



ENCAP Visual Field Guide: RURAL ROADS

for quick identification of serious environmental and/or human health & safety (EHS) concerns related to rural roads activities

About the ENCAP Visual Field Guide Series

ENCAP 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 *Environmental Guidelines for Small Scale Activities in Africa*.

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

The *Guidelines* are available at www.encapafrika.org/egssaa.htm.

Disclaimer: This field guide was prepared by the International Resources Group (IRG) and by The Cadmus Group, Inc. for 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.

A. Pre-construction Route Survey. A "YES" answer to any of the following indicates that the proposed route presents higher than normal environmental or social risks. The route must be changed OR these risks must be addressed in design & pre construction environmental review. Notify the Chief of Party and A/COTR.

A.1. Does the proposed/existing route traverse steep inclines or broad, flat floodplains? Does it cut across contour lines more than it follows them?



Issues: Cutting roads into steep slopes can channel water and result in significant damage to the slope, adjoining lands, and the road itself. Flooding can destroy or significantly shorten the life of the road and present safety and livelihood risks to communities depending on the road.
Image: Routing across the broad floodplain at left and the steep slopes at right both present challenges.

A.2. Does the route pass through or close to relatively non-degraded forest, wetlands or protected areas?



Issue: Such areas are high-value due to the biodiversity and/or other "ecosystem services" (e.g., flood control, breeding habitat) they provide. Roads can directly damage these resources. Beyond this, they can "open up" these areas for unsustainable exploitation.
Image: An illegal road is constructed across a papyrus wetland (inset).

A.3. Are homes, schools or clinics immediately adjacent to the proposed route?



Issue: Dust and noise can (1) adversely impact the quality of life of nearby inhabitants; (2) interfere with the learning environment in schools; and (3) pose health risks to patients in health care facilities.

A.4. Will construction on the proposed/existing route require (1) demolition of houses or shops; or (2) destruction of agricultural fields?



Issue: Displacing inhabitants or depriving owners/users of agricultural and other uses of land, can have significant social impacts if not addressed via compensation, resettlement, or negotiation.
Image: Improving this road on its current route would require demolition of houses & take land currently used for cropping.

Minimum appropriate PPE

Answer "YES" to question B.4 if the answer to any of the following questions is "yes" OR if the PPE appears unused (new). (Note: you will probably not be able to evaluate all questions during a short visit.)

Hardhats Do you see <u>any</u> workers NOT wearing a hardhat in an area/ task where (a) flying debris may be generated (e.g., demolition) or (b) there is a risk of tools or materials falling from head height or higher?	Y	N
Footwear Do you see <u>any</u> workers wearing only <u>foam</u> flipflops or no shoes at all?	Y	N
Do you see <u>any</u> workers NOT wearing hard-toed boots who engaged in excavation, demolition, or are working around heavy equipment?	Y	N
Respiratory Protection Is the construction supervisor unable to give you a 2-strap N-95* dust mask upon request?	Y	N
Do you see any workers mixing Portland Cement NOT wearing a 2-strap N-95 dust mask?	Y	N
Hearing Protection. Do you see any workers WITHOUT hearing protection who are using power tools or working close to them?	Y	N
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?	Y	N
Reflective Vests Do you see any workers near roads or heavy equipment, or engaged in demolition NOT wearing a reflective vest?	Y	N

*a mask rated to capture 95% of airborne particulates

Adapted From Annex 1 of the "Small-Scale Construction" chapter of the Environmental Guidelines for Small Scale activities in Africa www.encapfrica.org/sectors/construction.htm

NOTE: USAID contractors must comply with any applicable host country occupational health & safety standards. It should be assumed that failure to implement these minimum practices indicates significant non-compliance with any host country requirements.

B. Construction Management—EHS Deficits. A "YES" answer to any of these questions indicates a deficit that will require corrective action. Notify the Chief of Party and USAID C/AOTR.

B.1. Are fill, sand, and/or gravel being extracted from waterways or ecologically sensitive areas? (check stream crossings as you travel the road.)

YES		Issue: "Mining" materials from streambeds and wetlands degrades water quality, ruins critical habitat, alters drainage and flow, and can create standing water.
NO		Image: In-stream gravel mining caused erosion and stopped flow in this creek. (Missouri Dept of Natural Resources)

B.2. Are there fuel, oil, paint, or chemical spills on the ground or in streams?

YES		Issue: Such spills can poison soils, surface waters, and groundwater.
NO		Image: The ground by this road camp generator shed is stained with fuel and oil spills, despite the slab under the generator itself.

B.3. Do construction camps lack improved latrines and/or hand-washing stations? [note: simple open-pit latrines are NOT adequate]

YES		Issue. In the absence of sanitary facilities, workers are likely to practice open defecation, substantially increasing worker and community risks of oral-fecal route disease. Simple open-pit latrines allow fecal pathogens to be spread by flies and other disease vectors.
NO		Image: This latrine is open-pit AND lacks a handwashing station.

B.4. Is personal protective equipment (PPE) inadequate or does it appear new? (to evaluate question, see sidebar)

YES		Issue: PPE must be adequate and used consistently to fulfill its intended function: helping protect workers against injuries & disease.
NO		Image: Unmarked white boots and shiny hardhats indicate that this PPE has been put on only for the site inspection.

B.5 Are hand laborers engaged in unrelated tasks OR are passers-by in close proximity to vehicles/heavy equipment?

YES		Issue: Persons in close proximity to vehicles and heavy equipment are at high risk of injury, <u>unless</u> they are (1) engaged in a task related to the operation of that equipment (for example, workers with shovels assisting excavation by backhoe) <u>and</u> (2) closely attendant to its operation.
NO		

BLASTING?

The use of explosives is not typical in rural road construction—but it is sometimes necessary, particularly in challenging terrain. Legal procurement, safe and secure transport and storage, and safe use are essential.

This Visual Field Guide **DOES NOT ADDRESS BLASTING SAFETY.**

If explosives are being used, verify whether the activity's IEE or EA authorizes the use of explosives and whether the requirements it imposes are being strictly observed.

If the IEE or EA does not authorize the use of explosives or if the IEE or EA requirements are not being met, immediately notify project management, the C/AOTR and MEO. Work should be immediately suspended until compliance can be assured.

“Responsible Contracting” employed?

Environmental, Health and Safety deficits on road (and other) construction sites can be remedied much more readily—and are less likely—when the contract governing the construction (1) mandates environmental compliance/good practice; (2) mandates health and safety compliance/good practice; and (3) establishes environment, health and safety 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, find out from them if the construction contract embodies these principles of socially and environmentally responsible construction contracting.

If it does not, make use of the opportunity to educate project management or the A/COTR regarding this aspect of construction good practice. Refer them to the Construction chapter of the *Environmental Guidelines for Small-Scale Activities in Africa*, available at www.encapfrica.org/sectors/construction.htm.

B.6 If the road is in active use, are either or both flaggers and protective signage absent in work areas?

YES



Issue: Road workers may easily be injured or killed by vehicles.

NO

Image: Neither signage nor a flagger protect these road workers from traffic approaching from rear, over the blind crest of the hill.

B.7. Are schools or clinics immediately adjacent to the road AND being affected by construction noise and dust?

YES



Issue: Dust and noise can (1) adversely impact nearby inhabitants; (2) interfere with the learning environment in schools; and (3) pose health risks to patients in health care facilities.

NO

C. Pre-handoff/In-use Follow-up Survey. A “YES” answer to any of these questions indicates a deficit that will require corrective action. Notify the Chief of Party and USAID AOTR/COTR.

C.1. Is there standing water on or immediately beside the road? Is there evidence of such water even if it is not there now?

YES



Issue: Standing water indicates inadequate and/or poorly maintained drainage structures, shortening the life of the road, and usually leading to erosion and destruction of adjacent lands.

NO

Standing water also is a disease risk, as it may breed insect disease vectors—particularly mosquitoes.

C.2. Is there gullying at the roadway edge, around culverts, or in adjacent lands?

YES



Issue: Gullying, an indication of poorly designed and/or inadequately maintained drainage structures, can permanently degrade adjacent land (including agricultural fields)—and shortens the life of the road itself.

NO

Image: From Low-Volume Roads Engineering: Best Management Practices Field Guide. G Keller & J Sherar.

C.3. Are borrow pits full of water? Is there open access to un-restored or active borrow pits?

YES



Issue: Borrow pits easily fill with water and present both drowning and disease risks—standing water breeds mosquitoes and other insect vectors.

NO

Therefore, most borrow pits should be decommissioned and remediated after construction. If a limited number are retained for maintenance, access should be restricted and there should be no standing water. (If retained as dry-season impoundments, sides should be shallowly sloped to reduce drowning risks.)

Visit a clinic (or two)

If possible, visit one or more clinics that serve communities serviced by the road.

- If the road was rehabilitated/widened, ask if staff have seen a significant increase in pedestrian-vehicle accidents since the improved road entered service.
- If the road is newly constructed, ask if pedestrian-vehicle accidents account for a significant portion of the cases being treated, or fatalities in the area.

If the answer to either question is yes, project follow-up is warranted: consider whether signage, "traffic calming" measures such as speed bumps, or speed limit enforcement are adequate or could be strengthened when the road passes through built-up areas or by schools.

Also ask whether road dust or noise is adversely affecting patients/clinic operations.

If the answer is yes, project follow-up is indicated; consider whether noise/ dust barriers (including live plantings) may be feasible and appropriate.

Visit a school (or two)

If schools are in close proximity to the new/improved road, try to visit one or two of them.

- Ask if road noise and dust is disrupting classroom learning. If yes, project follow-up is warranted: consider whether noise/ dust barriers (including live plantings) and reduction measures (such as speed bumps to slow traffic and thus reduce dust) may be feasible and appropriate.
 - Also observe if there is any physical barrier between the road and school grounds (a ditch, a wall, guardrail, live fencing, etc.)
- If no, construction of a physical barrier should be required, unless school buildings AND play areas are set well-back from the road.

C.4. Is one side of the road much wetter than the other?

YES



NO

Issue: This indicates that the road is significantly interfering with drainage patterns. It may be creating flood risks, depriving agricultural lands of water, and disrupting local hydrology and ecosystems.

Photo: An aerial view shows much heavier vegetation—and thus wetter conditions—one side of the road.

C.5 Are waste, spills, and/or debris evident in road camps or former road camp sites?

YES



NO

Issues: Solid wastes can pose physical hazards (e.g., rusty metal), create breeding habitats for disease vectors, and impede re-use of the site. Contamination from fuels or lubricant spills can poison soils, ground, and surface water.

Image: An open waste dump left behind at an abandoned road camp. Clean-up should be the responsibility of the contractor before road hand-over.

C.6. Is there evidence of uncontrolled charcoal production or logging in areas close to the road? (check side of road for charcoal bags and logs)

YES



NO

Issue: This indicates that the road may be contributing to uncontrolled forest resource exploitation, with potentially significant adverse impacts on these high-value ecosystems.

Image: Bags of charcoal are stacked next to a rural road.

C.7. Are schools or clinics immediately adjacent to the road AND affected by road noise and dust or traffic? (see sidebar)

YES



NO

Issue: Dust and noise can (1) interfere with the learning environment in schools; and (2) pose health risks to patients in health care facilities. Traffic poses risk of injury to students.

Image: This picture, taken from a road, shows that the school is immediately adjacent to the road and no physical barrier separates the two.

C.8 Is the new or improved road resulting in a significant number of/increase in serious vehicle-pedestrian accidents? (see sidebar)

YES

NO

Issue: New or improved roads support higher traffic speeds and volumes, and can increase dangers to pedestrians.