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?

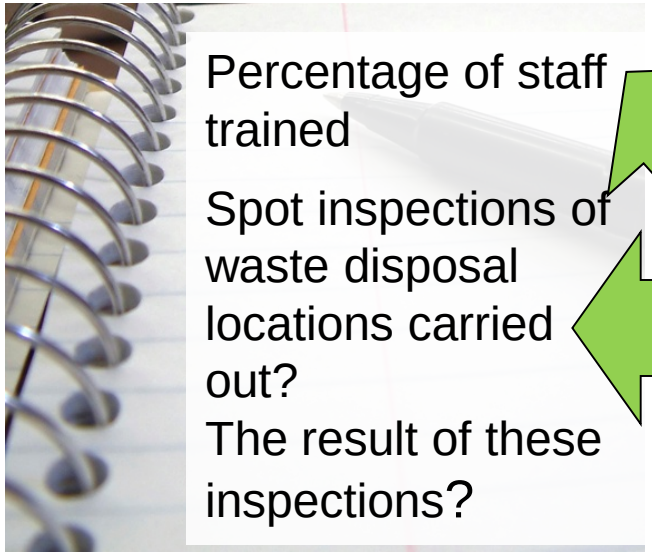
There are two basic ways to get the information required: **paper reports** & **field inspection**

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?

Mitigation implementation indicators

Field inspection

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

Monitoring: Part 2

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

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

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

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

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

(2) upon which the project depends for its success

Monitoring environmental conditions

Systematic observation of key environmental conditions

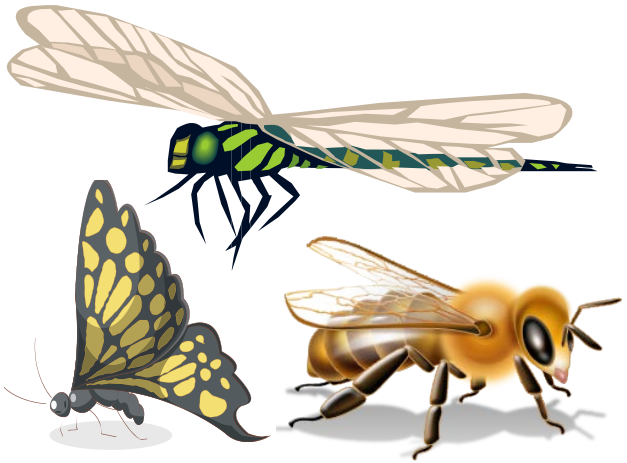
= systematically choosing and assessing environmental indicators

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

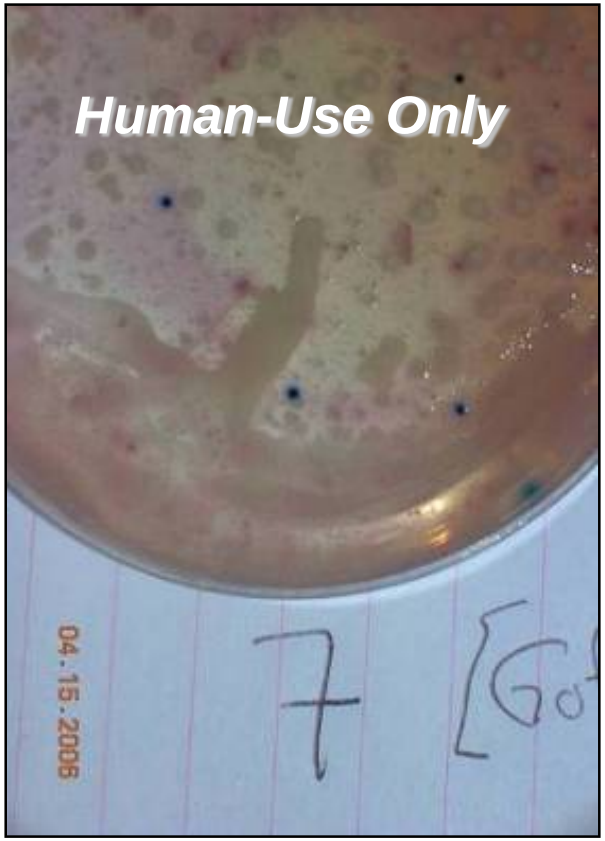
- **Environmental Indicators may require laboratory analysis or specialized equipment & techniques**
  - Testing water for pesticide residues
  - Automatic cameras on game paths for wildlife census
  - Etc.
- **But indicators are often VERY SIMPLE, especially for small-scale activities**

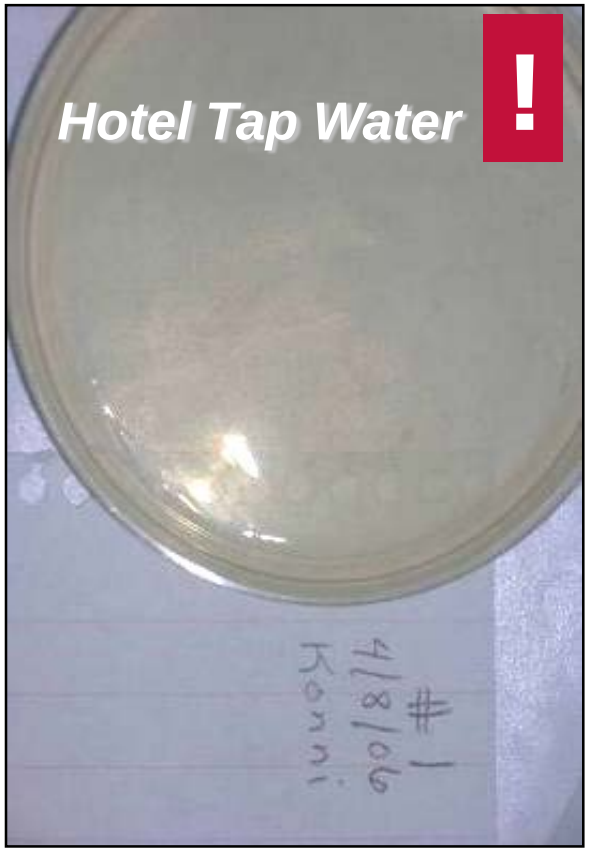
! **Simple indicators can be more useful and appropriate than more complicated ones!**

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

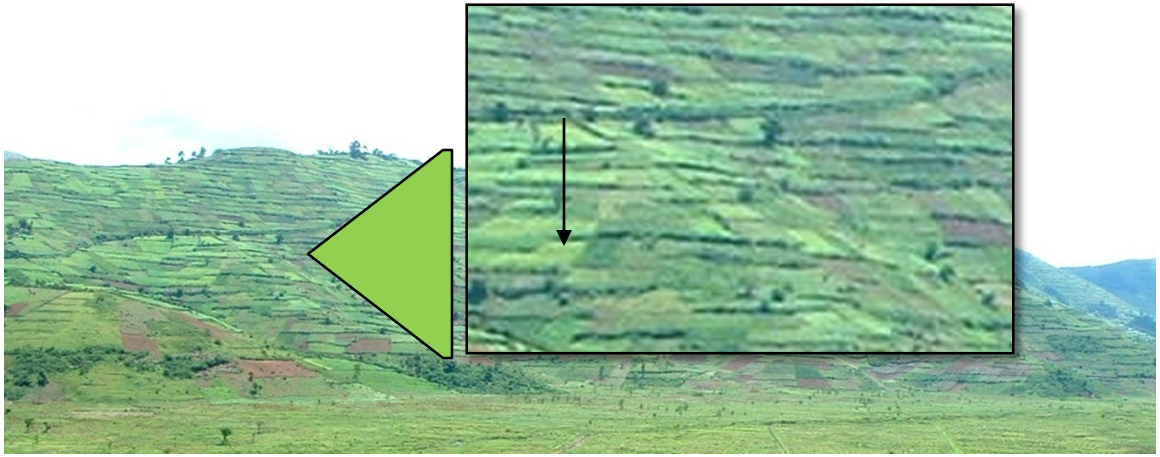
Topsoil loss from slopes upstream in the watershed **(top)** is assessed with a visual turbidity monitor **(bottom).**

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:

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

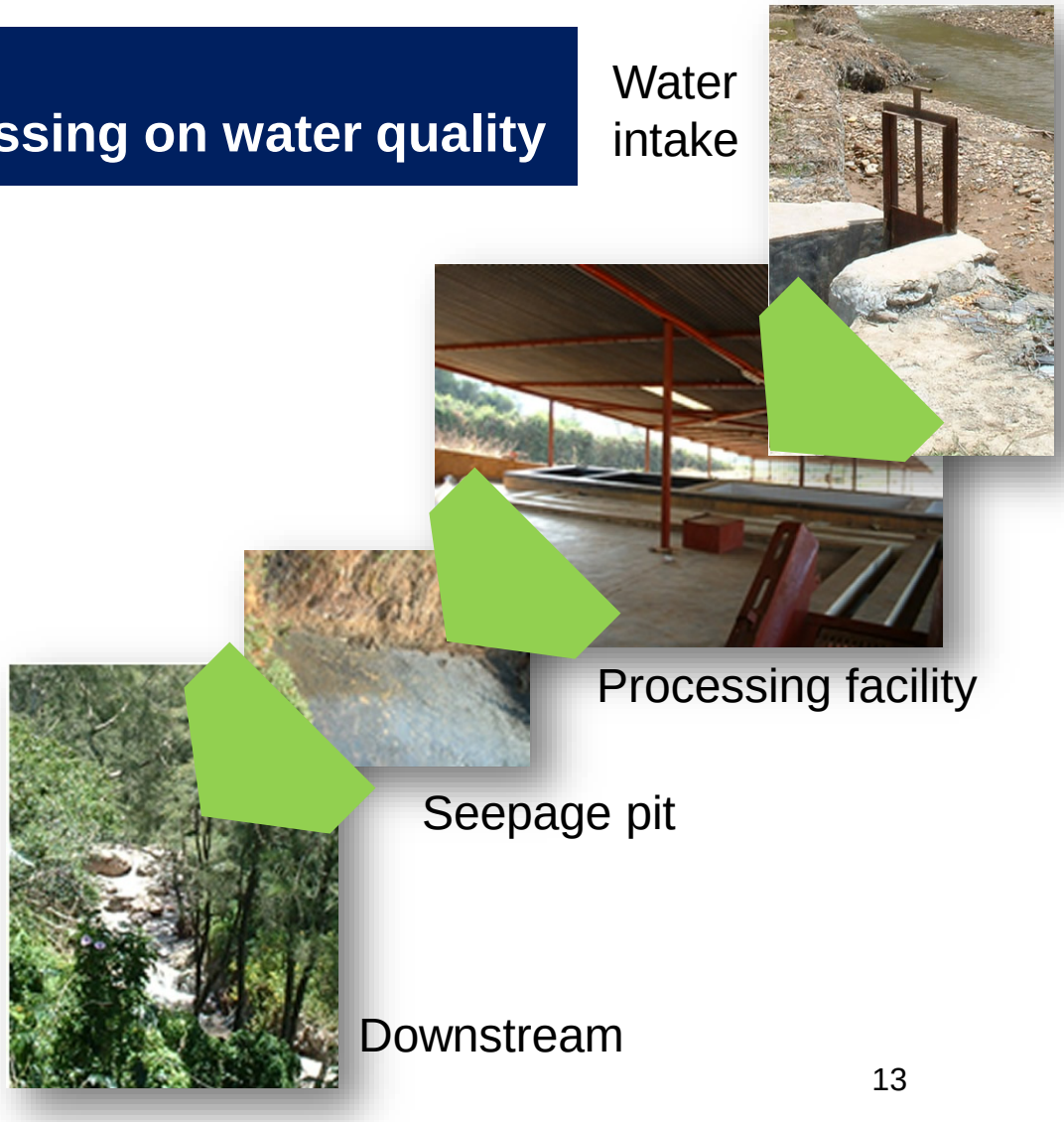
Location
Water samples should be taken at the intake, and downstream of seepage pits.

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

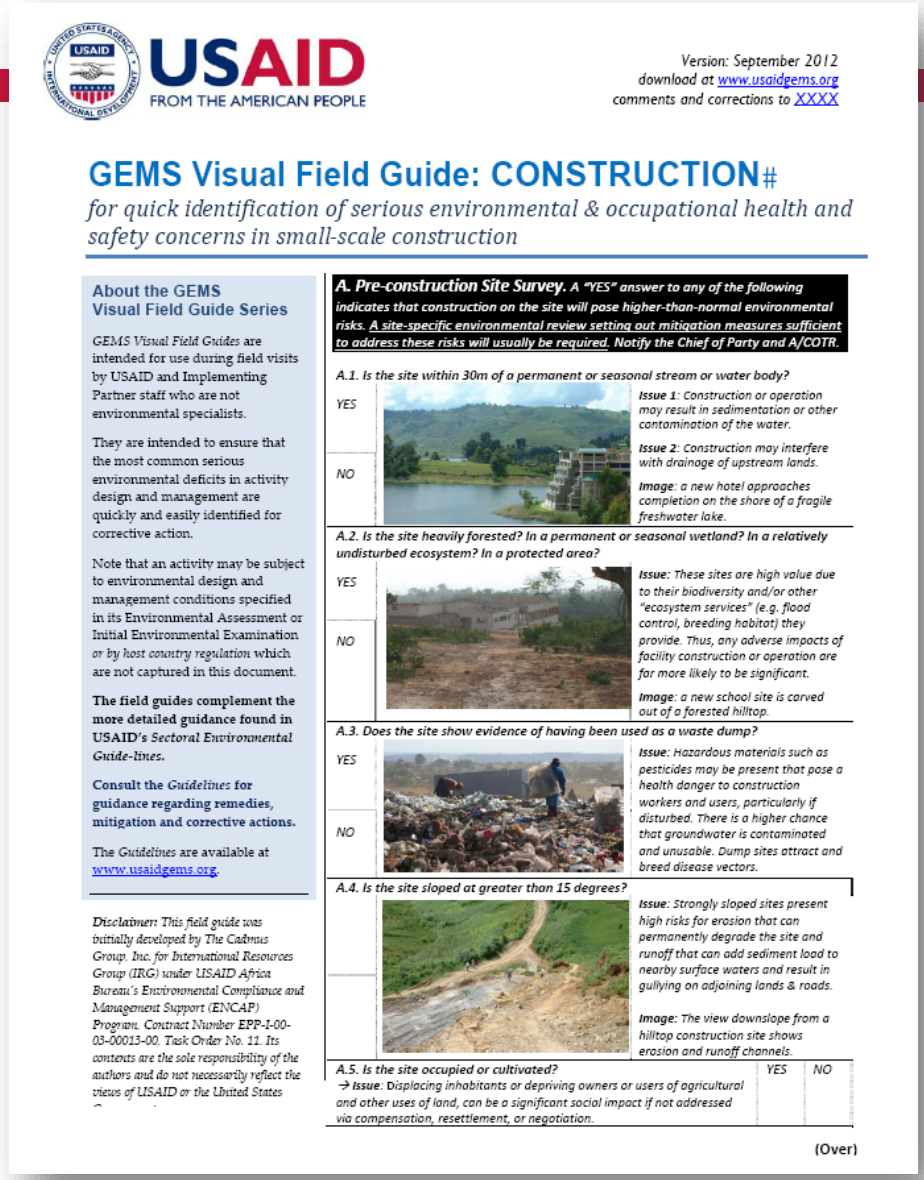
Do research to obtain good baseline data

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.

GEMS visual field guides
(www.usaidgems.org)



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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 / NO

Issue 1: Construction or operation may result in sedimentation or other contamination of the water.

Issue 2: Construction may interfere with drainage of upstream lands.

Image: a new hotel approaches completion on the shore of a fragile freshwater lake.

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

YES / NO

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.

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 / NO

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.

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:

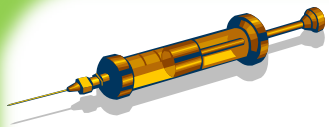
“Wells shall be sited to minimize the possibility of contamination.”

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?

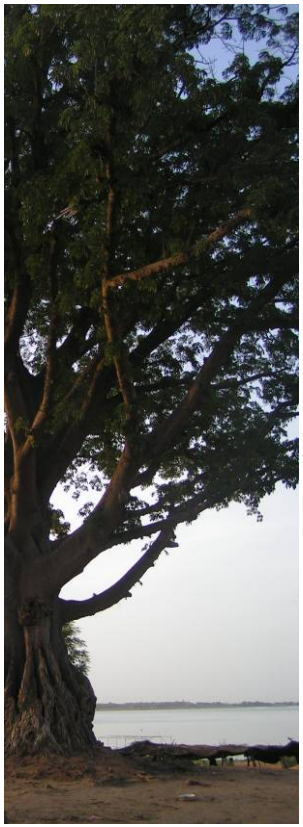
EMMPs are not required by 22 CFR 216, but they are required by most newer IEEs across most Bureaus.

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.

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) should 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.

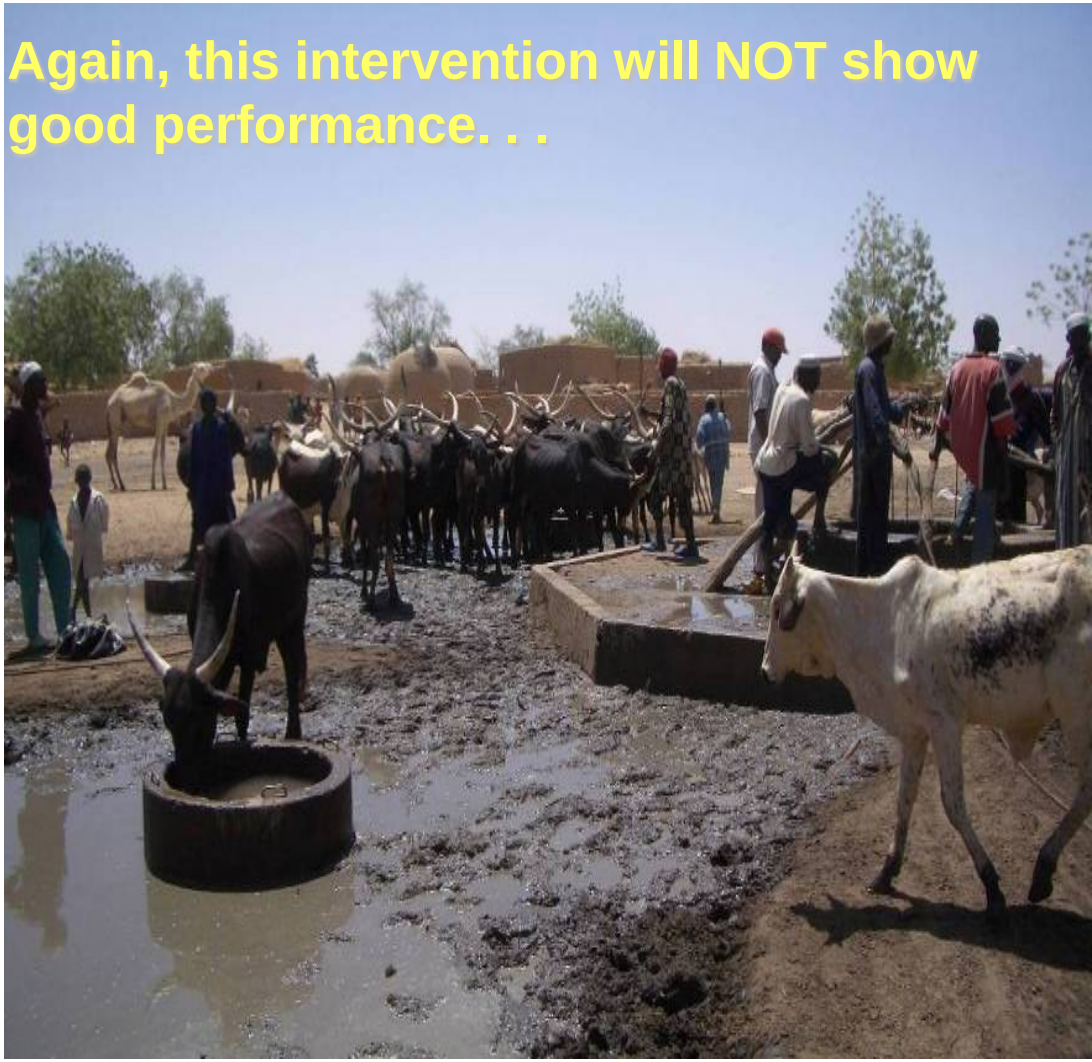
"Mainstreaming" environmental issues into the project results framework

EXAMPLE:
Water Point Provision

Key Program Indicators:

- **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**



"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

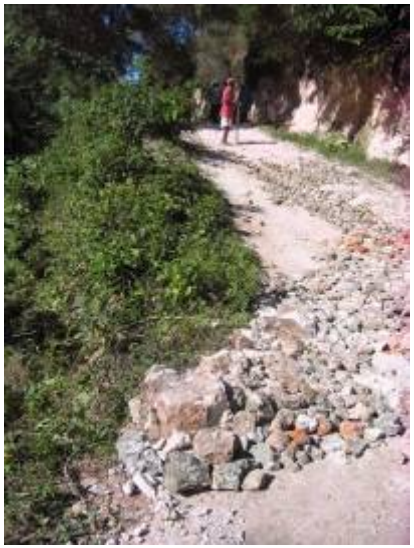
EXAMPLE:
Road rehabilitation

Typical Indicator:

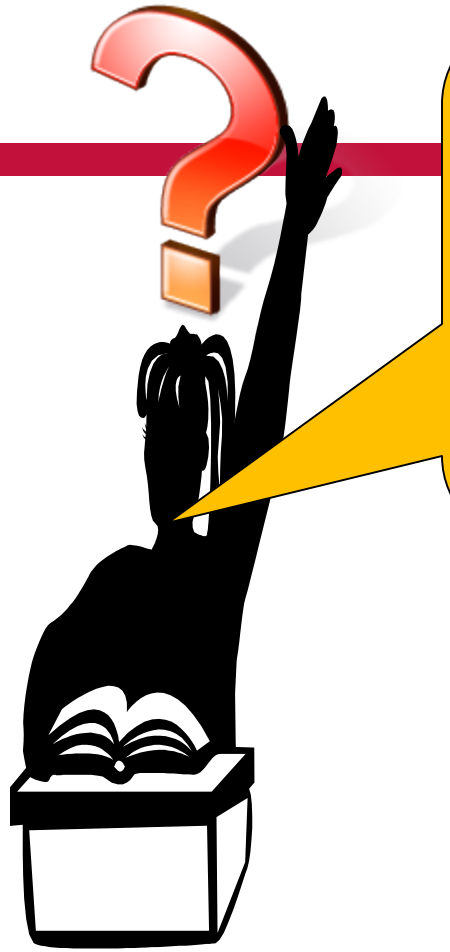
- **Km of road rehabilitated**

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