Durgapur Steel Plant, in order to meet its annual production-plan, needs to haul around 750 (in terms of four-wheeler) Railway wagons and 250 (FW) internal wagons daily inside the works. Conventionally, the basic responsibility of TXR & RR section is to keep watch over the wagons in respect of specific fitness inside the plant all through the movements. A good deal of vigilance is needed to achieve the expected service from them. However, in the cases of Railway wagons, the responsibility is divided between the plant and the Rlys. But, in the cases of minor troubles like coupling defects, hose-pipe fittings, etc, the jobs are solely left to the plant unit. The exclusive responsibility of the plant section is to keep constant watch over the internal wagons, conditions of most of which are already alarming. However, the maintenance affairs of nonconventional stocks, as the system prevails now, is out of their perview. Thus, the area of responsibility is restricted only to the case of conventional wagons. The nature of damage, now found in most of the cases, rarely comes within the working sphere of the section. These jobs are most likely to be carried out in Wagon Repair Shop. In the instance of body and chassis damage, it is quite naturally expected that the type of job should have been done in WR section and definitely not in TXR section. The plant wagons, in fact, are not fitted with hose-pipes or brakes, which are likely to be looked after by TXR section. The brass-bearing fittings, which are likely to be taken care of by the section, as a matter of policy, are now going to be replaced by another set of fittings, which are fabricated
with the body of the wagons themselves. These are not flex-
able like the brass-bearing sets and their maintenance job
is likely to be carried out by WR section. But in the case
of moving stock, it is always a matter of distinct vigilance
to know their exact condition and it is hardly possible on
the part of WR section to take care of them. At present, it
is an affair left with the requisitioning department and
appears to be a time consuming factor. Again, the reports
are now received by Traffic Control for onward transmission
to TXR branch and here also a lot of time is lost in this
way of unnecessary duplication of work. So to avoid unnec-
essary and undesired waste of time, it is conveniently desi-
red that a part of TXR section, which is now in the channel
of this sort of operation, may be merged with the Traffic
Movement Branch so that prompt action may easily be taken
up as an when such an information is recieved from any cor-
ner. The intervening time lag for recieving and communica-
ting the necessary information to the right place will thus
be done away with and the out-turn of internal wagons will
be increased to a considerable extent. However, in the case
of supervision of the Railway stocks, the work is proposed
to be shifted to Traffic Movement Branch along with part
capacity of the TXR branch which is now looking after this
sort of job; because the movement of Railway stock is now
quite conveniently controlled by Traffic Movement Branch
both in the cases of incoming and outgoing operation. This
sort of resectionisation enables direct control over a par-
ticular line of operation.\(^1\) Now, alike internal wagons the

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service to the Rly wagons is sought through Traffic Movement Branch and, as usually appears, it is a time consuming factor which materially leads to the incurring of demurage. Actually, there is no system there now to note all the above minute details; but the current deficiency must be eliminated at least for its financial implications and the simple means in that direction is to shift that part of the TXR section which is looking after this sort of business under the direct disposal of the movement branch. It will have to be placed in the shifts as usual under the Operational Control of the shift foreman of Traffic Movement Branch. Thus, the separate identity of the entire TXR section is abolished and brought under the fold of Traffic Movement Branch and Wagon Repair Shop. Maintenance of a separate establishment is not found worthwhile since its existence is not justifiable and it rather creates inconvenience in the process of operation.

The job of train examination, to a good degree, is sporadic in nature and it is not possible to chalk out clear guide lines for its operational process. However, a broad out line in the form of the following programme is prepared being based upon the expert opinions.

**Proposed TXR jobs under Wagon Repair Shop (DSP).**

1. To carry out their sphere of jobs under Wagon Repair Shop.
2. To examine the repairable internal wagons.
3. To plan for spares and tools, etc.
4. To plan for technical development.
5. To work out a comprehensive annual action plan.
6. To equip themselves to face sporadic jobs.

**Proposed TXR jobs under Traffic Movement Branch.**

1. To look after all sorts of moving wagons in the internal yards including the Rly stocks along with Railway people now being posted in the plant.
2. To help Railway people in maintaining their wagons.
3. To examine the reloadable Railway wagons at the Exchange Yard at the instance of daily demands.
4. To work out a comprehensive action plan to meet the above jobs.
5. To plan for sporadic affairs.

Under the current trends of performances due to various reasons detailed earlier, a good number of derailments is found to take place. So, a derailment section should be established to meet the cases. Although with the renewed action plans recommended for Wagon Repair Shop and Permanent Way Maintenance Section the number of derailments is quite reasonably expected to go down to a considerable degree; but the current figure is already alarming and there is every reason to apprehend that still there will be need for this sort of operation and a section in this nature is always to be maintained in some way or other (Annex - 10A, 10B). Industrial hazards are always something unpredictable and as such, the expectation must be restricted within conservative limits. At present, a separate entity is maintained for this unit and to avail of the effective service from this unit,
it becomes a matter of wide communication gap and naturally a time consuming factor. But, if the unit is kept under the direct control of the Traffic Movement Branch, a quicker co-ordination may be restored and thus a better service may be made available for the using units.

Movement of rolling stocks is controlled from Traffic Movement Branch; all the usual and unusual incidents at first come to their notice. They are to oblige the sister units with this sort of service. They are usually aware of the impact of their operations. The Railment Section is to follow the programme fixed by Traffic Movement Branch; again, the railment jobs always require the loco service which is supplied by Traffic Movement Branch. Traffic Movement Branch knows the severity and importance of any particular case. So, with the shifting of RR section under the direct administrative control of Traffic Movement Branch, a better service is quite reasonably expected as compared with its present position. The co-ordination will no longer appear to be remote; and thus the disposal of the cases may be done according to their importance. Now in the present practice, the cases are attended after a long time (Annex - 13, 14). The cost of material damaged due to derailment cases is usually huge (Annex - 11). Again, in some cases, a fair amount of production may also suffer due to derailments (Annex - 12A). In the first instance, hot metal from Blast Furnace on the way to Steel Melting Shop lost heat and got chilled (Sl.No.1 of Annex-12A). The chilled metal is not possible to be taken out from the ladles. This is to be scrapped and the value of the scrap is negligible as compared with the original value of metal.
Again, if the metal gets chilled within the carrier, the ladle is also damaged. The ladle is a valuable item. So the accumulated loss in this case stands as follows:

**Effective loss in the case of derailment of BM ladle.**

1. Loss of metal - 90 tons (Av) x Rs 1500 per ton
   = Rs 135,000.00.

2. Value of ladle lost - Rs 20,000.00.
   Total = Rs 155,000.00.

3. Less value of scrap - Rs 720.00 x 80 tons (Av)
   = Rs 57,600.00.

   Average net loss = Rs 97,400.00.

In the second instance (Sl.No.2 of Annex-12A), the empty slag ladle supply to Blast Furnace is also suffered. This supply is very essential for casting, which is totally stopped till the slag ladles are properly placed at their disposal. The resultant financial loss appears as follows:

**Resultant loss due to non-supply of slag ladle at the time of BF casting.**

1. Fixed overhead of BF hour : Rs 6670.00 x No. of hour lost.

2. Loss of production : Rs 1500 x \( \frac{1250}{24 \text{ hrs/hr lost}} \)

From the above discussions, the gravity of the case is easily understood and the plant appears to sustain such a huge loss out of these cases. The accumulated annual financial losses of the plant as a whole incurred out of derail-

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1. Courtesy: Cost Section, PA Branch, Durgapur Steel Plant.
- ment cases may be easily drawn, provided all the cases and their direct and indirect implications are properly taken into account. The figure, though not possible to be calculated here, will surely be an alarming one and there can not be any second opinion that the cases must be minimised although it is practically impossible to eliminate them completely. Preventive measures are to be taken up to minimise the number of cases and the responsibilities are with other concerned departments and detailed discussions in relation thereto have already been made in the earlier parts of this study. The responsibility of this section is only to complete the reailments within the reasonable time, which is not found done now (Annex - 14). So many reasons are placed in support of this sort of delays. Some of them are reasonable and others are purely due to insincere attempts. Due to multi-channel communication gap, as discussed earlier in this context, the cases are not attended and done in time for want of effective direct control over its operational courses and that is why it has been suggested earlier that the operation of the section is to be placed in the direct disposal of Traffic Operation Branch. But in a case of hard-nut difficulty, it is found that a better capacity rail-crane is urgently required in the section to lift the derailed goods. It is learnt that the case of acquiring one such crane is under consideration for a long time. This is surely an instance of dire insincerity on the part of operational management who has failed to impress upon the appropriate authorities about the gravity of the cases. Escaping tendency has been bitterly found in this instance at all stages and this is practically a managerial lapse; this sort of defec-
- iency in the process of operational management is to be made good before doing anything else.

Man-power planning is also found ineffective there. The jobs under the section are always troublesome and need a fair amount of strenuous physical labour. Human expectation due to its varying nature should be restricted to a reasonable degree; any sort of misconception may easily lead to a confused stage of expectation. The number of cases is already very high; but, realistic outlook and readiness to attend a sorts of sporadic and usual jobs are the king-pins of operational efficiency in any particular section; and to get into that direction under the present circumstance, a larger number of personnel is needed there and to ascertain the actual figure, an intensive study must have to be carried out. This is surely a matter of managerial decision making and that is to be practically initiated from the shop floor; but nothing like that has ever been done there so long. It is argued that the plant is already overemployed and any sort of further employment has been stopped for a pretty long time. If it is taken to be granted that further recruitment is stopped, is there no room to tide over the trouble there? When it is agreed that the plant is already over employed, which has become almost a strategy in public sector undertakings in India, naturally there is a scope to find out the extra manpower from other sectors under a comprehensive study and to shift them to the areas like this where the need for extra hands is genuine. Manpower planning itself 

1. Garrett & Silver - Production Management Analysis, 

2. The position appeared till around middle of 1970.
is really a very tough job and that always deserves a very careful study. Again, the number of derailment cases is expected to go down; so for any attempt at manpower planning in this sector, should take into consideration all the above mentioned factors. What is found most urgent not only in this section, but also all around the plant operational process, is bare enthusiasm to get jobs done according to needs. This sort of quality is first to be attained everywhere in all the sectors of the plant by higher echelons of management which may inspire the lower levels and may go further down. In order to achieve the desired objects in this sector of operation, a comprehensive annual action plan as detailed below, may be followed.

Steps towards Annual Action Plan.

1. The nature of derailments is to be analysed in order to ascertain the nature of defects that cause the cases and to locate the responsibility centres.

2. A list of tentative equipments is to be prepared and attempts are to be made to ensure their availability in time, so that usual operation in any way from this corner is not unnecessarily delayed.

3. Sincere attempts must be made to procure a better capacity rail-crane, the need for which is long being felt in this unit.

4. Whole time service of a road-trailer is to be availed to carry equipments to the spot of incidents.

1. Garrett & Silver - Production Management Analysis, 1959
2. Warner, M. - The sociology of the Work-place, 1973
5. Sufficient manpower, determined by a comprehensive study, should be arranged so that work does not suffer.

6. Shiftwise personnel should be placed simultaneously with Traffic Movement Branch so that incidents may be faced as and when they occur.

7. Log book is to be maintained to note detailed particulars of each case as also action taken so that all the aspects of the cases may be known by all concerned.

8. The log book is to be regularly supervised by all responsible men of the section so that effective suggestions may be given to meet the cases properly.

The nature of job being sporadic in nature, sincere drive and effective leadership is the only possible way to get them done in time. Shift managerial personnel should be physically present all along the operation with the working gang at site so that an inspiring situation is effectively created in the ways of operation. They are not always likely to work physically; but their ultimate responsibility is to get the job effectively done by the men under them and when a congenial atmosphere is created, so many things will automatically be attained even without formally asking for them.

Slag is a by-product of Blast Furnace casting. The responsibility of SBJ section is to dump the hot slag at a specific site located just outside the plant premises, or to carry a part of it to the nearby cement factory. However, the essential factors of this operation, are dependent upon other sister departments; and only the dumping operation has been earmarked for this unit. Slag containers are now maintained by Blast Furnace Mechanical Maintenance section; and their availability is thus kept out of SBJ's control. Extension of permanent ways and their effective maintenance are now left with P M section. The availability of locopower, which is a useful factor for this sort of operation, is dependent upon Traffic Operation Branch. So, in both the above two essential cases, the affairs are entirely left with others over which, this section maintains no direct control. Thus operational efficiency is a function of proper co-ordination between all the concerned sections. However, following is the expected out-turn from this section.

Annual Action Plan.

1. To ensure effective track laying by Permanent way maintenance section.

2. To ensure useful reversal of tracks by P M section.

3. To ensure timely reporting of track condition.

4. To ensure effective water and air lines maintenance from the concerned department.
5. To ensure track cleaning by departmental Khalasies.
6. To ensure time-wise ledger supply.
7. To ensure demarcation of ledges for service to cement factory.
8. To ensure steady supply of loco service from Traffic Movement Branch.
9. To ensure supply of stores, etc.
10. To ensure suitable budget provisions.
11. To plan shift-wise responsibilities.
12. To ensure effective operation.
13. To ensure provisions for sporadic affairs.

Proper laying of tracks is very essential in the context of fair operation and in the instance of dislocation, terrible consequences may usually follow; the loaded ledges go down to such a condition from where it is practically impossible to get it reclaimed (Annex - 12); hot slag, weighing around 20 tonnes, is thus lost for ever. The accumulated figure of loss appears as follows in such cases.

Accumulated loss:

\[
\begin{align*}
\text{a) Cost of metal} &= \text{£ 720} \times 20 = \text{£ 14,400.00} \\
\text{b) Cost of ledges} &= \text{£ 20,000.00} \\
&\text{Approx. Total loss} = \text{£ 34,400.00}
\end{align*}
\]

Continued water and air pipe line, both of which are very essential to maintain this sort of service, are now maintained by other sister units of the plant and their

1.Courtesy: Cost Section, FA Branch, ESP.
out-turn is never good enough to be depended upon for an essential service. So, to maintain the rhythm of working atmosphere, it is desired that the maintenance sections of those two units of service must be brought under the direct control of this unit.

Again, operational efficiency of this section largely depends upon effective co-ordination as well as positive co-operation from other corners, but in most of the cases, the present situation is not congenial enough to create such an atmosphere and as a consequence, the service from this end automatically suffers, making a broad room of lapses from others. However, to ensure better service from this section, it must be scientifically reorganised and the following steps may be taken in that respect.

a) Permanent way maintenance jobs in this area are to be continued as usual; but the administrative control over the unit to do these jobs is to be brought under this section, leaving other matters to the parent body.

b) Ledale maintenance jobs along with the whole establishment are to be coupled with the Wagon Repair Shop.

c) Shiftwise loco service is to be left at the disposal of SBO section to enable their proper planning and utilization.

The shifts will run as usual to carry out the regular operation jobs; whereas, the routine maintenance jobs will be left with general shift and the sporadic nature of affairs must always be suitably provided in the
running shifts: Co-ordination is already a regular problem here; but there is no suitable alternative to over the work-force which may alone draw fair results. Maintenance of round the clock log book should be introduced to note the schedules along with simultaneous recording of achievement and defaults being properly analysed with reasons thereto. The book should be a record to be regularly checked by all concerned senior executives so as to enable them to follow through the programme and to devise ways and means for betterment.

The nature of job, carried out here, is very essential for effective operation from Blast Furnaces; so it needs no special mention that very effort must be made to provide the service so that the plant is not to suffer lapses in this section.

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1. General shift is static and from 7.30 to 14 hrs in a day; but, the operational shifts are each of 8 hrs. duration and they run round the clock.