

VISUAL FIELD GUIDE

Construction

A GUIDE FOR QUICK IDENTIFICATION OF SERIOUS ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY CONCERNS IN SMALL-SCALE CONSTRUCTION

About the Visual Field Guide Series

Visual Field Guides are intended for use during field visits by USAID and implementing partner staff.

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.

The field guides complement the more detailed guidance found in USAID's Environmental Guidelines: www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices.

For the Visual Field Guides landing page, go to www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices/visual-field-guides.

Disclaimer: This field guide was prepared by The Cadmus Group. Its contents are the sole responsibility of the authors and do not necessarily reflect the views of USAID or the United States Government.



A. PROBLEMS—PRE-CONSTRUCTION: 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 Agreement/Contracting Officer's Technical Representative (A/COTR).



A1. Is the construction site within 30 meters of a permanent or seasonal stream or water body?

Issue 1: May result in sedimentation or other contamination of the water.

Issue 2: May interfere with drainage of upstream lands.

The photo depicts a hotel constructed too close to the shore of a fragile freshwater lake.



YES
NO

A2. Is the site heavily forested? Is the site in a permanent or seasonal wetland, relatively undisturbed ecosystem, or protected area?

Issue: Can adversely impact valuable natural resources. Such high-value sites provide biodiversity and/or other "ecosystem services" (e.g., flood control, breeding habitats).

The photo depicts a school site carved out of a forested hilltop.



YES
NO

A3. Does the site show evidence of having been used as a waste dump?

Issue 1: May pose a danger to health. Especially if disturbed, hazardous materials like pesticides may adversely affect construction workers and users. Dump sites also attract and breed disease vectors.

Issue 2: Increases likelihood that groundwater is contaminated and unusable.



YES
NO

A4. Is the site sloped at greater than 15 degrees?

Issue: Increases risk of erosion, which can permanently degrade the site. Runoff can add sediment load to nearby surface waters, causing gullyng on adjoining lands and roads.

The photo depicts a construction site with hilltop erosion and runoff channels.



YES
NO

A5. Is the site occupied or cultivated?

Issue: May displace inhabitants and deprive owners/users of agricultural land, resulting in significant social impacts if not addressed via compensation, resettlement, or negotiation.

YES
NO



Is the Lumber Legal?

In some countries, lumber that is certified as originating from legal, well-managed concessions is available on the domestic market for general construction.

Where this is the case, only such lumber should be used for USAID-funded construction. Exceptions may exist depending on the project (i.e., if the site is in a remote location and no such lumber is locally available).

Locally-obtained lumber should always be from a legal concession. In some areas, this may simply mean that the local chief granted permission to cut the tree. In others, it may require a formal government license.

Ask questions regarding the source of the lumber being used. Try to ascertain whether the lumber is legal, even if certified lumber is not available.

“Responsible Contracting” Employed?

Socially and environmentally responsible construction contracts help reduce and remedy environmental, health, and safety (EHS) deficits on construction sites. Such contracts mandate EHS compliance/good practice and establish EHS performance as a key element of project performance (tied to compensation).

If use of this Visual Field Guide results in a need for follow-up with the Chief of Party or A/COTR, ask them if the construction contract embodies these principles. If it does not, make use of the opportunity to educate project management or the A/COTR regarding this aspect of construction good practice.

B. ENVIRONMENTAL PROBLEMS—CONSTRUCTION

MANAGEMENT: A **YES** answer to any of these questions indicates a deficit that will require corrective action. Notify the Chief of Party and A/COTR.



B1. Is there standing water on the site? If yes, is there reason to believe the water has been standing longer than four days?

Issue: Breeds insect disease vectors, particularly mosquitoes. It takes four days for the malaria-bearing Anopheles mosquito to hatch and mature to its flying adult form.

The photo depicts a foundation excavation filled with standing water.



YES
NO

B2. Is there erosion from the cleared site or from material stockpiles? Is there gullying on surrounding lands clearly caused by runoff from the site?

Issue: Permanently degrades the site itself, and may degrade nearby surface waters and damage adjoining lands.

This photo depicts erosion on a slope next to a school under construction. If it continues, it will undercut the foundation. Photo by Sun Mountain International.



YES
NO

B3. Are “mining” materials, such as fill, sand, or gravel, being extracted from waterways or ecologically sensitive areas?

Issue: Degrades water quality, ruins critical habitat, alters drainage and flow, and can create standing water.

This photo depicts erosion caused by gravel mining, which stopped the creek’s water flow.



YES
NO

B4. Is demolition debris or construction waste disposed of in the open?

Issue: May pose physical hazards (e.g., broken glass; rusty torn roofing sheets) and toxic hazards (e.g., leaded paint), and can create a breeding habitat for disease vectors.

The photos depict a construction waste dump close to a village.



YES
NO

B5. Are there fuel, oil, paint, or chemical spills to the ground or streams?

Issue: Can poison soil, surface waters, and groundwater.



YES
NO



Minimum Appropriate Personal Protective Equipment (PPE)

Use this checklist to answer Question C2. If you answer “YES” to any of these questions, or if the PPE appears new or unused, answer “YES” to C2. (Note: you will probably not be able to evaluate all questions during a short visit.)

<p>Hard Hats Do you see <u>any</u> workers NOT wearing a hardhat in an area or at a task where flying debris may be generated (e.g., demolition) or there is a risk of tools or materials falling from head height or higher?</p>	<p><u>YES</u> NO</p>
<p>Footwear Do you see <u>any</u> workers wearing only foam flip flops or no shoes at all?</p>	<p><u>YES</u> NO</p>
<p>Do you see <u>any</u> workers engaged in excavation, demolition, or working around heavy equipment, and NOT wearing safety toe boots?</p>	<p><u>YES</u> NO</p>
<p>Respiratory Protection Is the construction supervisor unable to give you a two-strap N-95 dust mask on request?</p>	<p><u>YES</u> NO</p>
<p>Do you see <u>any</u> workers mixing Portland cement NOT wearing a two-strap N-95 dust mask?</p>	<p><u>YES</u> NO</p>
<p>Do you see <u>any</u> workers using <u>significant volumes</u> of products containing highly volatile solvents (like contact cement) but NOT wearing an activated carbon half-mask respirator?</p>	<p><u>YES</u> NO</p>
<p>Hearing Protection Do you see <u>any</u> workers using power tools or working close to power tools NOT wearing hearing protection?</p>	<p><u>YES</u> NO</p>
<p>Safety Glasses Do you see <u>any</u> workers engaged in demolition, grinding, cutting, or using power tools, or working in close proximity to these operations, NOT wearing safety glasses?</p>	<p><u>YES</u> NO</p>
<p>Reflective Vests Do you see <u>any</u> workers working near roads or heavy equipment or engaged in demolition NOT wearing a reflective vest?</p>	<p><u>YES</u> NO</p>

C. HEALTH AND SAFETY PROBLEMS—CONSTRUCTION MANAGEMENT:

A **YES** answer to any of these questions indicates a deficit that will require corrective action. Notify the Chief of Party and A/COTR.

<p>C1. Is there open access to the construction site?</p> <p><i>Issue: Presents many safety hazards to the public, from falls and crush injuries to toxic exposures.</i></p> <p>The photo depicts a walkway that is too close to the trench edge.</p>		<p><u>YES</u> NO</p>
<p>C2. Is PPE inadequate or does it appear little-used? (See sidebar to evaluate.)</p> <p><i>Issue: Prevents PPE from fulfilling its intended function: helping protect workers against injuries and disease.</i></p> <p>The photo depicts workers wearing unscuffed hardhats and boots, indicating that this PPE was put on specifically for the site inspection.</p>		<p><u>YES</u> NO</p>
<p>C3. Are there any unshored deep trenches (> 1.75 meters)? Is the spacing of ladder, stairs, or other exits from deep trenches greater than ten meters?</p> <p><i>Issue: Poses hazards to workers. Trenches deeper than shoulder height are more prone to collapse, which can smother or crush workers.</i></p>		<p><u>YES</u> NO</p>
<p>C4. Does the construction site and its vicinity lack latrines and/or handwashing stations?</p> <p><i>Issue: Increases likelihood that workers practice open defecation, increasing risk of disease spreading along the fecal-oral route.</i></p>		<p><u>YES</u> NO</p>

D. POTENTIAL HEALTH AND SAFETY PROBLEMS:

A **YES** answer to any of these questions indicates a potential deficit that may require corrective action. Notify the Chief of Party and A/COTR.

<p>D1. Are painted surfaces being scraped or sanded?</p> <p><i>Issue: May release lead dust. Paint containing lead is very common in Africa, and scraping or sanding releases this toxic health hazard. Risks are particularly acute in schools and hospitals.</i></p>	<p><u>YES</u> NO</p>
<p>D2. Are asbestos roofing sheets, linoleum, fiberboard ceiling or wall panels, or pipe insulation being removed/disturbed?</p> <p><i>Issue: May release carcinogenic asbestos fibers. Assume asbestos are present in all of these products.</i></p>	<p><u>YES</u> NO</p>
<p>D3. Is the site very dusty or noisy?</p> <p><i>Issue: Can adversely impact the quality of life of nearby inhabitants, including interfering with the learning environment in schools and posing health risks to clinic patients.</i></p>	<p><u>YES</u> NO</p>

→ **NOTE:** If there is more than one **YES** answer on this page, see page 4. ←
A full review of the site’s management practices against minimum health and safety practices in small-scale construction is strongly recommended.

Minimum Recommended Occupational Health and Safety Practices in Small-Scale Construction

Many countries in sub-Saharan Africa have occupational health and safety requirements that apply to construction sites and workers. On USAID-funded projects, compliance with such host country requirements is mandatory.

Moreover, USAID expects its construction projects to attain a level of protection of workers and public health as close to U.S. standards as the local situation will allow.

Even where local requirements do not exist or are unclear, construction health and safety practices must meet the practices on this page at a minimum.

Failure to implement these minimum practices indicates serious and significant non-compliance with any host country requirements.



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1. Policies and Training

1a. All workers receive a safety and health induction that explains safe work practices, the proper use of personal protective equipment (PPE), and their safety and health protections under law.	YES NO
1b. The construction contractor has a written policy regarding worker health and safety, including a commitment to compliance with host country requirements.	YES NO
1c. The construction contractor has an internal system for (1) regular self-inspection of site against these standards and (2) tracking violations and accidents.	YES NO

2. Site Management

2a. Site boundary is well-marked and access actively controlled.	YES NO
2b. Good housekeeping practices are in place—the site is maintained in a generally orderly condition.	YES NO
2c. Safety signs posted—at minimum, to mark site boundary, hardhat areas, explosion and toxic hazards.	YES NO
2d. Smoking is banned altogether or restricted to a designated smoking area well away from flammable materials.	YES NO

3. Hygiene and First Aid

3a. First aid kit is onsite, as is someone familiar with its use and trained in basic first aid.	YES NO
3b. Drinking water and sanitary facilities are provided (or are very close at hand), including hand-wash stations.	YES NO
3c. All workers have up-to-date tetanus vaccinations.	YES NO

4. PPE

See the Minimum Appropriate PPE sidebar on page 3. Please note that hazardous materials such as lead and asbestos (not discussed in the sidebar) require additional PPE.

5. Scaffolding and Fall Protection

5a. Scaffolding must be able to carry at LEAST four times its maximum intended load without settling or displacement.	YES NO
5b. Scaffolding must be on solid footing—NOT boxes, loose bricks and stones, etc.	YES NO
5c. Scaffolding has guardrails, midrails, and toeboards.	YES NO
5d. Scaffolding is at least three meters from any electric power line.	YES NO
5e. Scaffolding is inspected EACH DAY by a competent manager.	YES NO
5f. There are guardrails (or ropes at a minimum) near the edge of floors and roofs where a drop is greater than two meters. Where not possible, workers in these areas wear a body harness and rope.	YES NO

6. Trenches

6a. Spoils are maintained at least one meter back from the edge of the trench.	YES NO
6b. Trench walls are shored or sloped back for ANY trench 1.75 meters or deeper.	YES NO
6c. For ANY trench 1.75 meters or deeper, there is a means of exit (ladder, stair, ramp) at least every ten meters.	YES NO

7. Toxics

7a. Neither lead paint nor asbestos in any form is used in new construction.	YES NO
7b. For rehabilitation or demolition, the contractor checked prior to commencing work whether lead-based paint, asbestos (including roofing sheets), and other toxics are present.	YES NO
7c. If present, a management plan exists that specifies safe practices to be followed and disposal procedures of any waste. Appropriate worker training and PPE is provided.	YES NO