

No. RW/RMP-22(2)/85

Dated the 16th June, 1986

To

The Secretaries, PWD of all the State Govts.

Subject : Mechanical organisation in the State PWDs.

Appropriate set up is quite essential for smooth and efficient functioning of any organisation. With this view the Standing Committee of Sr. Mechanical Engineers in the Highway Sector in its meeting held at Bilaspur (HP) in April, 1986 has considered a background paper on the Mechanical organisation in the State PWDs and have recommended a broad framework of the Mechanical organisation in the State PWDs. A copy of the same is enclosed as annexure 'A'. The minutes of the meeting have been sent to you vide letter No. RMP-22(5)/85 dated 4.6.86.

2. You may like to take necessary action in the light of the recommendations made by the Standing Committee of Sr. Mechanical Engineers in the Highway Sector.

ANNEXURE 'A'

MECHANICAL ORGANISATION IN THE STATE PWDs

1. Introduction

Traditionally road construction in India had been a labour-intensive work needing minimum use of mechanical equipment. Accordingly, the State PWDs were having nominal or skeleton mechanical organisation. There has been a gradual change in the road construction technology and use of equipment on certain items of work like earthwork in high embankment and approaches, bituminous pavement etc. became unavoidable. With the phenomenal growth of traffic and heavier axle-loads better specifications for road crust have been evolved and are being adopted. This has necessitated greater use of equipment based technology. Most of the State PWDs have invested large sums of money in the equipment. With this, the functions of Mechanical organisation of the State PWDs are no more limited only to the maintenance and repairs of few conventional machines as in the past but they are also required to execute work departmentally with the latest machines and technology. For efficient and economical management of the equipment appropriate mechanical organisation manned by professional Engineers has become essential.

2. Objective and Function

The main objective of mechanical organisation in the State PWDs is to provide support of machines and manpower needed to maintain and run them for the construction of roads. Its important functions would involve the following :

- (i) To create departmental capabilities and expertise to handle all sorts of machines and to execute variety of jobs to the desired quality.
- (ii) It should also have the capabilities to execute work under odd situations and works of emergent nature during floods, cyclones and other natural calamities where other agencies may not be capable or willing to undertake such jobs.
- (iii) The departmental potential would also be essential to act as a deterrent for the Contractors to exploit any situation and add to the element of competition.
- (iv) Continuous development of manpower and technology to keep the organisation fit and capable to discharge its responsibilities.
- (v) Recruitment and training of operating and maintenance staff and refresher courses for supervisory officers.
- (vi) Establish adequate workshop and repair facilities, such as central, regional and field workshops, so that any vehicle or equipment may not have to travel more than 50 kms. for its repairs.
- (vii) Procurement of machines and spare parts.
- (viii) Inventory control and maintenance of stores.
- (ix) Advance planning for optimum utilisation of machines and monitoring their performance and expenditure on repairs vis-a-vis revenue earned.
- (x) Disposal of unserviceable machinery and obsolete spares (including inspection for write off).
- (xi) Research and development.

3. Criteria

The responsibilities developed on the mechanical organisation are so varied and complex that it is difficult to think of a single criteria to evolve appropriate organisational set up. Nevertheless, the following parameters will by and large dictate the formation of an appropriate set up :

- (i) For each Civil Circle in the PWD there should be one Mechanical Division. For every 3 to 4 Mechanical Divisions, there should be one Mechanical Circle, and for three Mechanical Circle one Chief Engineer (Mechanical).
- (ii) One Mechanical Division may be able to handle annual expenditure of Rs. 20 to 25 lakhs on mixed work of running and maintenance of machines and operation.
- (iii) Taking one Junior Engineer (Mech.) or a Overseer (Mech.) as a Unit, it may be able to handle 10 machines consisting of road rollers, trucks and jeeps. Each mechanical sub-division may have 3 or 4 such sections. Thus, based on the total number of machines in a State, the number of units and Sub-Divisions needed can be worked out and higher set up computed on a prorata basis, one Mech. Division consisting of three or four Sub-Divisions and one Mechanical Circle consisting of 3 to 4 Divisions and an Addl. Chief Engineer (Mech.) Chief Engineer (Mech.) for every two three circles.
- (iv) Based on the project cost, for a work-load of Rs 10 to 16 crores, depending on the degree of mechanisation, there should be one Mech. Circle and for a work-load of Rs 40 to 50 crores the organisation should have one Chief Engineer (Mech.).
- (v) Considering that Mech. Division will be able to manage equipment worth about Rs 2.5 crores, 2/3 of which may be operational. With the accepted norms of 150% of depreciation as expenditure on repairs, workload of Mech. division in monetary terms would work out to Rs 30 lakh.
- (vi) Procurement of machines and spare parts being a specialised and distinct work, there should be a separate Mech. Division in charge of procurement and stores for every three field Mech. Divisions.
- (vii) The work done by Earthmoving machines and Hot Mix Plant and Paver finisher units is primarily a mechanised work and more than 70% cost goes in materials and machines. Hence for such projects mechanical construction Divisions should be created for work load of Rs. 1 crore per year.

4. Division of Responsibility Between Civil and Mechanical Divisions

In the present system obtaining in the State PWDs complete separation of Civil and Mechanical Divisions is not possible. Hence, clear cut division of responsibilities between the two would be in the overall interest. Such division may be on the following lines :

- (i) Ownership/custody of heavy equipment like earthmoving machines, Hot Mix Plants, Paver Finisher and allied machines which form part of such units may entirely be with Mech. Division.
- (ii) Ownership/custody of equipment like road rollers, trucks and jeeps etc. may vest with the Civil Division.
- (iii) For proper recruitment and control of operating staff, recruitment, transfers and promotions of the operating staff even working with the Civil Divisions should be entrusted to the concerned Mech. Circle.
- (iv) Operation of heavy equipment should be under the charge of Mech. Division for which corresponding funds provided in the works estimate should be placed at their disposal.
- (v) Operation of other equipment, ownership/custody of which is vested with the Civil Divisions may be under their control.
- (vi) Maintenance of Log Book should be the responsibility of the user of the equipment.
- (vii) Maintenance of the history sheets of all machines should be the responsibility of the Mechanical Divisions.
- (viii) Normally all repairs and maintenance of the machines should be the responsibility of the Mech. Divisions irrespective of the ownership of the equipment.
- (ix) Only petty repairs may be carried out directly by the Civil Division.
- (x) Procurement and disposal of equipment should be the exclusive responsibility of Mech. Organisation.
- (xi) Mechanical Organisation should be associated in the planning and project preparation so as to ensure continued workload for machines, their optimum utilisation and ready availability for work.
- (xii) The primary responsibility of collection of revenue on hire charges of machines should be of the user Divisions, but monitoring of the same should be with the Mechanical circles.

5. Administrative Control

All the Mechanical Circles/Divisions in the States should be placed in the Direct Control of C.E.(Mech.) of the State. Wherever there is no post of CE(Mech.) in a State for better coordination and smooth functioning, the Mechanical Divisions/Circles attached to a project or National Highway Wing should be under the Administrative control of the concerned Project CE (NH) as the case may be. The flow of funds to the Mechanical divisions should also be through the concerned CEs.
