Paper No. 105

ORGANISING EARTHMOVING AND CONSTRUCTION EQUIPMENT FOR ACHIEVING NATIONAL OBJECTIVES

By S. NISARUL HAQUE

Since end of IInd World War, mechanization which started in developed countries in eighteenth century is spreading all over the world. Be it manufacturing of cloth or food products, mechanization is the order of the day. But the rate at which mechanization has taken place in construction industry has far surpassed mechanization in other field. In Pakistan too mechanization of construction equipment has taken place at a very rapid rate. According to a survey undertaken in 1959, the construction equipment in Water and Power sector in West Pakistan was valued at Rs. 300 million and spare parts worth 10 crores were lying in stores at various sites. It was also estimated that equipment and spares at the rate of 3 crores a year were being imported in the country. During the decade 58-68, it is estimated that equipment worth 36 crores was imported in the country by the following agencies :—

WAPDA (West Pakistan)	10	crores	(excluding I. B. equipment)
A.D.C. ,,	7	,,	
C.D.A. ,,	4	,,	
B & R ,,	5	,,	
Agriculture Department	10	,,	(Only earthmoving)

Thus it will be safe to assume that equipment worth 50 crores is available in West Pakistan as today. There are many reasons for this fast built up. Some of these are :—

(*i*) The tempo of development has increased. Pakistan has to be built quickly and this could only be done by mechanical means. The work done in I. B. Project by mechanical means in 10 years would have taken 100 years if traditional methods were used.

(*ii*) Heavy drainage projects were to be undertaken to fight the menance of salinity/waterlogging. Digging of drains in waterlogged area could be done only by mechanized means.

In the beginning (47-57) the import of machinery was done in a haphazard manner without any co-ordination or reference to standardization of plants.

This created numerous problems of maintenance, repair and operation of machinery such as :

(*a*) Equipment being of divergent make, interchange and substitute of parts was not possible. This created a very complicated spare parts problem resulting in blockade of large amount of money mostly in foreign exchange.

(*b*) Proper repairs could not be carried out as well equipped workshops were not available. The practice was to repair the plant at project site where small mobile workshops were kept. These workshops were inadequately equipped with the result that large number of equipment remained out of action.

(*c*) Because of lack of proper maintenance facilities the equipment down-time was heavy and consequently the projects were kept behind schedule. To make up for short fall, import of additional plant was resorted to. With the arrival of new machinery the available equipment under repair was left unattended and allowed to become junk. This new plant became repairable after sometime and fresh import was made to keep the project on schedule. Thus a vicious circle of importing new plant breaking it, and importing more plant was created resulting in loss of valuable foreign exchange.

Thus it was found in (1959) that nearly 1/3 of the total plant available had become junk, causing a loss of Rs. 10 crores. Out of the remaining 2/3 plant only 30% was available for use. Spares worth 10 crores were lying in various stores but there was no use for them as they were either in excess of the requirement or were of a type no longer required.

Thus during the first decade (49-59) the country paid heavily for mechanization of its construction operation. Out of import of machinery worth 3 crores a year machinery worth one crore was lost and spares worth one crore were never used.

This happened because we failed to realise that modern tools need modern organization. An organization for utilization of a donkey and "kharkar" had to be different from one required for tractors, scrapers, or dumpers. As a result of prodding of various Aid Giving Agencies and also on account of urgency caused by food shortage Government of Pakistan decided to establish "Pools" of construction/earthmoving equipment. It was decided that one pool each be set up in East & West Pakistan and one pool in the centre. The task of setting up the pools in the Provinces was entrusted to respective WAPDAS. The Central Pool was to be set up under C.D.A. West Pakistan

WAPDA appointed a team of consultant to carry out survey and recommend organization suited for the task. Thus came into being MPO. Similarly Mechanized Equipment Organization (M.E.O.) was created by East Pakistan WAPDA.

The charter of duties assigned to these pools read as follows :—

(*a*) To improve the existing repair and maintenance facilities for construction plant one use on various irrigation and drainage projects undertaken by the Government.

(*b*) To undertake unified and co-ordinated use of earthmoving plant and to ensure economic utilization of plant under this agency which was also made responsible for development of the plant on various projects.

(*c*) To centralise warehousing and arrange regular supply line of correct type of spare parts.

(*d*) To prepare inventory of all costruction equipment available in the country and to write off those pieces which were beyond economic repair.

(*e*) Limit the purchase of plant to few standard makes.

(*f*) To develope a programme of manufacture of standard parts in the workshops so that dependence on foreign exchange is reduced.

(*g*) To train Pakistan Personnel in the use of construction plant available in the country.

The organization proposed to achieve these objectives is similar to one set up in many countries of the world. In fact earthmoving equipment organization bear a mark similarly all over the world and similar organization have been set up in India, Iran, Turkey etc. This organization is mainly based on the American experience. Its main characteristic is centralised control with (*a*) Commercial system of cost accounting (*b*) equipment control system giving precise information about the condition of equipment (*c*) Centralized warehousing set up with affective Inventory Control System.

Administrative control of Provincial Pools was given to WAPDA presumably because most of development work was to be done by these agencies. This had its own advantages but WAPDA dealing with one sector of our economy and administration could not obtain unified and co-ordinated use of equipment *e.g.* in West Pakistan agencies like B & R and Agriculture Departments refused to join the pool from the very beginning. Only Irrigation Department was forced to join the pool but it took out most of its plant and left the pool at the first opportunity. ADC when it came into existence was restrained from purchasing plant for sometime but it too started purchasing equipment for its own

use and set up workshop in G. M./Guddu Barrage Projects, thus duplicating the facilities provided by MPO. This process went on till 1967. As already stated that additional plant worth Rs. 20 crore was purchased by the various agencies in West Pakistan (during 58-68). Most of this plant was purchased without any planning with the result that a survey carried out in 1968 revealed that out of the plant available in West Pakistan (nearly 50 crores) nearly 2/3 was idle and out of commission. The state of affairs is even worse now. Under the present economic condition Pakistan can ill afford this luxury. In construction machinery and equipment we have a resource which is if properly utilized can :—

(*a*) Make us self sufficient in execution of projects in Water and Power Sectors proposed for the current plan without any liability of foreign exchange and with much less costs. The projects are :—

1. Hub Dam.
2. Khanpur Dam.
3. Simly Dam.
4. Left Bank Out-fall Drain Project.
5. Greater Thal Project.
6. R.C.D. Highway.
7. Defence Works, Roads and Airstrips ditches etc.

(*b*) Construction equipment is needed in case of war and by putting an equipment in order we can meet the threat of war. MPO contribution was over 11 lac in 17 days of war in 1965.

(*c*) The construction equipment can be used for earning foreign exchange by undertaking contracts outside Pakistan.

(*d*) By developing on our own experties we can undertake future work of heavy construction engineering such as Kalabagh Dam.

These pools can ultimately become construction agencies which will undertake work on government projects utilizing both manpower and machines. A peoples government will need these agencies more than before as many works of social welfare are proposed to be done in "Public Sector".

The following steps are, therefore, proposed to remedy the situation and stop national waste :—

(*i*) There should be constituted Provincial "Pools" of earthmoving machinery with Irrigation, B & R Department, A.D.C. and Agriculture Department. These pools should be sufficiently big to carry out all repair, maintenance and smaller work in the provinces.

(*ii*) For undertaking heavy civil engineer jobs like new dams, canals,

drainage projects, superhighways etc., a central machinery organization be created by merging MPO, WAPDA and MPO C.D.A. This "Pool" should be so organized as to undertake works on contract basis not only within the country but also outside the country. This pool should have equipment depots in each province from there heavy equipment should also be rented out to the provinces as and when required.

(*iii*) A Central Co-ordinating Cell be set up in the Planning Commission appropriate ministry which should co-ordinate the working of all these pools including that of East Pakistan, Standardize make of equipment and lay down policy for production of equipment and spare parts etc., in the country.