

TYPES OF INCENTIVES SCHEMES

I. Income varies proportionately with the level of output.

① straight piece work

- Rate per unit is fixed
- Earnings $\rightarrow$ Total output $\times$ Rate per unit
- Worker is paid according to the no. of units produced @ a fixed rate per unit during a defined period of time
- Earnings depend on worker's performance.

② standard hour system

- Std. time in terms of hours is set for the completion of a job.
- The rate per hour is then determined
- Also called as 100% gain sharing
- Worker is paid for a standard time irrespective of whether the job is completed in the standard time or less.
- This means the worker is paid the same wages even if the time spent is more than the standard time hours unless he is guaranteed time wages.

Eg: std time = 8 hrs
Rate per hour = Rs. 2

Time wages guaranteed. (If time taken 10 hrs)

Earnings will be $10 \times 2 = \text{Rs. } 20$

Time wages not guaranteed (If time taken 6 hrs)

Earnings will be. $8 \times 2 = \text{Rs. } 16$
std
hr

Note: If time wages are guaranteed,
then the earnings of the worker will
be computed on the basis of the
time taken multiplied by per unit of time.
(time rate)

II. Earnings vary less proportionately than output Time based

① Halsey Plan

- Minimum wages are guaranteed to every worker.
- Standard time is fixed for the workers
- If the workers finish the work before standard time they are given bonus (50% of time saved)
- But no penalty if they fail to do that.

eg: Std. time (S) = 15 hrs

Time taken (T) = 10 hrs

Rate of wages (R) = Rs. 10 per hour

Bonus (P) = Wages of 50% of time saved

$$\begin{aligned}\therefore \text{Total wages (W)} &= T \times R + 50\% \text{ of } (S - T) \times R \\ &= 10 \times 10 + 50\% (15 - 10) \times 10 \\ &= \underline{\underline{\text{Rs. 125}}}\end{aligned}$$

② Rowan Plan

- Guarantees the minimum wages
- Does not penalize the slow workers
- Standard time is fixed
- Rate per hour is fixed
- Bonus is paid on the basis of time saved. (A bonus is the % of worker's time rate)

$$\text{Bonus} = \frac{\text{Time Saved}}{\text{Std. time}}$$

$$\text{Eq: Std. time (S)} = 15 \text{ hrs}$$

$$\text{Time Taken (T)} = 10 \text{ hrs}$$

$$\text{Rate of wages (R)} = \text{Rs. } 10 \text{ per hour}$$

$$\text{Bonus} = \text{Time saved / Std. time}$$

$$\text{Total wages (W)} = T \times R + \left[T \times R \times \frac{\text{Time Saved}}{\text{Std. Time}} \right]$$

$$\therefore \text{Wages} = 10 \times 10 \left[10 \times 10 \times \frac{5}{15} \right] (15 - 10)$$

$$= \underline{\underline{\text{Rs. } 133.33}}$$

③ Barth scheme (Barth variable sharing Plan)

- Time rate is not guaranteed ^{worker is not paid for the hours worked more than std hrs.}
- Earnings of the worker are ascertained by taking the square root of the standard hour multiplied by the number of hours actually taken for the completion of the job and then multiplying by the worker's rate per hour.

$$\text{Earnings} = \sqrt{\text{Std. hr} \times \text{Actual hrs taken}} \times \text{Per Unit hour}$$

Eg: std. time = 8 hrs
Rate per hour = Rs. 2

Case-1 Time taken 10 hrs.

$$\text{Earnings} = \sqrt{8 \times 10} \times 2 = 8.94 \times 2 = \underline{\underline{\text{Rs. 17.88}}}$$

Case-2 Time taken 8 hrs

$$\text{Earnings} = \sqrt{8 \times 8} \times 2 = 8 \times 2 = \underline{\underline{\text{Rs. 16}}}$$

Case-3 Time taken 6 hrs.

$$\text{Earnings} = \sqrt{8 \times 6} \times 2 = 6.92 \times 2 = \underline{\underline{\text{Rs. 13.84}}}$$

④ Bedaux Plan

- std time for completion of job is fixed
- Rate per hour is defined.
- Each minute of std. time is called as Point or B, such as in one hour there are 60 Bs.
- Minute is the time unit described as the standard time.
- Bonus paid to workers is 75% of wages for time saved. (Rest 25% goes to foreman)
- Bonus is equal to the 75% of the earned/saved points (in excess of 60 per hour) multiplied by $\frac{1}{6}^{\text{th}}$ of the hourly rate
- If the worker completes the job in more than std. hours, then he is paid according to the time-rate
ie Time taken $\times$ hourly rate
- If the worker completes the job in less than std. hours, then he is entitled to Bonus in addition to hourly rate.
- If the worker does not reach the std, then he is paid according to the time rate.

Eg: Std. time (S) = 360 Bs (6hrs x 60mins)

Actual time (T) = 300 Bs (5hrs x 60mins)

Wage Rate (R) = Rs. 10 per hour

$$\begin{aligned}\text{Value of time saved} &= \frac{360 - 300}{60 \times 10} \\ &= \text{Rs. } 10\end{aligned}$$

$$\begin{aligned}\text{Total wages (TW)} &= S \times R + 75\% \text{ of value saved} \\ &= 6 \times 10 + \frac{75}{100} \times 10 \\ &= \underline{\underline{\text{Rs. } 67.5}}\end{aligned}$$

Eg: Std. Time = 8hrs & Rate per hour = Rs. 1

Case: 1 Actual time = 10 hrs

$$\text{Earnings} = 10 \times 1 = \text{Rs. } 10$$

Case: 2 Actual Time = 6hrs

$$\text{Earnings: Time wages} = 6 \times 1 = \text{Rs. } 6$$

Bonus

$$\text{Std Bs} = 60 \times 8 = 480$$

$$\text{Actual Bs} = 60 \times 6 = 360$$

$$\text{Saved Bs} = 120 (480 - 360)$$

$$\text{Bonus} = \frac{75}{100} \times \frac{120 \times 1}{60} = 1.50$$

$$\begin{aligned}\therefore \text{Total earnings} &= \text{Rs. } 6 + 1.50 \\ &= \underline{\underline{\text{Rs. } 7.50}}\end{aligned}$$

III. Earnings vary proportionately more than output

① High piece rate system

- similar to straight piece work system
 - But increment in earnings for each additional unit of output above the standard is much greater.
 - This means worker starts earning more once the standards are reached.
- eg: 1% increase in output above std., may increase the worker's earnings by $\frac{4}{3}$ times as compared to 1% increase in worker's earnings under the straight piece work system.

② High Standard hour system

- similar to standard hour system
- But increment in the earnings for each additional unit of output above standard is significant.
- In this, worker's earnings start increasing once the standard has been reached.
- Std. time in terms of hours to complete job is fixed & rate per hour is then determined.
- For every 1% increase in the level of output above std., there might be a $\frac{4}{3}$ times increase in the worker's earnings as compared to the 1% increase in the earnings under the std. hour system.

IV. Earnings differing at different levels of output

① Taylor's Differential Piece Rate System

- Taylor did not give minimum guarantee to each worker.
- It is possible to calculate std. workload for every worker on the basis of time & motion studies.
- He gave two piece rates for the workers

Lower rate



for average & less efficient workers who produce less than the standard production

- worker is paid 80% of the piece-rate

Higher rate



for the above average or efficient workers. So, the efficient workers are paid more than the inefficient workers.

- worker is paid 120% of the piece-rate

* The minimum wages of the worker are not guaranteed.

Eq: Std. output = 200 units
Rate per unit = Rs. 10 paise

Case:1 output : 220 units

$$\text{Earnings} = 220 \times (120/200) \times 0.1 = \text{Rs } 13.20$$

Case:2 output = 180 units

$$\text{Earnings} = 180 \times (80/200) \times 0.1 = \text{Rs. } 7.20$$

Thus, in this method,

- inefficient workers are penalized
- workers are treated like machines
- NO Guarantee of minimum wages
- Inefficient workers are paid at a low piece - rate for low production

Eq: Std. units = 40

Wage Rate 60 to 70 Rs.

Case 1 40 units ie $40 \times 70 = \text{Rs. } 280$

Case 2 30 units ie $30 \times 60 = \text{Rs. } 180$

② Merrick Differential Piece rate or Merrick's multiple piece rate plan

- There are three piece rates used to distinguish between the beginners, the average workers & the superior workers.

- ① Workers who produce less than 83% are paid basic piece rate
- ② Workers who produce between 83-100% are paid 110% of basic piece rate
- ③ Workers who produce more than 110% are paid 120% of basic piece rate

Note ① Minimum wages of the workers are not guaranteed

② All the workers producing between 1 to 82% of std. output are considered same & paid at the same piece rate.

③ Workers are not penalized for producing below the standard output upto 83%.

③ Gantt Task/Bonus Plan

- Minimum wages are guaranteed
- Std. time is fixed for completion of a task
- Worker's actual performance is compared against the std. time to determine his efficiency & make the payment accordingly
- It guarantees the worker's time-rate for the level of output below the standard.

Thus, if the worker takes more than the std. time to complete task, then his efficiency is below 100% & he is paid only the time wages.

- If the worker completes the task within the std. time, then his efficiency is 100% & in addition to the time wages, he is also paid a bonus of 20% on the wages earned.

- If the worker takes less than the std. time to complete a task, then his efficiency is more than 100% & the wages are paid at high piece rates.

- If the worker fails to complete the task within the std. time he receives only the wages for actual time spent at the specified rate.

But, if he completes the task within time he gets extra wages

Eq: Std time = 10 hrs

Rate = Rs. 8 per hr

Bonus = 25% of std time

If time taken is 8 hrs then, earnings

will be $\text{Rs. } 80 + \frac{25}{100} = 20$

i.e. $\text{Rs. } 80 + 20 = \text{Rs. } 100.$

Eq: Rate per hr = Rs. 0.5

High piece rate = 0.10

Std output = 100 units

Time taken = 8 hrs.

Case: 1 80 units

$$8 \times 0.5 = \underline{\text{Rs. } 4}$$

Since, output is less than std, so only time wages

Case: 2 100 units

$$\text{Time wages} = 8 \times 0.5 = \text{Rs. } 4$$

$$\text{Bonus} = \frac{20}{100} \times 4 = \text{Rs. } 0.8$$

$$\therefore \text{Rs. } 4.08$$

Since output is equal to std,
Time wages + Bonus

Case: 3 110 units

$$110 \times 0.10 = \text{Rs. } 11$$

Since output is more than std, the worker shall be paid at a high piece rate

④ Emerson Plan

- The worker is paid only the time rate for the efficiency upto 67%.
- At 100% efficiency, the worker is paid time wages plus a bonus of 20% on the wages earned.
- The worker is paid ~~20~~ 1% additional bonus for each additional 1% efficiency added after the standard.

eg: std output in 10 hrs = 200 units
Rate per unit = Rs. 2

Case 1 = 200 units

Efficiency

$$= 100\% \cdot (200/200 \times 100)$$

$$\text{Time wages} = 10 \times 2 = \text{Rs. } 20$$

$$\text{Bonus} = \frac{20}{100} \times 20 = \text{Rs. } 4$$

$$\therefore \text{Total earnings} = \text{Rs. } 24$$

Case 2 = 100 units

Efficiency

$$= 50\% \cdot (100/200 \times 100)$$

$$\text{Earnings} = 10 \times 2 = \text{Rs. } 20$$

Case 3 = 260 units

Efficiency

$$130\% \cdot (260/200 \times 100)$$

$$\text{Time wages} = 10 \times 2 = \text{Rs. } 20$$

$$\text{Bonus} = \frac{50}{100} \times 20 = \text{Rs. } 10$$

$$\text{Total earnings} = \text{Rs. } 30$$