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COUNTRY STUDY REPORT

STATUS OF AGRICULTURAL MACHINERY INDUSTRY IN TURKEY 1/

by

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## GENERAL ASPECTS OF AGRICULTURE IN TURKEY

### IMPORTANCE OF AGRICULTURE.

The agricultural sector has the largest share in the national income, the active population and export earnings of the Turkish economy. 30% of the national income is agricultural income. The size of the active population in this sector is 10 million and the ratio of agricultural workers to total active population is 72%. Agricultural products constitute 75% of Turkey's exports.

### MANPOWER IN AGRICULTURE:

Turkey's population is increasing at a rate of 26 per thousand each year and this situation is leading to both a decrease in per capita income and forcing 1 million 200 thousands people to continue searching for new jobs. The distribution of the now almost 14 million working population with respect to main sectors is as follows:-

| <u>S e c t o r</u> | <u>Working Population</u><br>(000) |
|--------------------|------------------------------------|
| Agriculture        | 9.940                              |
| Industry           | 1.423                              |
| Commerce           | 498                                |
| Construction       | 472                                |
| Transportation     | 339                                |
| Services           | <u>1.066</u>                       |
|                    | 13.738                             |

As observed in most developing countries, the contribution of the agricultural population to domestic income is at a minimum level compared to other sectors and it is predicted that this situation will continue for some time.

### MODERNIZATION IN AGRICULTURE:

The Turkish agriculture is inclined towards modernization in order to transfer this 72% big mass as of active population to other sectors of the economy. The number of tractors in Turkey has reached 85.000 by the end of 1968, whereas, this number was only 1.100 in 1945. Within the same period, area cultivated by tractors has increased from 87.000 hectares to 6 million 400 thousand hectares.

Chemical fertilizers used per hectare have gone up to 10 kg. from 0.14 kg. and the area of irrigated land amounts to 2 million hectares by the end of 1968. If this rate of growth continues, the ratio of agricultural population to total active population will fall to 65% by 1972.

DISTRIBUTION OF LAND:

The utilization of land in Turkey has gained a stable nature with respect to area. According to 1967 figures, 30% of the total area is being cultivated, 40% is meadows and pastures, 13% is forests and unproductive soil constitutes the rest which is 17%. 14 million 170 thousand hectares are sown, 7 million hectares are fallowed and 2 million 350 thousand hectares are fruit and vegetable gardens making a total of 23 million 500 thousand hectares. The following table shows the distribution of agricultural land with respect to size of farms:-

| <u>Size of Farms<br/>(Decar)</u> | <u>Number of Farms</u> | <u>Ratio<br/>(%)</u> | <u>Size of Total Area<br/>(Hectar)</u> | <u>Ratio<br/>(%)</u> |
|----------------------------------|------------------------|----------------------|----------------------------------------|----------------------|
| 1-50                             | 2.132.000              | 68,8                 | 5.219.000                              | 24,8                 |
| 51-200                           | 853.000                | 27,5                 | 8.775.000                              | 41,7                 |
| 201-1000                         | 111.000                | 3,6                  | 4.932.000                              | 23,4                 |
| 1000 or more                     | 4.300                  | 0,1                  | 2.146.000                              | 10,1                 |

Land portions constituting these agricultural farms are shown by the following table:

| <u>Number of Pieces</u> | <u>Ratio<br/>(%)</u> |
|-------------------------|----------------------|
| Single piece            | 9,6                  |
| 2-3 pieces              | 20,8                 |
| 4-5 pieces              | 19,9                 |
| 6-9 pieces              | 24,9                 |
| 10 or more pieces       | 24,8                 |
|                         | <u>100,-</u>         |

Below is shown the area used in the production of the main crops:-

| <u>C r o p s</u> | <u>A r e a</u><br><u>(1000 Hectars)</u> |
|------------------|-----------------------------------------|
| Wheat            | 6.900                                   |
| Barley           | 2.560                                   |
| Seed crops       | 725                                     |
| Cotton           | 700                                     |
| Maize            | 600                                     |
| Sunflower        | 270                                     |
| Tobacco          | 216                                     |
| Sugar beets      | 180                                     |
| Potatoes         | 160                                     |
| Rice             | 57                                      |
| Grapes           | 800                                     |
| Olives           | 654                                     |
| Vegetables       | 300                                     |
| Citrus           | 37                                      |

MECHANIZATION IN AGRICULTURE:

In every region of Turkey that is available for agriculture, there is a trend towards mechanization within the limits of the farmers' payment possibilities. The table showing the increasing number of tractors used and area cultivated by tractors, also confirms this improvement:

|                                            | <u>1963</u> | <u>1966</u> | <u>1968</u> |
|--------------------------------------------|-------------|-------------|-------------|
| Number of tractors                         | 50.800      | 65.000      | 85.000      |
| Area cultivated by tractors (1000 hectars) | 3.800       | 4.800       | 6.400       |
| Area cultivated by draft animals           | 19.700      | 18.700      | 17.100      |

In spite of this improvement, Turkey's agriculture still depends on animal power. Figures show that the number of draft animals in Turkey was 2 million 700 thousand in 1968. Area cultivated by these draft animals is 17 million 100 thousand hectars. The following table shows the 1968 figures of main Turkish agricultural equipment and machinery:-

|                       |           |
|-----------------------|-----------|
| Wooden plows          | 2.084.000 |
| Wheelless plows       | 455.000   |
| Wheeled plows         | 1.000.000 |
| Tractor driven drills | 12.500    |
| Animal driven drills  | 35.000    |

|                 |           |
|-----------------|-----------|
| Cotton drills   | 22.000    |
| Beetroot drills | 7.000     |
| Mowers          | 28.000    |
| Threshing sled  | 2.330.000 |
| Binders         | 3.000     |
| Combines        | 8.000     |
| Sprayers        | 135.000   |

MANUFACTURING OF AGRICULTURAL EQUIPMENT AND MACHINERY:

Tractor manufacturing occupies the largest division in this sector. Since the inclusion of tractors in the assembly production in 1960, importing of tractors has been hindered excluding 56-65 HP tractors, two-wheeled tractors and crawler tractors which cannot be locally manufactured. Imported tractors meet only 5% of yearly demand. Savings on foreign exchange from assembling industries have reached a level of 50% by now. In 1968, six different firms have actually achieved assembly and production of agricultural tractors. A total production of 15,500 have been realized in 1968. The following table shows production by each make:-

| <u>M a k e</u>  | <u>Units</u> |
|-----------------|--------------|
| Massey-Ferguson | 6700         |
| Ford            | 3700         |
| FIAT            | 3200         |
| Nuffield        | 1100         |
| McCormick       | 450          |
| Hanomag         | <u>350</u>   |
|                 | 15500        |

Total production is being divided into small segments, because of the great number of firms in this sector. Therefore, until now, firms have tried to avoid large investments. But, in 1969, Massey-Ferguson's project for a yearly production of 20,000 units and FIAT's project for a yearly production of 10,000 units have been approved. Thus, by 1972, these two firms will be able to increase their production and realize at least 64% local content.



Another factor which will increase the local content in the near future is the approval of the Perkins diesel project by the Turkish Government.

Progress is also observed in the production of other agricultural equipment and machinery besides tractors. Unfortunately, the capacity of production is not yet sufficient to meet domestic demand of the main items. Since the demand for agricultural equipment and machinery is a seasonal demand, it is met by a continuous domestic production and stocking in periods of low demand. However, this situation prevents the manufacturers and distributors from making large production and sale programmes.

The following table summarizes the realized production of agricultural equipment and machinery in 1968:-

|                    | <u>Units</u> |
|--------------------|--------------|
| Tractor            | 15.500       |
| Tractor plow       | 7.200        |
| Tractor drill      | 3.200        |
| Tractor trailer    | 4.200        |
| Combines           | 110          |
| Animal-drawn drill | 13.500       |

INCREASING DEMANDS:

Turkey's demand for agricultural equipment and machinery in 1975 is predicted to be as follows:-

|                 |        |
|-----------------|--------|
| Tractor         | 40.000 |
| Tractor plow    | 30.000 |
| Tractor drill   | 10.000 |
| Tractor trailer | 25.000 |
| Combines        | 1.000  |

ENCOURAGEMENT OF THE AGRICULTURAL MACHINERY INDUSTRY:

The private sector's investments in this field are encouraged by lowering of taxes, in order to attain the above targets of production. These are:-

- Tax exemptions for investments up to 80%,
- Custom duty exemptions for investment goods up to 100%,
- Duty payments by installments,
- Less expensive credits for industrialists.

#### FARMERS' CREDITS:

In Turkey, the farmers get credit for tractors and agricultural equipment from the Agriculture Bank. The amount and payment conditions of the loan depend on the kind of the machine to be bought, the kind of crop to be produced and the geographic region of the farm. A duration of four years is possible for tractor credits. These loans cost the farmers about 12% each year. However, the interest expenses of loans from the private sector exceed 18%. In 1968, 6 billion Turkish Liras, making 25% of total credits were allocated for agricultural credits.

#### CONCLUSION:

In order that capital goods and raw materials required by the economic development of Turkey, and the consumption goods for the needs of the public can be imported in sufficient quantities, it would be necessary to increase agricultural production and exports.

It is required to change the production technique and develop the technology applied in agriculture, to have the above principle realized. Thus, increasing the productivity of agricultural production will help both provide a higher standard of living for agricultural workers and augment the contribution of agriculture to Turkish economy.

However, the primitive condition of agricultural implements in Turkey as well as the inadequacy of the machinery and equipment required by modern technology, increase the difficulties of carrying out agricultural work properly and on time.

On the other hand, because of climate and soil conditions, one third of the arable land is left fallow. Production on a fallow basis does not allow efficient utilization of the land, manpower and capital.

Finally, the fact that agricultural operations in Turkey are divided into too small units, causes a decrease in the quantity of the products marketed by the farmers; so these farmers work as producers with low productivity and negligible income, burdened with high debts and producing only to satisfy their own needs.

In view of all these circumstances, could it be argued that the general agricultural conditions in Turkey would allow technologic advancement?

Factors such as military service and education, development of communications and transportation facilities, population movements due to industrialization have brought Turkish farmers into contact with the external world. Now Turkish farmers desire an easier life, to eat better, to purchase radios and refrigerators, to use electricity, in short, a higher standard of living. It is this desire that has created the environment in which technological development in Turkish agriculture can be realized.

The problem is to give impetus to the planned equipping and education of Turkish farmers, which involves the following:

- 1- To manufacture locally or import, whenever necessary, all implements to increase and improve agricultural production.
- 2- To provide the necessary capital and credit to farmers, for purchasing the implements in question.
- 3- To develop a marketing system that will make a fair remuneration to the labor of the producers.
- 4- To support the growth of the agricultural industry that will most effectively evaluate agricultural production and finally.
- 5- To revise and reorganize the property ownership regime so that small land units can be reunited.



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