



Special Topic: Construction Activities



GEMS Environmental Compliance-
ESDM Training Series

Tanzania ▪ February 2017

SESSION OBJECTIVES:

- Understand importance of construction activities in USAID programming
 - *USAID funded facilities, buildings, and infrastructure must be designed/constructed to appropriate engineering standards to minimize risk to humans and environment*
- Characterize potential adverse impacts of construction activities.
- Discuss USAID approach to assessing and mitigating impacts + preparation of compliance documentation. Provide highlights from recent USAID construction survey and working group.
- Understand construction “best practices,” consider evolving needs.



USAID INFRASTRUCTURE WORK

- USAID infrastructure investments range from **small-scale** projects such as community water tanks to **large** power plants and water treatment facilities.
- USAID also makes direct infrastructure investments in **schools, hospitals, health clinics**, and other public buildings, as well as **rural farm to market roads**, trunk roads, and bridges.
- Agency's infrastructure projects are a critical component of development programs in post-conflict and post-disaster countries (but are not limited to those situations).
- Agency-wide **Construction Risk Working Group (CRWG)** piloted construction risk screening tool in six Missions (Ethiopia, Jordan, Nepal, Pakistan, Haiti, Jamaica)
- Construction Risk Management – Mandatory Reference for ADS Chapter 201 (draft Jan. 2017)

SMALL SCALE VS LARGE SCALE CONSTRUCTION

- SMALL SCALE CONSTRUCTION

- USAID AFR Bureau guidance: total “disturbed area” of less than 1000m².

- Types of small-scale construction:

- Road rehabilitation (e.g., < 10 KM rural market feeder roads)
 - Rehab of schools and health clinics (e.g., medical waste incinerators).
 - Warehouse/storage units.
 - WASH projects (e.g., boreholes, latrines).



SMALL SCALE VS LARGE SCALE CONSTRUCTION

LARGE SCALE CONSTRUCTION

- New, paved roads (East Africa regional roads > 10 KM).
- Hospitals.
- Agricultural warehouses; pharmaceutical storage; cold storage.
- Large WASH municipal projects, e.g., water treatment facilities, flood protection for climate resiliency.



DIRECT, ADVERSE ENVIRO IMPACTS OF CONSTRUCTION

- Disturbance to existing landscape/habitat; devegetation
- Sedimentation/fouling of surface waters
- Standing water
- Excess water use
- Contamination of ground and water supplies
 - Septic tank issues.
- Occupational and community health and safety hazards
- Increased air and noise pollution
- Adverse impacts of materials sourcing
- Damage to sensitive or valuable ecosystems
- Compaction of the soil and grading of the site



ADDITIONAL IMPACTS OF CONSTRUCTION

- Use of unsustainably extracted timber
- Displacement of populations
- Worker impacts
 - Waste management issues
 - Spread of disease
- Damage to aesthetics of site/area



ADDITIONAL IMPACTS OF CONSTRUCTION

- Potential adverse impacts on workers
- In-migration of population to take advantage of new infrastructure such as schools or health posts
- Effects on fish spawning associated with siltation of streams from soil erosion at a construction site
- The spread of disease from insect vectors breeding in flooded and abandoned quarries and borrow pits
- Inefficient/non-renewable energy use

CONSTRUCTION PRINCIPLES/MITIGATION MEASURES

- Appropriate siting.
- Environmental compliance best practices.
 - Revegetation
- occupational health and safety compliance best practices.
- Monitor environment, health and safety performance.
 - Water quality monitoring, usage.
- Minimize greenhouse gas emissions and adapt to climate change by minimizing vulnerability through project design.
- Use of alternative/renewable energy.
- Practice environmentally and socially responsible construction contracting.



INFRASTRUCTURE ACTIVITIES AND ENVIRONMENTAL COMPLIANCE

- Need to consider environmental compliance/impact assessment components of infrastructure activities.
- Many infrastructure activities will have a significant effect on the environment and an EA or EIS might be required.
- Smaller infrastructure activities will usually be assigned appropriate conditions (i.e., mitigation measures) within the context of an IEE.



TYPICAL CONSTRUCTION PROGRAMMING IN TANZANIA

- Farm to market rural roads (farm to market) (> 1,500 km)
- power substations and transmission lines
- small scale, e.g., repair/rehab of schools/health centers (WASH)
- agricultural storage facilities
- Irrigation projects, e.g., Dakawa:
 - upgrade of pump station, electrical work.
 - preparing boundary flood protection infrastructure, new operations building, internal access roads.
 - Rehabilitate and line main canal w concrete; upgrade secondary canals.

COMMON CONSTRUCTION CHALLENGES

- Water availability for construction and operation.
- Not enough power.
- Volatile land use issues.
- Capacity of contractors to implement work.
- Approval for building permit from county and national governmental agencies.



ILLUSTRATIVE CONSTRUCTION SUCCESSES

- Getting involvement from GOT and USAID.
- Green architecture (efficient energy use)
- Significant roads work underway.
- Upgraded power lines and substations.
- Irrigation projects.



EXAMPLE EMMP FOR CONSTRUCTION PROJECT

Activity I: Lab Facility Construction

IEE CONDITION	MITIGATION MEASURES	ROLES & RESPONSIBILITIES	MONITORING MEASURES AND TIMING
Limit soil erosion from excavation	<p>Terracing and levelling the project site to reduce run-off velocity and increase infiltration of rain water into the soil.</p> <p>Re-vegetate exposed areas on the site to mitigate further erosion of soil.</p>	Project contractor	Monitor nearby water body for suspended solids at the beginning of construction and thereafter daily as construction progresses

EXAMPLE EMMP FOR CONSTRUCTION PROJECT

Activity I: Lab Facility Construction

IEE CONDITION	MITIGATION MEASURES	ROLES & RESPONSIBILITIES	MONITORING MEASURES AND TIMING
Reduce fine particle/dust discharge	<p>Install cyclone separators in areas where fine particles/dust is generated</p> <p>Provide and install ventilation systems in the plant</p> <p>Train operators on efficient equipment setup</p>	Implementing partner, Project contractor	Daily observations and carry out periodic (monthly) checks during production period.

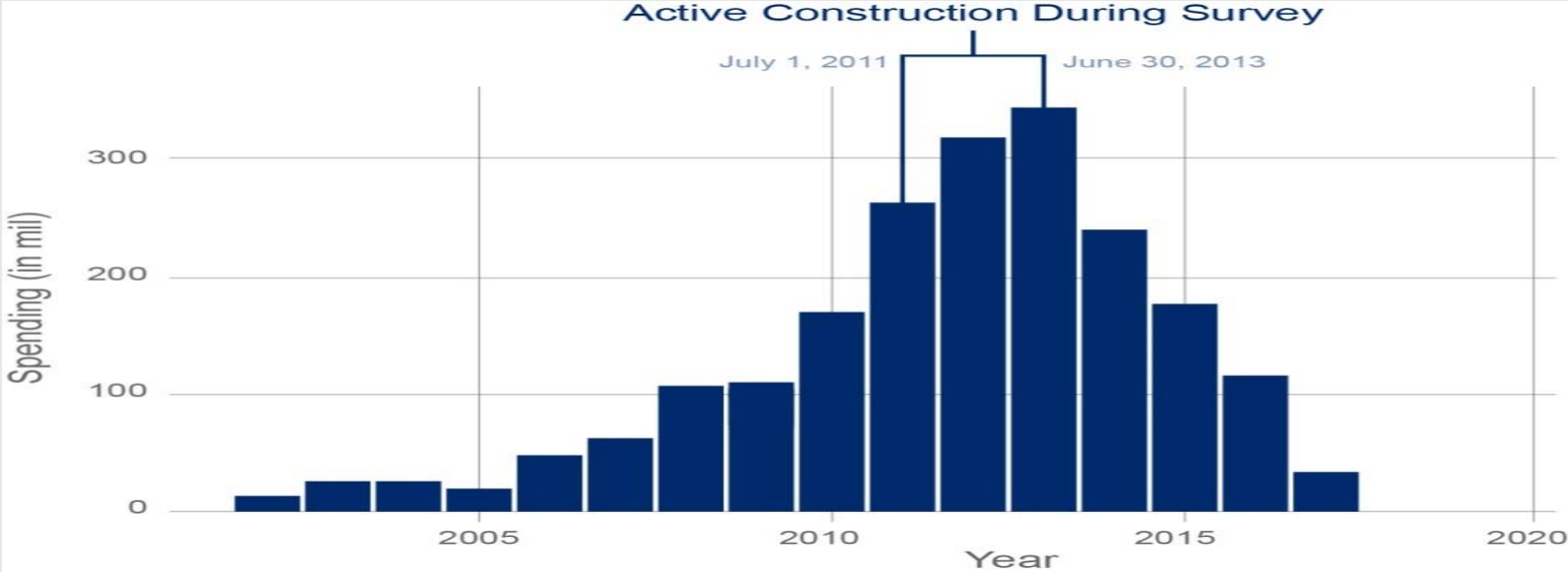
USAID CONSTRUCTION SURVEY AND WORKING GROUP

\$5.6 Billion

Estimated Construction Value

June 1, 2011 - June 30, 2013

1/3 Buildings	1/5 H2O	1/8 Transportation	Other (e.g. energy & IT)
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USAID Construction Awards (2011-2013)

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

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