ANALYSIS OF RATES

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What is Analysis of Rates?

- The process of determining rate of any work in Civil Engineering project like earthwork, concrete work, brickwork, plastering, painting etc. is known as Analysis of Rates or simply Rate Analysis.
- The rates of these works further help in determining cost of particular work and in turn cost of the project.
- The rate of any process or work depends on various factors.

Factors affecting Work Rate

The various factors that are involved in determining rate of any process or work are mentioned below :

- Specifications of works and material about their quality, proportion and constructional operation method.
- Quantity of materials and their costs.
- Cost of labour and their wages.
- Location of site of work and the distances from source and conveyance charges.
- Overhead and establishment charges
- Profit

Need of Rate Analysis

- To determine the actual cost per unit of the items.
- To work out the economical use of materials and processes in completing the particulars item.
- To calculate the cost of extra items which are not provided in the contract bond, but are to be executed as per the directions of the department.
- To revise the schedule of rates due to increase in the cost of material and labour or due to change in technique.

Terminology

- **Labour** : May be classified into three types.
  - Skilled Ist class
  - Skilled IInd class
  - Unskilled

  Labour charges can be obtained from Schedule of Rates. 30% of the skilled labour in data should be taken as Ist class and remaining 70% as IInd class.
- **Lead Statement** : The distance between the source of availability of material and construction site is known as Lead and is calculated in km. The conveyance cost of material depends on lead
  - The lead statement will give the total cost of materials per unit item including first cost, conveyance loading-unloading, stacking charges etc.

Terminology (cntd.)

- **Lead** : During the earthwork, the average horizontal distance between center of excavation to the center of deposition is known as Lead.
  - Lead is normally calculated in multiple of 50m
- **Lift** : Similarly during the earthwork, the average height through which soil has to be lifted from source to the place of spreading(also known as heaping) is known as Lift.
  - The first Lift is taken upto 2m.
  - The extra lift is counted for upto 1m after the first lift and so on.

Typical example of Lead Statement

S.No.	Materials	Cost at Source	Per	Lead in Km	Conveyance charges per Km
1	Rough Stone	260.00	cum	18	5.00/cum
2	Sand	12.00	cum	25	4.00/cum
3	Cement	2100.00	tonn	Local	-

Analysis of Rates from Lead Statement

S.No.	Mtls.	Cost at Source	Per	Lead in Km	Conveyance charges Rs.	Total Conveyance charges Rs.	Total Cost Rs.
1	Rough Stone	260.00	cum	18	5.00/cum	5×18= 90.00	260+90= **350.00**
2	Sand	12.00	cum	25	4.00/cum	4×25= 100.00	100+12= **112.00**
3	Cement	2100.00	tonn	Local	-	-	2100/ tonn

Typical example of Lift

Let us say we need to calculate number of lifts when soil is to be lifted 3.5m from the source.

- Upto 2m : 1 Lift
- 1m : 1 Lift
- 0.5m : 1 Lift

Total number of Lifts are 3 in this case.