



# USAID Infrastructure Workshop

Washington, DC



# Infrastructure and Development

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# Physical Infrastructure

## The Built World around us that:

- ▶ Sustains communities
- ▶ Improves quality of life
- ▶ Supports economies

## Examples:

- ▶ Structures -- homes, public and commercial buildings
- ▶ Utilities – water, sewer, telecom, electricity, solid waste
- ▶ Transport – roads, bridges, ports, rail, airports



# Why Invest in Infrastructure



## Address basic human needs

- ▶ Health, food, water, and sanitation



## Support economic growth

- ▶ Electric power, education, communications, water, transport



## Respond to natural and man-made disasters

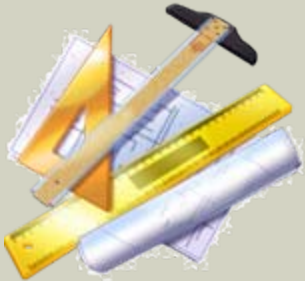
- ▶ Earthquakes, tsunamis, floods, war, neglect

# Phases of Infrastructure Programs



## Planning

- ▶ Identify needs, analyze options, make decisions



## Engineering

- ▶ Apply standards, conceptualize, make judgments, describe and specify



## Construction

- ▶ Administer contracts, use schedules and budgets to manage labor and materials

# What else is important?

**Finance -- Capital and recurrent costs**



**Political, social and environmental factors**

**Legal/regulatory requirements**

**Institutional environment – public versus private utility, agency or firm**

# Sustainability of Infrastructure Investments

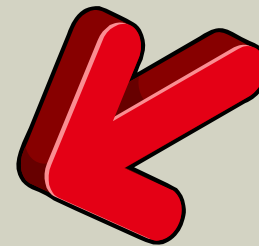


Old idea was to **invest in O&M training, spare parts, etc.**



**Tariffs and cost recovery** to pay for O&M and capital replacement

**Legal/regulatory structure, PPP, full privatization** – and using a **business model** to manage the utility



# IMPLEMENTATION



**OWNER**.....owns and usually operates the completed facility

**ENGINEER**.....provides the technical and managerial know-how to assist the Owner

**CONSTRUCTOR**.....builds the facility and may provide subsequent O&M support

**FINANCIER**.....finances the project

# THREE MAJOR CONSTRUCTION MODELS

DESIGN/BID/BUILD

DESIGN/BUILD

CONSTRUCTION MANAGEMENT





# Design/Bid/Build

DESIGN



BID



BUILD

1. Engineer does the planning and engineering
2. Owner with assist from engineer competitively procures a construction contractor
3. Construction company builds with the engineer supervising
4. Owner accepts the facility when complete
5. Warranty period and O&M support

# Design/Build

**MAJOR DIFFERENCE** construction company  
from Design/Build/Bid = provides detailed  
engineering services



- ▶ Engineering firm provides a preliminary design and evaluation criteria in the IFB
- ▶ Construction firm provides a technical proposal as well as a firm fixed price
- ▶ Construction firm rather than engineer is responsible for design integrity
- ▶ During construction the engineer is responsible to oversee work for contract compliance

# Design/Build -- continued

## Potential Advantages of D/B

- + **Constructability is enhanced because construction firm controls the detailed design**
- + **Construction cost may be less**

## Potential Disadvantages of D/B

- **Owner and Engineer have less control over the final product**
- **Design might be cheaper rather than more efficient – life cycle costs may be higher**

**Claims and Disputes have been argued both ways**

# Construction Management

- Used to build large complex facilities such as electric power and petrochemical facilities
- The CM more directly represents the owner's interests – often has a financial incentive to contain costs with “cost not to exceed” contract
- Sometimes called “Program Management” when other than construction components are included or when the firm acts primarily as an advisor to the owner



# Construction Management -- continued

## How does it work?

- ▶ Owner hires a CM using what looks like a Technical Assistance contract – cost reimbursable with fixed fee.
- ▶ Process for program implementation:
  - Contractor performs studies recommending particular facilities; USAID approves; local construction firms hired as subcontractors; facilities are built.



# Construction Management -- continued

## When to use CM:

- ✓ Need quick start
- ✓ Little upfront definition
- ✓ Numerous different facilities
- ✓ Want to use local engineering and construction firms under the CM



## Potential Advantages:

**Single contract for USAID to administer**

**USAID and CM can integrate “soft” technical assistance to enhance program design**

## When not to use CM:

- ✓ Things are simple and well defined.
- ✓ Owner wants to maintain direct control over constructors.

# Direct Contracting and Host Country Contracting

## DIRECT CONTRACTING

USAID executes the contract

- ▶ For construction can be risky because of liability
- ▶ Financial liability not capped
- ▶ Little control over local authorities -- permits



## HOST COUNTRY CONTRACTING

USAID finances a contract bwn a local implementing agency and the contractor

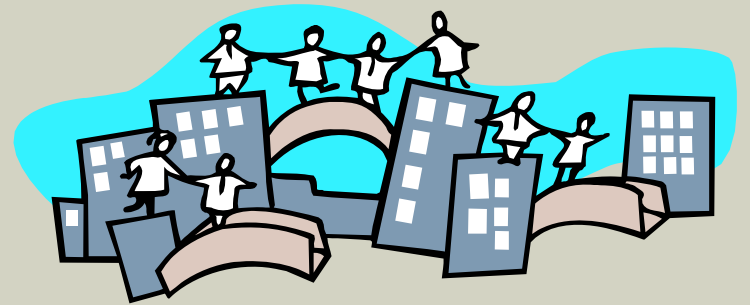
- ▶ USAID's financial liability is capped
- ▶ HCC is less common today with the introduction of CM arrangements to retain local contractors



# Host Country Contracting (continued)

**USAID provides financing and has substantial involvement through approvals:**

- ▶ Invitation for Bid
- ▶ Prequalification of contractors
- ▶ Contract Award
- ▶ Payment of invoices
- ▶ Final acceptance



**USAID staff responsible for monitoring but not directly involved in implementation**

**Host country agency is responsible for implementation**



# Host Country Contracting (continued)

**Multilateral banks** and **MCC** use implementation models based on host country contracting concept

- ▶ Local entity responsible for implementation
- ▶ Bank provides financing and guidelines – retains approval authority
- ▶ Bank or MCC monitors performance
- ▶ Financial liability capped by loan or compact amount
- ▶ USAID has successfully used HCC in Egypt to limit liability providing leverage to deal with disputes



# Fixed Amount Reimbursable Agreements

## An agreement to reimburse host country for a product based on a cost estimate

- ▶ First used in the Philippines years ago after a typhoon
- ▶ Highly modified in recent years in Egypt
- ▶ Used to build more than \$100 million of sewers in Cairo from 1990 until 1998
- ▶ Local implementation using local procurement systems; USAID officials not involved other than monitoring and acceptance of product; should include cost sharing

# Success Factors

- ▶ Projects should be **demand driven** and based on **sound planning**
- ▶ Sustainability depends on a **proper legal/regulatory framework** and **effective institutions**
- ▶ Procure competent partners and develop team attitude
- ▶ Keep a “**project focus**” – we are all in this together
- ▶ **Trust** is two-fold: competence and ethics
- ▶ Resist the counterproductive mistrust of contractors-- they want what you want – a successful project

