

### CONCLUSIONS.

An increase of 150% output has been achieved in 21 years by a 50% increase in staff and 100% increase in capital. Rising input prices (wages and interindustry purchases) along with the rising tempo of overall development activities are the two important reasons for the technical change. Change over to diesel-electric traction and improvements in signalling and telecommunication are the two important channels through which technical change has expressed itself and contributed about 30% to growth.

1. Output (gross value added) in the Indian Railways has increased by about 150% (5% annual compounded rate) during the twenty one years (1951-72). All the four different measures tried gave almost identical results.

2. But employment of all categories has grown by 50% only. Operation staff has decreased from 2.1 to 1.86million. The biggest growth is in signal and telecommunication staff which has increased by 157% in a relatively short period of 15 years (1957-72). The pattern of employment has perceptibly changed.

Money wages have moved upwards by 150% as against an increase of 12% in real wages. The Railways were not very successful in shifting money wage burdens to the consumer. At no time could they transfer more than 40% of the burden. There is a 50% rise in labour productivity which could more than make good the remnant wage burdens after the partial shifts.

3. Different types of capital have different levels of utilisation. Track relatively is better utilised than the other assets. But during the twenty one years, its use-level has dropped from 70 to 60%. Other assets have not gone beyond 50% use.

4. Capital corrected for capacity in constant prices has increased by about 100%. Thus an increase of 150% in output has been achieved by 50% of extra labour and 100% of newly added capital.

5. Since capital has grown faster than labour and output has outpaced both, a capital saving technical change has taken place. Rising input prices and the demands of the economy, experiencing development processes, have been identified as the important causes of technical change whose individual contribution to growth is estimated at 30%. Dieselisation and electrification coupled with improvements in communication and signalling are the two important channels through which technical change has expressed itself. The average speed of trains has not improved. Wagon turn-round has not shown better results. It looks as if the fruits of technical change have not been fully reaped as yet.