

# Process of Valuation

SK AGRAWAL

# Topics

- ▶ Check list for valuation of plant and machinery; documents to be studied prior to plant visit/inspection; ABC analysis
- ▶ Items to be treated as plant and machinery
- ▶ Items to be treated as land and buildings
- ▶ Physical verification (survey and inspection)
- ▶ Data collection and valuation analysis for replacement cost new Method (cost approach)

# Valuation Process - Introduction

- ▶ P&M Valuation is a complex process.
- ▶ Have to cover
  - ▶ Wide range of assets – bicycle to crude tankers
  - ▶ Different manufacturing / conversion process
  - ▶ Different business models

*Same asset – will have a different approach in different condition.  
Asset + Why = decide the way to value*

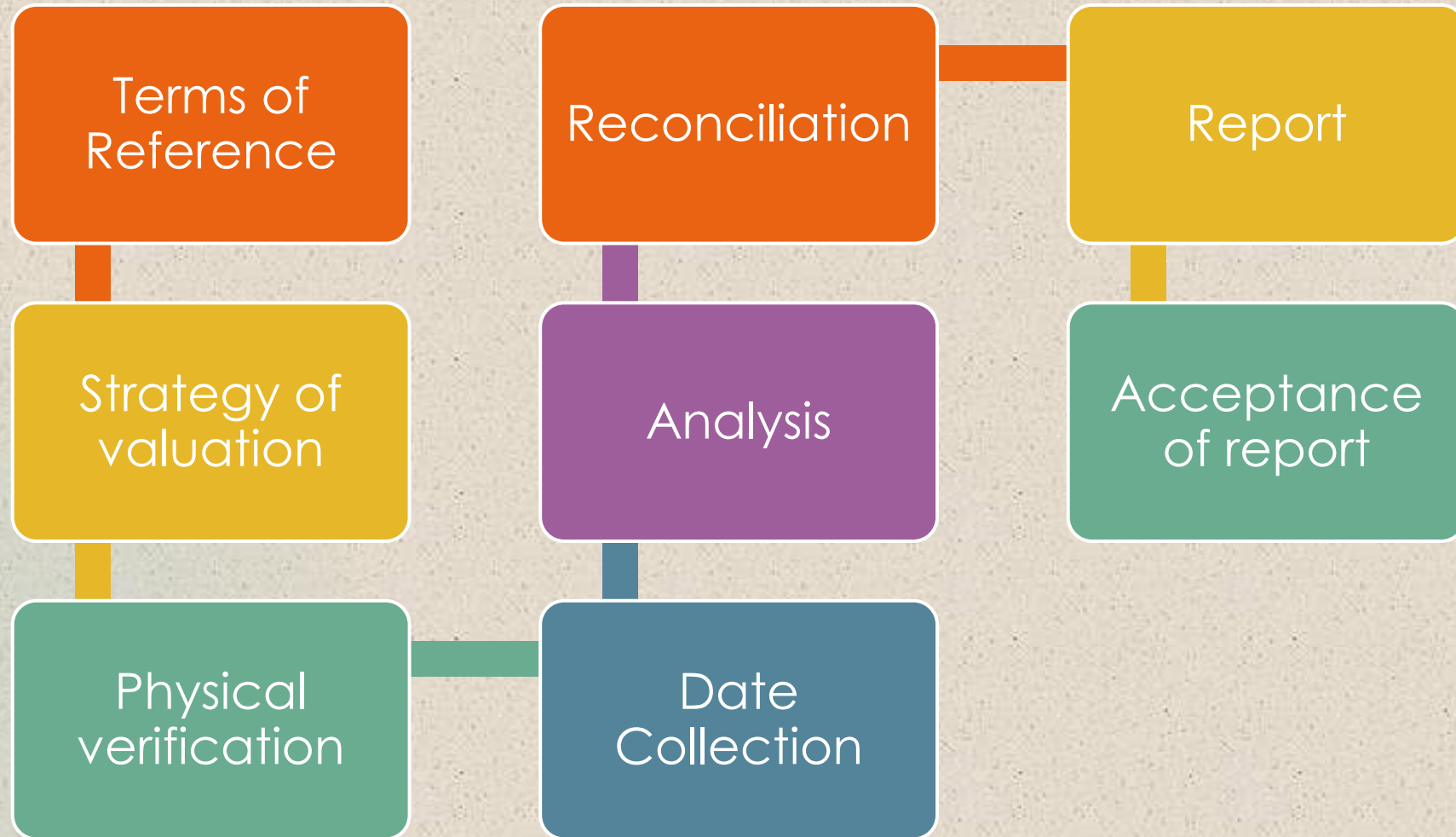
# Factors to consider for valuation

- ▶ Specific utility or usefulness of an asset – Boiler used differently in different industry.
- ▶ Each asset has a different contribution in process & profitability.
- ▶ Potential of these assets – will be different in different situations.
- ▶ Market conditions – will change the value.
- ▶ Use and maintenance standards.
- ▶ Legal provisions
- ▶ Accounting norms
- ▶ Ownership – lease or out right.

# Check List

- ✓ Fixed Asset register.
- ✓ Plant Layout. Required as per factory act.
- ✓ Balance Sheets of last few years.
- ✓ Purchase documents – PO, Installation reports.
- ✓ Maintenance documents
  - ✓ Breakdown
  - ✓ Preventive
  - ✓ Capital repairs
- ✓ Process Flow diagram – decides the criticality of the assets.
- ✓ Production Reports.
- ✓ Project report – why this asset was required.
- ✓ List of directors / promoters. Not necessary though.

# Steps of Valuation process



# Check List for P&M Valuation

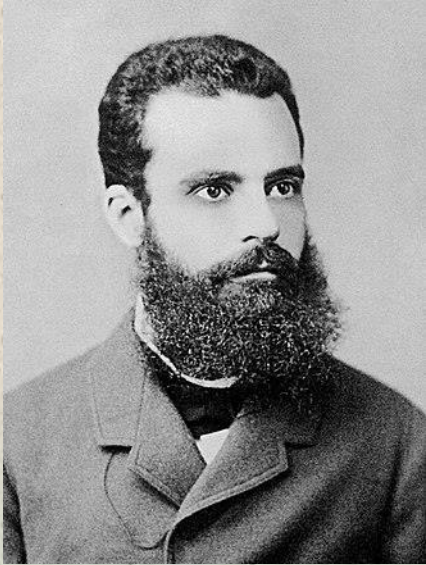
- ▶ Work Order
  - ▶ What is to be valued
  - ▶ Why is it to be valued
  - ▶ Where it is to be valued
  - ▶ For who is it to be valued.
  - ▶ Fees of valuation
  - ▶ Date of valuation.

# ABC Analysis

- ▶ If the number of assets is very high NOT possible to verify all?
- ▶ To DO A-B-C Analysis



# What is A-B-C Analysis



- ▶ Born 1848 ~ 1923.
- ▶ Civil Engineer turned Economist
- ▶ Professor in Switzerland

Vilfredo Pareto

80-20 rule

# A-B-C

Grade	Approx Value	Approx Quantity
A	70 % to 80%	20% to 25%
B	10% to 15%	25% to 40%
C	5% to 15%	50% to 70%

We see

1. Very few items have a large value
2. Largest number of items have small value.

Practically also  
One to five machines – major value  
Large number of smaller assets – low value

# What to do

- ▶ Make the A-B-C analysis from FAR
- ▶ Do 100% inspection of A
- ▶ Do at least 40% inspection of B
- ▶ Do about 10% inspection of C

Mention the same in your report.

***Effort and attention where there is value.***

***No need to put too much effort where the value is low.***

# Terms of Reference

- ▶ Who has asked to do the valuation.
- ▶ Why is the valuation required.
- ▶ Date of valuation.
- ▶ Treatment of terms
  - ▶ Lease
  - ▶ Hire purchase
  - ▶ Held in trust
  - ▶ Jigs/ Dies / Instruments / piping etc as special assets
- ▶ Assumptions to be made.
- ▶ Disclaimers & Caveats

# Strategy Of Valuation

- ▶ For Verification
  - ▶ Description, Model, Maker,
  - ▶ Client asset no / unique number
  - ▶ Date of purchase / installation
  - ▶ Conditions of installation / foundation
  - ▶ Major upgrade/ capital repair after installation
  - ▶ Type of total energy requirements
  - ▶ Environment conditions – dusty, clean etc
  - ▶ Records – production, operator name, maintenance
  - ▶ Operation Manual / Maintenance manual available or not.
  - ▶ Accessories available or not.

# Items to be treated as Plant & Machinery

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- ▶ All mechanical machine
- ▶ All electrical fittings
- ▶ All laptop, printer
- ▶ All civil foundations of machines
- ▶ ETP
- ▶ Chemical plants / auto mobiles / construction equipment
- ▶ Boiler / Chimney of boiler
- ▶ Furniture for use in machine.
- ▶ Conveyors

# Items under Land & Building

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- ▶ All buildings
- ▶ Boundary walls
- ▶ Tube wells
- ▶ Roads
- ▶ Partitions of aluminium / glass
- ▶ Furniture – some type – use in office.
- ▶ Main gate
- ▶ Inventory of construction items

# Verification

- ▶ Details
  - ▶ Description, model, serial number, unique number
  - ▶ Size, dates (purchase, installation, commercial use)
  - ▶ Type of energy required – gas, power, compressed air
  - ▶ Quantity of energy required.
- ▶ Fixed Asset Register
  - ▶ Data complete or not.
  - ▶ Asset available but not in FAR
  - ▶ Asset not available but in FAR.
  - ▶ Different asset available as in FAR.
- ▶ Micro
  - ▶ Line of production – what is being produced
  - ▶ Types of processes used to manufacture
  - ▶ Installed capacity and used.

Very Important Part of Valuation



# To note during inspection

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- ▶ Condition of asset. N/E/VG/G/F/P/S
- ▶ Working Environment – Clean / humid / Noisy / Dirty
- ▶ Usage pattern – number of shifts
- ▶ Operators – skilled / dedicated or any one?
- ▶ Maintenance record .
- ▶ Planned Maintenance record.
- ▶ Operation manuals / maintenance manuals.
- ▶ Inventories with the asset – attachments, inspection, setting fixtures

# Data Collection

- ▶ For Replace Cost New
- ▶ For Sales Comparison or Market approach
- ▶ For Income approach or capitalization

# Replacement Cost New Method

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- ▶ Replacement of the asset.
  - ▶ Similar machine
  - ▶ Similar age
  - ▶ Similar capacity
  - ▶ Similar productivity

Usually that is NOT possible.

We get

Better machine / More productive / Better capacity

# Factorization

- ▶ In case machine is discontinued by the original maker but similar is available from other maker.
- ▶ *Replacement is like kind and utility.*
- ▶ Factors can be used to make it close to the original.

A new machine, similar different maker is Rs 3 lakh. Following differences are there.

Factors	Original	Present similar	Percent
Energy Consumption	100	85	15%
Consumables required (oil etc)	100	90	10%
Space	100	95	5%
Total	300	270	30%
RCN is = $(1-0.3) = 0.7 \times 3 \text{ lakh} = 2.1 \text{ lakh}$			

# Another Example

Old Machine = 10 years life, Value Rs 1.5 lakh.

New Machine – differences are below.

Cost of new machine = Rs 5 lakh

Attribute	Old	New	Percent	Not Covered
Energy consumption	100	90	10%	
Consumables	100	90	10%	
Space	100	95	5%	
Wages	100	85	15%	
Capacity	100			100%
TOTAL			40%	
RCN for the old machine is = $(1-0.4) \times 5 \text{ lakh} = \text{Rs } 3 \text{ lakh}$				

# Key Steps in Replacement Cost New

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Calculate the cost that would be incurred to create or get an asset giving equal utility



Determine if there is any depreciation related to physical & external obsolescence with the asset.



Deduct the total depreciation from the total cost (of the new) asset and arrive at a value


# Key Steps in Reproduction Cost New

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Calculate all the cost that will be incurred to create an exact replica of the subject asset



Determine if there is any depreciation related to physical, functional or external obsolescence



Deduct the total depreciation from the total cost and arrive at the value

# Thanks

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