



USAID
FROM THE AMERICAN PEOPLE



Session 7: 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...

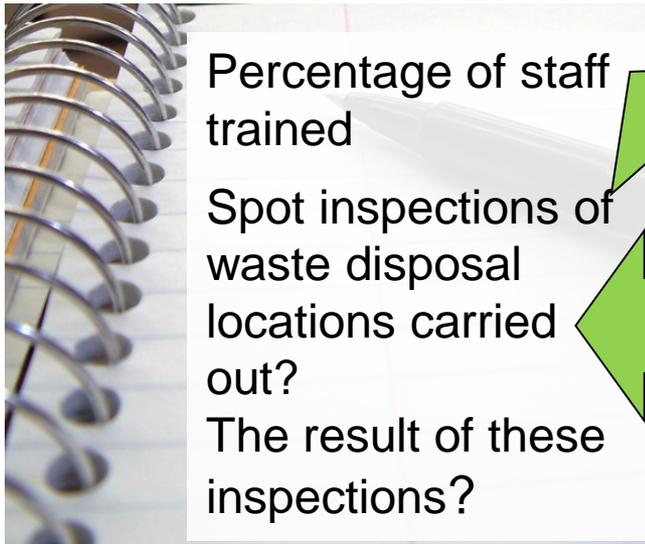
Verify that mitigation is implemented

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:



Field inspection

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



Monitoring: Part 2

2. Determining whether mitigation is working

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.

= **Systematic observation of key environmental conditions. . .**

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

(2) upon which the project depends for its success

Monitoring environmental conditions

Systematic observation of key environmental conditions

= systematically choosing and assessing environmental indicators

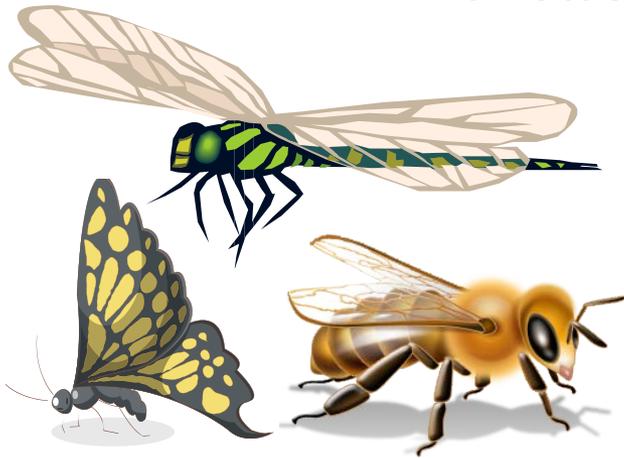
environmental indicators are

Signals of/proxies for

- Environmental health
- Ecosystem function
- Community well-being

They are NOT “F” indicators or core program performance indicators

For example...

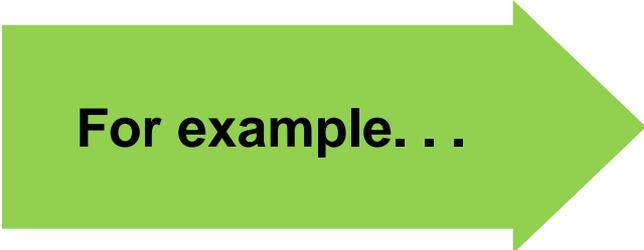


Environmental indicators: sometimes complicated, often simple

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



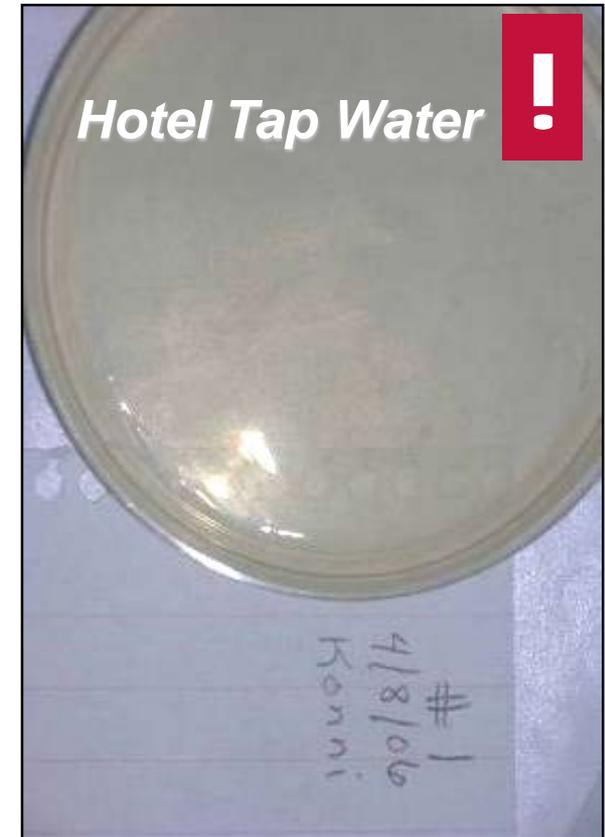
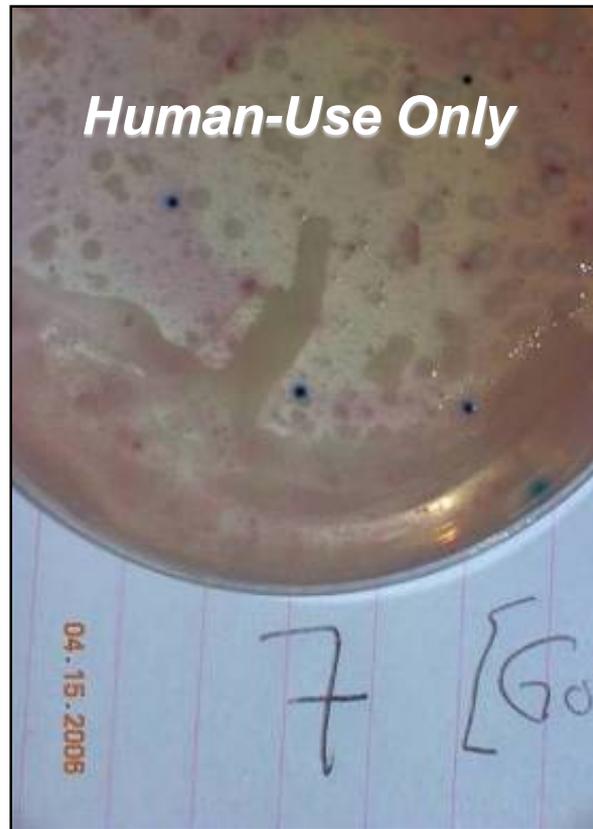
Simple indicators can be more useful and appropriate than more complicated ones!



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

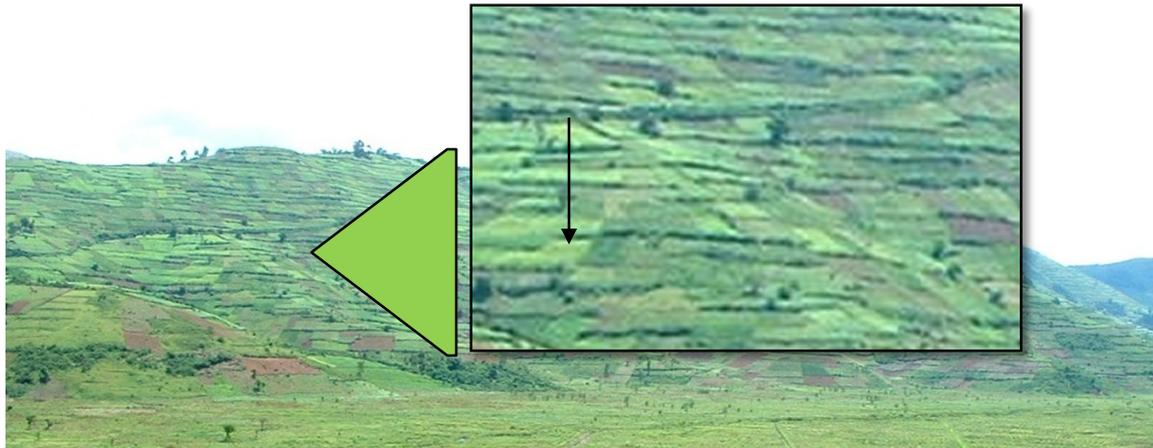


Visual inspection behind the latrine **(top)** reveals a leaking septic tank **(bottom)**.



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.

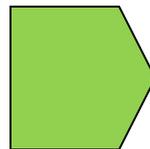


! Choose the simplest indicator that meets your needs!

Systematically assessing environmental indicators

Monitoring often requires **SYSTEMATIC** measurement of indicators to distinguish the impacts of the activity from other factors

This requires decisions about:



Location of measurement



Timing & frequency of measurement

and often. . .



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?

Water intake



Processing facility



Seepage pit

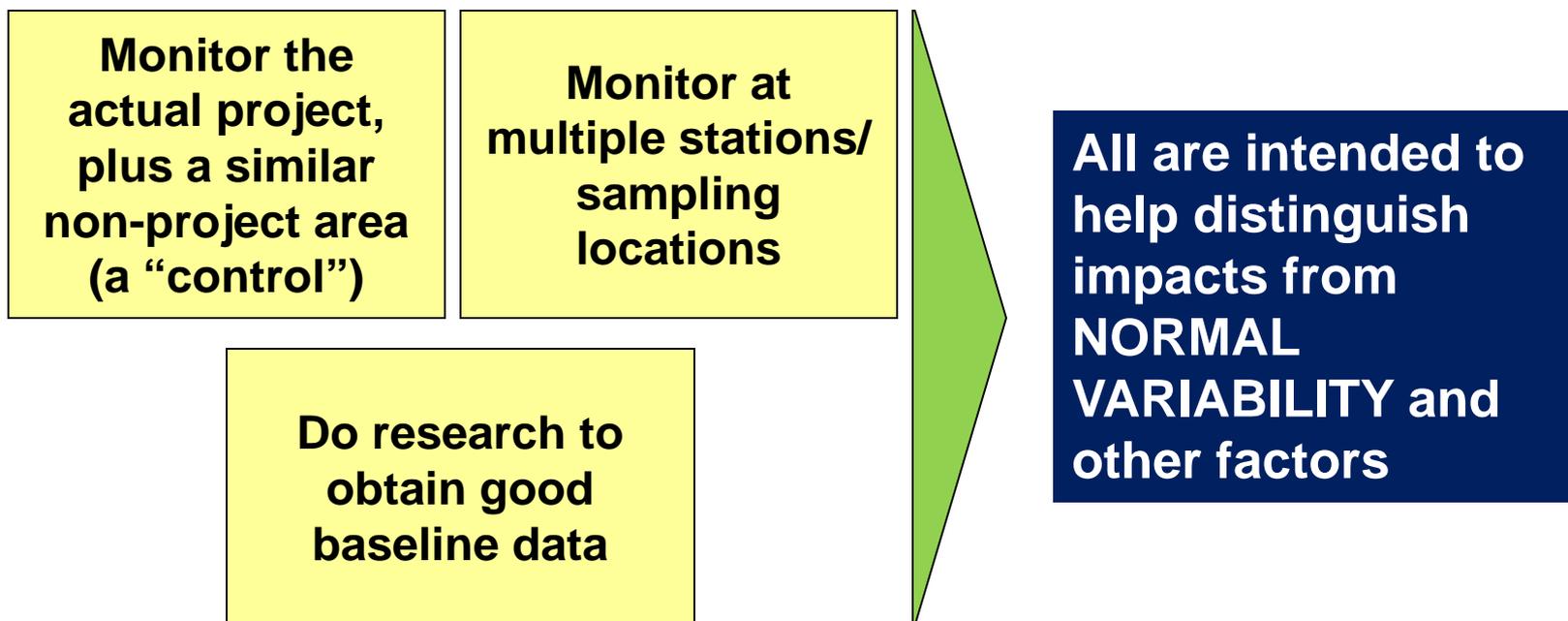


Downstream

Being systematic

Sometimes monitoring can be more complicated.

Some common monitoring strategies:



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.

GEMS visual field guides
(www.usaidgems.org)



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

GEMS Visual Field Guides are intended for use during field visits by USAID and Implementing Partner staff who are not environmental specialists.

They are intended to ensure that the most common serious environmental deficits in activity design and management are quickly and easily identified for corrective action.

Note that an activity may be subject to environmental design and management conditions specified in its Environmental Assessment or Initial Environmental Examination or by host country regulation which are not captured in this document.

The field guides complement the more detailed guidance found in USAID's Sectoral Environmental Guide-lines.

Consult the *Guidelines* for guidance regarding remedies, mitigation and corrective actions.

The *Guidelines* are available at www.usaidgems.org.

Disclaimer: This field guide was initially developed by The Cadmus Group, Inc. for International Resources Group (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.

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?			
YES		Issue 1: Construction or operation may result in sedimentation or other contamination of the water.	
NO		Issue 2: Construction may interfere with drainage of upstream lands.	
		<i>Image: a new hotel approaches completion on the shore of a fragile freshwater lake.</i>	
A.2. Is the site heavily forested? In a permanent or seasonal wetland? In a relatively undisturbed ecosystem? In a protected area?			
YES		Issue: These sites are high value due to their biodiversity and/or other "ecosystem services" (e.g. flood control, breeding habitat) they provide. Thus, any adverse impacts of facility construction or operation are far more likely to be significant.	
NO		Image: a new school site is carved out of a forested hilltop.	
A.3. Does the site show evidence of having been used as a waste dump?			
YES		Issue: Hazardous materials such as pesticides may be present that pose a health danger to construction workers and users, particularly if disturbed. There is a higher chance that groundwater is contaminated and unusable. Dump sites attract and breed disease vectors.	
NO			
A.4. Is the site sloped at greater than 15 degrees?			
		Issue: Strongly sloped sites present high risks for erosion that can permanently degrade the site and runoff that can add sediment load to nearby surface waters and result in gullying on adjoining lands & roads.	
		Image: The view downslope from a hilltop construction site shows erosion and runoff channels.	
A.5. Is the site occupied or cultivated?		YES	NO
→ Issue: Displacing inhabitants or depriving owners or users of agricultural and other uses of land, can be a significant social impact if not addressed via compensation, resettlement, or negotiation.			

(Over)

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.

	Incorporated in final technical specifications		Built-as specified? (confirmed by field inspec.)			Notes (Issues & resolution)
	Date Confirmed	Initials	Y/N	Date of inspection	Initials	
Design requirement						
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:

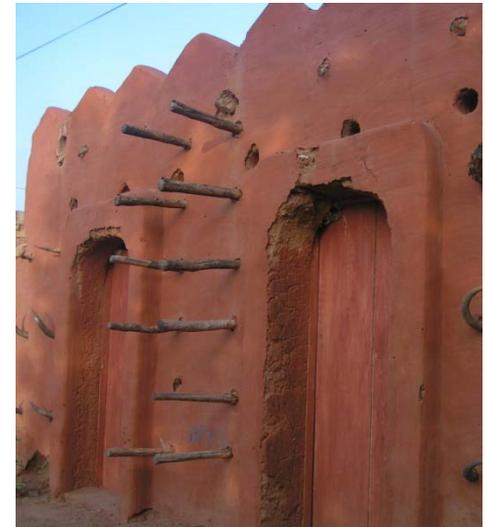
The EMMP itself, updated with current monitoring results, can simply be appended to the report.

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	<ul style="list-style-type: none"> • # 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 <ul style="list-style-type: none"> • % 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:

Requirements for Monitoring:

Performance and IEE Monitoring are both required by USAID, and makes sense to coordinate this monitoring with M&E specialist oversight....

❖ *Let's discuss how....*

1. *Stand-Alone Environmental Indicators*

To measure progress towards planned **project environmental results**, throughout the life of the activity.

e.g., For Climate Change and Natural Resources Management

But this alone is not enough...

Stand-Alone Environmental Indicator: Climate Change Programming ...

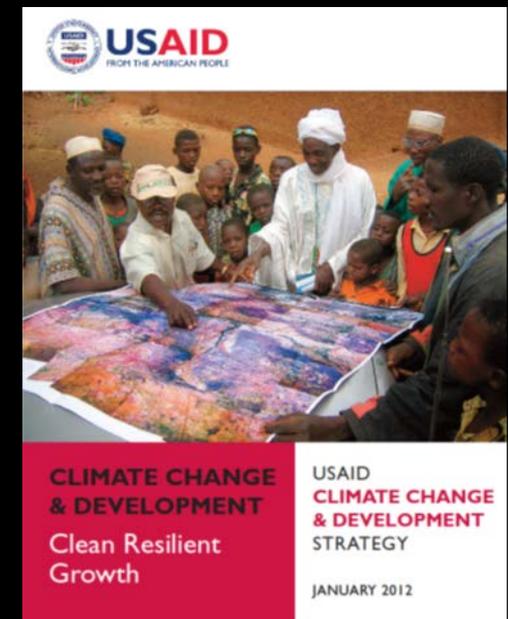
Climate Change Adaptation: (SPS # 4.8.2-26) Number of stakeholders with increased capacity to adapt to impacts of climate change as a result of USG assistance

Stakeholders with increased capacity include:

- Implementing risk-reducing practices/actions to improve resilience to climate change
- Using climate information in their decision making

USAID GCC Indicator Handbook (2012)

http://www.usaid.gov/sites/default/files/documents/1865/GCC_Indicator_Handbook_Definition_Sheets_2012.pdf

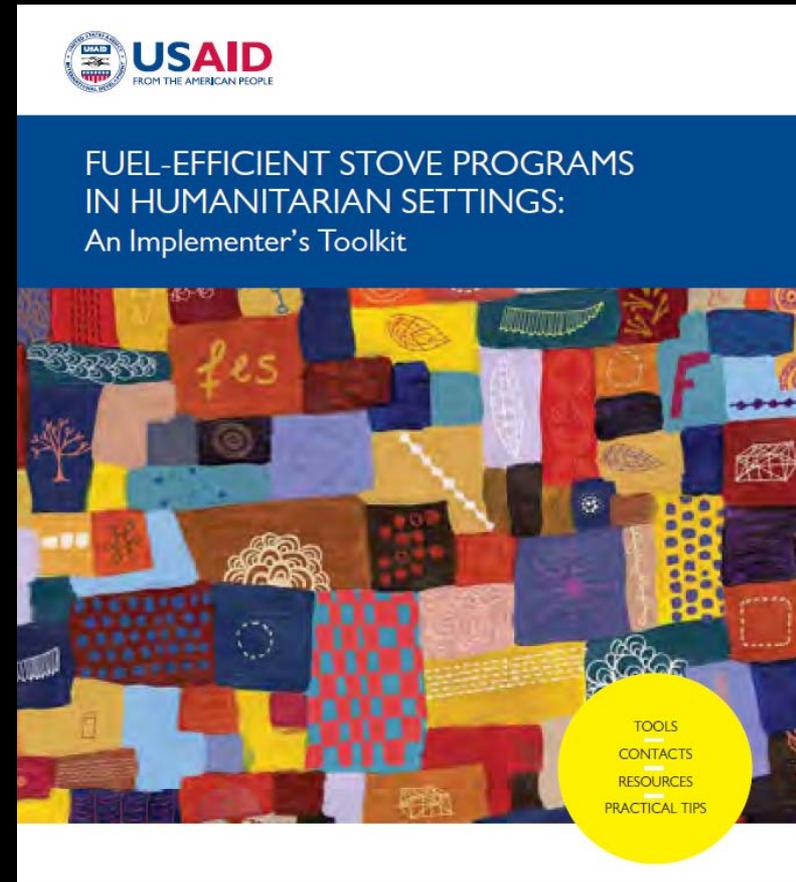


Stand-Alone Environmental Indicator: Fuelwood Needs for Commodity Cooking...

Monitoring is essential for Fuel-Efficient Stoves (FES) due to cultural barriers and low adoption rates.

Indicators:

- **% of respondents reporting they prefer the new FES stove to their traditional**
- **Amount of fuel or time saved by improved practices**



2. Environmental Integration Indicators

To measure progress towards **planned project results** while incorporating environmental mitigation measures, throughout the life of the activity.

A typical FFP project, will have more of the Integration type of environmentally-sensitive indicator, than the Stand-Alone.

The integration process happens during the contextualization process for required & RIA indicators.

Integration Environmental Indicator: Natural Resources Management (NRM)...

NRM: (SPS # 4.5.2-2): Number of hectares under improved technologies or management practices as a result of USG assistance

Measuring Natural Resources Management (NRM) and Climate Change Adaptability under Feed the Future (FtF)

Definition of “Technologies” is quite broad : pest management, soil fertility, irrigation, water management, climate sensitivity, etc.

***“...food security strategies must address sustainable intensification...
Environmental degradation and climate change are critical cross-cutting issues that can affect the sustainability of Feed the Future investments ... “***

http://feedthefuture.gov/sites/default/files/resource/files/Volume7_FTFNRM.pdf

Process:

- 1) Looking at your LogFrames & TOCs, identify M&E indicators that present opportunities for environmental integration.**
- 2) Looking at your EMMPs, highlight monitoring indicators to bring in as stand-alone indicators or to integrate into existing indicators.**
- 3) In doing 1 & 2, there is an opportunity to revise the EMMPs in the process.**

1) Looking at your LogFrames & TOCs, identify M&E indicators that present opportunities for environmental

Narrative Summary	Indicators	Data Sources	Data Frequency
Output 1.1.1 Increased adoption of Climate Smart Agriculture	Percentage of household that use at least two sustainable agriculture (crop / livestock and / or NRM) practices and / or technologies in the past twelve months	Annual survey	Annually
Output 2.3.1 Improved access to clean water sources	Number of people gaining access to an improved drinking water source	Annual survey	Annually
Output 2.3.2 Improved access to household hygiene and sanitation facilities	Number of people gaining access to an improved sanitation facility	Annual survey	Annually
Environment	Number of hectares under improved technologies or management practices as a result of USG assistance	Annual survey	Annually
	Number of stakeholders with increased capacity to adapt to impacts of climate change as a result of USG assistance	Annual survey	Annually

2) Looking at your EMMPs, highlight monitoring indicators to bring in as stand-alone indicators or to integrate into existing indicators.

M&E Indicators	EMMP Mitigation Measure	EMMP Monitoring Indicator for Integration
<p>Percentage of household that use at least two sustainable agriculture (crop / livestock and / or NRM) practices and / or technologies in the past twelve months</p>	<ul style="list-style-type: none"> • Avoid cropping on steep slopes above a 12% grade (in cases where cropping on a slope is necessary, implement additional soil stabilization measures). • Advocate against and do not practice slash and burn techniques. • Promote intercropping and crop rotation; Advocate against monocropping. • Promote low-till techniques. • Implement water and soil conservation measures, both structural and vegetative (Conservation Agriculture). • Promote the use of nitrogen-fixing species. 	<p>% of farmers applying at least three Improved crop production strategies on their farms</p>
<p>Number of people gaining access to an improved drinking water source</p>	<ul style="list-style-type: none"> • Develop a Water Quality Assurance Plan in compliance with USAID and WHO standards. • Conduct periodic testing for all water points associated with the program. • Protect drinking water sources from livestock, such as by putting up fences and creating separate water points for livestock. 	<p>Y/N has a Water Quality Assurance Plan (WQAP) been put in place Y/N has testing been done per the WQAP Y/N have any tests revealed results not in compliance with USAID and WHO standards</p>

2) Looking at your EMMPs, highlight monitoring indicators to bring in as stand-alone indicators or to integrate into existing indicators.

EMMP Mitigation Measure	EMMP Monitoring Indicator for Integration	Method	Frequency
<ul style="list-style-type: none"> • Distribution of fuel efficient stoves that are of a design that is appropriate to the cultural context and cooking needs, as well as use sustainable resources for manufacturing. • Promote culturally appropriate fuel efficient cooking practices and conduct cooking demonstrations using these methods. 	<ul style="list-style-type: none"> • % of beneficiaries that state they are using their stoves regularly • % of beneficiaries that report using at least one fuel efficient cooking practice promoted by the program 	Survey	Quarterly

3) In doing 1 & 2, there is an opportunity to revise the EMMPs in the process.

- *Do the EMMP indicators need to be revised?*
- *Are there activities with environmental risks that do not have corresponding EMMP measures?*
- *Do the monitoring methods need to be revised?*
- *Does the EMMP-specified monitoring & reporting frequency need to be revised?*

People are using, but this may not be what we mean by an **“improved”** drinking water source...



In addition to the WHO-UNICEF JMP definition in the PIRS, the EMMP unpacks the project-specifics of what is meant by an **“improved”** water source

Environmental Integration Indicator: Drinking Water



Simple Environment Integration in a RiA Indicator...

For a Drinking Water Result Measured by the FFP
Indicator #40,

% of HH using an improved drinking water source

Ensure environmental integration by implementing in
accordance with existing project EMMP analysis

Contextualization of the PIRS

- ❖ **Happens at the Baseline Workshop for BL/F indicators**
- ❖ **EMMP helps to adapt the word “improved” in the indicator title to more sustainable project results**
- ❖ **Does not constitute a change in the indicator!**



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