

King Fahd University of Petroleum & Minerals
College of Environmental Design
Construction Engineering & Management Department
CEM 511
Construction Estimating
Fall 2005/2006



Construction cost estimating

- Cost aspects of Construction
- Quantity take-off methods
- Labor and equipment production rated, unit costs
- Overheads and profits
- Creation and coordination of cost control systems



Project stages

- Feasibility studies.
- Design stage.
- Procurement stage.
- Contracting stage.
- Construction stage.
- Completion stage.



Kinds of construction estimates

- **Feasibility**

- Determining whether a project should be built
- Aiding owner to obtain funding for his project

- **Design stage**

- Adequately develop the project to the owner's cost and quality objectives.

- **Contracting stage**

- Detailed estimates prepared by contractors to bid on the project.



Construction estimating

Its importance is highlighted by the fact that:

Individual entities must make significant financial commitments that depend in large part on the accuracy of a relevant estimate.

- Feasibility estimates influences owner's decision to proceed with the project.**
- Accuracy of contractor's estimate dictates his financial success and his ability to finish the project on time.**



Special features of const. estimates

- **Manufacturers determine product cost by actual calculation from cost data collected as the product is built and subsequently priced.**
- **Construction contractors are commonly called upon to give prices before production costs can be actually known.**
- **The need for accurate estimates is not as important to the manufacturer as is his ability to market his product.**
- **The owner forces the contractor to commit to a price before the determination of actual costs.**



Inaccurate estimating

The degree of estimating accuracy is in general poor in construction industry.

It is a rare occasion when a project is found to have been built for its estimated cost.

This is due to the ever increasing inflationary trend in costs.

The result has been lengthy project delays, serious cost over-runs, and financial failure for the contractor.



Deviations of actual costs from estimates

Sources of deviations include:

- Risks and uncertainty associated with the future.

Unexpected rain days occur during construction cause estimates to be in error.

- Mistakes in calculations

Imprecision in extending math calculations that may go unnoticed.

- Error of belief

Inadvertently omitting cost items.



Construction estimate sequence

- Determination of the work to be performed (quantity surveying).
- Determination of the productivity of resources to be used for the work (productivity is the amount of work put in place per unit of resource or labor).
- Determination of the cost of materials to be fabricated, and the cost of resources to be used for the work (cost accounting)



Types of cost estimates

- Preliminary cost estimate.

Approximate estimate performed at the stage when the project is not yet completely defined.

- Final cost estimate.

Detailed estimate prepared when finalized drawings and specifications are available.

