Assemble resources for SUAP development and implementation**
6. **Fund pilot tests of this approach with a few "typical" program PERSUAPs.**
7. **For pilot tests, fund 3rd-party review of/support for SUAP development & field compliance.**
8. **Train in new compliance approach**
9. **Develop model pesticides compliance/IPM language for use in solicitations and awards where pesticide procurement/use is anticipated**

Potential New Approach

STOCKTAKING RECOMMENDATIONS

1. **Separate the PER from the SUAP with mandatory BEO clearance only for the PER**
2. **Via a PEA, develop a set of pesticides preapproved for specific uses and with specific use conditions in AFR programs.**
3. **Put the output of the PEA into an IP-accessible database, updated annually.**
4. **Develop a streamlined structure/template for the PER**

PROPOSED WAY FORWARD

1. **Conduct Programmatic Environmental Assessment (PEA) for pesticide promotion/use in AFR.**
2. **PEA output will include:**

Database of conditionally "pre-approved" pesticides

An Environmental Management Framework

A PER Template

PEA for Pesticide Use in AFR?

Database of conditionally "pre-approved" pesticides

- *Publically available*
- *Approved Active Ingredients (AIs) and Concentrations*
- *Will establish use conditions for approved AIs*
- *Will provide resolution on approved RUP products*
- *Will utilize various resources, but fundamentally rely on USEPA registration status for all governing decisions*
- *The specific parameters (e.g. AIs selected, formulations considered, uses/crops covered) will be vetted via the PEA process*

PEA for Pesticide Use in AFR

An Environmental Management Framework

- *Establishes process for preparation, review, and approval of PERs developed through use of the database.*
- *2 Preparation Approaches to Consider:*
  - Scenario 1: PER Preparer Queries Database based upon Intended Pesticide Use(s).
  - Scenario 2: PER Preparer Queries Database based upon Active Ingredient(s) and Formulation(s).

Scenario 1 - PER Preparer Queries Database based upon Intended Pesticide Use(s).

Step 1

The database:

1. **Generates list of approved pesticides and/or pesticide products for those uses**
2. **Allows user to select from the list provided**
3. **Delivers "Pesticide Profile Sheets" for each pesticide (MSDS, or MSDS-lite)**

Step 2

PER Preparer must:

1. **Cross-reference "approved" list against host-country pesticides registrar.**
2. **Select from host-country approved pesticides that are on "approved" list or qualify for use as "Same or similar products for same or similar use".**
3. **Begin PER preparation**

Step 3

PER preparation requires (for each proposed pesticide):

1. **Indicating host-country registration status**
2. **Collecting pesticide product labels**
3. **Developing context-specific evaluation of 12 Factors listed in Reg. 216.3 Pesticide Procedures (where applicable, see template below)**

Scenario 2 - PER Preparer Queries Database based upon Active Ingredient(s) and Formulation(s).

Step 1

The database:

1. **Generates lists of matching registered products and/or confirms eligibility of AI + formulation**
2. **Allows user to select from approved products listed**
3. **Delivers "Pesticide Profile Sheets"**

Step 2

PER Preparer must:

1. **Confirm host-country registration status of proposed products; or**
2. **Screen host-country registration for "same or similar products for same or similar use" based on AI + formulation + composition.**
3. **Begin PER preparation**

Step 3

PER preparation requires (for each proposed pesticide):

1. **Indicating host-country registration status**
2. **Collecting pesticide product labels**
3. **Developing context-specific evaluation of 12 Factors listed in Reg. 216.3 Pesticide Procedures (where applicable, see template below)**

PEA for Pesticide Use in AFR

A PER Template

Refer to handout in the Sourcebook

Session 13d.
WQAP Assessment and Model Language

Sector mini-session presentation and small-group discussion

Summary

Access to safe drinking water is central to the health and development of any community. The increased use of water for agricultural irrigation can also accelerate economic growth and improve livelihoods. USAID supports a range of activities in the Water, Sanitation and Hygiene (WASH) and agricultural sectors, many of which entail the establishment of new water access points or the rehabilitation of existing structures or systems. In these scenarios USAID must assure that water supplies meet certain quality criteria for domestic and agricultural purposes. As such, water quality testing and water safety is a key aspect of any water provision effort.

However, water quality testing often presents a practical challenge for project staff. In addition to the logistical demand of initial testing and monitoring across many, potentially dispersed systems or water access points, certain tests may require refrigeration, incubation and laboratory analysis. Specific water quality testing requirements will vary by activity, but generally must account for:

a) a baseline, or initial water quality assessment to determine if water is safe; and
b) a periodic testing or monitoring regime to determine if the water becomes contaminated.

In order to account for these and similar requirements across a range of water-related projects, Africa Bureau typically requires preparation of a Water Quality Assurance Plan (WQAP). The WQAP requirement is usually included as an IEE condition and implementation of the WQAP is similar to that of an EMMP. Like EMMPs, WQAPs are not centrally reviewed/approved or catalogued, providing little insight on the consistency and effectiveness of WQAPs at the regional level.

Africa Bureau recently completed an assessment of the WQAP approach to understand the relative strengths and weaknesses of this mechanism as a means of ensuring the provision of safe water. In general, establishment of the WQAP requirement in activity IEEs has been uneven for most project types, in all Africa sub-regions. Where a WQAP *is* required as a condition of the IEE, it is not clear that these plans have been consistently prepared and implemented. WQAPs that are developed and implemented in accordance with the IEE may or may not achieve their objectives, depending on a variety of factors. Several of the key factors identified through this assessment include:

- Nature and extent of stakeholder/community engagement, as well as transition planning;
- Strength of host-country institutions and enforcement of water quality standards or criteria;
- Access to laboratory facilities and equipment, as well as in-country personnel and expertise.

Objectives

Discuss key factors or considerations for WQAP success—or failure. Review strengthened standard IEE language for establishment of the WQAP requirement.

Key Resources

- Standard IEE Language Establishing a Water Quality Assurance Plan (WQAP) Requirement (Draft)—see attached.

Standard IEE Language Establishing a Water Quality Assurance Plan (WQAP) Requirement — (Draft)

Version date: 26 September 2014

Purpose of this Language: Per 22 CFR 216, Initial Environmental Examinations (IEE) must identify and assess the reasonably foreseeable impacts of a specific action or set of actions on the environment. In this context, "environment" includes human health.

IEEs prepared for projects or activities that entail the provision of drinking water must therefore address the risks of water contamination and consequent health impacts. The IEE also must specify conditions (actions) to mitigate these risks—that is, to assure the water provided is safe to drink. Any IEE conditions become required elements of activity implementation.

To best achieve these ends, Africa Bureau requires that IEEs for drinking water activities stipulate preparation of a Water Quality Assurance Plan (WQAP). The WQAP enables USAID and its partners to specify a detailed approach to assuring water quality. The requirement for a WQAP is established in the IEE (and thus prior to implementation). The WQAP itself is developed during project implementation—but before active drinking water activities begin. This allows the WQAP to be developed in a consultative, project-specific process once funding is in place and the interventions better defined.

The recommended IEE conditions language that follows: (1) establishes the requirement for a WQAP; (2) defines the requisite elements of the WQAP; and (3) establishes the process by which the WQAP shall be developed, approved, and implemented.

This language can be adapted or revised as appropriate based on the nature of the proposed activity/activities.

- Prior to drinking water provision, the project will prepare and receive approval for a Water Quality Assurance Plan (WQAP). The WQAP will be prepared in consultation with the cognizant AOR/COR and/or Activity Manager. Its purpose is to ensure that all new and rehabilitated USAID-funded sources of drinking water provide water that is safe for human consumption. The completed WQAP must be approved by: the AOR/COR and/or Activity Manager; the MEO; and the REA.
- Once approved, the WQAP must be implemented in full, and for the duration of drinking water activities.[1] Implementation must include testing of water prior to making the supply point available to beneficiaries.
- The WQAP constitutes a key element of the project's EMMP. As with all other elements of the EMMP, project budgets, workplans, and staffing plans must provide for its full implementation. The approved WQAP must include at minimum the following sections:
    - Project information (name of project, name of IP, period of performance, contact information, name of COR/AOR)

[1] See Question 1 on following page.

- A description of the drinking water points to be subject to the WQAP (approximate numbers, water source(s), technology(ies), general geographic area and installation context).
- An inventory of applicable water quality standards, including those promulgated by USAID, as well as the cognizant host-country regulatory entity/entities. (The World Health Organization [WHO] *Guidelines for Drinking-water Quality* may be substituted for host-country standards that are not accessible, unclear or outdated.)
- The responsible parties/entities/institutions, under host country law or policy, for monitoring and managing water quality of the water points subject to this WQAP. If other than the IP, a summary assessment of their capacity and their involvement.
- A technical assessment of the equipment, resources and expertise that will be required to monitor and report on compliance with applicable water quality standards. This should include, for example, sampling materials, reagents, transportation, storage, laboratory facilities and capacity, communications, training or certification criteria, etc.
- Protocol for initial testing and ongoing monitoring of water quality, to include:
  - contaminants for which initial testing and ongoing monitoring will be conducted[2]
  - water quality assessment methods, including test type and frequency
  - data management and reporting; the project must maintain a central registry of monitoring results by water point and date; GPS coordinates for water points are expected
  - designation of 'responsible party' for each aspect of protocol
  - response procedures in the event water does not meet water quality standards
- Justification for NOT testing to any applicable standard
- Sustainability strategy to the extent that responsibility for longer-term water quality assurance will transition in part or whole to project partners or beneficiaries. A summary assessment of the capacity of these partners, and any capacity building to be undertaken

- The WQAP should follow any applicable USAID guidance, as well as local laws, regulations and policies.

Questions for consideration by mini-session participants:

1. Should USAID incorporate a minimum coverage period for any given water point (e.g., 6 months? 1 year?) even if beyond end of subject project? For water points installed or rehabilitated at or near the end of a project period of performance, this could constitute an obligation that the mission would need to address (this is already the case for USG-mandated Arsenic [As] testing).
2. Should USAID/AFR consider including an (interim) minimum list pending formalization of Agency-wide water quality standards (e.g., "At minimum, this must include fecal coliform, nitrates and arsenic")?

[2] See Question 2.

Session 13d:
WQAP Assessment and Model Language

Musanze, Rwanda - March 2015

Recent WQAP Assessment

- Three-phase study coordinated and overseen by B. Hirsch and A. Robertson with support from GEMS
- Phase I: Desk review using IEE database
- Phase II: Verify WQAP preparation (and extent of implementation) for projects for which it is required
- Phase III: Field work to assess WQAP efficacy and attributes (Ghana, Zimbabwe, Kenya + Tanzania)
- Multiple report-outs to AFR and across Agency and USG partners

Challenges to Implementation

- WQAP not addressed or required in IEEs for applicable projects:
  - *WASH*
  - *Agriculture (irrigation)*
  - *Construction/rehabilitation of schools, clinics, etc.*
- Where required by IEE, no record of WQAP being developed or implemented
- Some WQAPs not responsive to full range of challenges

Factors for Successful WQAPs

Verified through field work (Phase III):

- *Clear and consistent host country regulations*
- *Coordination with host country institutions*
- *Structured community operation and maintenance of water points*
- *Quality and experience of IP*
- *Access to well-equipped and well-staffed laboratories*
- *Adequate host-country personnel and expertise*
- *Effective resource management*
- *Inclusion of water quality standards in contracts and awards*

Recommendations

Recommendations	Key Actors
Reconsider the importance of underlying IEE conditions, which devolve too much to a WQAP mechanism versus a traditional EMMP	Agency Environmental Council; Africa Bureau Environmental Officer; Africa Bureau Water Advisor; Regional Environmental Advisors; Office of Water Staff
Develop a template and/or example of a high-quality WQAP or EMMP addressing water monitoring requirements for use by Mission Environmental Officers, Agreement Officer's Representative/Contracting Officer's Representative, and IPs	Africa Bureau Environmental Officer; Africa Bureau Water Advisor; Office of Water Staff
Select IPs with water quality monitoring experience and a good track record of achieving safe water in the host country by strengthening selection criteria	Policy, Planning, and Learning; Office of Acquisitions and Assistance
Provide technical training to all Regional Environmental Advisors and Mission Environmental Officers on water quality monitoring	Africa Bureau Environmental Officer; Africa Bureau Water Advisor; Office of Water Staff
Improve community-based monitoring and engagement in the water quality process to foster community ownership of water points and improve the likelihood of long-term monitoring	Office of Water Staff, Mission Environmental Officers, Representatives/Contracting Officer Representatives
Seek opportunities to provide low-cost technical support to facilitate community-level water quality analysis	Office of Water Staff, Mission Environmental Officers, Agreement Officer Representatives/Contracting Officer Representatives

Recommendation #1: Revisit IEE Language

- IEEs include clearer, more prescriptive WQAP requirement

- Prior to drinking water provision, the project will prepare and receive approval for a Water Quality Assurance Plan (WQAP). The WQAP will be prepared in consultation with the cognizant AOR/COR and/or Activity Manager. Its purpose is to ensure that all new and rehabilitated USAID-funded sources of drinking water provide water that is safe for human consumption. The completed WQAP must be approved by: the AOR/COR and/or Activity Manager; the MEO; and the REA.
- Once approved, the WQAP must be implemented in full, and for the duration of drinking water activities. Implementation must include testing of water prior to making the supply point available to beneficiaries.
- The WQAP constitutes a key element of the project's EMMP. As with all other elements of the EMMP, project budgets, workplans, and staffing plans must provide for its full implementation. The approved WQAP must include at minimum the following sections:
  - Project information (name of project, name of IP, period of performance, contact information, name of COR/AOR)

Recommendation #2: Template WQAP

- Make available a high-quality WQAP template for use by MEOs, A/CORs, and IPs

Table 1. Example Summary EMMP Matrix

XXX WASH PROJECT
SITE: XXX
Environmental Mitigation/ Enhancement Plans for Established WASH Projects

WATER QUALITY ASSURANCE PLAN

Activity: Water Supply
Adverse Impact: Inadequate Water Quality

Sites: Water Pans: *Location XXXX.* **Boreholes:** *Location XXXX.* **Pipeline Extension:** *Location XXXX.*
Rock Catchments: *Location XXXX.* **RWH Tanks:** *Location XXX.*

Source Type	Mitigation Plan	Evidence of mitigation measure	Follow up/ frequency	Responsible persons/ organizations
	Design Stage			
	Construction Stage			
Water Pans	a) Construct cattle troughs away from the water pan site b) Provide a cutoff trench for any storm water flowing in from any nearby farms, markets, trading centers etc c) Construct a suitable silt trap to control siltation of the reservoir d) Construct the embankment with gentle and well compacted slopes to prevent any soil erosion of the walls during rainy seasons e) Provide adequate dead storage below the intake chamber to minimize siltation of the draw pipe f) Fence round the water pan site g) Ensure all spilled oils and fuels are properly disposed h) Properly dispose off all waste/ unwanted matter from the reservoir i) Install an appropriate water treatment unit	Installation, completion reports, photos	After construction and every three months	Contractors, community and IP
Boreholes	a) Install pipe casings in case the walls are prone to collapse b) Proper drainage of waste materials from the drilled pit to prevent any seepage to the ground water c) Proper development of the pit to remove any unwanted material occurring during drilling process	Installation, completion reports, photos water quality reports, photos, design drawings for treatment units	During construction, after construction and after every three	Contractors, IP, commu

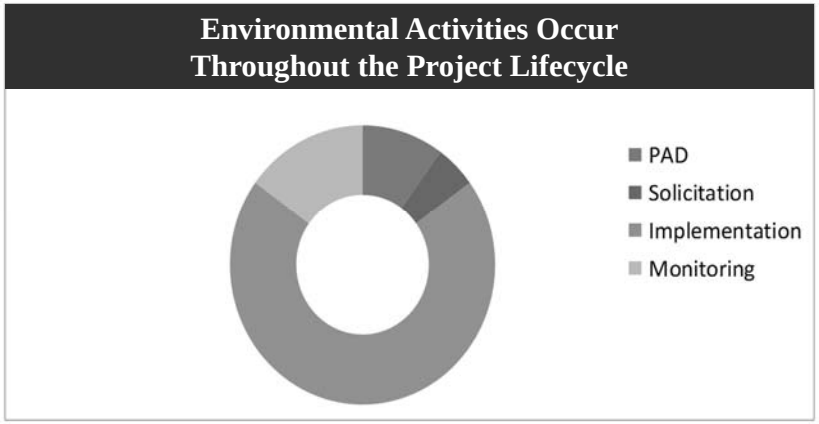
Mini-Session Objectives

- Review and discuss IEE language
  - *General impressions*
  - *Advantages?*
  - *Challenges?*
- Promotion of template of WQAP
  - *Among MEOs*
  - *A/CORs*
  - *IPs*

Environmental Compliance in Global Health

Musanze, Rwanda - March 2015

LIFE CYCLE COMPONENTS OF ENVIRONMENTAL COMPLIANCE



What's New for Environmental Compliance in Global Health

- **Strengthen environmental compliance process**
  - Evaluate existing process and focus on value-added documentation
  - Standardize environmental analysis and implementation process (IEE)
  - Improve project monitoring: mitigation measures, verification, reporting
  - Bring stakeholders together through cross-functional bureau-level environmental compliance workgroup

EMERGING PROGRAMMATIC AND TECHNICAL ISSUES

- **Environmental compliance when co-located in a non-compliant work location**
- **Better management of healthcare waste disposal processes**
- **Building 'green procurement into Global Health programs**
- **Understanding how and when climate change fits into planning your health programs**

Session 13f.
Climate Smart Agriculture

Sector mini-session presentation and small-group discussion

Summary

In recent years, many communities have been stressed by changing temperatures, rainfall patterns, and extreme weather events indicative of a changing climate. Past, current, and future climate changes are requiring a focus on adaptation, defined as adjustments in natural or human systems in response to actual or expected climate change stresses, which moderate harm or take advantage of beneficial opportunities.

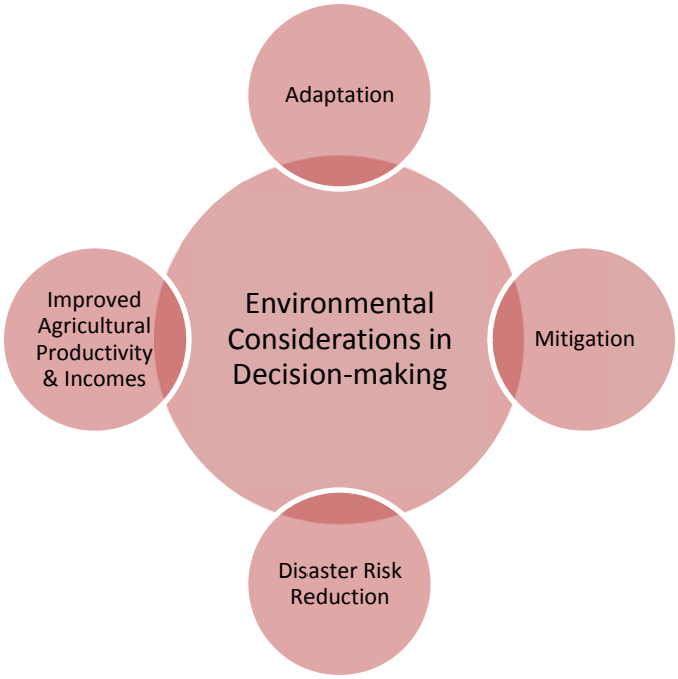
Incorporating climate change into agriculture program is not just a best practice. Indeed, Executive Order 13677 on Climate-Resilient International Development "requires the integration of climate-resilience considerations into all United States international development work."

Climate Smart Agriculture aims to:

- improve productivity, nutrition, and incomes,
- adapt and build resilience to climate change, and
- reduce/ remove greenhouse gas emissions, where appropriate.

It is therefore complimentary to the goal of Reg 216, which is to "ensure that environmental factors and values are integrated into the USAID decision-making process."

Climate Smart Agriculture is an evolving set of approaches—rooted in climate information—to develop the technical, policy and investment conditions to achieve sustainable agricultural systems.



The Climate Smart Agriculture and Reg 216 presentation reviews key definitions, USAID's initiatives, and provides links to resources.

Objectives

Discuss experience with Climate Smart Agriculture, or the potential benefits and challenges of integrating Climate Smart Agriculture into existing programs.

Key Resources

- Presentation: Climate Smart Agriculture and Reg 216.

USAID
FROM THE AMERICAN PEOPLE

Climate Smart Agriculture and Reg 216

Musanze, Rwanda - March 2015

OVERVIEW

- USAID's Climate Smart Agriculture Initiatives
- Climate Smart Agriculture
  - Defining Best Management Practices
  - How it links to Reg 216 and Executive Order 13677
- Adaptation and Disaster Risk Reduction (processes)
- Mitigation
- Report-out from Honduras Workshop on Best Practices

USAID'S ROLE

- USAID leads the Inter-Agency Working Group on Climate Smart Agriculture in International Development
- Additional initiatives with CCAFS, GACSA, AACSA, and AUC
- Regional Resilience efforts in East and West Africa

CLIMATE SMART AGRICULTURE: DEFINING BEST PRACTICES

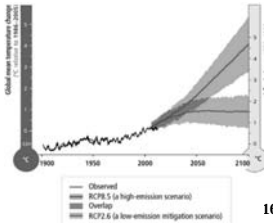
Photo credit: http://eecampaign.files.wordpress.com/2009/10/1685_elguabo_transport.jpg

CLIMATE SMART AGRICULTURE

- 3 Wins
  - Improve productivity, nutrition, and incomes (equity)
  - Adapt and build resilience to climate change
  - Reducing and/or removing greenhouse gas emissions, where appropriate to reduce impacts on ecosystems and support conservation goals

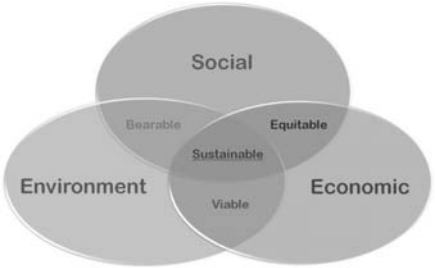
CLIMATE SMART AGRICULTURE

- It is **not** a single specific agricultural technology or practice (or combination of both) that can be universally applied
- It is **not** just single endpoint or objective
- It **is** an evolving set of approaches to developing the technical, policy and investment conditions to achieve sustainable agricultural development
  - It is a continuous process



GENERAL APPROACH

- Recognizes different **country-specific contexts** (i.e., site specific)



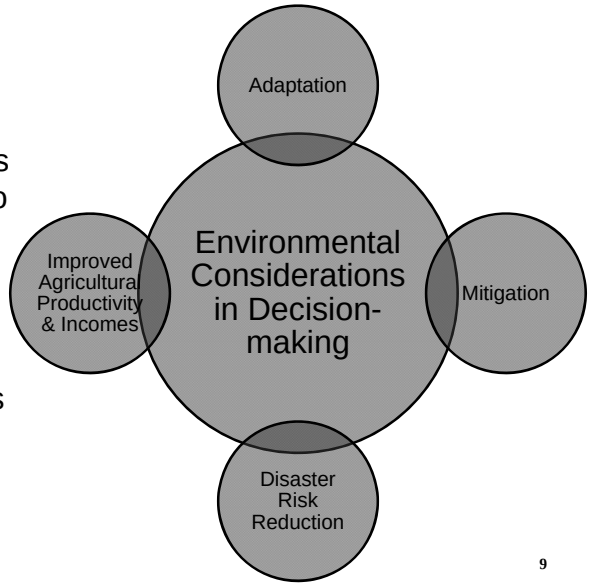
- **Identifies barriers** to adoption
- **Aligns policies** and financial investments, and **identifies strategies** for leveraging financing

GENERAL APPROACH

- Improves **access** to resources
- Addresses **adaptation** and builds resilience to shocks
  - Meets the goals of Executive Order 13677 on Climate-Resilient International Development, which “requires the integration of climate-resilience considerations into all United States international development work”
  - Includes Disaster Risk Reduction
- Considers opportunities for climate change **mitigation** as a co-benefit

CSA AND REG 216 HAVE COMPLIMENTARY GOALS

- Goal of Reg 216 is to "ensure that environmental factors and values are integrated into the A.I.D. decision-making process"
- Climate change is an environmental factor!



ADAPTATION AND DISASTER RISK REDUCTION

Photo credit: Joe Torres

DEFINITIONS

- **Adaptation**. Adjustment to actual or expected climate and its effects
  - Human systems. Moderate harm or exploit beneficial opportunities
  - Natural systems: Human intervention may facilitate adjustment to expected climate and its effects
- **Disaster Risk Reduction**. The policy goal and the measures for:
  - Anticipating future disaster risk
  - Reducing existing exposure, natural hazard/threat, or vulnerability; and
  - Improving resilience
- **Resilience.** The ability of people, households, communities, countries, and systems (social, economic, and ecological) to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth

ADAPTATION AND DISASTER RISK REDUCTION

- Climate change **adaptation** focuses on:
  - Impacts already being experienced, especially increased **variability**
  - Long-term changes, both detrimental and beneficial
- **DRR and resilience** focus on responding to acute hazards and shorter-term shocks
  - Especially those exacerbated by climate change
  - Unpredictable climate change impacts (i.e., extreme events)
- Example:
  - Shifting rainy seasons (long-term change)
  - More flash floods (hazard that could lead to a disaster)

ADAPTATION OVER TIME – METHODS AND RESPONSES

- Adaptation needs to be informed by an understanding of vulnerability
  - Past experience
  - Predictive modeling
  - Ability to respond to multiple triggers and increased variability in more than one direction (i.e., drought one year, flood the next, etc.)

VULNERABILITY AND ADAPTATION

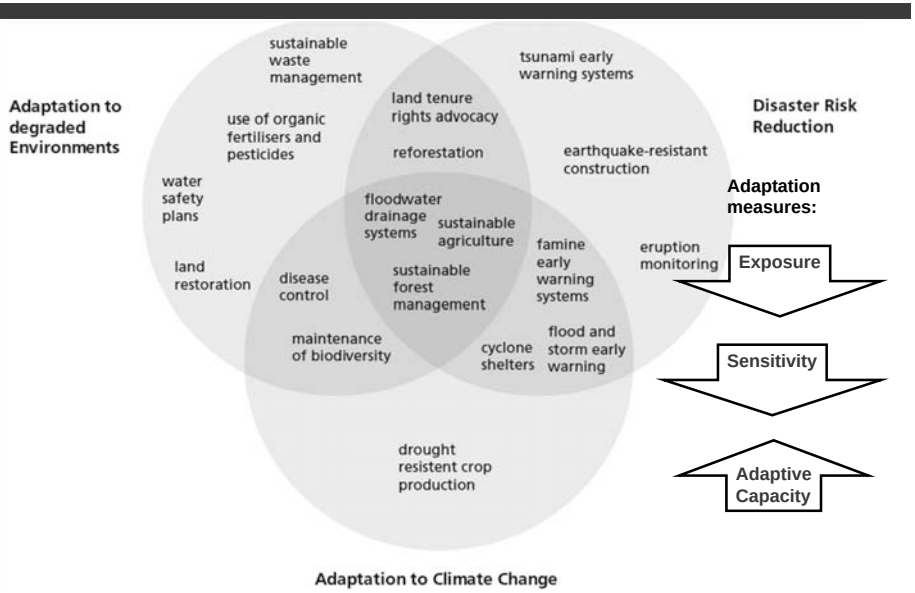
- **Vulnerability** is the degree to which something can be harmed by or cope with stressors such as those caused by climate change
- Function of:
  - Exposure
  - Sensitivity
  - Adaptive capacity

VULNERABILITY STUDIES SHOULD COVER

- **Exposure**: the extent to which something is subject to a stressor
- **Sensitivity**: extent to which something will change if it is exposed to a stressor
- **Adaptive capacity:** the combination of:
  - strengths
  - attributes
  - resources

  That are <u>available</u> to reduce adverse impacts, moderate harm, or exploit beneficial opportunities

EXAMPLES OF ADAPTATION AND DRR MEASURES



CEDRIG, 2012. http://www.sdc-drr.net/system/files/CEDRIG_Part_I_Aim_Concept_and_Support_Material_EN_Web.pdf

ADDITIONAL ADAPTATION AND DRR MEASURES

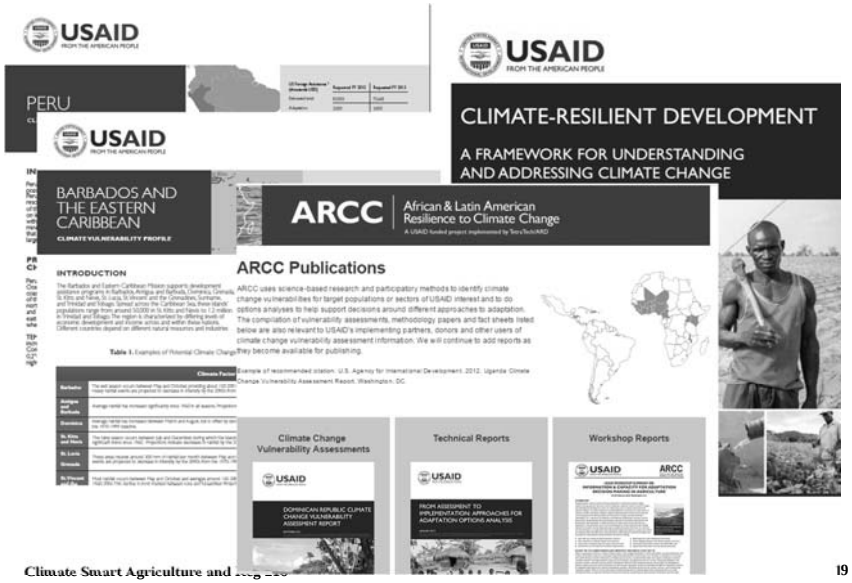
- Farmer-managed natural regeneration
- EverGreen Agriculture
- Alternate Wetting and Drying (AWD) and fertilizer efficiency
- Crop, aquaculture, and livestock production measures in response to:
  - Heat
  - Flood
  - Soil degradation
  - Pests
  - Disease
  - Fire

KEY RESOURCE: FAO SOURCEBOOK

A.3.1
A typology or major agricultural systems at risk and response options

Major agricultural systems	Sub-system and location	Vulnerability			Typical response options
		Main climate change exposure	Sensitivity	Adaptive capacity	
Highlands	Densely populated highlands in poor areas: Himalayas, Andes, Central American highlands, Rift Valley, Ethiopian plateau, Southern Africa	Rainfall variability, droughts, floods	High: mostly rainfed agriculture, marginal lands, poor soil moisture capacity	Low: high prevalence of poverty, limited options, knowledge, social safety nets and resources	Watershed management and on-farm water storage for water conservation; integrated water resources management in river basins; investment in social infrastructures
Semi-arid tropics	Smallholder farming in Western, Eastern and Southern Africa savannah region and in Southern India; agro-pastoral systems in the Sahel, Horn of Africa and Western India	High temperatures, rainfall variability, droughts	High: crop and animal sensitivity to high temperature and droughts, high population density on marginal lands	Low: high prevalence of poverty, limited options, knowledge, social safety nets and resources, limited capacity for water storage	On-farm water storage; crop insurance; increased productivity through better crop-livestock integration; integrated water resources management
Sub-tropics	Densely populated and intensively cultivated areas, concentrated mainly around the Mediterranean basin	Reduction in annual rainfall, increased rainfall variability, reduction in runoff and aquifer recharge, high temperatures, higher occurrence of droughts and floods	Variable, depending on the region and level on reliance on agricultural activities. Agricultural systems highly sensitive to changes in temperature and water availability.	Low adaptive capacity for agriculture in water scarce areas	Water conservation where possible; integrated water resources management; crop insurance; improved floods and drought management plans; shifting out of agriculture
Temperate areas	Highly intensive agriculture in Western Europe. Intensive farming in United States, Eastern China, Turkey, New Zealand, parts of India, Southern Africa, Brazil	Increased rainfall variability, reduced water availability in places.	Medium to low. Some high yielding varieties more sensitive to temperature and water stress	Possibilities to compensate water stress through supplemental irrigation in many regions; low capacity in water scarce areas	On-farm storage for supplemental irrigation; integrated water resources management at river basin level
Rice-based systems (irrigated)	Southeast and Eastern Asia, Sub-Saharan Africa, Madagascar, Western Africa, Eastern Africa	Increased rainfall variability, increased rainfall, increased occurrence of droughts and floods	Medium, depending on the capacity to cope with floods and droughts	Medium, depending on the capacity to invest in protection against droughts and floods	Increased water storage for flood control and for second and third crop; alternate wet-dry rice

USAID ADAPTATION RESOURCES



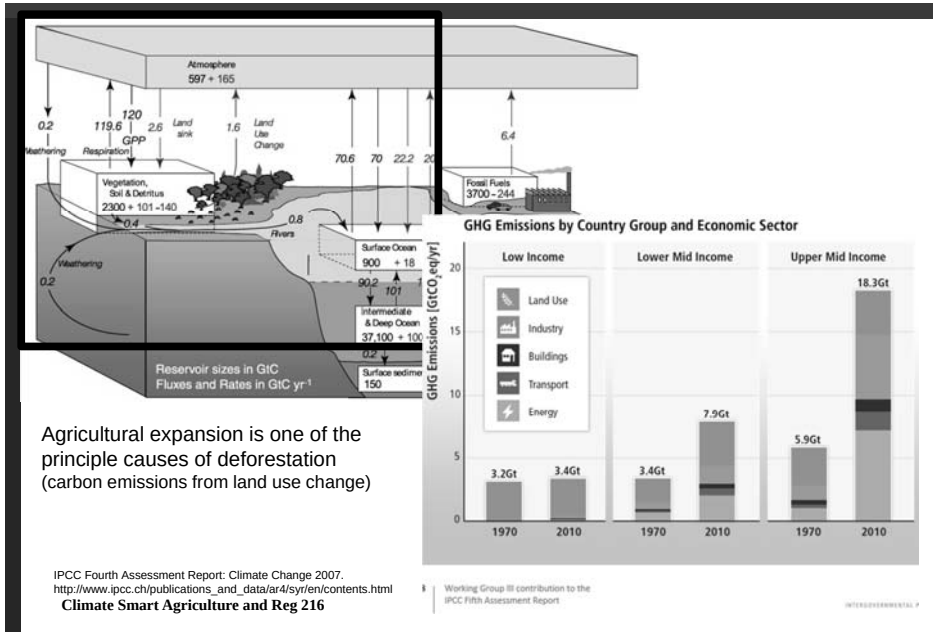
MITIGATION

Photo credit: Joe Torres

DEFINITION

- **Mitigation**. Human intervention to reduce sources or enhance sinks of GHGs or other substances which may contribute directly or indirectly to climate change

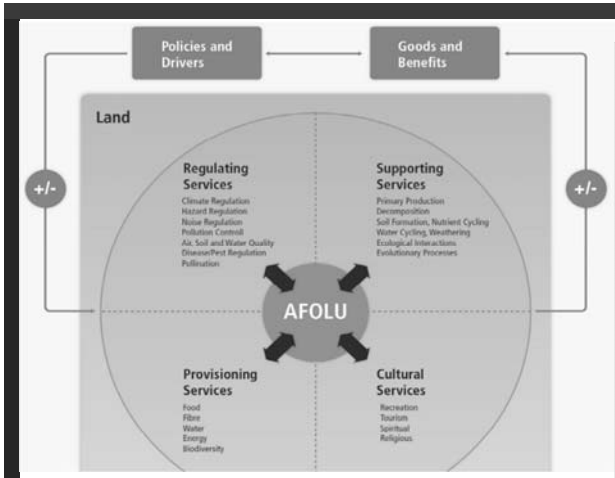
EMISSIONS AND TERRESTRIAL SEQUESTRATION



Agricultural expansion is one of the principle causes of deforestation
(carbon emissions from land use change)

IPCC Fourth Assessment Report: Climate Change 2007. http://www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html

ECOSYSTEM SERVICES AND AGRICULTURE



- IPCC Fifth Report: Factors considered in land use:
  - Agriculture
  - Forestry
  - Other land use
- All land use mitigation options are considered together
- Allows consideration of systemic evaluations between mitigation options related to agricultural land use

IPCC WGIII AR5. Chapter 11: Agriculture, Forestry and Other Land Use (AFOLU). http://report.mitigation2014.org/drafts/final-draft-postplenary/ipcc_wg3_ar5_final-draft_postplenary_chapter11.pdf

MITIGATION: METHODS

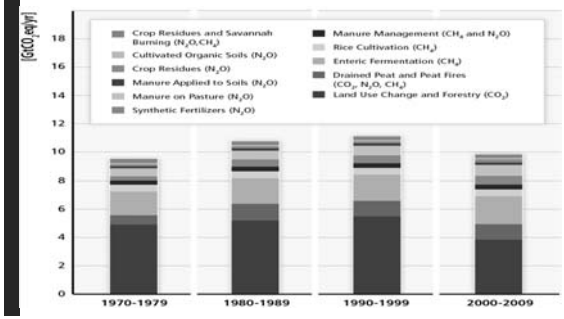
- **Reducing/preventing emissions**
- **Sequestering carbon** in terrestrial reservoirs
  - Can take place above ground or below ground
  - Can also increase other ecosystem services (e.g., soil fertility, water regulation)

MITIGATION, CONTINUED

- Reporting on mitigation involves:
  - Baseline conditions
  - Implementing mitigation measures
  - Monitoring emissions/ sequestration
  - Reporting change compared to the baseline
- Carbon markets
  - Offset credits can finance mitigation
  - Requires reporting and capacity

ESTIMATING BASELINE EMISSIONS … IS A GOOD PRACTICE

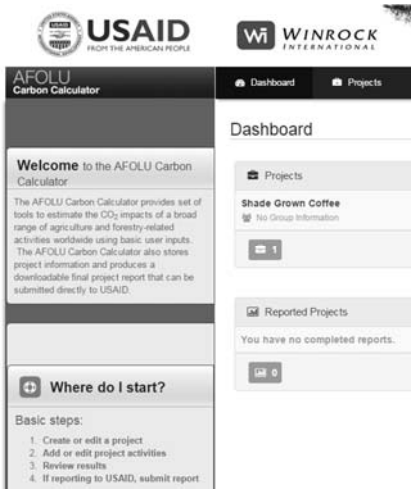
- Estimating emissions or sequestration builds capacity
  - May be critical to leveraging mitigation-oriented finance
  - Precision is important if seeking credits in carbon markets (e.g., voluntary, EU ETS, California)
- Significant mitigation opportunities in agriculture
  - The efficiency of water and fertilizer
  - Efficiency, livestock and grazing management
  - Agro-forestry and legumes
  - Conservation agriculture
  - The integrated management of watersheds
  - Range and forest restoration



IPCC: http://mitigation2014.org/report/figures/chapter-11-figures

A KEY RESOURCE FOR MITIGATION

- USAID projects with mitigation co-benefits can estimate and report using the AFOLU tool for:
  - Cropland Management
  - Grassland Management
  - Agroforestry



HONDURAS WORKSHOP

- Identified tangible Climate-Smart Agriculture Practices for USAID-supported rural development, agricultural and food security projects in the LAC Region,
- Enhanced collaboration, networking, and knowledge exchange among staff and partners,
- Developed technology transfer strategies to advance CSA and implement BMPs on the ground.

BEST PRACTICES IN THE FIELD




BEST PRACTICES IDENTIFIED IN HONDURAS

Color Key
- Coffee/Cacao/Mango
- Maize & Beans
- Plantain & Bananas
- Livestock
- Rice
- Coffee

Change(s) in climatic conditions	Impact to Agricultural Production, Value Chain or Food Security System to be addressed (please note the change in climatic conditions that will cause this impact)	Best Practice	Adaptation How it: 1. Reduces exposure 2. Reduce sensitivity 3. Increases adaptive capacity 4. Promotes positive impacts of climate change	Mitigation How it: 1. Reduces or prevent emissions 2. Increases sequestration 3. Substitutes for fossil fuels	Applicability: Stage in Value Chain / Food Security System or Policy Intervention? Financing	Applicability: If landscape or ecosystem specific, specify which ones	Applicability: If crop-specific, specify crops	Challenges, Barriers or trade-offs	Solutions Identify possible solutions to challenges or barriers
Increased temperature and/or precipitation changes	Increased pests	IPM / Biological controls	Reduces pest incidence/severity by something related to temp or precip If beneficial "pests," may have increased range, too. Increase adaptation capacity by making crops more robust	Reduces fossil fuels via more efficient use of petrochemical pesticides/more use of organic pesticides Reducing crop loss reduces carbon/GHG emissions and demand for increased land for "higher" food production	On-farm Inputs and primary production		Global? Coffee/ cacao/ mango?	Availability of technicians to spread practice and knowledge Availability of weather/climate forecasting Availability of inputs Adequate management, validation, and demonstration of benefits	Extension services and increased funding for these (national or donor) Availability of weather stations, increased capacity of meteorological groups, ability to diffuse immediate forecasts; Establish early warning systems Creating linkages with entities / businesses that have those inputs (organic or petrochemical; tools/implements); Creating market linkages for reinvestment in value chain

ADDITIONAL RESOURCES

SUMMARY

- Agriculture is unique:
  - It both drives and is affected by climate change
  - Mitigation and adaptation methods are often symbiotic, with sequestration benefiting adaptation practices, etc.
    - Adaptation and mitigation as a continuum, not an either/or
- Agricultural mitigation and adaptation measures often difficult to measure, but still worth pursuing

SUMMARY

- Climate smart agriculture is a continuous process
  - Best practices will continuously evolve
- Both adaptation (long-term) and resilience/DRR (short-term) are vital to vulnerable agricultural systems, and along with sequestration (for its productive benefits) are the main foci of CSA for smallholders
- Goals of CSA are complementary to Reg 216
- Tools are available
  - Summer CSFS course, future regional CSA workshops

- Questions?
- Discussion

RESOURCES

- ARCC's library: http://community.eldis.org/.5b9bfce3/publications.html
- From the Interagency Working Group on Climate-Smart Agriculture in International Development. http://rmportal.net/groups/csa/about-csa. First defined and presented by FAO at the Hague Conference on Agriculture, Food Security and Climate Change in 2010.
- IPCC WGIII AR5. Annex I: Glossary. http://report.mitigation2014.org/drafts/final-draft-postplenary/ipcc_wg3_ar5_final-draft_postplenary_annex-i.pdf.
- IPCC. 2012. Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX). p. 556. http://ipcc-wg2.gov/SREX/report.
- FAO. 2013. Climate Smart Agriculture Sourcebook. P. ix-x. http://rmportal.net/library/content/csa-sourcebook.
- Hansen, J. W., Baethgen, W. E., Osgood, D. E., Ceccato, P. N., & Ngugi, R. K. (2007). Innovations in climate risk management: protecting and building rural livelihoods in a variable and changing climate.
- Howden, S. M., Soussana, J. F., Tubiello, F. N., Chhetri, N., Dunlop, M., & Meinke, H. (2007). Adapting agriculture to climate change. *Proceedings of the National Academy of Sciences*, *104*(50), 19691-19696.
- CEDRIG. Part I Aim, Concept and Support Material of CEDRIG. 2012. p. 7. http://www.sdc-drr.net/system/files/CEDRIG_Part_I_Aim_Concept_and_Support_Material_EN_Web.pdf.
- IPCC. 2012. SREX Chapter 5. Managing the Risks from Climate Extremes at the Local Level. http://ipcc-wg2.gov/SREX/images/uploads/SREX-Chap5_FINAL.pdf.
- IPCC WGIII AR5. Chapter 11: Agriculture, Forestry and Other Land Use (AFOLU). http://report.mitigation2014.org/drafts/final-draft-postplenary/ipcc_wg3_ar5_final-draft_postplenary_chapter11.pdf.
- UN CFP-PCR: Green Coffee. 2013. p. 5, 23. http://environdec.com/en/PCR/Detail/?Pcr=8539#.VEbBuU10zcs.

Session 14.
Sector Roundtables

(0:40)

Objective

Via an informal roundtable discussion with a subject matter expert and involved parties, gain a deeper understanding of one the emerging/current sectoral environmental compliance/ESDM issues briefed in session 13.

Format

Information roundtable discussions with BEOs and subject matter experts/Q&A

Summary

Informal concurrent roundtable discussion will explore in-depth the topics briefed in session 13. Workshop participants will choose the roundtable corresponding to their interests/needs.

Session 15. (0:45)
Roles, Responsibilities and Resources

Objective
Understand environmental compliance roles and responsibilities of USAID staff and IPs. Be familiar with the tools and resources available to support environmental compliance.

Format
Presentation

Summary
This session brings together information that has been introduced throughout the workshop, in addition to addressing some new topics. *All concern the processes, roles and responsibilities for environmental compliance in missions and operating units.*

Key topics are:

- How environmental compliance is mainstreamed (integrated throughout) agency operations by the Automated Directives System (ADS).
- The roles and responsibilities of USAID staff and IPs in respect to environmental compliance on USAID projects.
- The importance of incorporating best-practice Environmental Compliance Language (ECL) in solicitations and awards and the benefits of using the ECL tool for this purpose.
- Resources available to support environmental compliance and environmentally sound design and management.

IP and USAID environmental compliance roles and responsibilities <u>post-award</u> are as follows:

Project stage	Implementing Partner	USAID
Workplan & PMP Development	Develops EMMP Integrates EMMP into budget & workplan. Determine environmental compliance reporting	Review and approval of: 1. the EMMP (for responsiveness to IEE/EA conditions & sufficiency of monitoring); 2. The budget/workplan (to verify that EMMP implementation is planned and funded); and 3. The reporting framework to assure that environmental reporting requirements are met.
Implementation	Implementation of EMMP. Reporting on EMMP implementation	Ongoing review of partner progress reports to monitor EMMP implementation Field visits—at a minimum, all visits should integrate a quick check for significant environmental design/management problems. For environmentally sensitive activities, specific visits should be made to verify EMMP implementation.

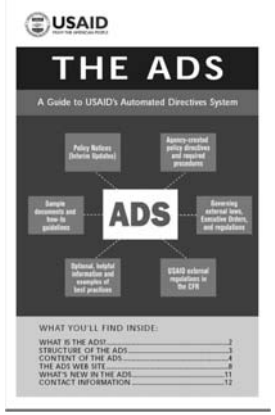
USAID
FROM THE AMERICAN PEOPLE

GLOBAL ENVIRONMENTAL MANAGEMENT SUPPORT

Session 15:
Environmental Compliance:
Roles, Responsibilities, Reporting & Resources

Environmental Compliance & the Automated Directives System (ADS)

- **USAID's Automated Directives System (ADS) sets out mandatory procedures, roles & responsibilities for:**
  - "Upstream compliance:" Design & 22 CFR 216 process
  - "Downstream compliance:" implementing IEE & EA conditions



Environmental Compliance & the ADS

ADS 204 ("Environmental Procedures") is the core ADS reference. But environmental compliance is <u>mainstreamed</u> throughout the ADS.

Overarching requirement: Operating units must have systems in place for environmental compliance over life of project & must make sufficient resources available for this purpose

(204.3.4)

Compliance Requirement	Responsible Parties	ADS Reference
Environmental considerations in activity planning	Team Leaders, Activity Managers	201.3.16.3.b 204.3.3
No activity implemented without approved Reg. 216 environmental documentation	COR/AOR/ Activity Manager	201.3.16.16.4.i 204.3.1 204.3.3.b 303.3.2.e
IEE & EA conditions incorporated into procurement instruments	COR/AOR/ Activity Manager; Agreement Officer	204.3.4.a.6 303.3.6.2e
IEE & EA conditions are implemented, and implementation is monitored & adjusted as necessary	COR/AOR	202.3.6; 204.3.4.b 303.2.f
Environmental compliance documentation is maintained	PO, COR/AOR, Team Leader, MEO	202.3.4.6

A Note About Record Keeping

- **Approved 22 CFR 216 documents are kept in 2 places**
  - in official project files maintained by **C/AOR**
  - in official BEO files
- **22 CFR 216.10 makes all of these available to the public**
  - **Agency-wide searchable database** of all Reg 216 docs approved since 2000: <u>http://gemini.info.usaid.gov/egat/envcomp/</u>
- **Annual reporting is required**

Mission Environmental Officer

- At each Mission;
- Quality Assurance/Quality Control reviewer for Reg. 216 docs;
- Clears Reg. 216 docs before they go to Mission Director;
- Mission compliance advisor and coordinator; assists in compliance monitoring;
- Mission point of contact to Regional Environmental Advisor and Bureau Environmental Officer.

Regional Environmental Advisor

- Based in regional Missions;
- Environmental compliance technical assistance to Missions;
- Provides quality assurance and quality control of Reg. 216 documentation before it goes to the Bureau Environmental Officer.

Bureau Environmental Officers

- Based in Washington DC;
- Oversee environmental compliance in their Bureau;
- Primary decision makers on 22 CFR 216 threshold decisions for activities under the purview of their Bureau.

Sector Teams & Mission Management

CORs/AORs & Activity Managers.

Assure Reg. 216 documentation in place. Assure IEE/EA conditions & compliance requirements incorporated into procurement instruments. Monitor compliance with IEE/EA conditions & modify or end activities not in compliance.

Primary Responsibility for Environmental Compliance

Team Leaders

Oversee CORs/AORs. Assure that their teams have environmental compliance system in place.

Mission Director

Ultimately responsible for environmental compliance. Mandatory clearance on all Reg. 216 environmental documentation.

!

The MEO is a member of every sector team (ADS 204.3.5)

Agency Environmental Coordinator, Office of the General Counsel

Agency Environmental Coordinator (AEC)

Coordinates 22 CFR 216 implementation & advises regarding the application of Reg 216 in new situations.

Concurs in AA's appointments of BEOs.

Coordinates EIS process for USAID (rare)

Regional Legal Advisors (RLAs)

provide legal advice on environmental compliance to field staff. Some regions require RLA clearance on Reg 216 documents.

.

Assistant General Counsels (AGCs)

provide legal advice to BEOs & RLAs on environmental compliance in their regions.

! When the BEO and MD cannot agree regarding a threshold decision, the issue goes to the AA with AEC consultation

Reg 216 docs: Who writes? Who clears?

- **Who writes?**
  - AOR/COR responsible for assuring Reg. 216 documentation in place.*
  - Can engage a consultant/contractor to develop—Environmental Assessments almost always developed by 3rd party consultants.
  - USAID is responsible for contents/determinations **NO MATTER WHO DEVELOPS IT!**
- **Who clears?**
  - COR/AOR, Activity Manager or Team Leader
  - MEO (for Mission)
  - REA (depending on Mission/regional policy)
  - **Mission Director** or **Washington equivalent** clears
  - **Bureau Environmental Officer** concurs. Responsibility/authority cannot be delegated.

Go to the field before you write

Required by Reg. 216

Who is responsible?

USAID

Assures Reg. 216 documentation in place. Establishes/approves environ-mitigation & monitoring conditions. Verifies compliance.

In the Mission

Fundamental responsibility & accountability:

- Sector Team Leader
- Activity Managers & COTR/AOTRs
- ultimately with the Mission Director

MEO: quality and completeness reviewer for Reg. 216 documentation; compliance advisor and coordinator; assists in compliance monitoring.

Implementing Partners

ALWAYS: Implement mitigation and monitoring conditions that apply to their project activities & report to USAID.

ALWAYS responsible for design of detailed environmental mitigation and monitoring plan (EMMP) in response to mitigation and monitoring conditions established by the Reg. 216 documentation.

SOMETIMES develop Reg. 216 documentation (IEEs, EAs)* for new project components; develop subproject env. review reports (for subgrants/subprojects).

*Title II CSs develop IEEs as part of their MYAPs.

Environmental Compliance Verification/Oversight by USAID

1. Prior Review/Approval of partner-developed → **EMMP→** ensure responsive to IEE/EA conditions → **Budgets and workplans→** ensure EMMP implementation planned & funded → **Project Reporting Framework→** ensure environmental compliance reporting requirements are met	**Primary responsibility for ensuring compliance lies with C/AOTR.** MEO will also review/clear where activities are env. Sensitive &/or IEE/EA conditions are complex.
2. Ongoing review of partner progress reports to monitor EMMP implementation	MEO on distribution list for IP's quarterly/semi-annual project reports.
3. Field visits: → **at a minimum, all visits integrate a quick check for significant env. design/management problems** → **For environmentally sensitive activities, specific visit(s) to audit against EMMP.**	Most field visits are by C/AOTR or M&E Officer MEO should visit the most environmentally sensitive activities (REA may assist)

Environmental Compliance & Procurement Instruments

ADS Requires. . .

"Incorporating environmental factors and mitigative measures identified in IEEs, EAs, and EISs, as appropriate, in the design and the implementation instruments for programs, projects, activities or amendments."

(204.3.4(a)(6)

- **Critical to IP compliance with IEE/EA conditions**
- **BUT: historically, problems in implementation:**
  - Many USAID procurement instruments have NOT adequately addressed environmental compliance
  - Lack of guidance required A/CORs, COs to repeatedly "reinvent the wheel"
  - Partners/contractors fail to budget for environmental requirements

The solution. . .

Environmental Compliance: Language for Use in Solicitations and Awards (ECL)

Step-by-step guidance and boilerplate language

- **For RFAs/ RFPs/ agreements/ grants/ contracts**
- **Optional, not required**
- **ADS Help Document**
- **Approved by General Counsel**

Available from www.usaid.gov/policy/ads/200/204sac.pdf

The ECL generates. . .

Best practice solicitation language

Requiring that:

Proposals address **qualifications and proposed approaches to compliance/ ESDM** for environmentally complex activities.

Best practice award language

Requiring that:

IP verifies current & planned activities annually against the scope of the RCE/IEE/EA.

The **necessary mechanisms and budget** for IP implementation of IEE/EA conditions are in place.

To assure that projects do not "creep" out of compliance as activities are modified and added over their life.

Specifically:

1. Complete **EMMP** exists or is developed.
2. Workplans & budgets integrate the EMMP
3. Project reporting tracks EMMP implementation

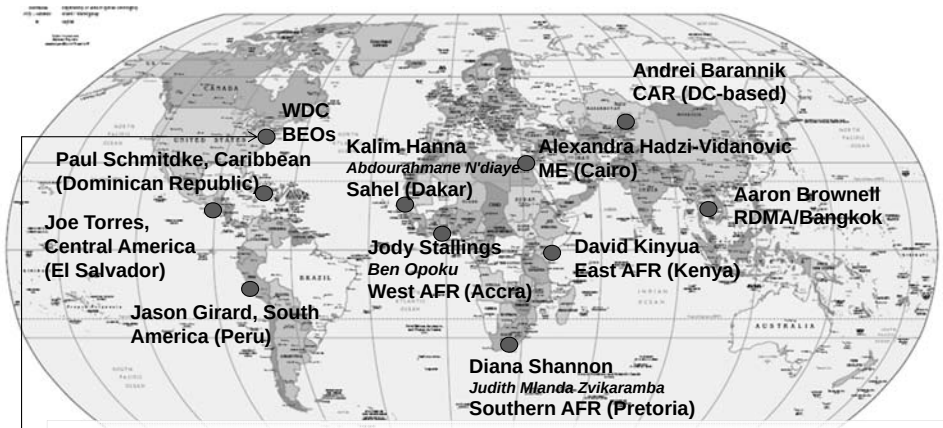
The ECL strengthens Environmentally Sound Design & Management, and. . .

<u>Provides cost & efficiency benefits</u> to both Mission Staff & Implementing Partners

USAID Staff	Implementing Partners
Avoids the effort, costs and loss of good will that come from imposing "corrective compliance" measures on IPs after implementation has started. Reduces USAID cost and effort of env compliance verification/oversight by assuring that IPs integrate <u>environmental</u> compliance reporting into routine project performance reporting.	Provides clarity regarding environmental compliance responsibilities Prevents "unfunded mandates"– USAID requirements to implement M&M after implementation has started & without additional budget.

Who can help?

MEOs in every bilateral Mission AND the BEOs and REAs:



AFR: Brian Hirsch, Asia & ME: Will Gibson, BFS: TBD; DCHA: Erika Clesceri E&E: Mark Kamiya, E3: Teresa Bernhard, GH: Rachel Dagovitz, LAC: Victor Bullen, M/ODP: Dennis Durbin, OAPA: Gordon Weynand; GDL: Dan Evans.

References & Useful Information

- USAID Environmental Compliance & Related Links
  www.usaid.gov/our_work/environment/compliance
- 22 CFR 216
  www.usaid.gov/our_work/environment/compliance/22cfr216
- ADS Series 200 (with link to Chapter 204 & ECL)
  www.usaid.gov/policy/ads/200/
- Plain-language overview of USAID's environmental procedures & the EIA process
- Sectoral Environmental Guidelines
  + many other resources
  www.usaidgems.org

GEMS Services

- **GEMS . . .**
  - *provides tools, resources, technical assistance and capacity building* ***to strengthen environmental management and environmental compliance***
  - *serves USAID Missions and partners globally*
- **GEMS services are available. . .**
  - *On a subsidized basis (access via request to REA), or*
  - *Via buy-in to GEMS*

For more info consult the GEMS Factsheet (next pages)

Session 16: Synthesis Game

(1:15)

Objective

Review key workshop content and concepts via a small-team competition.

Format:

Briefing and team assembly	0:10
Team competition	0:50
Debrief	0:15

Summary

We have now completed agenda components 1-4:

1. Motivating LOP Environmental Compliance
2. Building Core EIA Concepts and Skills
3. Mastering LOP Compliance Requirements
4. Exploring Advanced Impact Assessment Concepts,
5. Addressing Environmental Good Practice and Compliance Approaches for Key Sectoral Programming Issues.

These components constitute the portion of the workshop dealing with core technical skills and knowledge. Before we turn to the fifth and final agenda component ("Improving compliance processes"), we will review this core technical content in two sessions:

- In this session. we will play an environmental compliance/ESDM knowledge game to review key concepts contained in components 1-3. The game takes the form of a competition among small teams.
- In the following session, we to address any outstanding technical issues in our "parking lot."

Game Briefing

Teams.
4-5 teams (6-8 persons/team), each with one non-participant recorder.

"Performance Assessment aligns with Programming Framework":
The game consists of 3 rounds of 5 multiple-choice/fill-in-the-blank questions each. Each round corresponds to one or two agenda components and assesses the objectives of that component.

Democracy and Governance
Teams must operate by consensus, reaching unanimous agreement on each answer.

Monitoring and Evaluation
Recorders will verify consensus by show of hands for each answer and record the answer.

Recorders will verify that no books, notes, laptops or other electronic devices are employed to assist in answering questions.

Scores will be tabulated by an independent party (MC) in each around.

"Results Framework"

- First team to complete all questions in a round: 8 point bonus. Each subsequent team: 2 points less; last team receives no bonus. Any team working when time is called receives no bonus.
- Each correct answer: 5 pts
  [NOTE: some questions have more than 1 element/choice. EACH correct element/response is worth 5 points.]
- Each incorrect answer: 3 pt DEBIT
  [NOTE: multiple wrong answers on a question result in multiple debits.]
- No answer: 0 pts
- All answers in a round correct 10 pt bonus.
- 12 minute limit on each round.
- Team scores will be posted to the front and updated after each round.

Implementation Procedures

1. MC briefs the game (contents of this sheet). Time pressure is part of the exercise!
2. MC's assistant assigns teams and recorders. Members of each team cluster together.
3. Swear in recorders.
4. Teams have 7 minutes to discuss strategy and elect captains.
5. MC asks recorders to confirm that all training materials and electronic aids are closed/off.
6. Distribute round 1 questions to team recorders.
7. MC starts the 1st round. Recorders open the envelopes and distribute questions. Teams begin.
8. Recorders blow their whistle/noisemaker when their team finishes.
9. MC's assistant records order in which teams finish.
10. End of the round occurs after 12 minutes or when all teams are finished, whichever is first.
11. MC's assistant tabulates scores; they are posted at the front.
12. Repeat steps 6-11 for the subsequent 2 rounds.
13. After 3 rounds, grand winner is declared and prizes are awarded.

In the event of a tie, a "sudden death" round of "special topic" questions will follow.

Session 17. Resolving the "Parking Lot": Final Technical Q&A

(0:30)

Objective

Conclude the "core technical skills and knowledge" portion of the workshop by resolving parking lot issues.

Format:

Facilitated discussion

Summary

Over the course of 4 days, we have identified a number of "parking lot" items—questions and issues that could not easily be addressed at the time they arose, but which are important to answer and resolve before the end of the workshop. Additional issues may have been raised by last session's environmental compliance/ESDM knowledge game.

We will conclude the "core technical skills and knowledge" portion of the workshop by discussing—and hopefully resolving—these parking lot issues in a facilitated discussion that draws on assembled expertise of the BEOs, REAs, the consultant trainers, and participants.

Note that parking lot issues concerning mission and team compliance processes will be reserved for Day 5, which focuses on process issues.

Key Resource

"Parking lot" issues list compiled during the workshop

Session 18. (1:00)
State-of-Compliance Stocktaking & Feedback on AFR's draft Best Practice Standard

Objectives

Take stock of the extent to which overall findings of Environmental Procedures Best Practice Reviews among AFR missions do —or does not—reflect the operating reality on our own missions and teams.

Gain an understanding of and offer feedback on AFR's revised draft of its Environmental Procedures Best Practices Standard, to support its finalization.

Format

0:20 Briefing (background, findings of BPRs to date) and quick straw-poll stock-taking

0:40 Small groups: review of and feedback on AFR's draft updated *Environmental Compliance Best Practices Standard*

Background

This workshop has addressed LOP environmental compliance requirements, and how the responsibilities for fulfilling these requirements are allocated among IPs, C/AORs and MEOs (among others).

Experience shows that for compliance to be achieved in practice, it is not enough that individual USAID and IP staff understand their roles and responsibilities and master key skills; internal mission/team and project processes must be in place that support (and require) the exercise of these responsibilities.

AFR's Environmental Compliance Best Practice Standard & BPRs. This is the concept and experience behind AFR's Environmental Compliance Best Practices Standard, which captures both the requirements of the procedures and these key supporting capacities, processes, and practices. Environmental Procedures Best Practices Reviews (BPRs) in AFR missions are conducted against this standard. BPRs are a thorough review of review of mission environmental compliance status, policies, procedures, and capacities.

BPRs are voluntary and undertaken at a time chosen by the mission; however, as part of its response to the OIG's global environmental compliance audit, AFR Bureau has committed that all AFR missions will undertake a BPR at least every 5 years.

BPRs support missions/ Conducted via a mix of desk review, interviews and field visits, BPRs result in an action plan to correct gaps and weaknesses against the *Standard* --- and thus to improve environmental and social soundness in program and project design and implementation.

BPRs support the BEO. USAID's Automated Directives System (ADS) 204.2e assigns Bureau Environmental Officers (BEOs) the responsibility of "overseeing the effective implementation of 22 CFR 216 throughout all Operating Units. in their Bureau through timely decision making and adherence to consistent and strong environmental principles that lead to environmentally sound development and wise use of taxpayer money and that protect their Operating Units and the Agency from legal challenge."

In addition to serving mission needs, BPRs are intended to provide key information to the BEO to implement this responsibility. Taken together, BPRs identify compliance strengths and gaps across the USAID Missions and Programs in sub-Saharan Africa as a whole. The information provided by BPRs is intended to inform the

BEO and Regional Environmental Advisors (REAs) in targeting environmental compliance technical assistance, guidance, and training efforts.

With BPRs just entering their second cycle (26 have been performed wince 2007, with 2 missions having repeated to date) AFR:is:

- Taking stock of the findings of BPRs to date, including how the overall state of compliance has and has not changed since 2010, following the first 9 BPRs.
- Updating the Best Practice Standard to reflect lessons learned and ADS and programming changes.

Note: while developed by Africa Bureau, there is nothing about the Best Practice Standard that is region-specific.

Summary/Instructions.

In this session, following a briefing of the overall findings of BPRs to date and how they have changed over the past 5 years, we will take stock of the extent to which these findings do —or does not—reflect the operating reality on our own missions and teams.

REAs will then facilitate small group sessions that will closely review the draft revised standard and provide feedback to support its finalization. This may also include identifying needed guidance or support resources.

Key Resources

Memorandum: Synthesis of Findings from Environmental Procedures Best Practice Reviews (BPRs) to Date. 18 Feb 2015.

DRAFT REVISED AFR Environmental Compliance Best Practice Standard. Version 11 Feb 2015.

CADMUS

Memorandum

To: Brian Hirsch, AFR Bureau Environmental Officer
Walter Knausenberger, AFR Senior Environmental Policy Advisor
*See Distribution List

From: Arianne Neigh
Global Environmental Management Support (GEMS), The Cadmus Group, Inc.

Subject: **Synthesis of Findings from Environmental Procedures Best Practice Reviews (BPRs) to Date** *(Deliverable submitted under GEMS Activity AF20).*

Date: February 18, 2015 Review Draft

Introduction: BPRs

An Environmental Procedures Best Practice Review (BPR) characterizes (1) compliance with United States Agency for International Development's (USAID's) mandatory environmental procedures[1] across the Mission's portfolio and (2) compliance capacity and processes. On this basis, a BPR develops recommendations to address gaps and strengthen Mission environmental compliance (EC) systems with the goal of improving the level, effectiveness, and efficiency of Mission compliance with USAID's environmental procedures and better integrating compliance into normal Mission operations. BPRs assess compliance, capacity and processes against Africa Bureau's Environmental Compliance Best Practice Standard ("BP Standard," see Appendix 2).

As of January 2015, twenty-four Missions have undergone a BPR, beginning with a 2007 pilot in Ghana (see table 1, below). BPRs are voluntary and undertaken at a time of the Mission's choosing. However, as part of its response to the Office of the Inspector General's global environmental compliance audit[2], Africa Bureau committed Missions in the region to undertake a BPR every 5 years.

USAID's Automated Directives System (ADS) 204.2e assigns Bureau Environmental Officers (BEOs) the responsibility of "*overseeing the effective implementation of 22 CFR 216 throughout all Operating Units*

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[1] *USAID's environmental procedures consist of 22 Code of Federal Regulations [CFR] 216 (22 CFR 216), otherwise known as Reg. 216, and mandatory procedures to implement the regulation per USAID's Automated Directives System (ADS).*

[2] *Audit of Selected USAID Missions' Efforts to Mitigate Environmental Impact on Their Project Portfolios*, NO 9-000-11-002-P available at: http://oig.usaid.gov/sites/default/files/audit-reports/9-000-11-002-p.pdf

in their Bureau through timely decision making and adherence to consistent and strong environmental principles that lead to environmentally sound development and wise use of taxpayer money and that protect their Operating Units and the Agency from legal challenge."

In addition to serving mission needs, BPRs are intended to provide key information to the BEO to implement this responsibility. Taken together, BPRs identify compliance strengths and gaps across the USAID Missions and Programs in sub-Saharan Africa as a whole. The information provided by BPRs is intended to inform the BEO and Regional Environmental Advisors (REAs) in targeting environmental compliance technical assistance, guidance, and training efforts.

Purpose and Intent of this Memo

Under Global Environmental Management Support (GEMS) activity specification **AF20: Consultative Revision of the AFR Best Practice Review Standard and Related Materials**, GEMS is tasked with "*Revisiting the BPR Synthesis Findings (Appendix 1) compiled in Aug 2010 by reviewing all BPRs since that time. [GEMS will] Develop draft revised synthesis findings and a short memo noting how findings have and have not changed since Aug 2010.*"

This memo documents this synthesis and is submitted to satisfy this requirement, providing an updated picture of environmental compliance strengths and weaknesses across AFR Missions as a whole. Additionally, this synthesis is intended to inform the current revision of AFR's Environmental Compliance best practice standard on which future BPRs will be based.

Note that this synthesis reflects strengths and gaps as identified by the BPRs, and NOT the extent to which Missions have implemented BPR action plans and remedied gaps so identified.

This synthesis involved a fresh review of the findings and recommendations from all BPRs conducted to date. Findings and recommendations in each area were summarized and then generalized conclusions made across each criterion. Per the activity specification, the conclusions were then compared against those provided in the August 2010 BPR Synthesis (see Appendix 1 for reference).

Table 1: Best Practice Reviews to Date

Mission/Region	In-mission segment	Final Report Date
Ghana	2007*/June 17th-28th, 2013	July 2013
Liberia	July 08**/October 17th -November 3rd , 2013	November 2013
Malawi	April 14th-24th, 2008 and December 8th-12th, 2008	September 2009
Tanzania	July 7th-16th, 2009	November 2009
Sudan	March 16th-April 3rd, 2009	October 2009
Ethiopia	June 15th-July 3rd, 2009	July 2009
Mozambique	January 9th-22nd, 2010	April 2010
Zambia	February 16-26th, 2010	June 2010
Uganda	June 29-July 13th, 2010	August 2010
Senegal	November 30-December 18th, 2010	March 2010

Angola	June 1st -13th , 2011	June 2011
Zimbabwe	July 3rd-22nd, 2011	July 2011
Rwanda	August 8th-30th, 2011	August 2011
Namibia	February 29th-March 14th, 2012	July 2012
E AFR	April 25th-May 24th, 2012	August 2012
Madagascar	June 3rd-16th, 2012	August, 2012
W AFR	August 20th-31st, 2012	August 2012
S AFR	August 1st-November 31st, 2012	November 2012
Guinea	January 8th- February 2nd, 2013	February 2013
Sierra Leone	January 8th- February 2nd, 2013	February 2013
Benin	July 2013	July 2013
Nigeria	September 20th -October 11th, 2013	October 2013
Mali	October 28th- November 31st, 2013	January 2014
Kenya	August 11th-21st 2014	October 2014

General Findings and Comparison to August 2010 Synthesis (see Appendix 1)

More recent BPRs generally find **stronger mission performance** against the BP standard than did those conducted prior to 2013 (i.e., Missions have a satisfactory review for more elements of the standard). Mission Environmental Officers (MEOs) have almost universally been trained and are actively working toward improving Mission practices against the BP Standard. Also, resource allocation to the MEOs (e.g., funding for field visits, training budgets) has been improved. Agreement/Contracting Officer's Representatives (A/CORs) are generally aware of their responsibilities; however, A/CORs do not always follow through on their EC responsibilities, such as field monitoring, ensuring regular reporting cycles include EC, requiring Environmental Mitigation and Management Plans (EMMPs).

Missions are generally maintaining complete, current Reg. 216 documentation coverage for their portfolios and are drafting new Reg. 216 documentation with new Project Appraisal Documents (PADs) and awards/contracts (e.g., Initial Environmental Examinations [IEEs], Requests for Categorical Exclusions [RCEs], Environmental Assessments [EAs]). However, the Missions are not actively monitoring whether conditions are implemented. This issue of **better "upstream" compliance than "downstream" compliance** was also noted in the previous synthesis document.

The reporting by partners has improved in quality and frequency compared to earlier BPRs; however, improvements are still needed in the EC processes across all phases of the EMMP including drafting, implementing, monitoring, and reporting.

As noted, BPRs are in principle conducted on 5-year cycles. Changes in staffing, funding patterns, or new partners unfamiliar with Reg. 216 procedures can all impact the environmental compliance performance at Missions. By conducting a BPR every five years, Missions have an opportunity to assess and track their performance since the last BPR as well as document their current compliance status. **Only two Missions have undergone their second BPR** with Tanzania, Malawi, Sudan, and Ethiopia due for BPRs in 2014 and Mozambique, Zambia, Uganda, and Senegal due in 2015.

Findings Criterion 1: Core Environmental Documents are in Place

- Mission Orders have been drafted for nearly all Missions or were drafted as part of the BPR, except at four Missions. Strong Mission Orders tailored to that Mission seems to be an important indicator for overall performance. However, many of the Mission Order requirements, especially for awards, contracts and Mission operations in Criterion 4, are not being implemented.
- Appointment memos are generally in place for the MEO position, but appointment memos are not regularly in place for Deputy MEOs or alternates.
- Environmental Threats and Opportunity Assessments (ETOAs) and Foreign Assistance Act (FAA) 118/119 are being conducted consistently. Analyses of the quality of the ETOAs and FAA 118/119 assessments are not typically reviewed during the BPR process.
- Centrally managed IEEs (Programmatic and Supplemental, country-specific IEEs) are frequently not on file with the Mission but may be available from the A/COR in Washington. Although in some cases they may, most BPRs do not focus on central programs or reach back to Washington A/CORs for follow-up.
- IEEs are typically in place prior to award and are drafted with PADs when applicable but are not being regularly reviewed by the MEO or the A/CORs for "activity creep" or new activities.

Findings Criterion 2: Staff and Implementing Partners have Capacity to Ensure Environmental Compliance

- Almost all MEOs are trained and competent in EIA and Reg. 216 procedures.
- For almost all BPRs, additional training of implementing partners (IPs) and staff was noted as a critical need. On-going training is usually available but turnover and having the available time to participate are problems. IPs need specific EMMP training.
- Deputy or alternate MEOs have been appointed in some cases but not in all missions. However, in many missions, the deputy or alternate does not regularly participate in MEO duties. Some missions have taken the extra step of appointing points of contact in each office to liaise with the MEO.
- MEO work load and allotted time is a concern in many missions. The level of effort (LOE) for MEOs range from 10-100%.
- MEOs have challenges with doing field monitoring because of limited time and the challenges of being away from the office.

Findings Criterion 3: Processes are in Place to Ensure Environmental Compliance

- MEOs are often located in a technical office such as Economic Growth or in a Program Office. MEOs usually report to the office lead depending on which office primarily funds their position.
- Tracking systems are usually in place to determine if IEEs are present, track expiration dates, and assign IEEs to active awards. In most instances, the tracker is also available to other staff. However, the tracking system is not consistent and almost never tracks the EMMP drafts, implementation, and timing of field inspections.
- The Mission Order seems to be the most important element dictating a process for environmental compliance within the Mission. The Mission Order is the most frequently cited

item for a compliance process. However, although the process is in place, the Missions are almost never actually building it into critical Mission processes such as annual work plans, award meetings, RFAs, activity design, etc. See Criterion 4.

- MEO engagement by sector teams and the program office is usually on an *ad hoc* basis. Mostly, the MEO is asked to comment on the portfolio reviews. The MEO is often not aware of new awards until after they are approved. General Counsel will verify an IEE is in place during their checklist review prior to sending an award/contract for the Mission Director's signature. This process often takes place without consulting the MEO.
- The lack of implementation of the IEE conditions by the partners can often be traced to a failure across the entire Mission's processes to comply with the Mission Order. Most IPs are not including compliance in their budgets and work plans; they are not regularly briefed during pre- and post-award meetings; they do not draft EMMPs; and their awards usually do not have EC language (ECL). Even in Missions where ECL is regularly used, it still does not result in EMMPs being submitted in timely manner or verification and monitoring of condition implementation. A consistent process for EMMPs is lacking and may be the critical gap that needs to be filled by Mission processes.
- Financial resources for environmental compliance are typically available to the Missions.
- Partners are more frequently reporting on environmental compliance in the quarterly and annual reports of partners compared to earlier BPRs. As best practice, some Missions also include environmental compliance in their field visit checklists.

Findings Criterion 4: Environmental Compliance is addressed in Approval, Award, Evaluation, Review, and Partner Reporting Documents

- Criterion 4 is the poorest performing section of all BPRs. Nearly all Missions are deficient in most areas. The Missions perform best in ensuring awards with significant environmental components (e.g., infrastructure, agriculture) have environmental compliance language. Language is lacking from many other awards.
- The ECL is being used erratically across almost all Missions. Even if the language is used by the Office of Acquisitions and Assistance (OAA), it is used by some of the office staff but not all, and at times the ECL is misinterpreted or added without being relevant (e.g., identifying an EA is required when there is no positive determination [or deferral] in the IEE). The use and understanding of the ECL universally needs strengthening. Ghana seems to be the most consistent user.
- MEOs are infrequently participating in the RFA, work plan, pre- and post-award briefings, and budgeting phases. They are being engaged more frequently for portfolio reviews and PAD participation. There has been improvement in the past two years in this area but it is still lacking.

Acronyms

A/COR – Agreement/Contracting Officer's Representative
BEO – Bureau Environmental Officer
BP – Best Practice
BPR – Environmental Procedures Best Practice Review
CFR – Code of Federal Regulations
dMEO – deputy Mission Environmental Officer

EA – Environmental Assessment
EC – environmental compliance
ECL – environmental compliance language
EIA – environmental impact assessment
EMMP – Environmental Mitigation and Management Plan
ETOA – Environmental Threats and Opportunity Assessment
FAA – Foreign Assistance Act
GC – General Council
GEMS- Global Environmental Management Support
IEE – Initial Environmental Examination
IP – implementing partner
LOE – level of effort
MEO – Mission Environmental Officer
OAA – Office of Acquisitions and Assistance
PAD – Project Appraisal Document
RCE – Request for Categorical Exclusion
RFA/P – Request for Application/Proposal
USAID – United States Agency for International Development

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Appendix 1. Previous Synthesis of BPR Findings (all BPRs thru August 2010)

(note: findings characterize Mission compliance status at the time of the BPR; they do NOT reflect changes resulting from the BPR.)

1. "**upstream" compliance** (i.e. Reg. 216 documentation coverage for the Mission Portfolio) is generally reasonable, but not perfect:
    - Approval delays, especially for PERSUAPs, are a problem
    - Some but not all missions verify IEE coverage for new activities
2. However, **poor IEE Quality & Lack of Specificity** adversely affect the ability of IEEs to serve as a clear basis for project mitigation actions and project compliance.
    - In part, the problem is intrinsic to sector program level IEEs (SO-level IEEs), particularly those put in place when the sector program is in the early design stage.
    - Problem is not that there are a few notably bad IEEs, but that the current standard of IEE practice in AFR is not adequate.
3. In almost every mission, **a few project examples of good "downstream" compliance** exist. (that is, IEE/EA conditions are being implemented and reported on.)
    - But these examples of strong compliance are person-driven (a proactive C/AOTR, a diligent partner), not systems-driven.
    - Compliance seems to be better for Title II CSs (who write their own, project-level IEEs)
4. Generally though, **IP reporting on environmental compliance is very, very limited**. That is, there is no auditable, verifiable record of IEE implementation (or lack thereof)
5. This makes determining the extent of IEE conditions implementation difficult. Different BPRs have had differing levels of success in truly verifying the extent of IEE conditions implementation on a project-by-project basis—depends on level of team cooperation, partner availability.
6. However, in the large majority of cases where we have successfully "drilled down" to the project level, **implementation of IEE/EA conditions is POOR**:
    - Partners and C/AOTRs unaware of conditions
    - Contractual requirements for conditions implementation not in place.

7. **C/AOTR awareness of environmental compliance responsibilities is generally poor**—and where present, is often limited to "upstream compliance." (Of well-informed/pro-active A/COTRs, almost all have attended ENCAP trainings.)
8. Effective **sector team compliance planning as mandated by ADS is almost non-existent.**
9. **MEO position is chronically under-resourced.** In some cases MEO authority and reporting lines are adequate—in some cases not.
10. **Environmental compliance verification is seldom part of the Mission M&E function.**

Appendix 2. AFR Environmental Compliance Best Practice Standard (August 2010)

USAID Mission Environmental Compliance Best Practice Standard
A) Environmental documents are in place, including:
1) Environmental Compliance Mission Order
2) MEO Appointment Memo
3) Up-to-date ETOA or FAA 118/119, prepared with MEO involvement or review
4) IEEs at SO level, updated as necessary
5) IEEs at activity level, updated as necessary (if not included in SO-level IEE)
6) IEE quality and specificity is sufficient to serve as a sound basis for project-level compliance. (proposed addition)
B) Staff and implementing partners have capacity to ensure environmental compliance:
1) Staff and implementing partners have been trained in environmental compliance/ESDM
2) MEO has knowledge of country level environmental assessment legislation and country environmental issues
3) MEO has skills and expertise to identify potential environmental components for Mission SOs and activities;
4) A "Deputy" or "Alternate" MEO has been appointed to assist when the MEO is unavailable
5) Opportunities for ongoing training in environmental compliance are provided to staff and implementing partners
C) Processes are in place to ensure environmental compliance:
1) MEO reports directly to Mission Director or senior management on matters pertaining to compliance with USAID Environmental Procedures
2) MEO has mission-wide tracking process for IEE status, which is readily available to all mission staff.
3) MEO and CTOs/Activity Managers have process for collaborating on activities with potential environmental impacts (from design to closure)
4) Process exists to identify activities that need amended IEEs (not already covered by the SO level IEE)
5) Process exists for ensuring IEE conditions are incorporated into Request for Proposals/Request for Applications (RFP/RFA), or process exists for ensuring activity-level IEE will be undertaken by the contractor (and included as a task in the RFA/RFP)
6) Process exists for incorporating IEE conditions into contracts; and including mitigation and monitoring costs into project budgets
7) Process exists for ensuring mission or implementing partner develops and implements an Environmental Management Plan/Mitigation and Monitoring Plan (EMP/MMP)
8) Process exists for reporting to USAID on implementation of mitigation measures and continued assessment of potential environmental impacts (in project semi-annual or quarterly reports);
9) Financial resources available to support mission environmental compliance processes, including training, analytical support, MEO travel to assist CTOs with field monitoring, etc. When the MEO reports to a sectoral team (Economic Growth, etc.), these resources would ideally be provided by the Program Office, since the MEO duties support the mission as a whole
D) The following mission contracting, project, and review/status documents include environmental compliance language:
1) Strategic Objective Agreement (SOAg) approvals
2) Activity Approval Documents (AAD)

3) Modified Acquisition and Assistance Request Documents (MAARDs)
4) RFPs/RFAs
5) Contracts and cooperative agreements with budget that reflects mitigation and monitoring costs;
6) Quarterly or semi-annual reports, submitted by project staff to the CTO
7) Most recent Annual Report submitted by Mission to USAID/W
8) Portfolio reviews, conducted semi-annually
9) Closure report, where lessons learned regarding ESDM and Reg. 216 should be documented; and
10) Federal Management Financial Information Act (FMFIA) review, wherein, on an annual basis, every mission conducts a review of all their systems (financial and otherwise, including ADS 204)

AFR Environmental Compliance Best Practice Standard

USAID is required by court order, executive order, and statute to utilize an Environmental Impact Assessment (EIA) process to evaluate the potential impact of USAID's activities on the environment prior to implementation. The agency must "fully take into account" environmental sustainability in designing and carrying out its development programs. USAID fulfills these requirements through the Agency's environmental procedures. These consist of:

- Federal regulation (22 CFR 216), which defines USAID's pre-implementation EIA process; and
- Mandatory operating policies set out in USAID's Automated Directives System (ADS), which define implementation of this process and follow-through requirements during project implementation.

In summary, USAID's environmental procedures require that:

1. Environmental considerations are taken into account in activity planning/early design.
2. Prior to implementation, all activities undergo a formal EIA process defined by 22 CFR 216. This process is documented in 22 CFR 216 documentation and must be duly approved by the Mission Director (or equivalent) and the Bureau Environmental Officer.
3. Environmental mitigation and monitoring conditions resulting from this EIA process are written into procurement instruments (contracts, awards, cooperative agreements, etc.), implemented and monitored.
4. Operating units must report annually on the environmental compliance status of each project in their portfolio.
5. Environmental compliance documentation is maintained and used to actively manage implementation.

Consistently and effectively applied, the procedures strengthen development outcomes and safeguard ecosystems, environmental resources, human health and welfare, and USAID's reputation.

Experience across AFR missions shows that consistent, effective compliance with these requirements requires a set of mission capacities, processes, and practices**. This Best Practice Standard captures both the requirements of the procedures <u>and</u> these key supporting capacities, processes, and practices.**

Environmental Procedures Best Practices Reviews (BPRs) in AFR missions are conducted against this standard. BPRs are a thorough review of review of mission environmental compliance status, policies, procedures, and capacities. Its goal is to improve Mission compliance with USAID's Environmental Procedures, and to better integrate compliance into Mission operations. The BPR also serves as a communication tool between the Mission and the Bureau Environment Officer in Washington, DC on environmental compliance highlights and needs. BPRs are voluntary and undertaken at a time chosen by the mission; however, as part of its response to the OIG's global environmental compliance audit, AFR Bureau has committed that all AFR missions will undertake a BPR at least every 5 years.

Conducted via a mix of desk review, interviews and field visits, BPRs result in an *action plan* to correct gaps and weaknesses against the standard --- and thus to improve environmental and social soundness in program and project design and implementation. BPR Action Plans should be reviewed annually to determine implementation status and what additional actions may be required.

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Proposed AFR Env Compliance Best Practice Standard Revision 11Feb2015

A) Directive environmental documents are in place and accessible to Mission staff
1) Environmental Compliance Mission Order generally consistent with AFR good-practice model[1]
2) Mission tracking system exists for Regulation 216 and host country documentation status, and coverage at the contract/award level is accessible to all staff
3) MEO, A/COR, and AM have copies of their current IEEs and host country environmental documentation on file (electronic or hard copy)
4) Up-to-date ETOA or FAA 118/119 as part of the CDCS, prepared with MEO involvement or review
5) Mission's Performance and Monitoring Plan (PMP) reflects attention to environmental compliance
6) Current Regulation 216 documentation (RCEs, IEEs, and PERSUAPs) at the appropriate Mission or central level are: (a) in place, covering all mission funded- and managed-activities; (b) of clarity and quality sufficient to provide effective guidance to activity implementation.
7) A/CORs have EMMPs and quarterly or bi-annual reports on file for each project that includes activities that have a Negative Determination with Conditions
B) USAID staff environmental compliance responsibilities and reporting lines are formally established:
1) MEO/dMEO Appointment Memo(s) in place generally consistent with the AFR good-practice model[1]
2) A deputy or alternate MEO is appointed to assist when the MEO is unavailable
3) In the execution of her/his MEO duties, MEO reports to the Senior Program Officer or senior mission management
4) MEO has limited or no duties as an A/COR on projects
5) Environmental compliance responsibilities of A/CORs are specified in their appointment letters and position description, consistent with good-practice AFR environmental responsibilities.
6) Environmental compliance responsibilities of AMs are specified in their position description and they have discussed allocation of environmental compliance responsibilities with their A/COR
7) Point of contact has been established for each office to facilitate interaction with the MEO and to assist other staff with environmental compliance questions
C) Mission staff and implement partners are trained in environmental compliance and ESDM:
1) Mission staff have been trained and demonstrate competency in USAID and host country environmental compliance and ESDM
2) Refresher training opportunities are provided annually to staff and implementing partners
3) MEO has received formal training in environmental management and/or environmental impact assessment well beyond the level of a one-week workshop and has a strong working knowledge of host country environmental requirements and processes
4) Implementing partners have been trained and demonstrate competency in environmental compliance and ESDM
D) Environmental compliance is integrated in Mission processes:
Design and Award Processes:
1) Per ADS 201.3.16.2d and 201.3.16.3b, concept notes and PADs include environmental analyses. The MEO is consulted during the development process
2) IEE conditions are incorporated into solicitations RFA/Ps applying the Environmental Compliance Language for Solicitations and Awards Help Document[2], or a process exists for ensuring activity-level IEE will be undertaken by the contractor (and included as a task in the RFA/P)
3) MEO is notified in advance when new awards and contracts are being issued or when ceilings are raised and requested to comment

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[1] Example Mission Orders and MEO Appointment Memos can be found at: http://www.usaidgems.org/rolesRespons.htm.

[2] http://www.usaid.gov/sites/default/files/documents/1865/204sac.pdf

4) Mission checklists for new awards, agreements, contracts include confirmation of current and relevant Regulation 216 documentation
5) Implementing partners have copies of their IEEs and EMMPs and environmental compliance is part of award briefings
Oversight of partners:
6) Process exists for ensuring Mission or implementing partner develops and implements an EMP/EMMP
7) Mission field visit checklists include environmental compliance and incorporate an environmental site visit form in project M&E, where feasible
8) Implementing partner project performance reporting (i.e., quarterly, semi-annual or annual reports) includes a section on environmental compliance based on EMMP implementation. If the mission has standardized reporting templates, they include environmental compliance
9) Process exists for incorporating IEE conditions into award documents; and including mitigation and monitoring costs in project budgets
11) A/CORs review program activities annually with the partner and the MEO to determine if activities have been changed or added and whether they are included in the existing IEE or whether an amendment is necessary
Overall
12) MEO, A/CORs and AM have process for collaborating on activities with potential environmental impacts (from design to closure)
13) Environmental compliance is integrated in portfolio reviews
14) Environmental compliance/ESDM lessons learned integrated in closure reports, the Development Experience Clearinghouse, and Mission communications (such as websites or social media) where applicable
15) MEO reviews and considers host country environmental standards for all USAID activities including working through host country permitting processes
16) Process exists between the A/COR and AMs for centrally managed programs to track and report to USAID Washington on development of the EMMP, implementation of mitigation measures, and continued assessment of potential environmental impacts
E) Internal environmental compliance resources are adequate
1) Adequate financial resources are available to support mission environmental compliance, including training, analytical support
2) The MEO function is adequately resourced, both in terms of LOE available and funding for the MEO to undertake field monitoring
3) Funds are available, if needed, for independent monitoring of EMMP implementation for environmentally consequential/complex activities
F) Appropriate progress has been made on previous BPR Action Plans and OIG Audit concerns[3]
1) Mission has developed and implemented the Action Plan as an outcome of the previous BPR. Best processes and practices are still in place
2) If applicable, items proposed in the OIG Audit of July 2011 have been corrected and are still in place

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Acronyms

A/COR – Agreement/Contracting Officer's Representative

ADS – Automated Directives System

[3] Audit of Selected USAID Missions' Efforts to Mitigation Environmental Impact in their Project Portfolios (No. 9-000-11-002-P). http://oig.usaid.gov/sites/default/files/audit-reports/9-000-11-002-p.pdf

AFR – USAID Bureau for Africa
AM – Activity Manager
BPR – Best Practice Review
CDCS – Country Development Cooperation Strategy
dMEO – deputy Mission Environmental Officer
EMMP – Environmental Mitigation and Management Plan
EMP – Environmental Management Plan
ESDM – Environmentally sound design and management
ETOA – Environmental Threats and Opportunity Assessment
FAA – Foreign Assistance Act
IEE – Initial Environmental Examination
MEO – Mission Environmental Officer
OIG- Office of Inspector General
PAD – Project Appraisal Document
PERSUAP – Pesticide Evaluation Report Safer Use Action Plan
PMP – Performance and Monitoring Plan
RCE – Request for Categorical Exclusion
RFA/P – Request for Application/Proposal

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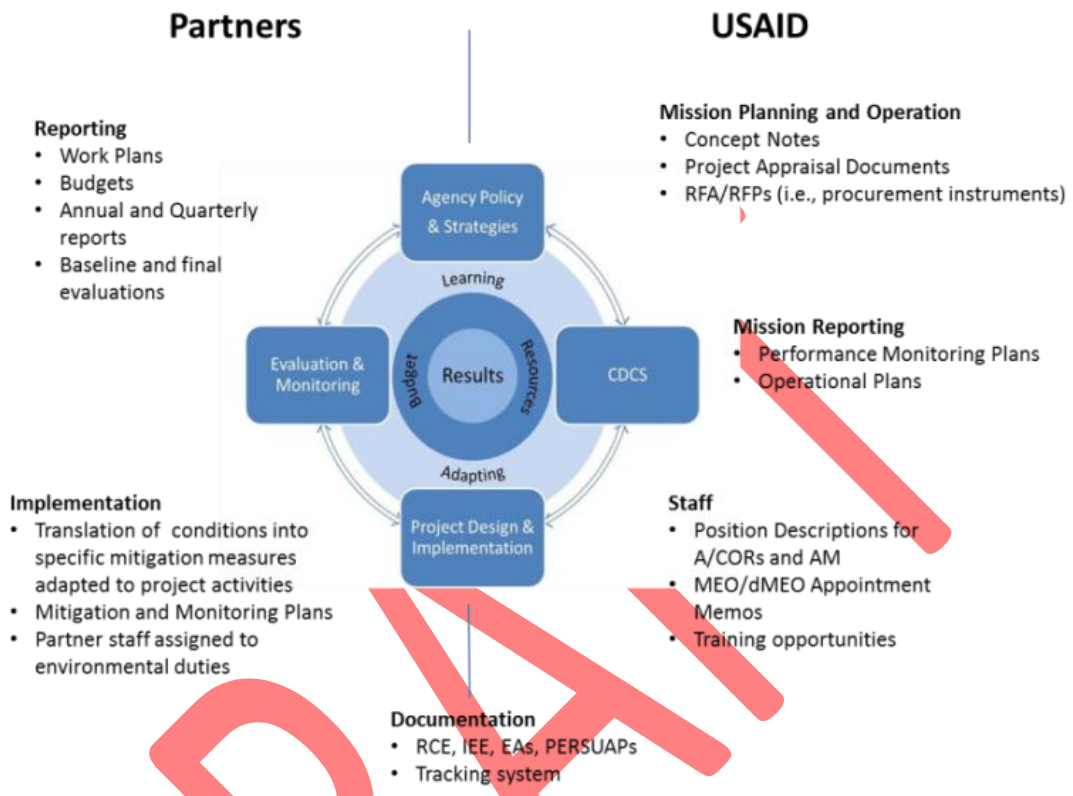
Figure 1. Documentation that does or should include environmental compliance components at different points in the USAID Program Life Cycle, and therefore, may be reviewed during the BPR process. (Image Ref: USAID ADS 200.3.4 v. 7/18/14)



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Session 19. Action Plans

(1:00)

Objective

Identify key messages to communicate to mission management/sector team leaders (USAID staff) and COPs (IP staff) to prioritize and strengthen LOP environmental compliance.

Develop an individual plan for workshop follow-up to strengthen LOP environmental compliance in your project, team, or mission/operating unit.

Format

0:30 Focus group sessions

0:30 "Way Forward" Plenary discussion & Individual Action Plans

Summary

Focus Groups & Individual Action Plans.

Having taken stock of where we are, we are ready to begin to discuss ways forward: how can we and our mission and projects strengthen mission and team compliance processes and capacities to improve LOP environmental compliance and better achieve ESDM.

The facilitation team will divide us into two or three focus groups (possible groupings are, e.g. MEOs and non-MEO mission staff.) Each group will engage in a facilitated discussion to attempt to answer 3 questions:

1. Assuming that each of us have the opportunity to deliver post-workshop briefings to Mission Management /Sector Team leaders, what are the key points to convey to prioritize and strengthen LOP environmental compliance and ESDM?
2. What are the key recommendations to make?
3. What are key points/recommendations to convey to USAID/W to support missions in prioritizing and strengthening LOP environmental compliance and ESDM?

(Not all points will be applicable to everyone, but we want to agree on a set of core messages.)

In addressing these overall questions, it may be helpful to consider the following:

- What elements of LOP compliance are well-implemented in your mission/team? Why?
- Have you/your team/the mission/your projects implemented compliance strengthening measures you would like to share? Are they working well?
- Key LOP environmental compliance gaps within your team/Mission/project? What are the causes of these gaps?
- Do you see feasible remedies? What are they?
- What do the USAID sector teams (and A/CORs specifically) need to do differently? Do they or the projects need additional resources, support or training to implement these changes?
- What do offices/functions other than the sector teams need to do differently?

Plenary "Way Forward" Discussion and Individual Action Plans.

Following the focus groups, we will reconvene in plenary for ~15 minutes for a short report-out from each group; the facilitation team will synthesize focus group outputs.

The last 15 minutes will be reserved for development of individual workshop follow-up plans, using the template on the following page. We will for volunteers to share some of their follow-up items.

Life-of-Project Environmental Compliance & Environmentally Sound Design and Management

A Africa Regional Advanced Training Workshop for USAID Staff & Partners

INDIVIDUAL WORKSHOP FOLLOW-UP PLAN

With reference to previous discussions in this session, please identify 3-5 follow-up actions that you plan to take after this workshop to strengthen LOP environmental compliance on your project, in your team, or in your mission/operating unit. For each, state a proposed timeline and immediate next step.

Example actions. Actions might include (but are not limited to):

Brief mission management on key messages identified in this session ▪ Brief contracts team on ECL and inclusion of environmental responsibilities clauses in A/COR letters▪ Require EMMPs for projects for which you are an A/COR ▪ Deliver a short LOP Environmental Compliance Briefing for mission staff ▪ Work with M&E specialist to better assess env.compliance and management in field visits.

Action item	Proposed timeline	Immediate step
Ex. Lead Environmental Compliance/ESDM Session in upcoming team planning retreat. (Develop short presentation using slides from this workshop.)	*3rd week of January*	*Contact training coordinator.*
1.		
2.		
3.		
4.		

Session 20: Workshop Evaluation

(0:15)

Format

Fill in workshop evaluation form.

Summary

In response to comments received on the previous workshops in this series and in response to evolving Agency and AFR programming, a number of changes to agenda and session content were implemented in this workshop. Your feedback is essential to strengthen materials and agenda—and to draw attention to Mission and Program TA and support needs for ESDM and environmental compliance.

Key Resource

Evaluation form (following pages)

Workshop evaluation

Life-of-Project Environmental Compliance and Environmentally Sound Design and Management

An Africa Regional Advanced Training Workshop for USAID Staff

Musanze, Rwanda ▪ 23–27 March 2015

Your frank and honest feedback will help strengthen future trainings and help prioritize ESDM and environmental compliance support to USAID Programs and Missions in Africa and globally. Thank-you for your time!

Learning approach

For each issue, please check the assessment you most agree with

Issue	Assessment					Comments
Balance of time in classroom to time in field	Much more time in field needed	A bit more time in field needed	About right	A bit more time in classroom needed	Much more time in classroom needed	
In the classroom, balance of presentations to exercises, group work & discussions	Much more emphasis on presentations needed	A bit more emphasis on presentations needed	About right	A bit more emphasis on exercises/ discussions needed	Much more emphasis on exercises/ discussions needed	
Technical level & pace	Much too heavy	A little too heavy	About right	A bit too light	Much too light	
Opportunities for peer exchange & learning	Needed to hear and learn much more directly from facilitators	Needed to hear and learn more directly from facilitators	About right	Some more opportunities for peer learning/ exchange are needed	Many more opportunities for peer learning/exchange are needed	

Highest/Lowest-rated sessions

Please identify the 1 or 2 sessions that you rate most highly (for content, usefulness, approach or for other reasons). Please also identify the 1 or 2 sessions that you found least engaging/useful/relevant. Please briefly indicate the reasons for your choice. (You may wish to refer to the agenda to refresh your memory.)

	Session	Comment (Please explain why you made this choice.)
HIGH-RATED		
HIGH-RATED		
LOW-RATED		
LOW-RATED		

Overall evaluations *Please check the assessment you most agree with.*

Issue	Assessment Very poor	Poor	Acceptable	Good	Excellent	Comments
Technical quality (Program & Content)						
Facilitation						
Logistics						
Venue						
Field visits						

Pre-workshop Knowledge of Env Compliance/ESDM *Please circle the characterization you most agree with.*

Question	Characterization			Comments
Baseline Knowledge In light of what you have learned in this workshop, how would you rate your understanding of ESDM and USAID's Environmental Procedures BEFORE this workshop?	Had poor or limited understanding	Understood the basics, lacked some details	Had a strong and detailed understanding	

Impact *Please circle the characterization you most agree with.*

Knowledge and Skills To what extent has this workshop increased your knowledge and skills to address environmental compliance requirements in the context of your job function/professional responsibilities?	Not at all	Moderately	Strongly	
Motivation To what extent has this workshop increased your motivation to *proactively* address environmental compliance and ESDM in the context of your job function/professional responsibilities?	Not at all	Moderately	Strongly	

Key topics not covered

Were there any topics of key important to you that were not covered/given very limited attention?	

Support needs

Are there particular environmental compliance/ESDM support needs or resources that you require?	

Additional comments welcome on any topic.

Version: 27 January 2009
download from www.encapafrica.org /meoEntry.htm.

USAID Environmental Procedures Briefing for USAID/XXX Staff

Contents

Acronyms

ADS	Automated Directives System
BEO	Bureau Environmental Officer
CFR	Code of (US) Federal Regulations
CTO	Cognizant Technical Officer
EA	Environmental Assessment
ECL	Environmental Compliance Language for Use in Solicitations and Awards (ADS 204 help document)
EIA	Environmental Impact Assessment
EMMP	Environmental Mitigation & Monitoring Plan
ESDM	Environmentally Sound Design and Management
IEE	Initial Environmental Examination
LOP	Life-of-Project
MEO	Mission Environmental Officer
PMP	Performance Monitoring Plan
REA	Regional Environmental Advisor
Reg. 216	22 CFR 216

About this *Briefing*

All USAID Missions and operating units are required to fully implement and comply with USAID's mandatory environmental procedures. This briefing is intended to support short mission staff trainings in these procedures and to serve as a succinct post-training reference. Towards these ends, it:

- ✓ summarizes the environmental procedures in plain language, and
- ✓ sets out the roles and responsibilities of organizational units and functions in the Mission in achieving and assuring compliance.

This briefing is closely based on and fully compatible with the new model *Environmental Compliance Mission Order* adopted by Africa Bureau. The plain-language summary in this *Briefing* does not supercede the statutory, regulatory and ADS language that governs and constitutes these procedures. This language may be accessed via http://www.encapafrica.org/meoEntry.htm or provide internal server filelink.

Legal Authority for and Purpose of USAID's Environmental Procedures

Section 117 of the Foreign Assistance Act of 1961, as amended, **requires** that USAID use an Environmental Impact Assessment (EIA) process to evaluate the potential impact of the Agency's activities on the environment **prior** to implementation, and that USAID "fully take into account" environmental sustainability in designing and carrying out its development programs. This mandate is codified in Federal Regulations (22 CFR 216 or "Reg. 216") and in USAID's Automated Directives System (ADS), particularly Parts 201.3.12.2.b and 204.

These procedures are USAID's principal mechanism to ensure environmentally sound design and management (ESDM) of development activities. Put another way, they are USAID's principal mechanism to prevent USAID-funded activities from having significant, unforeseen, avoidable or mitigable adverse impacts on critical environmental resources, ecosystems, and the health and livelihoods of beneficiaries or other groups. They strengthen development outcomes and help safeguard the good name and reputation of the Agency.

Compliance with these procedures is mandatory. With limited exceptions for international disaster assistance, they apply to every program, project, activity, and amendment supported with USAID funds or managed by USAID. USAID/XXX is fully committed to their systematic and complete implementation.

Environmental Compliance Requirements over Life of Project

In general, the procedures specify an EIA process that must be applied to all activities *before implementation*—including new activities introduced into an existing program or substantive changes to existing activities. This pre-implementation EIA process, defined by Reg. 216, frequently results in environmental management requirements (mitigative measures) that must be implemented and monitored over the life of the activity.

Specifically, EXCEPT for international disaster assistance activities verified as EXEMPT from the procedures, the procedures impose the following compliance requirements over life of project (LOP):

1. **Environmental considerations must be taken into account in activity planning**. (ADS 201.3.12.6 & 204.1).

2. **No activity is implemented without approved Reg. 216 environmental documentation. This documentation must be approved PRIOR to any irreversible commitment of resources.** (ADS 204.3.1).

   This documentation is the output of the EIA process specified by Reg. 216 and takes one of three forms: Request for Categorical Exclusion, Initial Environmental Examination (IEE) or Environmental Assessment (EA).

   Documentation is approved ONLY when it is signed by the Mission Environmental Officer, the Mission Director AND the Bureau Environmental Officer. As a condition of approval, most IEEs and all EAs contain environmental mitigation and monitoring requirements ("IEE or EA conditions") for at least some of the activities they cover.

   Note that Activity Approval Documents must summarize how environmental documentation requirements have been met. (ADS 201.3.12.15).

3. **All IEE and EA conditions are incorporated in procurement instruments.** (ADS 204.3.4.a.6; 303.3.6.3e).

4. **All IEE and EA conditions are implemented, and this implementation is monitored and adjusted as necessary.** (ADS 204.3.4; 303.2.f).

Operationally, this requires that:

- ✓ *Conditions established in program- ("FO"-)level IEEs and EAs are mapped to the activity level;*
- ✓ *Environmental Mitigation and Monitoring Plans (EMMPs) are developed at the project or activity level to implement these conditions. EMMPs* set out *the mitigation measures required by the IEE/EA; indicators or criteria for monitoring their implementation & effectiveness; and the parties responsible for implementation & monitoring;*
- ✓ *Project workplans and budgets specifically provide for implementation of EMMPs; and*
- ✓ *PMPs incorporate measures of EMMP implementation.*

USAID/XXX mission policy is that each of these prerequisites for successful implementation of IEE and EA conditions will be executed in full.

An annotated EMMP template is attached to this Briefing *and also available at www.encapafrica.org/meoEntry.htm and provide internal server filelink.*

5. **Environmental compliance is assessed in annual reports.** (ADS 203.3.8.7; 204.3.3.a).

   Annual reports must assess environmental compliance of existing activities, including whether all activities are covered by approved Reg. 216 environmental documentation, whether the mitigation measures specified in IEEs and EAs are being implemented, and whether these measures are adequate. If activities are discovered to be out of compliance, the report must specify actions to be taken to remedy the situation.

6. **Environmental compliance documentation is maintained in Program area Team files.** (ADS 202.3.4.6).

A more extensive discussion of LOP environmental compliance requirements is found in the Bureau for Africa's *Mission Environmental Officer Handbook*, available via www.encapafrica.org/meoentry.htm and provide internal server filelink.A hardcopy of the handbook is available for loan from the Mission Environmental Officer.

Responsibilities for Implementation

Primary responsibility: Team Leaders, CTOs, and Activity Managers. The ADS makes clear that primary responsibility and accountability for environmental compliance is shared by the USAID staff acting in the capacities of Team Leader and each CTO or Activity Manager. This includes assuring that Reg. 216 documentation is developed and in-place for activities under their purview.

Specific responsibilities established by the ADS and Mission policy for these positions are set out in the table below. All UAID/XXX staff are obliged to fulfill the enumerated environmental compliance responsibilities attendant to their position.

Final responsibility: Mission Director. Final responsibility for environmental compliance lies with the Mission Director. The Mission Director must approve all Reg. 216 documentation for Mission activities.

Field Implementation: Contractors and Implementing Partners. Environmental management must be an integral part of project implementation, and thus field implementation of environmental mitigation is the responsibility of contractors/IPs with oversight from USAID.

Advice & Gatekeeping: Mission Environmental Officer (MEO). The MEO (1) is a core member of each mission program team and serves the team as an environmental compliance advisor; (2) serves as a gatekeeper (quality and completeness reviewer) for Reg. 216 Documentation and must clear all

documentation before submission to the Mission Director; and (3) is the primary point of Mission contact with the Bureau Environmental Officer and the Regional Environmental Advisor (see "Environmental Compliance Resources and Key Contacts," below).

A more complete description of MEO roles and responsibilities is provided by the Bureau for Africa's MEO Handbook*, available via* www.encapafrica.org/meoEntry.htm and provide internal server filelink.

Regional Environmental Advisors (REAs). REAs advise MEOs and program teams on environmental compliance, including development of Reg. 216 documentation and monitoring protocols, and can assist teams in obtaining additional environmental expertise when required. REAs also help to monitor the mission's implementation of the Agency's Environmental Procedures. The MEO is the liaison with the REA on behalf of program teams. The REA supporting XXXX is based in USAID/(EA/WA/SA), CITY.

Bureau Environmental Officers (BEOs). The BEOs, based in Washington, DC, must clear all Reg. 216 documentation for activities under the purview of their Bureau. USAID/XXXX activities are under the purview of the AFR, EGAT, GH and DCHA Bureaus.

Environmental Compliance Responsibilities of Team Leaders, CTOs, Activity Managers and the MEO

Compliance action	Responsible parties
Prepare Reg 216 environmental documentation. Reg 216 documentation includes: ✓ Requests for Categorical Exclusions (RCEs) ✓ Initial Environmental Examinations (IEEs) ✓ Environmental Assessments (EAs) ✓ Amendments to all of the above	**CTO/Activity Manager** (MEO reviews/provides advice). EXCEPT: ✓ Teams may engage **partners** or **outside contractors** to prepare IEEs under the supervision of the CTO/Activity Manager. The use of external expertise is RECOMMENDED for complex programs and activities. ✓ EAs are almost always prepared by 3rd-party contractors. ✓ Title II IEEs are prepared by Implementing Partners as part of their MYAP submissions.
Approve and Clear Reg. 216 Documentation.	**All** of the following must clear: ✓ CTO, Activity Manager or Team Leader ✓ MEO ✓ Mission Director ✓ Bureau Environmental Officer
Clear sub-project/sub-grant Environmental Reviews.	**Activity Manager AND MEO** (Activities identified by the sub-project/sub-grant screening process as "high risk" are forwarded for REA & BEO review and clearance.)
Incorporate environmental compliance requirements into procurement documents.	**CTO/Activity manager** (MEO assists.)
Ensure Reg. 216 documentation is current and covers all activities being implemented.	**CTO/Activity Manager**
Assure an EMMP addressing all relevant mitigation and monitoring conditions is	**CTO/Activity Manager** (MEO may review)

Compliance action	Responsible parties
developed, and reflected in workplan, budget, and PMP.	Contractors/IPs will in most cases develop EMMPs for CTO/Activity Manager review. If they do not, this responsibility falls directly on the CTO/Activity Manager.
Monitoring to ensure partner/contractor compliance with IEE/EA conditions.	**CTO/Activity Manager** (MEO assists)
Ensure that environmental compliance lessons learned are incorporated in closure reports & environmental compliance issues are included in SOWs for evaluations.	**MEO**
Prepare environmental compliance section of Mission Annual Reports.	**MEO,** with support from CTOs and Activity Managers.
Maintain environmental compliance documentation.	**Program Officer, CTO/Activity Manager/Team Leader, MEO**

Additional Directives and Responsibilities to Assure LOP Compliance

To assure that the LOP compliance elements listed in the table above are well-implemented, the following directives and responsibilities apply Mission-wide:

1. **Awareness of Activity Determinations and Conditions.** It is the responsibility of each CTO and Activity Manager to know the **Reg. 216 Determination**, **including any conditions**, assigned to the activities under their purview. These conditions are assigned in the Reg. 216 documentation that applies to the activity. The possible determinations are enumerated in the table below:

Categorical Exclusion	The activity falls into one of the classes of activities enumerated by Reg, 216 as posing low risks of significant adverse environmental impacts, and no unusual circumstances exist to contradict this assumption. The activity has no attached environmental management conditions.
Negative Determination	Per analysis set out in an IEE, the activity is found to pose very low risk of significant adverse environmental impact. The activity has no attached environmental management conditions.
Negative Determination with Conditions	Per analysis set out in an IEE, the activity is found to pose very low risk of significant adverse environmental impact *if* specified environmental mitigation and monitoring measures are implemented. The activity proceeds on the condition and requirement that these measures ("conditions") are fully implemented.
Positive Determination	Per analysis set out in an IEE, the activity is found to pose substantial risks of significant adverse environmental impacts. Therefore, the activity cannot proceed until an Environmental Assessment (EA) is developed and duly approved, and then on the condition that environmental mitigation and monitoring measures specified by the EA are fully implemented.

   The only activities not assigned such determinations are international disaster assistance activities verified as **exempt** from the procedures. CTOs and Activity Managers must also be aware of any activities under their purview having exempt status, and when such exempt status will terminate.

2. **Team-level Compliance Planning & Compliance Verification Systems.** As specified by ADS 204.3.4, each program team must collaborate effectively with the MEO during all program designs and approvals to create a system and secure adequate resources to ensure LOP environmental compliance.

This system must include: EMMP review and approval; assuring the budgets provide for EMMP implementation, and that PMPs integrate measures of EMMP implementation. Environmental compliance verification will be part of field visits/inspections.

Note that several general and sector-specific tools exist to support field and desk assessment and tracking of partner environmental compliance. Use of these tools is recommended and may be required in some circumstances. Examples include the "Environmental Mitigation and Monitoring Tracking System" (developed in the Southern Africa region for compliance monitoring of Indoor Residual Spraying activities and the general "Site Visit Guide and Report Template." Both are available at www.encapafrica.org/meoentry.htm (Mitigation and Monitoring section) or provide internal server filelink. Contact the MEO for more information.

3. **Functional specifications for Environmental Compliance Clauses in Procurement Instruments.** The ADS states that CTOs and Activity Managers are responsible for ensuring that environmental conditions from IEEs and EAs are incorporated into solicitation and award documents (ADS 204.3.4.a.6; 303.3.6.3e). Beyond this, **it is Mission policy that environmental compliance language in all solicitation *and* award instruments specifically requires that:**

   - ✓ The partner verifies current and planned activities annually against the scope of the approved environmental documentation.
   - ✓ Where activities demand environmental management expertise, appropriate qualifications and proposed approaches to compliance are addressed in technical and cost proposals.
   - ✓ The partner develop an EMMP fully responsive to all IEE/EA conditions, unless this already exists in the Reg. 216 documentation or will be developed by Mission program staff.
   - ✓ Budgets and workplans integrate the EMMP.
   - ✓ PMPs measure EMMP implementation.

   The ADS help document *Environmental Compliance Language for Use in Solicitations and Awards* (ECL) provides a combination of step-by-step guidance and standard text to assemble environmental compliance language meeting these requirements for any solicitation or award. Its use is strongly recommended.

   The ECL and an annotated EMMP template are attached to this Order and also available at www.encapafrica.org/meoentry.htm and provide internal server filelink.

4. **Confirming Reg. 216 documentation coverage in the course of project designs, amendments, extensions, and during the preparation of the Annual Reports.** During these exercises, the Team should review planned/ongoing activities against the scope of existing, approved Reg. 216 documentation and either: (1) confirm that the activities are fully covered or (2) assure that such documentation is developed and approved *prior* to implementation. For activities begun under a disaster assistance exemption, the Team must confirm that their exempt status still applies.

   Activities modified or added during project implementation may require new or amended Reg. 216 documentation. Maintaining Reg. 216 documentation coverage of all *activities is critical, as the ADS requires that ongoing activities found to be outside the scope of approved Reg. 216 documentation* ***be halted*** *until an amendment to the documentation is approved by the Mission Director and the BEO.*

Critical Non-Compliance Situations

If any USAID/XXX staff member believes that (1) failure to implement mitigation measures or (2) unforeseen environmental impacts of project implementation is **creating a significant and imminent danger to human health or the integrity of critical environmental resources**, **IMMEDIATELY notify the CTO, MEO and Mission Management.**

Environmental Compliance Resources and Key Contacts

The on-line MEO Resource Center contains a wide range of environmental compliance and best practice materials, including step-by-step guidance for development of Reg. 216 documentation and sectoral guidance for design of environmental mitigation and monitoring measures. The Center is hosted on Africa Bureau's ENCAP website (www.encapafrica.org/meoEntry.htm) and copied in full at insert internal server filelink.

Reg. 216 documentation for Mission programs is posted at insert internal server filelink.

Key contacts. As of INSERT DATE, key environmental compliance contacts for USAID/XXX are as follows. Up-to-date contacts are available via www.encapafrica.org/meoEntry.htm.

Mission Environmental Officer	**Insert name, email and extension**
Regional Environmental Advisors (REAs)	East and Central Africa (USAID/EA, Nairobi) *David Kinyua: dkinyua@usaid.gov* Southern Africa R (USAID/SA, Pretoria) *Camilien J.W. Saint-Cyr: csaint-cyr@usaid.gov** West Africa (USAID/WA, Accra) *Bob Buzzard: robuzzard@usaid.gov*
Bureau Environmental Officers (BEOs; Washington, DC)	Bureau for Africa (AFR/SD) *Brian Hirsch: bhirsch@usaid.gov* Bureau for Economic Growth, Agriculture & Trade Bureau (EGAT): *Joyce A. Jatko: jjatko@usaid.gov* Democracy, Conflict and Humanitarian Assistance (DCHA): *Erika Clesceri: eclesceri@usaid.gov* Global Health (GH/HIDN) *Theresa Bernhard, tbernhard@usaid.gov*

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Download the ECL at:
www.usaid.gov/policy/ads/200/204sac.pdf

Download this factsheet at:
www.encapafrica.org/meoEntry.htm

For more information,
email the ENCAP core team at:
encapinfo@cadmusgroup.com

ENCAP FACTSHEET

ENVIRONMENTAL COMPLIANCE: LANGUAGE FOR USE IN SOLICITATIONS AND AWARDS (ECL)

ABOUT THE ECL AND THIS FACTSHEET

The ADS Help Document, "Environmental Compliance: Language for Use in Solicitations and Awards" is a combination of step-by-step guidance and boilerplate text to assemble appropriate, ADS-mandated environmental compliance language for all solicitations and awards. This factsheet is an orientation to the ECL, and particularly targets COs, CTOs, and Activity Managers. It is intended both as a training aid and as a succinct stand-alone reference.

BACKGROUND: USAID'S MANDATORY ENVIRONMENTAL PROCEDURES

Section 117 of the Foreign Assistance Act of 1961, as amended, requires that USAID use an Environmental Impact Assessment (EIA) process to evaluate the potential impact of the Agency's activities on the environment **prior** to implementation, and that USAID "fully take into account" environmental sustainability in designing and carrying out its development programs. This mandate is codified in Federal Regulations (22 CFR 216 or "Reg. 216") and in USAID's Automated Directives System (ADS), particularly Parts 201.3.12.2.b and 204.

Compliance with the procedures is mandatory. With limited exceptions for international disaster assistance, they apply to every program, project, activity, and amendment supported with USAID funds or managed by USAID.

In general, the procedures specify an EIA process must be applied to all activities before implementation—including new activities introduced into an existing program or substantive changes to existing activities. The only exceptions are international disaster assistance activities verified as EXEMPT from the procedures.

Why the environmental procedures?

The procedures are USAID's principal mechanism to ensure environmentally sound design and management (ESDM) of development activities—and thus to prevent significant adverse impacts on critical environmental resources and ecosystems and on the health and livelihoods of beneficiaries or other groups resulting from inadequate attention to environmental issues in design and operation.

In short, the procedures strengthen development outcomes and help safeguard the good name and reputation of the Agency.

To learn more about ESDM, view the presentation *Environment, Development and Environmentally Sound Design and Management* at www.encapafrica.org/tzWorkshop.htm.

The output of this EIA process is "Reg. 216 Environmental Documentation," which takes one of three forms: a Request for Categorical Exclusion, an Initial Environmental Examination (IEE) or an Environmental Assessment (EA).

This documentation must be cleared by the Mission Environmental Officer (MEO) and the Mission Director AND approved by the Bureau Environmental Officer (BEO) PRIOR to any "irreversible commitment" of resources. Most IEEs and all EAs specify environmental mitigation and monitoring measures (IEE and EA "conditions") that must be implemented and verified over life-of-project (LOP).[1]

PROCUREMENT LANGUAGE AND ENVIRONMENTAL COMPLIANCE

USAID oversees and monitors project/activity environmental compliance. Actual implementation of IEE and EA conditions, however, is the responsibility of the prime contractor/grantee ("partner") responsible for project/activity implementation. *The ADS therefore requires that all IEE and EA conditions (or a*

[1] For a more detailed discussion of USAID's Environmental Procedures, see the "USAID Environmental Procedures Briefing for Mission Staff," available at www.encapafrica.org/meoEntry.htm.

The factsheet was prepared by The Cadmus Group, Inc. for International Resources Group, Ltd. (IRG) under USAID Africa Bureau's Environmental Compliance and Management Support (ENCAP) Program, Contract Number EPP-I-00-03-00013-00, Task Order No. 11. Its contents are the sole responsibility of the authors and do not necessarily reflect the views of USAID or the United States Government.

statement that requires compliance with them) are incorporated into procurement instruments (ADS 204.3.4.a.6; 303.3.6.3e).

Beyond this, however, LOP environmental compliance is best assured when solicitation and award instruments also incorporate the elements set out and justified in the table below:

Environmental compliance elements in solicitation/award instrument	Reason
No activity is implemented unless covered by approved Reg. 216 environmental documentation.	Establishes the importance of maintaining full environmental documentation coverage.
The partner must verify current and planned activities annually against the scope of the approved Reg. 216 environmental documentation.	Guards against a project "creeping" out of compliance due to the addition or modification of activities outside the scope of the approved Reg. 216 environmental documentation. This usually takes place during the annual work planning process.
Where activities demand environmental management expertise, appropriate qualifications and proposed approaches to compliance must be addressed in technical and cost proposals.	Helps ensure that the partner/team selected for the work is capable of implementing the required environmental management activities. Also sends a clear message that environmental management is not an afterthought, but an integral part of the project, and a core qualification.
The partner must develop an Environmental Mitigation and Monitoring Plan (EMMP) fully responsive to all IEE/EA conditions, unless (1) the EMMP already exists in the approved Reg. 216 documentation, or (2) will be developed by USAID.	The EMMP translates the general mitigation directives in the IEE or EA into more specific measures, assigns responsibilities for their implementation, and sets out monitoring/reporting measures to verify their implementation and effectiveness. Without an EMMP, systematic & verifiable implementation of IEE/EA conditions is almost impossible.
Budgets and work plans integrate the EMMP.	Unless the EMMP is integrated in the budget and work plan, it will not be implemented.
PMPs measure EMMP implementation.	As the EMMP is an integral part of project implementation, it should be treated this way in project evaluation and reporting.

Collectively, incorporating these compliance elements in the solicitation and award (1) ensures that necessary compliance mechanisms are in place, (2) integrates monitoring and reporting on environmental compliance into routine project/activity monitoring and reporting, and (3) clearly communicates and establishes partner responsibility for LOP compliance. The result is *improved compliance, improved project outcomes, and reduced demands on mission staff*—particularly on activity managers and CTOs, who are required to actively manage and monitor compliance with any IEE/EA conditions per ADS 202.3.6 and 303.2.f.

WHY USE THE ECL?

The ECL is a non-mandatory help document. However, its use:

- Results in environmental compliance language that conforms to ADS requirements and best practice, as described in the table above, therefore realizing the compliance, outcomes, and manager workload benefits also noted above.
- Substantially reduces the time required to develop environmental compliance language.
- Improves consistency across the Agency in addressing environmental compliance.

HOW TO USE THE ECL AND WHAT YOU NEED IN HAND

Use of the ECL is self-explanatory:

1. Follow the instructions on page 3 of the document to assemble the compliance language, then
2. Finalize the [text in brackets and blue highlight].

However, both steps require familiarity with the Reg. 216 documentation covering the activities involved in the solicitation/procurement. In some cases, an IEE specific to the procurement is prepared (in which case the compliance language should be assembled at the same time). In other cases, the solicitation/procurement is covered by a strategic- or program-level IEE of broader scope. In this case, the CTO and MEO should identify the IEE determinations and conditions that apply to the procurement. Once this is done, use of the ECL is straightforward.

Regardless, it is the responsibility of the CTO and Activity Manager, working with the CO, to assure that appropriate environmental compliance language is incorporated in solicitation and procurement instruments.

Environmental Compliance: Language for Use in Solicitations and Awards

An Additional Help for ADS Chapter 204

Revision Date: 05/19/2008
Responsible Office: EGAT
File Name: 204sac_051908

HOW TO ASSEMBLE COMPLIANCE LANGUAGE

To assemble the compliance language for a particular solicitation or award, the following table should be used as guidance. Multiple situations can apply to a single procurement; if this is the case, use all indicated language. You may need to revise and/or renumber the language depending on which elements you select and where you place them in the award or solicitation. [*Bracketed text*] in the model language indicates that you must select the appropriate option or provide other input.

When the situation is that. . .	Use these environmental compliance language paragraphs from the Model Language. . .
Approved Regulation 216 documentation[2] exists and it contains. . .	
Categorical Exclusions and Negative Determinations only	1a through 1c 4a through 4c
at least one **Negative Determination with conditions**	1a through 1c 2 4a through 4c 5a through 5d 8a through 8d (optional: to be used when project will involve environmental compliance expertise; collaborate with MEO, or BEO for projects originating out of AID/W, for guidance, as needed)
at least one **Positive Determination**	1a through 1c 3 4a through 4c 5a through 5d 8a through 8d
The contractor/recipient will be required to prepare Regulation 216 documentation (an EA or IEE)	1a through 1c 4a through 4c 5a through 5d 6a through 6c 8a through 8d 2 If there is also an existing IEE that contains a Negative Determination with conditions 3 If there is also an existing IEE that contains a Positive Determination

[2] Note: "Approved Regulation 216 documentation" refers to a Request for Categorical Exclusion (RCE), Initial Environmental Examination (IEE), or Environmental Assessment (EA) duly signed by the Bureau Environmental Officer (BEO).

The project includes a sub-grant fund	To any of the above language/situations that apply, add: 7a and 7b 8a through 8d (Paragraphs 7 and 8 are optional, based on the nature of the grant fund and potential environmental impacts; coordinate with MEO or BEO for projects originating out of AID/W for guidance, as needed)

MODEL LANGUAGE

1. Insert paragraphs 1a, 1b, and 1c in all solicitations and resulting awards:

- In RFAs, insert in the Program Description or in the RFA's instructions regarding Technical Application Format
- In RFPs, insert in the appropriate section, often the "Special Contract Requirements"

1a) The Foreign Assistance Act of 1961, as amended, Section 117 requires that the impact of USAID's activities on the environment be considered and that USAID include environmental sustainability as a central consideration in designing and carrying out its development programs. This mandate is codified in Federal Regulations (22 CFR 216) and in USAID's Automated Directives System (ADS) Parts 201.5.10g and 204 (*http://www.usaid.gov/policy/ADS/200/*), which, in part, require that the potential environmental impacts of USAID-financed activities are identified prior to a final decision to proceed and that appropriate environmental safeguards are adopted for all activities. [*Offeror/respondent/contractor/recipient*] environmental compliance obligations under these regulations and procedures are specified in the following paragraphs of this [*RFP/RFA/contract/grant/cooperative agreement]*.

1b) In addition, the contractor/recipient must comply with host country environmental regulations unless otherwise directed in writing by USAID . In case of conflict between host country and USAID regulations, the latter shall govern .

1c) No activity funded under this [*contract/grant/CA*] will be implemented unless an environmental threshold determination, as defined by 22 CFR 216, has been reached for that activity, as documented in a Request for Categorical Exclusion (RCE), Initial Environmental Examination (IEE), or Environmental Assessment (EA) duly signed by the Bureau Environmental Officer (BEO). (Hereinafter, such documents are described as "approved Regulation 216 environmental documentation.")

2. If the approved Regulation 216 documentation includes any Negative Determinations with conditions, insert 2.

This language stipulates that the activity(ies) must be implemented in compliance with the conditions specified in the Negative Determination.

2) An Initial Environmental Examination (IEE) [*(insert IEE # and download reference here, if available)*] has been approved for [*the Program(s)/Project*] funding this [*RFA/RFP/contract/grant/cooperative agreement (CA)*]. The IEE covers activities expected to be implemented under this [*contract/grant/CA*]. USAID has determined that a **Negative Determination with conditions** applies to one or more of the proposed activities. This indicates that if these activities are implemented subject to the specified conditions, they are expected to have no significant adverse effect on the environment. The [*offeror/applicant/contractor/recipient*] shall be responsible for implementing all IEE conditions pertaining to activities to be funded under this [*solicitation/award*].

3. If the approved Regulation 216 documentation includes a Positive Determination, insert 3.

This language specifies that an approved Environmental Assessment (EA) must exist prior to implementation of the activity(ies), and that the activity(ies) must be implemented in compliance with the conditions in the approved EA.

> 3) An Initial Environmental Examination (IEE) has been approved for the [*Program or project funding*] this [*RFA/RFP/contract/agreement*] and for activities to be undertaken herein [*(insert IEE # and download reference here, if available)*]. The IEE contains a **Positive Determination** for the following proposed activities: [*(specify)*]. This indicates that these activities have the potential for significant adverse effects on the environment. Accordingly, the [*contractor/recipient*] is required to [*comply with the terms of*/prepare and submit***] an Environmental Assessment (EA) addressing the environmental concerns raised by these activities. No activity identified under this Positive Determination can proceed until Scoping as described in §216.3(a)(4) and an EA as described in §216.6 are completed and approved by USAID (Note that the completed Scoping Statement is normally submitted by the MEO to the BEO when the project originates in a Mission. The Statement may be circulated outside the Agency by the BEO with a request for written comments within 30 days and approved by the BEO subsequently. Approval of the Scoping Statement must be provided by the BEO before the EA can be initiated.)

[*]If an EA already exists, and the contractor/recipient will not be required to prepare the EA, but will be required to comply with the terms of an existing EA.

[**]If contractor/recipient must prepare and submit an EA, also insert 6a through 6c.

Note: If the contractor is to prepare an EA, then this should be specified in the RFP/RFA instructions. The final negotiation of the EA will be incorporated into the award. Paragraphs 8a through d will always apply when the approved environmental documentation includes a Positive Determination, whether the contractor/recipient is preparing the EA or simply required to comply with an existing EA.

4. Insert for all solicitations and awards

The language requires that the contractor/recipient must ensure all activities, over the life of the project, are included in the approved Regulation 216 documentation.

> 4a) As part of its initial Work Plan, and all Annual Work Plans thereafter, the [*contractor/recipient*], in collaboration with the USAID Cognizant Technical Officer and Mission Environmental Officer or Bureau Environmental Officer, as appropriate, shall review all ongoing and planned activities under this [*contract/grant/CA*] to determine if they are within the scope of the approved Regulation 216 environmental documentation.
>
> 4b) If the [*contractor/recipient*] plans any new activities outside the scope of the approved Regulation 216 environmental documentation, it shall prepare an amendment to the documentation for USAID review and approval. No such new activities shall be undertaken prior to receiving written USAID approval of environmental documentation amendments.
>
> 4c) Any ongoing activities found to be outside the scope of the approved Regulation 216 environmental documentation shall be halted until an amendment to the documentation is submitted and written approval is received from USAID.

5. If the approved Regulation 216 documentation contains one or more Negative Determinations with conditions and/or an EA, insert 5a through 5d. (These paragraphs should also always be used when the contractor/recipient is writing an IEE or EA.)

The language requires the contactor/recipient to integrate mitigation measures and monitoring into project work plans.

> 5 When the approved Regulation 216 documentation is (1) an IEE that contains one or more Negative Determinations with conditions and/or (2) an EA, the [*contractor/recipient*] shall:
>
> 5a) Unless the approved Regulation 216 documentation contains a complete environmental mitigation and monitoring plan (EMMP) or a project mitigation and monitoring (M&M) plan, the [*contractor/recipient*] shall prepare an EMMP or M&M Plan describing how the [*contractor/recipient*] will, in specific terms, implement all IEE and/or EA conditions that apply to proposed project activities within the scope of the award. The EMMP or M&M Plan shall include monitoring the implementation of the conditions and their effectiveness.
>
> 5b) Integrate a completed EMMP or M&M Plan into the initial work plan.
>
> 5c) Integrate an EMMP or M&M Plan into subsequent Annual Work Plans, making any necessary adjustments to activity implementation in order to minimize adverse impacts to the environment.

6. For solicitations, if the Proposal Instructions specifies that the [*contractor/recipient*] will be required to prepare Regulation 216 documentation (IEE or EA) for some or all activities, insert 6a through 6c.

> 6a) Cost and technical proposals must reflect IEE or EA preparation costs and approaches.
>
> 6b) [*Contractor/recipient*] will be expected to comply with all conditions specified in the approved IEE and/or EA.
>
> 6c) If an IEE, as developed by the [*contractor/recipient*] and approved by USAID, includes a Positive Determination for one or more activities, the contractor/recipient will be required to develop and submit an EA addressing these activities.

Note: In this case, always insert paragraphs 8a through 8d, as well.

7. For solicitations and awards when sub-grants are contemplated, and the IEE gives a Negative Determination with conditions that specifies use of a screening tool for sub-grants, insert 7a and 7b.

> 7a) A provision for sub-grants is included under this award; therefore, the [*contractor/recipient*] will be required to use an Environmental Review Form (ERF) or Environmental Review (ER) checklist using impact assessment tools to screen grant proposals to ensure the funded proposals will result in no adverse environmental impact, to develop mitigation measures, as necessary, and to specify monitoring and reporting. Use of the ERF or ER checklist is called for when the nature of the grant proposals to be funded is not well enough known to make an informed decision about their potential environmental impacts, yet due to the type and extent of activities to be funded, any adverse impacts are expected to be easily mitigated. Implementation of sub-grant activities cannot go forward until the ERF or ER checklist is completed and approved by USAID. [*Contractor/Recipient*] is responsible for ensuring that mitigation measures specified by the ERF or ER checklist process are implemented.

7b)	The [*contractor/recipient*] will be responsible for periodic reporting to the USAID Cognizant Technical Officer, as specified in the Schedule/Program Description of this solicitation/award.

8. For solicitations ONLY: Insert 8a through 8d when:

- **the approved Regulation 216 documentation is a Positive Determination or an EA; or**
- **when the contractor/recipient will be expected to prepare Regulation 216 documentation; or**
- **when there is a sub-grant fund that requires use of an Environmental Review Form or Environmental Review checklist; and/or**
- **when there is a Negative Determination with conditions that will require environmental compliance expertise to prepare and/or implement an EMMP or M&M Plan, as determined in collaboration with the MEO or BEO for projects originating out of AID/W.**

8a)	USAID anticipates that environmental compliance and achieving optimal development outcomes for the proposed activities will require environmental management expertise. Respondents to the [*RFA/RFP*] should therefore include as part of their [*application/proposal*] their approach to achieving **environmental compliance and management,** to include:
8b)	The respondent's approach to developing and implementing an [*IEE or EA or environmental review process for a grant fund and/or an EMMP or M&M Plan*].
8c)	The respondent's approach to providing necessary environmental management expertise, including examples of past experience of environmental management of similar activities.
8d)	The respondent's illustrative budget for implementing the environmental compliance activities. For the purposes of this solicitation, [*offerors/applicants*] should reflect illustrative costs for environmental compliance implementation and monitoring in their cost proposal.

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Download this factsheet at:
www.encapafrica.org/meoentry.htm
[see mitigation and monitoring topics]

To submit comments or for more information, email the ENCAP core team at:
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ENCAP FACTSHEET

ENVIRONMENTAL MITIGATION & MONITORING PLANS (EMMPs)

CONTENTS

1. INTRODUCTION

Environmental Mitigation and Monitoring Plans (EMMPs) are now required for most USAID-funded projects in Africa.

Specifically, EMMPS are required when the Reg. 216 documentation governing the project is either an IEE or an EA that imposes conditions on at least one project activity. (See box at right if these terms are unfamiliar.)

Responsibility for developing the EMMP usually lies with the implementing partner (IP), though it may be assigned to the C/AOTR. In either case, the responsible party can develop the EMMP directly, or engage a consultant. (The C/AOTR could also seek assistance from the Mission Environmental Officer (MEO).)

This factsheet describes the EMMP concept and its role in life-of-project environmental compliance for USAID-funded activities. It provides practical guidance and examples to inform EMMP development. It is intended for IPs, A/COTRs, MEOs, Monitoring and Evaluation (M&E) Officers, and consultants who may be engaged to develop EMMPs for USAID projects in Africa.

2. WHAT IS AN EMMP?

An EMMP is a document that sets out:

1. **Mitigation actions.** The EMMP specifies the actions that will be taken to satisfy the IEE or EA conditions.
2. **Monitoring actions.** The EMMP sets out the indicators or criteria that will be used to monitor (1) whether the mitigation actions have been implemented, and (2) whether they are effective and sufficient.
3. **Responsibility and schedule for mitigation, monitoring, and reporting**. The EMMP specifies the parties responsible for these actions and the schedule for these tasks.

USAID's Environmental Procedures

USAID's mandatory environmental procedures apply to all USAID-funded and USAID-managed activities. They consist of 22 CFR 216 ("Reg. 216") and related mandatory provisions of USAID's Automated Directives System (ADS)—especially, but not only, ADS 201.3.12.2.b and 204).

In summary, these procedures mandate (1) a pre-implementation environmental impact assessment (EIA) process, and (2) implementing and reporting on any environmental conditions (required mitigation measures) that result from this review.

The pre-implementation environmental review is documented in a Request for Categorical Exclusion (RCE), Initial Environmental Examination (IEE) or an Environmental Assessment (EA). Each of these Reg. 216 documents must be approved by both the Mission Director and Bureau Environmental Officer (BEO). Most IEEs and all EAs impose conditions on some or all of the activities they cover.

For more information see ENCAP's *USAID Environmental Procedures Briefing for Mission Staff.*

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EMMPs may also include a log of monitoring results and budget estimates for mitigation and monitoring activities.

EMMPs may also be called *Mitigation and Monitoring Plans* and *Environmental Management Plans*.

3. WHY EMMPs?

EMMPs provide a basis for systematic implementation of IEE and EA conditions: In addition to establishing responsibilities and schedules, EMMPs are a vehicle for translating IEE conditions (which are often very general) into specific, implementable, verifiable actions. For example:

> *An IEE for a water and sanitation project may require that wells and latrines be sited "consistent with good practices."*
>
> *The EMMP would specify the site-specific standards that the project must follow, e.g., wells must be located at least 50 meters from any pesticide or chemical store, and 25m from any cesspool, leaching pit, septic field, latrines, poultry yards, or livestock watering point..*

EMMPS also provide a framework for environmental compliance reporting. (See section 5)

Without EMMPs, experience shows that IEE and EA conditions will not be implemented systematically, if at all. This defeats the purpose of the pre-implementation EIA process as documented by the IEE or EA, increasing the probability that well-intentioned activities will result in needless adverse impacts on beneficiaries, communities, environmental resources and ecosystems.

For USAID activities, failure to implement IEE or EA conditions puts the activity in non-compliance. The AOTR or COTR is REQUIRED to compel compliance or end the activity.

4. HOW ARE EMMPs REQUIRED?

EMMPs are not specifically required by Reg. 216 or the ADS. However, they ARE required by (1) contract and award language, (2) the IEE and/or (3) A/COTR technical direction:

- Increasingly, contracts and awards specifically require that an EMMP be developed and implemented. (This is part of a broader trend within USAID to use "best practice" environmental compliance language in solicitations and awards.)
- Most recent and all new sector-level IEEs (e.g. an IEE covering a Mission's health or economic growth portfolio) require that an EMMP will be developed for each individual project.
- For new project-level IEEs, the BEO will typically require that an EMMP be submitted as part of the IEE. If not, the IEE will require that the EMMP be submitted with the project workplan or performance management plan (PMP).
- For projects conducted under older IEEs, A/COTRs can issue technical direction requiring EMMPs.

In addition, Title II Cooperating Sponsors are required to develop IEEs by the Agency's MYAP guidance and these IEEs must include an EMMP.

5. EMMP FORMATS

EMMPs are usually in table form. Critical elements of a **basic EMMP** are captured in the illustrative format below. For detail, see examples in the Annex to this Factsheet.

EMMP for Project XXX

Person Responsible for Overseeing EMMP:
[name, contact information]

Activity 1: [name of activity] **[briefly describe activity & summarize potential adverse environmental impacts]**			
IEE or EA Condition (reproduced or summarized from the IEE or EA)	**Mitigation** Specific actions to be taken to comply with the condition. (if an IEE or EA condition is already specific to the project/ activity and implementation actions self-evident, this "translation step" can be omitted)	**Monitoring** How will the project verify that mitigation is being implemented and is both effective and sufficient?	**Timing and Responsible Parties** Who is responsible for mitigation, monitoring, reporting? Timing/frequency of these actions

[add rows for additional conditions]
[repeat table for additional activities]

If an EMMP will contain cost information, a separate column can added. An example of an EMMP with a monitoring log, where monitoring results can be recorded, is included in the Annex.

More advanced EMMP formats can serve as both a detailed monitoring log and a management/field guide to implementing mitigation. EMMP example #3 (Small Facilities Construction) in the Annex is an example of such an "advanced format." Such advanced formats are not required, but in some circumstances they can make it easier for project management and field supervisors to oversee and implement mitigation.

6. STEPS IN EMMP DEVELOPMENT

EMMP development consists of 5 basic steps.

1. Review the governing IEE or EA to understand the conditions that apply to your project.

2. Translate IEE or EA conditions into specific mitigation actions.

3. Specify monitoring measures.

4. Specify timelines and responsible parties.

5. Determine who will have overall responsibility for EMMP implementation/environmental compliance.

Each is addressed below.

1. Review the governing IEE or EA to understand the conditions that apply to your project.

If the IEE governing your project is sector-level, the IEE usually describes activities in a high-level, general way without matching or "mapping" them to particular projects.

For example, your project might be working with agro-processors to improve product quality. In the IEE, this might be described as a "value chain strengthening" activity.

In this case, your first step in EMMP development is to match the activities in the project SOW to the general activity descriptions in the IEE, and on that basis determine which IEE conditions apply to your project activities

Even if you are developing a project-specific IEE with annexed EMMP as a package for submission (see Section 9), re-read the IEE conditions you have developed before beginning development of the EMMP.

2. Translate IEE conditions into specific mitigation actions.

(see resources for mitigation and monitoring design, at end.)

If an IEE condition is well-specified, the necessary actions to implement the condition may be self evident. However, often IEE/EA conditions are very general and they must be "translated" into well-specified, implementable, and verifiable mitigation actions.

This translation is a key purpose of the EMMP, and a key step in developing one.

Implementation, monitoring, and reporting on IEE conditions will be easier if mitigation measures are as specific as possible.

Factors to consider in **translating conditions to actions** include:

- the specifics of the site or sites
- the extent of project control

Site specifics. IEE conditions are often written without knowledge of the specific project site. You need to determine *how* and *whether* the conditions apply given the specifics of your site.

For example, an IEE might impose the following conditions on construction activities:

a. *No construction permitted in protected areas or relatively undisturbed ecosystem areas.*

b. *Construction & facilities operation may not result in significant adverse impacts on ecosystem services*

If your proposed site is in a peri-urban area already undergoing and zoned for development, condition (a) poses little concern.

But what if a seasonal stream draining several square kilometers traverses your site? In that case, a major "ecosystem service" provided by your site is drainage. So to comply with the IEE, your design must assure that there is no reduction in stream capacity or alteration to local drainage patterns.

Extent of Project Control. Often IEE conditions are phrased as "to the greatest extent practicable," or "to the degree feasible the project shall. . ."

This language is used to accommodate different levels of control over on-the-ground activities.

For example, the IEE for an agricultural project may require that an IP "assure availability, and require use and maintenance of appropriate personal protective equipment specified by the pesticide label <u>to the greatest degree feasible</u>."

What is "feasible" will depend on the level of project control over on-the-ground crop protection activities. For example:

- On a project-run demonstration farm, that control is essentially complete.
- By contrast, if a project is providing training to strengthen government extension services, the project has full control over content of the training, limited control over the recommendations made by Extension Agents, and no control over the farmers' actions. (However, other components of the project may provide closer control over farmer's actions).

The EMMP examples in the Annex illustrate this issue.

Retaining General Language in an EMMP. In some cases, it may not be possible to fully specify mitigation

actions in an EMMP, and the EMMP may include language such as "if feasible," "as practicable," or "as necessary."

For example, the EMMP for a health activity might read:

> In all plans, strategies, and other relevant documents, the need for environmentally sound collection, management, and disposal of healthcare waste, will be incorporated, as appropriate; and a budget for implementation must be included.

However, if such language is used, the need for specificity does not disappear. It is simply transferred to the person responsible for overseeing EMMP implementation. In the above case, this party would review documents and report on inclusion of healthcare waste management in these documents— and on instances where the issue was not incorporated, and why.

3. Specify Monitoring Measures.

(see resources for mitigation and monitoring design, at end.)

The EMMP should specify monitoring that will ascertain BOTH:

(1) whether mitigation was implemented.

(2) whether mitigation was sufficient and effective.

For example: To safeguard water quality, a water and sanitation IEE might require that water points be sited well away from sources of contamination and that livestock be physically excluded from the water points.

A visual inspection would show whether the mitigation was implemented. But showing that the mitigation was *sufficient* and the water safe to drink would require water quality testing.

The ENCAP training presentation "Principles of Environmental Monitoring" provides an introduction to environmental monitoring design. Examples of monitoring measures are found in the Annex to this factsheet.

Environmental compliance monitoring should be integrated into project M&E. See section 6.5, below & section 10, implementing EMMPs.

4. Specify timelines and responsible parties

EMMPs not only specify the mitigation and monitoring actions themselves, but who is responsible for them, and on what timeline or schedule.

This is not always possible for the EMMP preparer to do—s/he may be a consultant or specialist without detailed knowledge of project management and staffing. In this case, specifying timelines and responsible parties can be handed off to the individual responsible for overseeing EMMP implementation. (See immediately below).

5. Determine who is responsible for overseeing EMMP implementation/environmental compliance.

Once the EMMP is drafted, the COP or responsible senior project manager must review it and determine who will be assigned responsibility for overseeing EMMP implementation.

Overseeing EMMP implementation means having overall responsibility for verifying that mitigation measures are being implemented and for other aspects of monitoring, as well as *reporting* (see Section 8 below). Note that while one individual is typically responsible for oversight, individual mitigation and monitoring actions must be integrated into the implementation of core project activities and M&E. As such, they will be carried out by a number of project staff.

If mitigation and monitoring are complex or extensive, a project may hire a dedicated environmental compliance manager. This would often be appropriate, for example, for road rehabilitation projects—which tend to involve complex, technical mitigation and monitoring—and for agricultural projects involving pesticides or encroachment issues.

If the EMMP is fairly simple, responsibility for overseeing EMMP implementation can be assigned to the M & E Specialist, or a training or technical specialist.

Regardless, EMMP implementation oversight must be included in the job description of the individual who is assigned this responsibility.

7. PITFALLS TO AVOID

Good EMMPs avoid a set of common pitfalls. They do NOT:

- **Use unclear, ambiguous, non-actionable and/or non-verifiable mitigation measures.** For example, Good EMMPs do NOT include mitigation measures that simply state "good practices will be implemented per Chapter X of the *Environmental Guidelines for Small-Scale Activities in Africa* (EGSSAA). They DO specify which practices and which guidance from the EGSSAA will be implemented.
- **Include "extra" mitigation.** All mitigation measures must respond to a specific IEE or EA condition.
- **Use language like "as feasible," "as appropriate," etc.** unless doing so is absolutely unavoidable. (See discussion of "retaining general language in an EMMP" at the top of this page.)

8. EMMPs & ENVIRONMENTAL COMPLIANCE REPORTING

To enable C/AOTRs to fulfill their mandated responsibility to "actively manage and monitor" compliance with IEE/EA conditions, IP quarterly or semi-annual progress reports must provide an auditable record of environmental compliance—and especially of implementation of IEE/EA conditions. EMMPs provide the framework for this "environmental compliance reporting."

Sometimes the governing IEE or the C/AOTR specifies compliance reporting requirements and formats. If so, these requirements must be met.

If the reporting requirements are not specified, follow the guidance in the table below:

Situation	Environmental Compliance Reporting Content and Format
EMMP is fairly simple & contains a monitoring log section	Update EMMP with most recent monitoring data & annex to quarterly or semi-annual progress report.
EMMP is fairly simple but does not contain a monitoring log section	Consider adding a monitoring log to the EMMP and proceed as above. OR: Develop a simple table-based reporting format that lists activities, planned mitigation, and mitigation status/issues encountered.
EMMP is longer and more complex	Provide a text summary of EMMP implementation and issues encountered and resolved. Maintain a full monitoring log on file and provide to USAID upon request.

Environmental Compliance and Project Core Performance Indicators

For new projects, Africa Bureau best practice is that at least one core project performance indicator should be "environmentalized"— that is measure the extent to which core project activities are being executed with attention to environmental soundness and compliance.

For example, in a water point provision project, the IP might use the indicator "number of protected water points established with zero fecal coliform after 6 months" rather than "number of water points established."

In a road rehabilitation project, the IP might use the indicator "km or road rehabilitated under environmentally sound practices" rather than "km of road rehabilitated."

It is NOT necessary or appropriate to "environmentalize" every core indicator, or to capture every mitigation measure in core project reporting.

9. EMMP REVIEW AND APPROVAL

For project-specific IEEs (including IEE Amendments and Amendments with PERSUAPs), the EMMP will usually be developed with and submitted as an annex to the IEE. In this case, the EMMP is reviewed and approved as a part of the IEE. (Note that IEEs receive final clearance with the signature of the BEO.)

Otherwise, the EMMP will be developed together with the project workplan, budget, and performance management plan (PMP). In this case, the EMMP will be submitted together with the workplan and/or PMP to the C/AOTR, who is responsible for reviewing and approving it.

The C/AOTR may involve the MEO in this review, especially for environmentally sensitive activities. The IEE/EA will sometimes specify that the REA must review and approve the EMMP as well.

10. IMPLEMENTING EMMPS

Experience shows that systematic EMMP implementation requires:

- **Establishing accountability.** As noted in section 5.5, oversight responsibility for EMMP implementation must be assigned to an appropriate, qualified project staff member, and this responsibility must be part of their job description.
- **Workplan integration.** Where the EMMP requires discrete actions, these must be entered into the project workplan. Examples of discrete actions include, e.g. "train staff and partners in environmental compliance," "develop a PERSUAP," "undertake pollution prevention/cleaner production assessments," etc.

  By contrast, some mitigations do not result in separate workplan actions *per se*. For example, an EMMP could require that "all plans, strategies, and other relevant documents address environmentally sound collection, management, and disposal of healthcare waste."

  Environmental compliance monitoring should be a workplan item.
- **Budget integration.** Workplan items must be reflected in the project budget. However, even EMMP requirements that do *not* result in discrete actions can have cost implications. Continuing the example above, a consultant or home office technical support might be needed to assure that a plan or strategy properly addresses "environmentally sound collection, management, and disposal of healthcare waste."

The best way to make sure that cost implications of the EMMP are captured is to develop mitigation and monitoring cost estimates as part of EMMP development.

If this is not possible, budget notes should be developed for mitigation items that have cost implications, and these notes passed on to the budgeting team.

- **Management commitment & staff awareness.** Project management must communicate to all staff and partners its commitment to environmental compliance as a means to strengthen development outcomes.

  All staff should be aware in general terms of the core environmental conditions that apply to the project, and of the existence of the project EMMP.

11. ENCAP RESOURCES FOR MITIGATION AND MONITORING DESIGN

Per the table below, ENCAP has developed a set of resources to support mitigation and monitoring design.

Topic	Recommended Resource
Mitigation and Monitoring Principles	*Principles of Environmental Mitigation* *Principles of Environmental Monitoring* ENCAP training presentations; convey key principles with multiple visual examples. Include slide notes www.encapafrica.org/meoentry.htm (access via mitigation & monitoring topic)
Sectoral mitigation and monitoring guidance	*Environmental Guidelines for Small-Scale Activities in Africa. (EGSSAA)* Covers more than 20 common development sectors, and provides mitigation and monitoring guidance in table format. On-line annotated bibliographies provide links to detailed resources. www.encapafrica.org/egssaa.htm
Field Monitoring for non-specialists	*ENCAP Visual Field Guides* A supplement to the EGSSAA, these photo-based field guides allow non-specialists to quickly identify key, common environmental management deficits in small-scale activities in the following sectors: Water supply, sanitation, health care (waste), and roads. www.encapafrica.org/egssaa.htm#Guides

ACRONYMS

ADS	Automated Directives System
A/COTR	AOTR and/or COTR
AOTR	Agreement Officer's Technical Representative
AFR/SD	USAID Bureau for Africa, Office of Sustainable Development
BEO	Bureau Environmental Officer
CFR	Code of (US) Federal Regulations
COP	Chief of Party
COTR	Contract Officer's Technical Representative
EA	Environmental Assessment
EGSSAA	USAID *Environmental Guidelines for Small-Scale Activities in Africa*
ENCAP	Environmental Compliance and Management Support for Africa (AFR/SD project)
EMMP	Environmental Mitigation and Monitoring Plan
IEE	Initial Environmental Examination
IP	Implementing Partner
M&E	Monitoring and Evaluation
MEO	Mission Environmental Officer
PERSUAP	Pesticide Evaluation Report & Safer Use Action Plan
PMP	Performance Management Plan
REA	Regional Environmental Advisor
USAID	United States Agency for International Development

ANNEX: EMMP EXAMPLES

This annex contains 3 EMMP examples for typical activities and IEE conditions in the health, agriculture, and construction sectors. The examples are real, though project names and some details have been changed for the purpose of this factsheet:

1. **"The Health Improvement Program " (THIP)**
2. **"Agricultural Services Project" (ASP)**
3. **"Small Facilities Construction Project" (SFC)**

The first two examples use the general EMMP format presented in section 5. In each of these examples, a monitoring log column could be added to the far right of each table. The 3rd example is an alternate EMMP format.

Note that the examples are for a few REPRESENTATIVE ACTIVITIES within projects of this type. Most projects would have more activities, and the EMMPs would therefore be longer.

EXAMPLE 1: THE HEALTH IMPROVEMENT PROGRAM (THIP)

THIP Activity 1:
Prepare strategies and action plans to increase the import and internal distribution of pharmaceuticals

Potential Environmental Impact: Strategies and action plans could indirectly result in larger and more widely distributed in-country stocks of pharmaceuticals. These may expire prior to being distributed and/or used, and will need to be disposed of. Unsafe disposal could affect aquatic and terrestrial resources and human health.

IEE Condition	Specific mitigation actions to implement the condition	Person responsible for implementing mitigation Timing	How implementation will be verified (monitoring indicator) Responsible party & Timing
Contractor shall provide advice for safe storage and disposal of expired pharmaceuticals.	In all strategies and action plans for which THIP provides assistance, include measures for: a) storage in accordance with labels; b) disposal of expired and unused pharmaceuticals; and c) a budget to implement these safeguards.	*Responsible Party:* THIP Policy Technical Advisors *Timing:* During preparation phase of all strategies and action plans	Review of all strategies and action plans to ensure they include information about safe disposal of pharmaceuticals and a budget *Responsible Party*: THIP Policy Director *Timing*: During preparation of drafts and final documents

THIP Activity 2:
Procure pharmaceuticals from US companies.

Potential Environmental Impact: Procurement of pharmaceuticals could generate unused/expired drugs that if not disposed of safely, could affect aquatic and terrestrial resources and human health.

IEE Condition	Specific mitigation actions to implement the condition	Person responsible for implementing mitigation Timing	How implementation will be verified (monitoring indicator) Responsible party & Timing
Contractor shall provide advice for safe storage and disposal of expired pharmaceuticals.	Advise at MOH and district levels on the storage of the product according to the information provided on the manufacturer's Materials Safety Data Sheet (MSDS)	*Responsible Party:* THIP Policy Technical Advisors *Timing:* When meeting with appropriate MOH & district staff	Check storage practices are in compliance with MSDS *Responsible Party*: THIP M & E Advisor *Timing*: Semi-annually
	Train MOH and local level health practitioners and management staff on aspects of medicine supply chain management, including estimating demand, distribution constraints, and storage issues of time and temperature.	*Responsible Party:* THIP Training Advisor *Timing:* Two times/year	1) Training is implemented: M & E Advisor; monitor semi-annually; 2) Supply chain has improved (constraints/bottlenecks have decreased) THIP Policy Advisor; monitor annually

THIP Activity 3: Train healthcare workers on use of new medical procedures. **Potential Environmental Impact:** As an indirect result of training, healthcare waste (HCW) will be generated. If not collected and disposed of safely, aquatic and terrestrial resources and human health could be adversely affected			
IEE Condition	**Specific mitigation actions to implement the condition**	**Person responsible for implementing mitigation** **Timing**	**How implementation will be verified (monitoring indicator)** **Responsible party & Timing**
Training of healthcare workers should include best practices in disposal of HCW as described in the EGGSAA Healthcare Waste chapter:	Training courses should incorporate the following items, which should be included in all training on implementing new medical procedures: ▪ How to Prepare an HCW Plan ▪ Developing a Waste Segregation System ▪ Minimize, Reuse, Recycling Procedures ▪ Incorporating Good Hygiene Practices	*Responsible Party:* Training Advisor *Timing:* When course material is being developed; when training is delivered	Course material includes these topics; when course material is developed; M & E Advisor Trainings include these topics; when trainings are delivered; M & E Advisor

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EXAMPLE 2: AGRICULTURAL SERVICES PROJECT (ASP)

ASP Activity 1: Training Ministry of Agriculture extension officers to provide sound crop production advice to ASP-supported farmers **Potential Environmental Impact:** MOA extension officers could provide advice to farmers which results in expansion of agricultural land into natural areas; or that results in the unsafe use of pesticides.			
IEE Condition	**Specific mitigation actions to implement the condition**	**Person responsible for implementing mitigation** **Timing**	**How implementation will be verified (monitoring indicator)** **Responsible party & Timing**
Training shall not result in direct or indirect effects on the environment.	Training of MOA extension officers shall incorporate conservation agriculture; information on ecosystem services; and measures to minimize impacts to natural ecosystems.	*Responsible Party:* ASP Crop Production Specialist *Timing:* Curriculum Development; During trainings	Review of curricula; attend various trainings *Responsible Party:* ASP Training Officer *Timing:* At time curricula are being developed; when trainings are provided
Trainings shall not recommend pesticides without first preparing a PERSUAP that is approved by the Bureau Environmental Officer.	Note: these mitigation measures are from the PERSUAP approved by the BEO on [xxx date]: 1) Only PERSUAP-approved pesticides shall be included in training for extension officers. 2) Trainings shall include safeguards for health and safety of workers, and measures to protect the environment (Annexes A and B of the PERSUAP). 3) Trainings shall include monitoring the efficacy of pesticides as described in Annex C of the PERSUAP.	ASP Crop Production Specialist During trainings	Review of curricula; attend various trainings *Responsible Party:* ASP Training Officer *Timing:* At time curricula are being developed; when trainings are provided

EXAMPLE 3: SMALL FACILITIES CONSTRUCTION PROJECT (SFC)

NOTE: This example uses an alternate EMMP format. In this case, a project-specific IEE existed with highly specific conditions regarding siting, design requirements, and construction management practices for the small facilities (training centers, community centers) to be constructed by the project. These conditions were translated into table form (below), and for each condition a *compliance process* was specified. This EMMP format serves both as a detailed monitoring log and a management tool and guide to implementing mitigation.

IEE Condition 1: Siting Requirements for New Construction

Compliance process. At the time of initial site selection, SFC must answer the questions below for each proposed site. If a proposed site meets one of the below-listed criteria, the site must be changed OR an Africa Bureau Environmental Review Form (www.encapafrica.org/documents/AFR-EnvReviewForm-20Dec2010.doc) must be completed and approved by USAID prior to the start of construction. SFC must then implement the environmental conditions specified by the ERF.

Note: completed ERFs include an EMMP. SFC will maintain the ERF EMMPs as an annex to this project EMMP and report on their implementation to USAID.

Compliance record. The table below documents the compliance process. Note: all table entries must be dated & initialed.

Proposed Site	GPS Coordinates	Is/Does the site. . . Within 30m of a permanent or seasonal stream or water body?	Have existing settlement /inhabitants?	Have an average slope in excess of 5%?	Heavily forested?	If yes to any question, indicate ERF status or note site change; add additional row for new site.
Village A						
Village B						
(add sites as necessary)						

IEE Condition 2: Design Requirements for Small Facilities

Compliance process: (1) Design elements specified by the IEE will be incorporated into the final technical/contract specification that governs the general contractor's work. SFC will verify this for each mandated design element. (2) SFC will verify via field inspection that the final works meet these specifications, requiring remedy or otherwise resolving any non-compliant elements.

Compliance record. The table below lists all design elements mandated by the IEE and serves to document compliance status.

Required Design Elements—Training and Community Centers

A. Latrine/septic tank design prevents in-and-out access for insects or other disease vectors from the pit or holding tank.

B. Latrines are accompanied by handwash stations.

C. All sources of gray water (kitchen sinks and handwash stations) discharge to either (1) a seepage pit or sump at least 15m from any source of groundwater or surface water tapped for domestic use, or (2) to an impermeable pump-out tank.

D. Latrines or the terminus of any septic leach field must be at least 30m from any source of shallow groundwater or surface water tapped for domestic use, OR discharge to an impermeable pump-out tank.

E. Siting, grading and/or drainage structures prevent runoff from the compound from creating standing water on the compound or adjacent land during the rainy season (instances of generalized flooding excepted.)

F. Septic pump-out point, if any, shall feature a concrete apron and drain with return to the septic tank.

G. Concrete aprons with berms or gutters/sumps shall be placed under generators, fuel storage, and fuel pump-in point (if different) sufficient in each case to capture at least a 20 liter spill.

Site	Incorporated in Final Technical Specifications? *(Y/N; reference to list above)*							Built as-specified? (confirmed by field inspection) (Y/N; reference to list above)							Notes (issues and resolution)
	A	B	C	D	E	F	G	A	B	C	D	E	F	G	

Village A	Date confirmed & initials	Date of inspection & initials	
Village B	Date confirmed & initials	Date of inspection & initials	
Add sites as needed	Date confirmed & initials	Date of inspection & initials	

IEE Condition 3: Construction Management

Compliance process: (1) Construction management practices specified by the IEE will be incorporated into the final technical/contract specification that governs the general contractor's work. (2) SFC will verify that each construction management practices is being implemented via at least one field inspection during the construction process. (3) SFC will require remedy or otherwise resolve any deficits identified.

Compliance record. The table below lists all construction management practices mandated by the IEE and documents compliance status.

Required Construction Management Elements—Training and Community Centers

A. During construction, prevent sediment-heavy run-off from cleared site or material stockpiles to any surface waters or fields with berms, by covering sand/dirt piles, or by choice of location. (Only applies if construction occurs during rainy season.)

B. Construction must be managed so that no standing water on the site persists more than 4 days.

C. SFC must require its general contractor to certify that it is not extracting fill, sand or gravel from waterways or ecologically sensitive areas, nor is it knowingly purchasing these materials from vendors who do so.

D. SFC must identify and implement any feasible measures to increase the probability that lumber is from legal, well-managed sources.*

Site	Incorporated in Final Technical Specifications? *(Y/N; reference to list above)*							Implemented as-specified? (confirmed by field inspection) (Y/N; reference to list above)							Notes (issues and resolution)
	A	B	C	D				A	B	C	D				
Village A															
	Date confirmed & initials							Date(s) of inspection & initials							
Village B															
	Date confirmed & initials							Date of inspection & initials							
Add sites as needed															
	Date confirmed & initials							Date of inspection & initials							

*MEASURES IDENTIFIED, IF ANY, REGARDING SUSTAINABLE SOURCING OF TIMBER: [FILL IN]