Session 7

Cost Approach

The Cost Approach

- three generally recognized approaches to the determination of value: cost, sales comparison & income approaches.
  - The Cost Approach: is based on the principle **substitution**
    - which asserts that no prudent buyer or investor will pay more for a property than that amount for which the site could be acquired and which improvements that have equal desirability and utility can be constructed without undue delay.

- The Cost Approach method is used for specialised buildings for which there may be no market evidence of transactions of similar properties.

- ‘Specialised buildings’ means either by reference to their design, type of construction, size or location, function or the nature of the building designed for etc.

Typical ‘Specialised Properties’

- Churches,
- Mosques,
- Specialised/Heavy Industry,
- Power plants,
- Oil refineries,
- Mines buildings & infrastructure
- etc

Steps for DRC

- Estimate the total cost new of the improvements as of the valuation date.
- Estimate the total amount of depreciation incurred by the improvements.
- Subtract the total estimated depreciation from cost new to arrive at the depreciated cost of the improvements.
- Estimate the value of the land, or site, as if vacant to its highest and best use or its existing use value as of the valuation date

- Add the land, or site, value to the depreciated cost of the improvements to arrive at a value indicator for the total property.

Estimation of Current/New Cost

- Two Current/New Costs
  - Replacement Cost New
  - Reproduction Cost New

  - **Replacement Cost** of a building is the estimated cost of erecting the building, or **modern substitute/similar** ***asset offering equivalent utility*** as that existing, and the ancillary site works together with the relevant professional fees and other associated expenses directly related to the construction of the building and site works.

- **Modern substitute/equivalent utility** is defined by its comparative performance or output/utility, not its physical characteristics

- Reproduction Cost New is the current cost of reproducing a new replica of the property being appraised using the same, or closely similar, materials.-**Identical reproduction of the property.**
  - Which one is mostly used?
  - **Challenge of reproduction cost**: it may be impossible to provide an identical reproduction of an older building/machinery (construction material, labour, technology etc.).

Replacement/Reproduction Cost New Estimation

- Four Method:
  - Detailed method (quantity survey method)
  - Unit-in-place method
  - Comparative (area/volume) method, and
  - Trending method

Quantity Survey

- It is an item-by-item inventory of all costs, including the contractor's overhead and profit.

	SUMMARY	
S/N	**DESCRIPTION**	**AMOUNT (BIRR)**
	A) SUB STRUCTURE	
1	EXCAVATION AND EARTH WORK	**1,240,177**
2	CONCRETE WORK	**9,257,420**
3	MASONERY WORK	**70,931**
	TOTAL SUM OF 'A'	**10,568,529**
	B) SUPER STRUCTURE	
1	CONCRETE WORK	**9,959,426**
2	BLOCK WORK	**760,886**
3	ROOFING WORK	**266,952**
4	CARPENTARY AND JOINERY	**2,254,865**
5	METEAL WORK	**2,214,745**
6	FINSHING WORK	**8,189,700**
7	PAINTING	**767,640**
8	SANITARY WORK	**1,385,331**
9	ELCTRICAL WORK	**4,726,054**
	TOTAL SUM OF 'B'	**30,525,599**
	TOTAL SUM OF 'A & B'	**41,094,128**

- Unit in Place Method
  - It is a simplification of the quantity survey method.
  - It is also called the segregated cost method.
  - It finds the sum of the cost of installed materials such as the cost to install the foundation, super structure, interior wall, exterior wall, roof, plumbing, wiring, heating, etc.
  - the sum of the units representing the total cost of the building.

- Comparative (area/volume) method
  - the cost of a building is determined by some measure of its size, usually its square meter/footage.
  - The cost per square-meter/foot can be found from similar developments in the area or from published sources, quantity surveyors, engineers, valuers, etc.
  - It assumes there are numerous similar buildings that can be grouped by design, type, and quality of construction.

- By developing average unit costs from known construction costs of new buildings in each group, replacement cost factors can be developed that will apply to the buildings in that group or class.
- The valuer identifies costs of similar structures, adjusting those costs for differences in physical characteristics in comparison to the subject property.

Trending method

- Cost index trending be used to convert historical cost (not original cost) into a current cost estimate.
- If the historical construction cost (including all hard and soft costs) is known, a cost index/trending factor can convert that cost into an indication of cost new for the date of appraisal.
- trending reflects the movement of price over time.
- It is used to estimate the reproduction cost of the building.

- An index is a “number used to measure change in prices, wages, employment, production, etc.; it shows a percentage variation from an arbitrary base year standard where the index is usually 100.

Depreciation

- Three causes of depreciation:
  - Physical deterioration;
  - Functional obsolescence; and
  - Economic obsolescence

  - **Physical deterioration** is a form of depreciation where loss in value or usefulness of a property is due to the using up or expiration of its useful life
    - caused by wear and tear, deterioration (peeling paint, metal fatigue, termite infestation), physical stresses, and similar factors.

- The use of a property is often a good indicator of physical deterioration.

  i.e., *property employed in dusty, dirty, abrasive, or corrosive atmospheres will deteriorate faster than the same property in a clean environment.*

- Mainly methods of measuring physical deterioration:
  - observation, and
  - Age/life ratio

- Observation
  - the appraiser makes a comparison based on the personal experience gained by looking at similar properties and comparing them to new properties.
  - The procedure involves actually observing those elements of wear and tear that can be seen and converting those observations into a percentage.
  - It also involves discussions with knowledgeable personnel to determine the condition of those aspects that might not be readily apparent.
  - On the basis of the facts, the valuer must develop an opinion of physical deterioration, stated in the form of a percentage, to deduct from replacement or reproduction cost new.

Age/Life

- percent depreciation is estimated simply by dividing the estimated effective age of the subject property's improvements by the total economic life of those improvements.
- Actual age is usually an easily obtained fact, but effective age is an estimate by the appraiser.
- Effective age is higher than actual age → poor maintenance as compare to average.
- Effective age is lower than actual age → better maintenance as compare to average.

- Percent of deterioration = Effective age/Total life
  - Where: ***Effective age*** *is the apparent age of a property in comparison with a new property of like kind; that is, the age indicated by the actual condition of a property. In estimating effective age, the valuerconsiders the effect that overhauls, rebuilds, and above-average or below-average maintenance may have had on the property's current condition.*

  - ***Total life is the estimated period of time****, usually stated in number of years, that a new property will physically endure before it deteriorates or fatigues to an unusable condition purely from physical causes, without considering the possibility of earlier retirement due to functional or economic obsolescence.*

- Percent of deterioration = Effective age /(Effective age + Remaining physical age):
  - Where Remaining physical age= Physical age- effective age.

- Functional obsolescence is a form of depreciation in which the loss in value or usefulness of a property is caused by **inefficiencies** or **inadequacies** of the property itself, when compared to a more efficient or less costly replacement property that new technology has developed. Symptoms suggesting the presence of functional obsolescence are excess operating cost, excess construction (excess capital cost), inadequacy, lack of utility, or similar conditions.

- Two types of functional obsolescence:
  - Curable and incurable
- Curable: the value added will be equal to or greater than the cost to cure,
- Incurable: the value added will be less than the cost to cure.
- Example of Curable:
  - A deficiency requiring addition of a new item
  - A deficiency requiring replacement/ modernization of an existing item
  - A superadequacy that is economically feasible to cure

- Example of Incurable:
  - A deficiency that is not economically feasible to cure; and
  - A superadequacy that is not economically feasible to cure

- Functional Obsolescence from Excess Capital
  - excess capital cost is measured by the difference between reproduction and replacement cost.
  - excess capital costs results from improvements and changes in design, materials, layout, product flow, construction methods, and equipment size and mix.

- Functional Obsolescence from Excess Operating Expenses
  - Calculating operating obsolescence involves a comparison of the operating characteristics of the subject property to its modern equivalent,
  - The existing property or facility and its higher operating expenses are compared to the reduced expenses that could be achieved by the modern replacement facility.

- Economic obsolescence (sometimes called “external obsolescence”) is a form of depreciation where the loss in value of a property is caused by factors external to the property. These may include such things as the economics of the industry; availability of financing; loss of material and/or labor sources; passage of new legislation; changes in ordinances; increased cost of raw materials, labor, or utilities (without an offsetting increase in product price); reduced demand for the product; increased competition; inflation or high interest rates; or similar factors.

- Economic (external) Obsolescence
  - it is a loss in property value caused by external forces.
  - The loss is beyond the control of the property owner.
  - Unlike physical depreciation, external obsolescence is not related to the age/ condition of the property
- Generally, it is a result of:
  - actions taken by consumers, competition, reduced demand of the property, or regulatory agencies.

- Capitalization of income loss is the most common methods to determine the effect of external (economic) obsolescence. With appropriate income information, external obsolescence can be quantified by capitalizing the loss in income.

Summary of depreciation

- Step 1: Reproduction Cost New
  Less Excess Capital Cost
  Equals Replacement Cost New
- Step 2: Replacement Cost New (RCN)
  PhyLesssical Deterioration
  Equals RCN Less Physical Deterioration (RCNLPD)
- Step 3: RCNLPD
  Less Functional Obsolescence
  Equals RCNLPD and Functional Obsolescence (RCNLPD and FO)
- Step 4: RCNLPD and FO
  Less Economic Obsolescence
  Equals Depreciated Replacement Cost (taking into account all Forms of Depreciation).
- Step 5: RCNLPD and FO and EO
  Plus land value Economic Obsolescence
  Equals Depreciated Replacement Cost (including land value)