Socio-economic problems of agriculture of the Republic of Khakassia during the reform

E Ya Chebochakov1, A A Shpedt2, G M Shaposhnikov3, V N Murtaev4,5 and V A Kadychegov6

1 Research Institute of Agricultural Problems of Khakassia, the Republic of Khakassia, Usr-Abakan region, Zelenoye, Russia
2 Federal Research Center "Krasnoyarsk Science Center of the Siberian, Branch of the Russian Academy of Sciences", Siberian Federal University, Krasnoyarsk, Russia
3 Khakass Research Institute of Language, Literature and History, Abakan, Russia
4 Research Institute of Agricultural Problems of Khakassia, the Republic of Khakassia, Usr-Abakan region, Zelenoye, Russia
5 Post graduate student of Khakass State University named after N.F. Katanov, Abakan, Russia
6 Siberian Federal University, Sayano-Shushensky branch, Sayanogorsk, Russia

E-mail: echebochakov@mail.ru, shpedtaleksandr@rambler.ru, valera.murtaev@mail.ru

Abstract. The article shows that the socio-economic conditions in the agriculture of the Republic of Khakassia, located in the south of Central Siberia, is undergoing significant changes for 25–28 years after the transition from public to private property. Land use, agricultural products, population size and migration are considered at different periods of reform. During the transition from public ownership to private ownership, a substantial redistribution of arable land occurred.

1. Introduction
Socio-economic conditions of the country changed at the end of the 20th century. V.I. Kiryushin [1] notes that agricultural systems depend on socio-economic conditions. They affect demographic processes. During the reform period, there was a transition from public ownership to private. The lands of the former large farms (state farms) were transferred to agricultural organizations, peasant (farmer) farms (peasant farms) and households.

2. Research purpose and results
The purpose of the research was to identify the impact of socio-economic conditions and reforms in the late XX – early XXI centuries on the use of land and labor in rural areas. The dynamics of the distribution of arable land, the structure of agricultural production by category of farms and the population are given according to the materials of the Federal State Statistics Service for the Republic of Khakassia and the Ministry of Agriculture and Food of the Republic of Khakassia. During the course of the research the statistical and graphical methods were used.

In extreme conditions of arid territories in the south of Central Siberia over the years of reform in the agro-industrial complex, the following socio-economic problems were identified: 1. the decrease in the number of rural population; 2. the reduction of the area of arable land and sown area of crops; 3.
the decrease in production volumes in agricultural organizations. With the exception of highly degraded soils, arable land in the steppe zone should provide additional agricultural production.

However this does not happen [2–6]. Irrational use of land resources takes place. The fallow lands are currently polluted with weeds, shrubs and forests, and are a source of pests and diseases of crops (Fig. 1, 2).

The distribution of agricultural land, arable land, and natural fodder land and the production in farms of different categories changed significantly (Fig. 3) [7–10].

The share of agricultural land by 2015 compared to 2000 in agricultural organizations decreased by 26.6 %, arable land – by 37.7, forage land – by 19.1 %. Over the same years, the proportion of arable land and fodder land in peasant farms increased slightly. Thus, if in agricultural organizations in 2013–2015 it amounted to an average of 60.9 % of the total area of arable land of the republic, then in 2016–2018 it was 7.0 % less.

In the same period the share of arable land of peasant farms increased by 7.7 %. The reason for the redistribution of land is the transition during the years of reform (90-ies of the XX century) from public ownership to private. The total area assigned to farms is gradually decreasing (Table 1).

A significant part of the fixed arable land is not used. In agricultural organizations in 2013–2015 it was used only in the range 52.7–59.7 %, in peasant farms – 61.3–74.4 %. The remaining area of arable land is under deposits of different ages.

The total cultivated area of agricultural organizations in 2014 amounted to 153.7 thousand ha, and in 2018 – only 118.4 thousand ha (Table 2).

![Figure 1. Long-term sea-buckthorn-cereal-mixed-grass deposits in steppe zone](image1)

![Figure 2. Long-term wormwood and herbaceous deposits in dry steppe zone](image2)
Figure 3. Arable land distribution by farm category, thousand ha

Table 1. Farmland used by different categories of economies

| Household Categories | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|----------------------|------|------|------|------|------|------|
|                      | thous. ha | %   | thous. ha | %   | thous. ha | %   | thous. ha | %   | thous. ha | %   | thous. ha | %   |
| Agricultural organizations | 182.5 | 61.8 | 180.4 | 62.6 | 158.0 | 58.5 | 150.5 | 55.5 | 139.6 | 52.8 | 140.7 | 53.2 |
| Peasant (farmer) households | 102.8 | 34.8 | 98.6 | 34.2 | 103.7 | 38.4 | 113.0 | 41.7 | 117.5 | 44.5 | 116.9 | 44.2 |
| Private farms | 9.7 | 3.3 | 8.9 | 3.1 | 8.3 | 3.1 | 7.4 | 2.7 | 7.1 | 2.7 | 6.7 | 2.5 |
| Total | 295.0 | 100 | 288.0 | 100 | 269.9 | 100 | 270.9 | 100 | 264.2 | 100 | 264.3 | 100 |

Table 2. Main performance indicators of agricultural organizations [11].

|                      | 2014 | 2015 | 2016 | 2017 | 2018 |
|----------------------|------|------|------|------|------|
| Sown area, thousand ha | 153.7 | 132.4 | 126.6 | 119.9 | 118.4 |
| Including: cereals and legumes | 73.6 | 63.9 | 54.0 | 59.8 | 49.6 |
| technical crops | 3.4 | 0.4 | 2.1 | 3.2 | 3.8 |
| potatoes and vegetable melons | 0.3 | 0.3 | 0.5 | 0.2 | 0.1 |
| feed crops | 76.3 | 67.8 | 70.0 | 56.7 | 64.8 |
| Livestock and poultry stock (at the end of the year), thousand heads: cattle | 34.9 | 30.6 | 30.1 | 29.1 | 28.2 |
| including cows | 12.8 | 11.5 | 11.7 | 11.2 | 11.3 |
| pigs | 3.2 | 3.3 | 3.9 | 2.0 | 2.1 |
| sheep and goats | 36.3 | 35.2 | 39.7 | 34.3 | 28.5 |
| poultry | 691.4 | 296.8 | 332.3 | 318.8 | 359.4 |

In agricultural organizations, there is a decrease in the sown area of grain and fodder crops. Thus, the sown area of grain and leguminous crops by 2018 compared to 2014 decreased 1.5 times, forage crops – 1.2 times.

The number of cattle by 2018 decreased by 19.2% compared to 2017.
The most important problem in the arid steppe regions remains the increase in agricultural production. However, the reduction of the area of arable land and sown areas may lead to a reduction in the production of grain, meat and milk.

Great changes occurred in the structure of agricultural production by categories of farms (Table 3). The share of private household production in 2015–2017 was 64.3 %, and the share of agricultural organizations was less – 17.2 %, and peasant farms – 18.5 % respectively. By 2017, the production in agricultural organizations decreased by 16.7 % compared to 2014, in peasant farms and private household plots increased by 33.5 and 31.1 %, respectively.

Table 3. Agricultural production by category of economies (at actual prices, mln. rub)

| Year | Agricultural organizations | Private farms | Peasant (farmer) households |
|------|--------------------------|---------------|----------------------------|
| 2014 | 2811.6                   | 6797.1        | 1773.0                     |
| 2015 | 2268.3                   | 7750.6        | 2197.7                     |
| 2016 | 2407.7                   | 8824.3        | 2754.4                     |
| 2017 | 2341.3                   | 9863.3        | 2665.8                     |

In 2014–2018 there is a decrease in the production of grain and milk in all the categories of farms in the Republic of Khakassia (Table 4).

The most acute problem is the stay of personnel in rural areas. Currently, there is a shortage of machine operators, shepherds, and agricultural specialists.

The statistical data on Khakassia were summarized in order to study demographic information (Table 5).

Table 4. Dynamics of production of grain, meat and milk by category of economies (thousand tones)

| Years | Agricultural organizations | Private farms | Peasant (farmer) households |
|-------|----------------------------|---------------|---------------------------|
|       | grain | meat | milk | grain | meat | milk | grain | meat | milk |
| 2014  | 111.2 | 6.91 | 35.9 | 51.7 | 4.2  | 23.4 | 18.1  | 118.5|
| 2015  | 79.7  | 2.1  | 32.6 | 36.0 | 4.6  | 23.2 | 17.5  | 117.2|
| 2016  | 72.1  | 1.5  | 28.7 | 49.8 | 5.0  | 22.1 | 17.3  | 115.0|
| 2017  | 69.5  | 1.7  | 29.7 | 39.4 | 5.0  | 21.5 | 16.9  | 111.9|
| 2018  | 62.1  | 1.8  | 28.6 | 37.4 | 5.0  | 19.6 | 16.2  | 106.3|

Table 5. Population of the republic of khakassia [11]

| Years | Total population, thousand people | Urban population | Rural population | In total population, % |
|-------|----------------------------------|------------------|-----------------|------------------------|
| 2015  | 535.8                            | 367.0            | 168.8           | Urban population       |
| 2016  | 536.8                            | 369.4            | 167.4           | Urban population       |
| 2017  | 537.7                            | 371.4            | 166.2           | Urban population       |
| 2018  | 537.5                            | 372.9            | 164.6           | Urban population       |
| 2019  | 536.2                            | 373.6            | 162.6           | Urban population       |

The rural population in the total population of Khakassia over the past 5 years decreased by 1.2 %. This is reasoned by the fact that after the transition from public ownership to private, it was difficult for the population to adapt to new living conditions. People lost their usual jobs. Only in 10-20 years after the reforms in Khakassia a natural population growth begins. Thus, in 2006–2010 it amounted to a total of 0.2 per 1000 population in the republic [4]. However, in 2017–2018 it fell to – 0.2–0.08 per 1000 people. In 2015–2019 the population remains almost unchanged (535.8–537.7 thousand people).

It is necessary to note that the largest population growth was 1.6 per 1000 people in Abakan. This is explained by the outflow of rural youth to cities, where they find jobs and have more favorable living conditions than in rural areas. The exception is Askizskiy region, where the increase reaches 5.3 per 1000 people – this is 3.3 times more than in Abakan. The indigenous population in this area is apparently more adapted to the conditions of rural life [4].
In addition the transition is characterized by:

- multistructure, simultaneous existence of different categories of agricultural organizations (large, medium, small and households), which have their own characteristics;
- The lack of qualified managers at all levels, specialists (agronomists);
- The violation of the developed technologies for the cultivation of crops;
- The use of obsolete equipment in (medium and small) agricultural enterprises;
- The accumulation of animals around settlements, the degradation of soil and vegetation;
- The lack of desire, understanding and responsibility for the loss of soil fertility, its protection from wind and water erosion;
- The lack of control over the protection of the environment and soil from the relevant authorities of Federal Service for Veterinary and Phytosanitary Surveillance;
- The rapid development of the coal industry and the transfer of fine soil to agricultural land.

3. Conclusion

Thus, during the period of the reform of the end of the 20th and the beginning of the 21st centuries, during the transition from public to private ownership, from large farms to small farms and households, significant changes occurred in the use of land, labor resources and the life of rural population. The proportion of arable land in the farms of farmers is gradually increasing.

The share of production in 2015–2017 reached an average of 64.3 % in households, 17.2 % in agricultural organizations, and 18.5 % in peasant (farmer) households.

In the first period of the reform, during the transition from public to private property, it was difficult to the population to adapt to new living conditions. Only in 2006–2010 natural population growth begins. In 2015–2019 the population of the republic remains almost unchanged (535.8–537.7 thousand people).

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