



USAID
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Management of Construction Risk

A Mandatory Reference for ADS Chapter 201

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I. Overview

USAID Operating Units (OUs) that are required to undertake activity design in accordance with [ADS 201](#) must explicitly identify all construction activities performed under acquisition; assistance; government-to-government (G2G) mechanisms; or Cost-Type, Fixed Amount, and Simplified Agreements with Public International Organizations (PIOs). Affected OUs must perform and document a risk-screening of each identified and discrete construction activity by using the [Construction Risk-Assessment Tool](#). OUs should complete the risk-screening as soon as they identify the need to include construction in an award, as early as possible in the design of the activity and must complete and file it prior to implementation of construction. OUs must update the screening throughout the life of the activity when the level of risk changes, when they take additional mitigation actions, or they perceive additional risk. For planned awards and modifications to awards, OUs also must indicate that an award will include construction in USAID's Acquisition and Assistance (A&A) Plan System.

In addition, pursuant to Section 611(e) of the Foreign Assistance Act (FAA) of 1961, as amended, USAID's Mission Directors, Country Representatives, or other Principal Officers in country must certify, for any capital assistance construction activity estimated to cost in excess of \$1,000,000, the financial and human resources capability in the host-country government or recipient organization to effectively maintain and use that activity (see [Additional Guidance for 611\(e\) Certification Involving Construction Activities](#)).

This Mandatory Reference uses the definition of "construction" contained in [ADS Chapter 303maw, USAID Implementation of Construction Activities](#).

The following sections describe definitions, background, and guidance for identifying construction activities and performing construction risk-screening.

II. Primary Responsibilities

The Activity Planner, Agreement Officer's Representative/Contracting Officer's Representative (AOR/COR), or Government Agreement Technical Representative (GATR) has the primary responsibility to do the following:

- 1) Identify construction activities;
- 2) Conduct and file construction risk-screening analyses; and
- 3) Follow-up on the implementation of risk-mitigation measures throughout the USAID Program Cycle.

The responsible Program Officer must ensure compliance with the requirements of this Mandatory Reference. USAID engineering staff in the responsible OU,

Regional Bureau, or **DDI's Center for Environment, Energy, and Infrastructure (DDI/EEI)** can provide technical assistance in the assessment of risk and mitigation options and monitoring performance.

III. Required Procedures

As described in this mandatory reference, construction risk management at USAID includes three required steps:

- 1) **Identify construction activities:** OUs must identify all discrete construction activities (at any level) performed under acquisition, assistance, G2G and PIO agreements in activity-planning documents (activity designs, etc.). The OU must indicate that the award will include construction in USAID's A&A Plan System. When appropriate for the instrument, the OU should include the estimated costs.
- 2) **Assess construction risk:** The Activity Planner or AOR/COR/GATR must complete a risk screening for each construction activity relative to the Agency's preferred approach as soon as construction is identified, ideally during the design of an activity, and consider mitigation measures as appropriate (see Section V below). OUs must file activity-level construction risk-screenings electronically in the Agency Secure Image and Storage Tracking System (ASIST) and as further outlined in Section VI, Required Construction Risk-Screening. Washington approval of the construction risk-screening is not required for activities funded and managed by Missions. However, OUs are responsible for accurately assessing risk and taking reasonable steps to avoid and mitigate known risks associated with construction activities.
- 3) **Mitigate and monitor risk:** The AOR/COR/GATR should monitor construction risk as part of the monitoring of the performance of activities. OUs must update risk-screening and selected mitigation measures throughout the implementation period of an activity to reduce risk and improve the performance of construction activities as described herein.

The Agency's engineering staff, backstopped by **DDI/EEI**, are available to support OUs in the identification of construction investments and the screening, mitigation, and monitoring of related risk.

IV. Construction Risk at USAID

Construction is an integral part of the Agency's practice and development portfolios worldwide. In 2014, a comprehensive survey and assessment of construction activities across USAID's portfolio identified construction activities in nearly every OU in the Agency. Since 2014, the estimated construction funded by the Agency that is underway at any one time has averaged more than \$2

billion. The assessment concluded that where USAID identifies construction activities early in the Agency's Program Cycle, performance is generally good and risk is relatively low. Fundamentally, good planning leads to appropriate allocation of resources, which facilitates implementation, enhances sustainability, and improves health and safety through implementation. USAID policy ([ADS 201. Program Cycle Operational Policy](#)) requires the early identification of planned construction activities, the screening of construction risk, and appropriate mitigation.

Consideration of construction risk extends beyond activities performed under acquisition (contracts). OUs also must identify construction activities performed under assistance (grants and cooperative agreements), as well as through G2G agreements and PIO agreements, based on the preceding definition and assess them according to this guidance (see [ADS 303maw, USAID Implementation of Construction Activities](#)).

Construction activities are designed to facilitate the delivery of services like education (schools), energy (generation systems and transmission lines), potable water (wells, treatment plants, and pipelines), wastewater facilities (pipes and treatment plants) and healthcare (hospitals), to name a few. Construction activities differ from other types of development activities in the way they are planned, procured, and implemented. Specifically, engineering/architecture design, procured in compliance with specific regulations and policy, must precede construction, which then requires expert management and independent inspection from beginning to end with qualified technical expertise and specific controls.

The 2014 Construction Assessment identified 11 critical success factors for USAID's construction activities. These success factors serve as the foundation for the Agency's approach to managing construction risk:

- 1) Project Definition - Realistic assessment and approval based on sound technical information.
- 2) Stakeholder Engagement - Active participation and support of individuals and organizations required for successful implementation and ownership of construction projects.
- 3) Procurement Procedures, Contract Types, and Approaches - Effective and locally appropriate contract mechanisms that are consistent, balanced, enforceable, and well-understood by the local construction industry.
- 4) Institutional Capabilities to Operate and Maintain Investments - Engagement of competent organizations with the responsibility and capability to manage, operate, and maintain completed construction projects effectively.

- 5) Health, Safety, Environmental and Social Requirements - Ability to address and assure compliance with local and international applicable health, safety, environmental and social requirements.
- 6) Appropriate Design Standards and Technology - Technical capability to develop project designs in accordance with applicable standards, by using locally appropriate technologies.
- 7) Quality of Cost-Estimating and Scheduling - Ability to establish realistic budgets and schedules within established levels of accuracy, while accounting for potential contingencies and risks.
- 8) Appropriate Levels of Contractors' Qualifications - Determination and assurance of the required capabilities of contractors for the successful completion of work within established quality requirements.
- 9) Risk-Management Methodology - Incorporation of consistent and systematic approach for the identification, assessment, and mitigation of risks.
- 10) Construction Oversight and Quality Verification - Assurance of the successful execution and completion of construction by a qualified inspector, in accordance with established requirements and standards.
- 11) Monitoring and Evaluation - Established process for the assessment of results and the ability of completed projects to achieve their measurable objectives.

V. USAID's Preferred Approach to Construction

USAID has identified a preferred approach to implement construction activities that minimizes construction risk by thorough planning and allocation of the Agency's resources to design and oversight. The preferred approach represents a benchmark against which OUs must screen their risk.

The following paragraphs describe the principal elements of the Agency's preferred approach:

- **Perform pre-design/pre-construction analyses:** Analyses performed at the planning stages of a construction activity help determine the feasibility of the planned activity and inform decisions and actions during construction. Feasibility studies or other pre-design/pre-construction analyses should be considered for the following critical issues:

- Alternatives/cost-benefit analysis: Has the OU considered and evaluated alternatives (including no construction) by using cost-benefit analysis? Costs and benefits should be inclusive of findings from all analyses (*i.e.*, environmental and social costs, etc.) and should consider life-cycle costs for the construction (including operations and maintenance).
- Climate risk: How might climate variability affect the performance of construction/infrastructure? What should OUs consider in planning and designing activities to mitigate potential climate-related impacts? See the [Guidance on Climate-Risk Management for USAID Projects and Activities](#).
- Promoting equity between men and women and preventing violence: How might the proposed construction/infrastructure reduce or contribute to gender equality and gender-based violence (GBV)? What should OUs consider in designing and implementing projects to mitigate potential negative impacts? See [ADS 205, Integrating Gender Equality and Female Empowerment in USAID's Program Cycle](#).
- Land rights: Has the implementer identified, and consulted with, all legitimate landholders? Are the legitimate landholders uncontested, or, if yes, have all disputes been resolved? Has the implementer secured the use of land through legal sale, lease, or other means in consultation with all legitimate landholders? See [Guidelines on Compulsory Displacement and Resettlement in USAID Programming](#).
- Local construction capacity: Is the planned construction within the capacity of local contractors? What actions should the OU consider to strengthen the capability of local contractors through construction?
- Stakeholder analysis: Have the OU and implementer identified and consulted with all stakeholders in a formal process? Is a system established to receive and address feedback and grievances from stakeholders through the construction process?
- Building codes: Have the OU and implementer reviewed local building codes to determine adequacy (factors of safety, seismic conditions, hydrology, geology, etc.) for use in design compared to International Building Code (IBC) developed by the International Code Council (ICC), or U.S. codes and best practices? How will the project address the Americans with Disabilities Act (ADA) in its design?

- Environmental impact: Have the OU and implementer assessed, avoided, and mitigated the impact of construction and the resulting infrastructure and services on cultural and natural resources according to the requirements of [22 CFR 216](#)?
- **Engage a USAID qualified engineer when available and where appropriate:** The USAID manager of engineering and construction activities should be a qualified engineer (graduate of an accredited engineering program) who has completed USAID's training in engineering contracting and construction-management (ECCM) and has a minimum of two years of experience in managing the implementation of construction activities. The Agency recommends more-stringent experience for the management of large and complex engineering and construction programs.
- **Engineering design completed by licensed architect-engineer firm:** A licensed architect-engineer firm (international or local firm legally registered to practice the relevant engineering disciplines) should prepare, review and certify the engineering design (defining construction requirements, producing the drawings and technical specifications, and preparing the cost-estimate for the construction) to ensure their quality, accuracy and completeness prior to the procurement of construction services. The approach for design, review, certification, and construction must conform to local legal requirements and/or standard professional practice, or to International Building Code (IBC) developed by the International Code Council (ICC), or to U.S. codes and best practices. In some cases, an appropriate local government agency can review and approve the design. Requirements for obtaining appropriate permits for construction should be included either in the contract with the independent engineer or in the construction contract.
- **Include operations and maintenance considerations in planning:** At the completion of the detailed design phase (or earlier if appropriate), the OU should identify additional resources (financial and human resources) required of the beneficiary/recipient for the operations and maintenance of the resulting infrastructure and related services. The OU should determine the source of these resources and include appropriate accommodations (training, management contract, third-party monitoring, etc.). According to Section 611(e) of the FAA, as amended, the cognizant Mission Director or USAID representative must certify the financial and human-resources capability for operations and maintenance of the host-country government or recipient organization for all capital assistance construction activities that exceed \$1 million in value (see [Additional Guidance for 611\(e\) Certification Involving Construction Activities](#)).

- **Use a design-bid-build delivery approach:** In executing construction activities, USAID recommends a standard phased approach with discrete, sequential steps for completing (100 percent) engineering design, procurement (bidding) and construction. An OU or implementing partner should obtain engineering design and bidding support through an architect-engineer services contract, and complete construction under a separate award to a construction contractor. Construction and architect-engineer contracting/sub-contracting must comply with the Federal Acquisition Regulation (FAR) and the requirements of USAID's construction policy. Under some USAID implementation approaches (assistance, G2G, PIO agreements, etc.), the Agency might not be directly responsible for the selection and management of all elements of construction delivery. Nevertheless, a design-bid-build approach is preferred for all construction activities, regardless of the selected overall implementation approach.
- **Establish appropriate minimum qualifications and experience for construction contractors:** OUs or implementing partners must establish minimum qualifications for contractors to ensure that the evaluation of proposals will result in the selection of a contractor with adequate financial and technical capacity as well as prior experience in performing similar construction projects in similar contexts. USAID or partner staff knowledgeable of local construction contracting requirements and capacity should establish the qualification standards.
- **Use a firm-fixed-price contract for construction:** Firm-fixed-price contracts provide greater control of the costs of construction projects and can mitigate change orders when a detailed design is part of the procurement documents. USAID strongly recommends the use of firm-fixed-price contracting for construction whether performed under direct contract with USAID or through a different implementation approach (assistance, G2G, or PIO agreements) when construction is performed as a sub-award.
- **Include performance bonding, guarantees, and warranty requirements in construction contracts:** Construction contracts must include bid and performance bonds, liquidated damages, and/or guarantees to ensure contract completion. Additionally, contracts should include warranty clauses to guarantee the performance of infrastructure for a specified period after completion. All bid and performance bonds, guarantee, and warranty clauses in construction contracts must be consistent with the FAR, as well as with local and/or U.S. professional standards and legal practices. Such clauses in assistance awards must be consistent with [2 CFR 200.325](#).

- **Contract with an independent architect-engineer firm for quality-assurance:** Each USAID Operating Unit managing a construction activity should hold a separate architect-engineer services contract with a qualified architect-engineer firm to oversee the construction and perform quality-assurance throughout the life of the construction activity. In many cases, this is the architect-engineer design firm.
- **Use fully funded contract mechanisms for construction related activities:** In accordance with the FAR, USAID must fund fully all construction contracts at the time of award. For assistance awards, the ADS recommends seeking an exception to the maximum length of forward funding ([ADS 602.3.3](#)) to avoid funding gaps prior to the completion of a fully constructed activity. For construction activities under both acquisition and assistance, the OU should fully fund all engineering-related services associated with the life of the planned construction activity.

VI. Required Construction Risk-Screening

The Agency's preferred approach is considered the "least risky" approach for implementing construction and serves as the benchmark for the required construction risk-screening. Nevertheless, for a variety of programmatic, pragmatic and/or contextual reasons, it might be necessary to deviate from this preferred approach. The OU must identify, analyze, and evaluate the additional risk accrued through variations from the preferred approach.

OUs should screen each discrete construction activity (contract, grant, cooperative agreement, G2G activity, PIO agreement, subcontract, etc.) at the lowest distinguishable level (ideally by specific construction contract/sub-contract). The Activity Planner or AOR/COR/GATR should initiate and complete the screening as soon as the OU identifies construction as a planned activity, ideally during the design phase. However, in certain cases, the AOR/COR/GATR may perform the risk-screening after award if the OU did not plan or identify construction during the activity-design process. The point at which the OU identifies construction as a planned activity determines the time at which it completes the risk-screening. The AOR/COR/GATR must update the screening throughout the life of the activity when the level of risk changes because of additional mitigation actions taken or risk perceived.

The Activity Planner and/or AOR/COR/GATR must complete the required risk-screening by using the [Construction Risk-Assessment Tool](#) for each discrete construction activity. The construction screening for each activity addresses conformance with, or variation from, each of the principal elements of the Agency's preferred approach described above. The screening is organized to describe actions taken (or planned) to mitigate construction risk at different stages of activity implementation: Planning, (Engineering) Design, (Construction) Procurement, and Implementation. OUs should allocate resources for

engineering technical assistance or other measures to manage and mitigate the highest risk activities.

For A&A activities, the Activity Planner or AOR/COR must include the completed risk-screening for each discrete construction activity in the Global Acquisition and Assistance System (GLAAS) requisition package or provide the screening to the AO/CO to file in ASIST so that it is part of the award file. All construction activities with risk-screening profiles captured in the Construction Risk-Assessment Tool can be monitored by USAID engineering staff.

VII. Mitigating Risk in USAID's Program Cycle

Elements of planning, design and implementation of construction activities occur throughout the USAID Project Cycle. Consequently, opportunities to identify and mitigate construction risk also present themselves at different stages. The following paragraphs briefly describe opportunities to mitigate construction risk OUs can take at different phases.

See [ADS 201](#) for more information on USAID's Program Cycle.

Country/Regional Strategic Planning

- Identify intent to perform construction, type and sectors - Identifying the general intent to perform construction activities early in the planning process helps to ensure the allocation of adequate resources and is a requirement of the ADS ([Chapter 201](#)).
- Assess Operating Unit resources and gaps - Operating Units considering construction activities should ensure there are, or will be, adequate, qualified staff to plan, procure and oversee implementation of construction activities of similar scope and complexity. This may include engineering staff and contracting officers with construction procurement experience. Additionally, anticipated Operating Unit budgets should be aligned with infrastructure development expectations. Any gaps should be identified and addressed in further planning efforts.
- Perform broad determination of local engineering capacity – This is a broad determination that engineering and construction capacity within the host country is adequate to complete the anticipated infrastructure works. The determination should consider the type and complexity of the work and use of locally available materials and appropriate technology.
- Identify planned project-delivery method (design-bid-build or other) - Identifying on a preliminary basis the preferred project-delivery method at the strategic level can help avoid confusion and additional risk-mitigation requirements at later stages of construction planning and implementation.

Design and Implementation of Construction Activities

- Identify source of feasibility analyses - The activity's design should identify the source of all infrastructure/construction-feasibility analyses, including preliminary studies, required mapping of and engagement with stakeholders, social assessments, land-rights analyses, environmental-impact analyses, and climate-risk assessments. Where information is not readily available or verifiable, additional USAID-funded analyses should be part of the design process for the construction activity.
- Identify source of engineering design - The activity's design should include a specific, independent engineering design. In cases in which engineering design is available from a third-party source (like a host government), the Agency recommends quality-review and validation of the design by a licensed architect-engineer firm (ideally local).
- Procurement planning to phase feasibility analyses, and engineering-design, construction, and quality-assurance activities - The activity's design should consider appropriate timelines to allow for the completion of feasibility analyses and design prior to the procurement of the construction.
- Initial estimation of cost – The Activity Planner should provide an initial estimate of the construction costs during the activity-design stage. If an architect-engineer firm is supporting infrastructure design through a separate agreement with USAID, the architect-engineer firm could be the source of the Activity Planner's initial cost-estimate. When appropriate for the instrument, the OU should include estimated construction costs in USAID's A&A Plan System.
- Establish contingency plan - OUs should have a plan to address potential changes or cost overruns. Plans could include financial contingency and a change-management system (specified approach, protocol, or process) to address variances.
- Where construction is performed under direct contract to USAID:
 - Prepare the firm-fixed-price procurement package based on engineering design and specifications - Construction contract documents should be based on 100-percent design prepared by a third-party architect-engineer firm (ideally local). The contract documentation should include requirements for appropriate performance guarantees and warranty clauses.

- Include a construction schedule and cost-estimation in the construction contract - A qualified engineer (ideally local) should validate the schedule and cost-estimate; the OU could include draft versions if validation is not available.
- Include a site health and safety plan in the contract - An independent architect-engineer firm (ideally local) should review and validate the construction contractor's plan for health and safety prior to the commencement of construction. The Initial Environmental Examination and Environmental Assessment could contain related requirements.
- Where construction is performed under an alternate implementation approach (assistance, G2G, PIO agreement, or sub-contract):
 - The OU must ensure the USAID partner is using firm-fixed-price contracts for construction as much as practicable; including an engineer-validated schedule and cost-estimate in the construction contract or sub-contract; and preparing a plan for health and safety for construction activities.

Monitoring and Evaluation

- Use engineering quality-assurance reports/documentation to monitor performance - The AOR/COR/GATR should use monitoring and inspection reports prepared by an independent quality-assurance contractor (architect-engineer firm, ideally local) to monitor construction progress. Construction activities must conform to the engineering design unless the partner documents variances, which an architect-engineer firm must validate and the USAID AOR/COR must approve.
- Update the risk-screening for construction - The AOR/COR/GATR should update the risk-screening for construction as required (e.g., when the level of risk has changed because of changed conditions or changes in implementation approach) to maintain an accurate presentation of the level of risk of each discrete construction activity.

VIII. Mandatory References

- a. [ADS 303maw, USAID Implementation of Construction Activities](#)
- b. [Section 611 of the Foreign Assistance Act of 1961, As Amended: Completion of Plans and Cost-Estimates](#)

IX. Definitions

Architect-Engineer Firm (A-E): Any individual, firm, partnership, corporation, association, or other legal entity permitted by applicable law to practice the professions of architecture or engineering.

Architect-Engineer Services: As defined in [Chapter 11 of Title 40 of the United States Code](#) (USC): (1), Professional services of an architectural or engineering nature, as defined by State law, if applicable, that are required to be performed or approved by a person licensed, registered, or certified to provide those services; (2) Professional services of an architectural or engineering nature performed by contract that are associated with research, planning, development, design, construction, alteration, or repair of real property; and, (3) Those other professional services of an architectural or engineering nature, or incidental services, that members of the architectural and engineering professions (and individuals in their employ) may logically or justifiably perform, including studies, investigations, surveying and mapping, tests, evaluations, consultations, comprehensive planning, program management, conceptual designs, plans and specifications, value engineering, construction phase services, soils engineering, drawing reviews, preparation of operating and maintenance manuals, and other related services.

Bonds and Guarantees for Construction: A promise and assurance to the U.S. Government that the contractor will guarantee a bid, perform according to contract terms, or guarantee payments to sub-contractors and material suppliers (FAR [Subpart 28.1](#)).

Construction: For purposes of this policy means: construction, alteration, or repair (including dredging and excavation) of buildings, structures, or other real property and includes, without limitation, improvements, renovation, alteration, and refurbishment. The term includes, without limitation, roads, power plants, buildings, bridges, water treatment facilities, and vertical structures.

Construction Risk: The probability of damage, injury, liability, loss, or any other negative impact on the performance of a construction contract in terms of schedule, cost, quality, or safety, caused by external or internal vulnerabilities, and which preemptive action could avoid. In general, construction is widely associated with a high degree of risk because of the nature of construction business activities, processes, environment, and organization.

Design Review and Certification: A process in which building plans or engineering designs are reviewed to ensure their compliance with basic safety, engineering, and planning rules and necessary certifications or approvals to obtain appropriate construction permits.

Engineering Design: Includes the drawings, calculations, specifications and other documents (including architectural design, geotechnical design, mechanical design, electrical design, etc., as required) from which the building or infrastructure is to be constructed, altered, demolished or removed, including the proposed procedures for inspection during construction and the definition of specified systems and procedures for operations and maintenance.

Operations and Maintenance: The decisions and actions regarding the control and upkeep of property and equipment, including, but not limited to, the following:

- 1) Actions focused on scheduling, procedures, and work/systems control and optimization; and
- 2) The performance of routine, preventive, predictive, scheduled and unscheduled actions aimed at preventing the decline or failure of infrastructure with the goal of increasing efficiency, reliability, and safety.

Quality-Assurance (QA): The various functions, including inspection performed by the U.S. Government or the Government's designee (architect-engineering firm), to determine whether a contractor has fulfilled a contract's obligations pertaining to quality and quantity. This includes steps that the U.S. Government or designee takes to ensure the construction contractor follows the quality-control procedures it promises to fulfill.

Qualification-Based Selection: A process by which the Agency first evaluates each architect-engineer firm in terms of its professional qualifications, and then selects a firm to negotiate and award a contract based on the requirements of the job. FAR [36.602](#) requires that a Federal Department or Agency must not base its selection of architect-engineer service contracts on price, or even include price as a factor in the decision process, but must look for the most highly qualified firm for the particular project or activity.

Quality-Control (QC): The process conducted by the producer of the supplies or purveyor of services to ensure that the final results meet the requirements of the contract. For construction activities, QC is the responsibility of the construction contractor.

Qualified USAID Engineer: An engineer employed or contracted directly by USAID as a U.S. Direct-Hire (USDH), a Foreign Service National (FSN), a Cooperating-Country-National Personal Services Contractor (CCNPSC), a Third Country-National Personal Services Contractor (TCNPSC) or a U.S. Personal Services Contractor (USPSC):

- Professional qualifications should include a professional degree from an accredited engineering program, completion of USAID's training in

engineering contracting and construction management (ECCM) and a minimum of two years of experience in managing the implementation of construction activities.

- The Agency recommends more-stringent experience requirements for the management of large and complex engineering and construction programs.

Risk-Screening: A process that considers “critical success factors” (CSFs), or what needs to happen correctly for a project to be successful, as well as what can go wrong with an activity.

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