



## Creation of Machine and Tractor Enterprises with Application of Logistics Principles in Village Councils of Kyrgyzstan

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## Creation of machine and tractor enterprises with application of logistics principles in village councils of Kyrgyzstan

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**Abstract.** This paper deals with the issues of creating machine and tractor enterprises (MTE) using the logistics principles in the village councils of the Kyrgyz Republic. The main restraining factors for creation and construction of the MTE have been identified. The regional peculiarity of this problem is analyzed and solutions with detailed calculations and scientific research were proposed. On the basis of many years of scientific research the problem tree of absence and creation of MTE in the village councils of the Kyrgyz Republic was compiled. The results of the study, specific recommendations on creation of MTE with the application of logistics principles in the village councils of the Kyrgyz Republic are arranged and given in the design matrix of this project. The criteria for success in the successful implementation of this project have been determined.

After gaining independence, the Kyrgyz Republic started the process of agricultural reform, i.e. transformation of collective farms into individual farms and peasant farms, but this process was accompanied by many problems associated with the abolition of the old collective structure. In the course of the reform, all assets of collective and state farms were transferred to private ownership, including agricultural machinery (tractors, combines, agricultural machines, etc.), including buildings (administrative building), facilities (boxes, storage areas for agricultural machinery, repair shops, etc.), equipment of the machine and tractor fleet (lathes, forging accessories, mobile repair equipment, welding machines, etc.). Herewith, the distribution was carried out by lottery drawing and 80% of agricultural machinery was received by non-specialists. It is also important to note that no training was provided to farmers and peasants on how to properly organize, manage and plan their farms under market economy conditions. As a result, many owners of agricultural machinery did not know how to properly operate it in the new economic conditions, there were not enough financial resources for repair, some sold for trifling sum, and even sold as a scrap metal. And those who knew how to handle equipment faced many problems related to spare parts, repairs and fuels and lubricants. Especially there were many problems with the provision of spare parts, because almost 90-95% of the equipment has been in operation for over 20 years. The renewal of the agricultural machinery park was very slow, it started only in 2005. Under a grant from the People's Republic of China, our republic received 1205 units of tractors, 1205 units of plows and 6 units of haulers. 105 units of SK-5 "Niva" grain harvesters were purchased under the Japanese grant [1]. Also at present, part of the agricultural machinery is being renovated by leasing. Such renewal is not enough to meet the needs of the republic for agricultural machinery, especially in the remote mountainous regions of Kyrgyzstan.

There is a particularly shortage of grain harvesters, corn harvesters, universal tractors, and agricultural machines for harvesting forage crops. There is an acute shortage of mowing machines, rakes, balers and tractor trailers. Agricultural machinery, which is currently used in village councils, is not efficient, there is no service and modern management.

This implies the need for all village councils of Kyrgyzstan to create machine and tractor enterprises using the logistics principles (MTE), with new agricultural and automotive equipment, with the assignment of status of a legal entity, without subordination to the administration of the village council.

The global trend shows that the use of logistics systems in developed countries reduces transport costs by 10-21%, and the costs associated with loading and unloading operations, storage of raw materials and finished products are reduced by 13-28%, total logistics costs by 14-37%, in addition, the turnover of material resources is rapidly increasing by 22 - 41% [2].

Improvement of the existing ones and introduction of new methods of scientific substantiation of the development of the backbone network of regional transport and logistics centers becomes especially important in terms of the prospects of creating enterprises (logistics centers) in agriculture in Kyrgyzstan to transport agricultural goods.

The purpose of the work, i.e. the creation of an MTE is the effective use of agricultural machinery and vehicles for the transport of agricultural goods, stimulation of agricultural mechanization, especially in remote mountainous regions of Kyrgyzstan (where there is a very low level of mechanization) with the use of modern logistics planning,

organization and management methods, with the involvement of new equipment and distribution throughout Kyrgyzstan.

The main problems requiring the following solution:

1. Preparation of primary documents for obtaining a permit for construction of MTE;
2. Obtaining permits;
3. MTE design and location determination;
4. Determination of the composition and number of vehicles and agricultural machinery that meet the needs of the villagers;
5. Solution of financial issues related to construction of the MTE and purchase of vehicles and agricultural machinery (search for grants, sponsors);
5. Creation and construction of MTE;
6. Implementation of modern logistic methods of planning, organization and management of MTE.
7. Training of villagers and conducting practical training for students of the relevant specialties of K. I. Skriabin Kyrgyz National University of Agriculture in these MTEs;
8. Dissemination of this project (proposal) throughout Kyrgyzstan.

*Regional specific features.* As mentioned above, this problem is in fact a national issue. The renewal of agricultural machinery is very slow and often wrong. The villages still use old Soviet equipment, which often breaks down, there is a lack of spare parts and they are expensive. Especially in agriculture of our country there is a lack of combine harvesters. All purchased agricultural equipment under grants from Japan and China was transferred to farmers on a long-term loan, therefore, to pay off loans, they provide services to other farmers who do not have agricultural equipment. Because of this, these services are expensive and are not regulated by the state. Many farmers often suffer losses, yields are declining for all types of crops grown in Kyrgyzstan, especially where the level of mechanization is very low. Therefore, this problem should be considered at the national level. The regional specificity of this problem is detailed in the problem analysis (in the problem tree) (Figures 1 and 2).

An alternative solution to this problem may be the following:

1. MTE can be created by businessmen;
2. MTE can be created by state;
3. MTE can be created by individual farmers on a credit basis, i.e. they receive financial resources for creation of MTE from commercial banks on credit;
4. MTE can be created by investors (donor organizations).

*We analyze each option for solving this problem:*

With the first option, the businessman, if he invests his certain financial resources, then he will try to return the invested funds as soon as possible. If there is no competing party, he will become a monopolist, because of this the services will be expensive and the quality of the work performed will be very low. There are such options in the agriculture of Kyrgyzstan, and all the said shortcomings are observed.

With the second option of solving the problem, if the state would deal with this problem, it would be very good. But, unfortunately, the state does not deal with this problem for a number of objective and subjective reasons. This is a separate issue, especially a political one. Therefore, we will not concretize it.

With the third option, the farmer cannot get the financial resources to the extent required to create MTE, this requires collateral, and the farmer simply does not have such property. Even if he receives this amount, the interest rates are high and will not pay off, the farmer will simply go bankrupt.

We believe that the fourth option of solving the problem is not the best either, but for the development of our republic's agriculture, at least to remain at this level, is very necessary. Because, due to the lack of agricultural machinery and the operation of old equipment, farmers suffer colossal losses. Also, every day this problem is gaining momentum. Therefore, I believe that the fourth option for solving the problem at this time is more effective and acceptable.

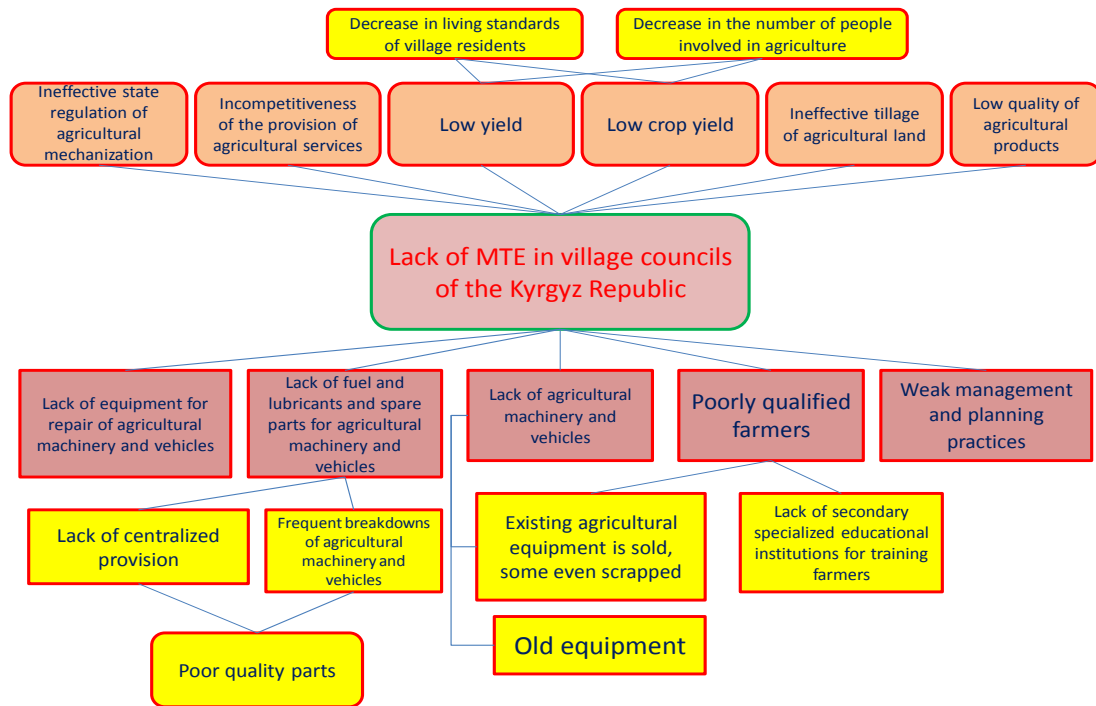


Fig. 1. Problem tree “Lack of MTE in village councils of the Kyrgyz Republic”

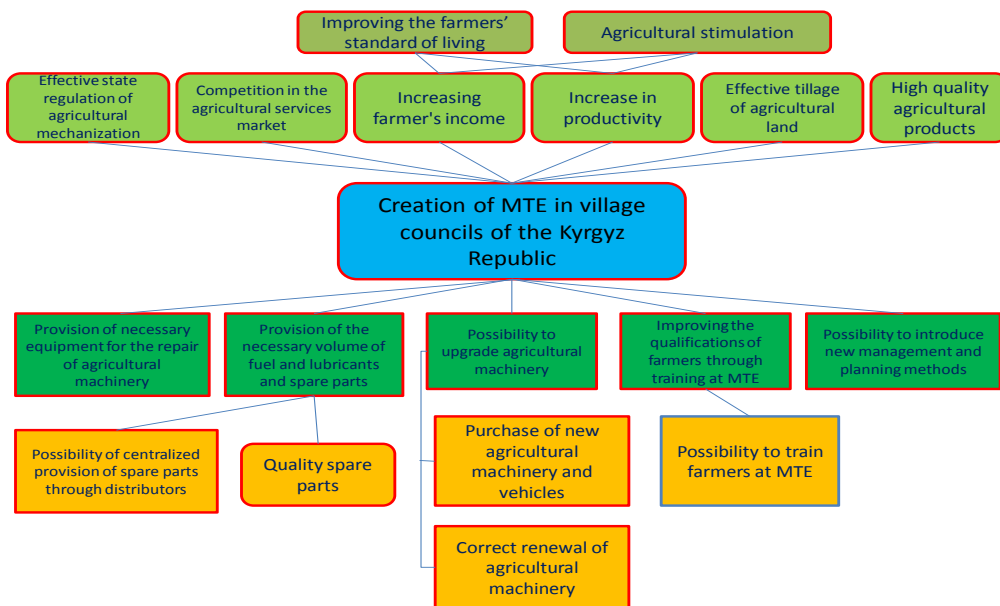


Fig. 2. Problem tree “Creation of MTE in village councils of the Kyrgyz Republic”

*Participation.* In our opinion, the Ministry of Agriculture, Land Reclamation and Processing Industry of the Kyrgyz Republic, K.I. Skriabin Kyrgyz National University of Agriculture, farmers, village council, etc. would like to take part in this project. (fig. 3)

## Analysis of Participants

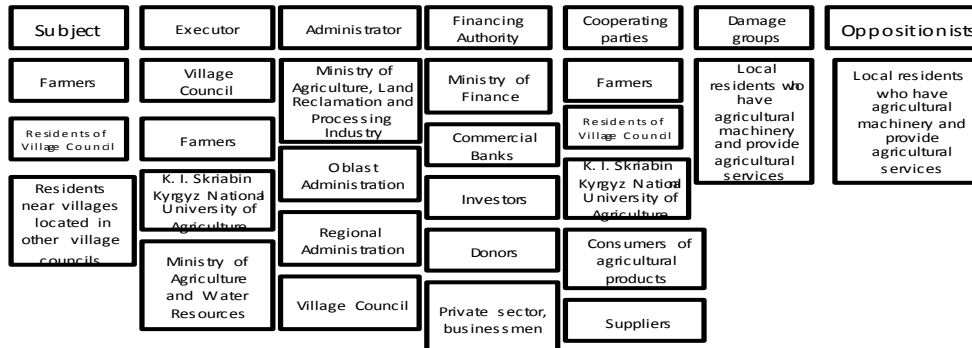


Fig. 3. Analysis of participants to create MTE

### Conclusion:

1. The beneficiary can be all farmers and other residents of Kyrgyzstan who are engaged in agriculture and animal husbandry, especially those living in mountainous regions remote from the capital, where the level of mechanization is very low and the amount of manual labor is decreasing. This, in turn, improves the health of farmers and has a positive impact on their life expectancy.
2. In order to fully solve this problem, we need the state to pay special attention to it and the Ministry of Agriculture, Land Reclamation and Processing Industry to deal with this issue at the proper level. Besides, we need to train specialists and improve the skills of farmers, mechanical engineers, tractor drivers and other agricultural workers.
3. The criterion of success is to increase the yield of crops, reduce tariffs for services, improve the quality of agricultural products, the timeliness and quality of agricultural work performed, the organization and efficiency of the work of the agricultural sector and effective, high-quality transportation of agricultural cargo. The main criterion for the success of this project is to improve the living standards of the residents of villages of Kyrgyzstan, especially in mountainous regions.

Key words: machine and tractor enterprises, logistics, logistics principles, agricultural products, agricultural cargo, village council, agricultural machinery, vehicles, farmers.

### References:

1. <https://agroprod.kg>
2. <http://www.geogtime.ru/goas-811-1.html>.