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COUNTRY STUDY REPORT

STATUS OF AGRICULTURAL MACHINERY INDUSTRY IN INDIA ^{1/}

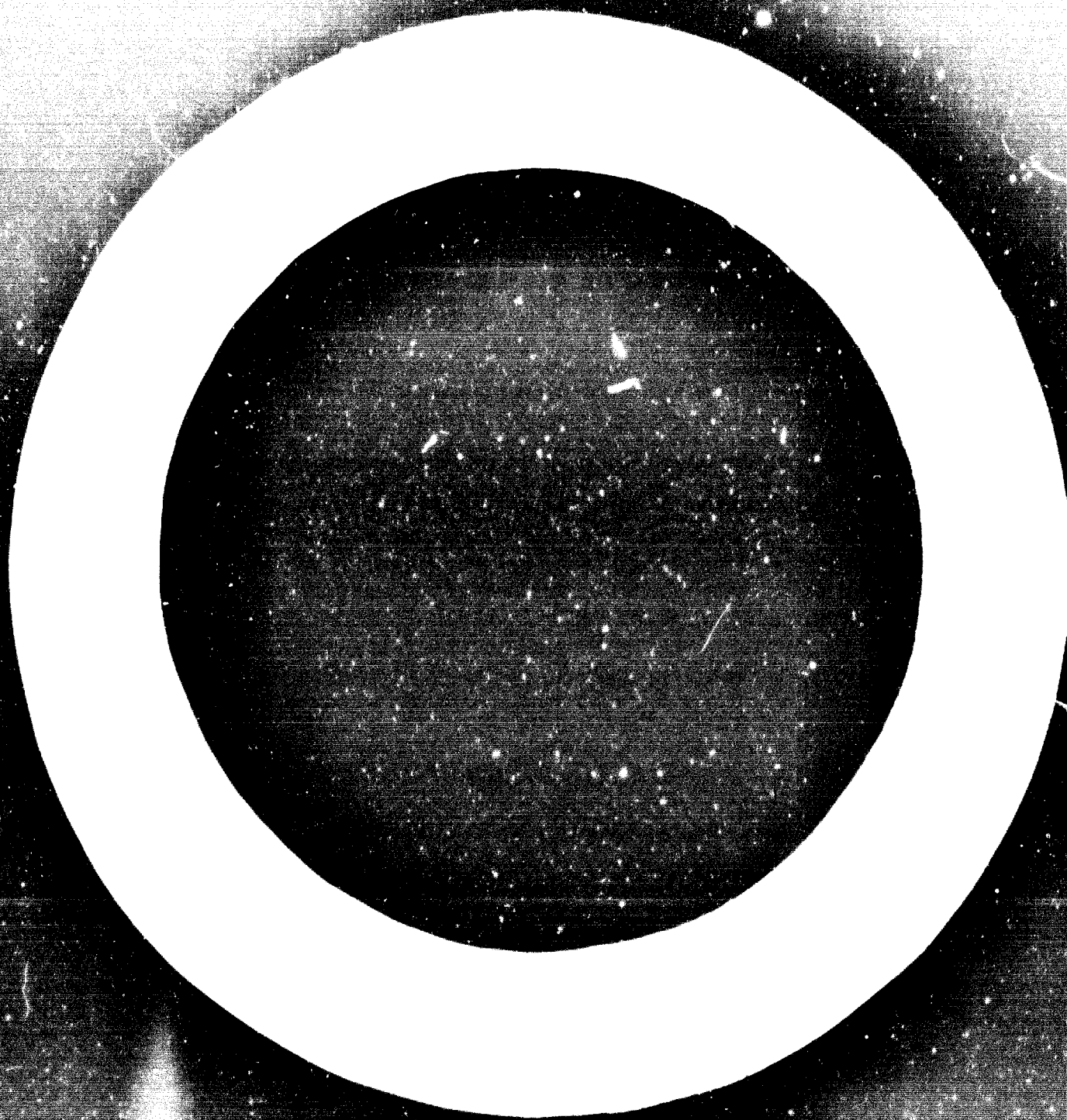
by

K.S. Praonakar
Planning Commission, New Delhi,
India

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STATUS OF AGRICULTURAL MACHINERY INDUSTRY IN INDIA

SECTION-I

GENERAL PATTERN OF AGRICULTURE

(A) About 70% of the people in India are dependent on land for their living. Agriculture and Allied activities account for nearly half of the country's national income. The geographical distribution of land is approximately as follows:-

<u>Total geographical area</u>	..	326	million	Hectares.
(a) Forests	..	60	"	"
(b) Land put to non-agricultural use	..	20	"	"
(c) Barren and uncultivable land	..	40	"	"
(d) Fallow land	..	20	"	"
(e) Other uncultivable land	..	20	"	"
(f) Net area sown	..	166	"	"

(B) The distribution pattern of land holdings is roughly as follows:-

<u>Area of Holdings</u> <u>(in Hectares)</u>	<u>Number in</u> <u>('000)</u>	<u>Area operated</u> <u>(in '000 Hectares)</u>
Upto 0.2	4300	430
0.2 to 0.4	4400	1300
0.4 to 1.0	11000	7500
1.0 to 2.0	11500	17000
2.0 to 3.0	6500	16000
3.0 to 4.0	2500	11000
4.0 to 5.0	3000	12000

<u>Area of Holdings (in Hectares)</u>	<u>Number (in '000)</u>	<u>Area Operated (in '000 Hectares)</u>
5.0 to 6.0	1500	9000
6.0 to 8.0	2000	13000
8.0 to 10.0	1200	11000
10.0 to 12.0	700	8000
12.0 to 20.0	1200	18000
Above 20	55000	150000

About three-fourths of the cultivated land is used for food crops, and the rest for cash crops. The main food crops are rice, jowar and wheat. Rice takes up 22.7 per cent, Jowar 14.6 per cent and wheat 9.6 per cent of the cropped area. The main cash crops are oilseeds, cotton, sugarcane and jute.

About 20 per cent of the area under crops is irrigated.

SECTION-II

PATTERN OF FARM MECHANISATION

The mechanisation of farms in India has assumed a great importance in the context of a growing population. Apart from mechanisation, new methods and techniques are being employed to achieve larger yields from the land available for cultivation. Reclamation of land, irrigation (minor and major), plant protection including aerial spraying, use of fertilizers on an increasing scale are some of the measures undertaken. In farm mechanisation, a great importance has been given to the supply of wheeled agricultural tractors suitable for Indian conditions and size of holdings. The use of two-wheeled power tillers is also being encouraged in rice growing and hilly areas particularly for paddy cultivation. There are about 16000 Nos. of these in use in the country. With larger farm outputs and shortage of rural labour during the harvesting seasons, the need for machines and appliances such as Power Threshers, Reapers, Reaper Binders, Power Harrows, Combine Harvesters (Self Propelled and tractor sidemounted) etc. has arisen. The manufacture of these as well as their import to meet immediate needs has been initiated. Model farms equipped with the latest types of equipment and implements have also been set up. The population of wheeled tractors is nearly 90,000 Nos. and adequate matching implements such as Disc Harrows, Disc Ploughs, Tine Tillers, Seed Drills, Fertilizer cum seed Drills, Levellers, Mouldboard Ploughs, Trailers etc.

are available. The population of tractors and matching implements is rising rapidly. The annual demand for tractors is expected to touch nearly 70,000 by 1973-74. The production of farm machinery is being encouraged in every possible way and the fact that the demand for tractors has risen steeply is indicative of its success in mechanisation and the benefits the users have reaped through their use.

The most popular tractors are those of 14 to 20 HP and those above 25 HP upto 50 HP. Tractors above 50 HP are likely to be needed in larger numbers than at present, say after 5 years from now. The farmers are generally satisfied with the implements of conventional design since they are available at reasonable prices. In the not too distant future, Rotavators, Harvesters, Power Harrows and such more sophisticated implements may become popular once they become available from indigenous production.

SECTION-III

MANUFACTURING INDUSTRIES AND ANCILLARY FACILITIES.

The major industry established in the field of agricultural machinery is the agricultural wheeled tractor industry. There are five units in production with a total approved capacity of 30,000 Nos. per annum against which they have attained a production of approximately 15,500 Nos. during 1968-69. The next largest industry is for the manufacture of tractor drawn agricultural implements. The majority of the production of implements is in the small scale sector mostly located in areas where the tractor population is large. The tractor manufacturers also produce implements but in a limited way since the small scale sector are in a position to market their products at very economical prices when compared to the tractor manufacturers. No doubt, the implements manufactured by the tractor manufacturers are with foreign collaboration and are of better quality.

Apart from this, there is a sizeable production of other types of farm machinery like Threshers, Reapers etc.. The production of Power Harrows is about to begin and, in the near future, the production of tractor mounted Combine Harvesters is also likely to start. In addition, various other implements such as Levellers, Fertilizer Drills etc. are also being manufactured.

The following is an account of the other Allied Engineering Ancillary and supporting industries which cater to the needs of the farm machinery industry:-

(i) Ferrous Castings.

Capacities for the manufacture of castings such as malleable, spheroidal-graphite, cast iron and other ferrous alloy castings have already been established in the country, both in the organised and in the small scale sectors. Almost every type of ferrous casting can be made within the country. By and large it may be stated that adequate capacity has been created for meeting the internal needs of the country. In fact, there is a lot of unused capacity in these foundries which India can make available to other countries where such facilities are not available or cannot be established due to economic and other reasons. Facilities are also available for making the necessary patterns for the castings. Special processes such as shell moulding, pressure die casting etc. have also been developed within the country.

(ii) Non-ferrous castings

Like the ferrous castings, capacity has also been established for the manufacture of non-ferrous castings where again surplus capacities exist.

While in the case of ferrous castings, the raw material viz. the pig iron is available in sufficient quantities, the alloying elements have to be imported. In the case of non-ferrous castings, though copper and zinc are available in limited quantities in India,

these virgin metals have to be imported to make up the short-fall in indigenous production. Items such as tin and nickel shots would have to be imported for these industries.

(iii) Forgings.

Considerable capacity has already been created for both open and closed die forgings. Quite a number of units manufacturing automobiles, railway wagons etc. have forging capacity for meeting their own requirements. In addition, there is a large number of forging plants all over the country to cater to the needs of the engineering and other industries. Here also surplus capacity is available. Much of the forging quality steel required in these industries is already being produced in India, but certain special grades of forging quality steels have to be imported. In the not too distant future it is anticipated that even the latter types of steels would also be produced within the country. It may be mentioned, however, that even for very large sized forgings, capacities have been established in the public sector for meeting the requirements. Many of the forging plants have their own facilities for the manufacture of tools and dies required by them for their production. In addition, a large number of units have also been established for the manufacture of special tools, dies, jigs & fixtures required by the various industries including the forging industry.

(iv) Machine Tools.

India is now in a position to manufacture a wide variety of machine tools which are required in the production of various types of engineering goods including agricultural machinery. There is, however, a gap to be filled, particularly in respect of gear cutting machinery required in the agricultural field for tractors. Large surpluses of finished machine tools are already available from the factories both in the private and public sectors, apart from surplus capacities for undertaking the production of special purpose machine tools. In so far as general purpose machine tools are concerned, these are fairly well covered from indigenous production.

(v) Ancillary industries.

Capacities have been established for the manufacture of a wide range of ancillary items which are required particularly in the automotive industry. These include among the major items, batteries, tyres & tubes, brake linings, clutch assemblies and parts thereof, dynamos, starter motors, fuel injection equipment, valves, gaskets, pistons and rings, filters, thin-walled bearings, wheels etc.. In fact, most of the ancillary requirements of the automotive and tractor industries can be catered for by the ancillary units in India. All these units are being expanded progressively to keep pace with the variety and

increase in demand that is developing, particularly in the agricultural sector. In addition, a number of other ancillary units are also available for making the hardware items. The tyre industry is well established and is also being expanded to meet the rising demand. In other words, the ancillary field, though very wide in its scope, has been substantially well covered and the production of special requirements could be organised with proper incentives and advance notice to the industries.

It may, however, be mentioned that, in both the machine tool industry and the ancillary industries, some raw materials and in some cases some special accessories, have to be imported, the production of which has still to be established. On the whole, the position with regard to the ancillary industries and the machine tool industry is very satisfactory and if these industries are called upon to extend co-operation outside India, it should not present a serious problem.

Sources for primary iron & steel products.

Large steel plants at Durgapur, Burnpur, Jamshedpur, Bhilai and Rourkela have already been established in the country. Another large steel plant at Bokharo is also being established. These plants manufacture all the primary iron & steel products including pig iron, ingot steel etc.. There is a large number of re-rolling mills which

use the primary steel products from these major steel plants and manufacture various sections and types of steel products required by the industries. Besides these, production has already begun in the manufacture of special alloy steels including stainless steel at the Alloy Steel Plants at Durgapur, Bombay and Bhadravati. These Alloy Steel Plants are also embarking on the production of a wide variety of alloy constructional steel required by the automobile and heavy industries.

For the further growth of steel industry, manufacturing facilities have also been created for setting up of new steel plants and also expansion of the existing ones. The raw material for the steel plants is abundantly available and only certain alloying elements are required to be imported at present.

SECTION-IV

POLICY TOWARDS AGRICULTURAL MACHINERY INDUSTRY

As a corollary to adoption of new strategy and intensification of cultivation, the demand of agricultural machinery, particularly the tractor and power tillers has increased and more so in the agriculturally progressive areas. The cost of unskilled labour for harvesting crops has gone up. In order to meet the internal demand, the production capacity for tractors has since been raised and shortages are being met by imports from abroad. Important agricultural implements are also being employed increasingly by the farmers.

The following significant steps have been taken to promote the use of agricultural machinery:-

a) Tractor and power tiller industry has been exempted from the licensing provisions of the Industries (D&R) Act, 1951. This measure would enable intending manufacturers to enter the market. The existing manufacturers are also likely to organise themselves more efficiently as a result of keener competition. These measures are likely to show results by the end of the 4th Plan.

b) Tractors and Power Tillers industry has been included in the list of priority categories and foreign exchange upto the full installed capacity is allowed to these units to import components from abroad.

c) Government have also liberalised the allocation of foreign exchange for import of capital goods required by the existing units.

d) Five schemes have been approved for the manufacture of Crawler Tractors in various ranges. These will be useful for levelling and normal agricultural operations in hilly areas and sugarcane farms.

e) Tractors and power tillers are being imported to fill the gap between the present demand and supply from the indigenous sources.

f) The production of different types of tillage implements is being organised.

g) Credit facilities are being extended to farmers for the purchase of tractors and implements through co-operative institutions, land mortgage banks etc..

Agricultural Engineering has a pride of place in the Engineering Colleges. Some Colleges have been set up only for courses in Agricultural Engineering and Agriculture. Research institutions have also been set up to develop new designs for implements, new techniques in farming, and for the development of high yielding types of seeds. Model farms ^{and} seed farms which also help to propagate new ideas and methods, have been set up. Tractor Training and Testing Stations have also been set up to test

equipment scientifically and thoroughly prior to acceptance of the prototypes for regular production. This has helped in ensuring that imported equipment chosen for production in India is suitable under Indian conditions.

The Agro Industries Corporations set up in each State are to provide sales and after-sales service facilities for the various types of agricultural machinery in use in the farms and also to impart training in the maintenance and operation of the agricultural machinery.

Efforts will be made to strengthen and expand the above-mentioned facilities and organisations.



