

# Chapter 15

## Socioeconomic, Institutional, and Demographic Dynamics Impacting Land Use in Post-socialist South Siberia



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**Abstract** This chapter deals with socioeconomic, institutional, and demographic drivers, as well as impacts of land use change. A thorough understanding of interrelationships between these and ecological and production characteristics is necessary to make sound recommendations for more sustainable land use practices in Altai Krai and thus to fight against land degradation.

**Keywords** Socio-economy · Institutions · Demography · Land Use · South Siberia

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Bavarova et al. in Chap. 16 lay the background of various important socioeconomic and political aspects. The authors first give information on farm structure concerning cultivated agricultural land in the area, including the numbers and types of operating farms. This allows a subsequent analysis of the effect of farm types on the adoption of soil cultivation technologies. Of particular interest is the share of arable land cultivated by various tillage systems, including no-till and mulch tillage. No-till systems are regarded as one of the best methods to prevent soil erosion in South Siberia (see Chap. 24). The authors show that all farm types use a mix of tillage systems, while stating that around one-quarter of large farms have already shifted to no-till technology. Yet, the share of large farms who adopt no-till uses it only on about 20% of their fields. Further Bavarova et al. discuss factors that generally hinder the introduction of reduced tillage operation from a socioeconomic perspective. Based on an empirical survey among 92 farms between 2015 and 2016, they highlight that the most important reason for non-adoption of no-till farming is a necessity for large investments. The survey further reveals a lack of farm managers' knowledge and thus

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casts doubts on whether this new technology is suitable for their production condition when combined with a general perception of expected difficulties in introduction of no-till technology on their farms. Whereas the first reason points to financial policy support, the others show the simultaneous need for education and extension. The study found indications that the small-scale farmers were those needing the most information on the suitability of this technology for their production system. Therefore, in the last part of Chap. 16, current policy instruments are presented that aim at supporting the adoption of innovative agricultural technologies in Altai Krai, among them a program for farmers to receive subsidies based on interest payments. Yet, a detailed look on spending these subsidized credits reveals a priority for fuel and fuel materials, plant protection products, and fertilizers. In general, the authors judge that regional policy objectives rather focus on a short-term increase in crop production creating obstacles for adopting long-term sustainable soil cultivation technologies.

Chapter 17 by Ponkina et al. takes up the analysis of the role of the legal forms of agricultural farms and their impact on plant production efficiency. The authors investigate if the assumed dependency of the performance of agricultural enterprises on the legal form can be found in the Altai context as well. A higher technical efficiency goes in line with better profitability of farms and thus the willingness for long-term investments, such as introducing soil protection measures. Based on a statistical dataset of 211 agricultural organizations (period 2008–2012), representing 9% of all agricultural enterprises in the Kulunda region, Ponkina et al. show the crucial role of agricultural production cooperatives. Although their total number is decreasing and their technical efficiency of plant production is lower compared to noncooperative management forms, they can play a key role when it comes to sustainable land management. Agricultural production cooperatives do still hold a large share of land and fulfill social functions in the rural area, both aspects not to be underestimated. Likewise, they can provide the function of providing public goods in the rural areas, including introducing soil cultivation techniques that in turn could mitigate climate change.

Questioning who holds the land in ownership or tenancy, which is cultivated in South Siberia, the next Chap. 18 gives the range of the current land tenure system. Based on property rights theory, Fadeeva and Soliev assume that establishing a secure and clear land tenure system is detrimental for long-term investment. Likewise, a functioning land market for tenancy could provide more security with more long-term contracts, in contrast to the current practices that encourages less than a year commitment, described by the authors. In general, the authors find that the land market is not well developed yet.

Chapter 18 presents the various steps of Russia's land reform and the current land reform implementation failures at various administrative levels. Complications in registering titles and lease agreements and the weakening of the state's role in controlling the proper use of land resources are outlined. If formal reforms are not implemented and administered well, Fadeeva and Soliev point out that informal (non-contractual lease relations) can be expected to fill the vacuum. Likewise, the struggle over officially unclaimed land shares has intensified. This insecurity in tenure rights, because of its unfavorable impact on long-term investment, hinders the adoption of

technical innovations such as soil conservation tillage systems. Particularly, measures against soil degradation or in favor of humus accumulation in the soil will only be considered by farm managers who perceive either their use rights as secure in the long term or possess guaranteed ownership titles by the state.

Further, the land redistribution fund as a particular common tenure system in post-socialist Russia plays a particular role also in the Kulunda region. Land registered under this fund can be rented with favorable conditions from the district administration, yet without special requirements for preserving topsoil or protecting against erosion. This, however, indicates to leverage in possession of district administrations that could be deployed for introducing land conservation requirements as part of lease and sale agreements.

Another institutional perspective on land use is provided in Chap. 19. Theesfeld and Jelinek check current agricultural land protection policies for their implementation capacity. Besides insufficient monitoring and controlling mechanism, also particular forms of property rights such as open access (the traditional free accessibility of any plot) can lead to non-suitable institutional arrangements of command-and-control nature. The main point in considering the institutional factors of policy implementation jointly is, however, as presented by Theesfeld and Jelinek, that if a command-and-control policy cannot be administered and monitored, it has to rely on voluntary commitment. If, however, the aim of the policy is not known to the target group—that is, the farm manager—or does not fit to their value and belief system concerning, for instance, their perception on the aesthetics of cultivated land, they will not comply with the new regulation. Theesfeld and Jelinek exemplify this with the help of the procedure of institutional compatibility analysis for the ban on crop-residue burning. They show that voluntary and advisory measures might be more cost-efficient and effective policy measures in reaching the aim of sustainable land management. Yet, it might be difficult in the current tradition of Russia's environmental policy.

In Chap. 20, first Bykov et al. look at the general demographic and migration processes in the Kulunda region by contrasting the various districts. The declining population is a central driving factor in the area's socioeconomic development, particularly in relation to the availability of skilled labor for the modernization of agriculture. It is likewise linked to the attractiveness of a region, which again has implications on the willingness for long-term investments of the current farm managers. Bykov et al. do also provide information on the population's age structure across individual districts. The major share of the mobile population is leaving the Kulunda region in favor of other regions in Russia, many of them to Barnaul. International outmigration of ethnic Germans and at the same way incoming migrants from Central Asian states is outlined by the authors as well. In almost all districts in the area, there is a negative migration balance of young people, the most crucial group if we think of long-term sustainable development of farms with well-educated young people trained in more sustainable cultivation measures.

Nikulin et al. in Chap. 21 focus on the possibility of Kulunda to become a learning region, where the link between ecology and efficiency should be the leading idea for development. The authors discuss various possible mechanisms of knowledge

transfers related to new technologies for agricultural production, first of all within the educational system in the region. Nikulin et al. suggest even concrete measures such as the promotion of most distinguished farmers, supporting business organizations, facilitating networking, and finally integration of ecologically oriented views into educational programs. As a background, the authors summarize key data on the agricultural and forestry sector and demonstrate shortage of qualified labor force as one of the most hampering factors for both sectors' development.

Nikulin et al. do likewise give information on indicators of residents' living standards, such as the condition of housing and infrastructure (heating and water supply, as well as school system and health care). A particular focus of this contribution lays on the cultural institutions, such as rural libraries or cultural centers facing a hard time to continue offering their public services. The cultural centers and clubs, facing severe financial challenges, would be particularly important in letting social capital and collective action evolve. All these are connected to the willingness of people to stay in the region. Particularly, the authors highlight that social infrastructure would be required to build human capital for agricultural development. Yet, there is one particular reason for why better educated young people usually leave the area—for other jobs, which are not agricultural.

Social capital is regarded as an engine behind innovation-driven development, discussed in Chap. 22 by Sergienko. She highlights three aspects: the attitude toward innovation, the readiness to adopt innovation, and the availability and accessibility of knowledge transfer channels in the Kulunda region. Empirical data (based on surveys conducted from 2000 to 2016) show that the opportunities for adopting new land use technologies are perceived by local people to depend on availability of credit mechanisms, but likewise of skilled labor force and the motivation of young people to work in agriculture. Sergienko highlights the potential of new channels for knowledge transfer to increase the adoption of land use innovation.

This chapter has shown socioeconomic, institutional, and demographic dynamics, that is configurations of the social and institutional environment that provide intermingled hampering and facilitating factors in the implementation of land use policies. In this environment, actors make their decisions for or against adopting new soil conservation measures that would not only reduce soil degradation but also mitigate climate effects.

On the one hand, there are hampering socioeconomic factors for long-term oriented investments such as regional policy objectives which focus on a short-term increase in crop production, or insecurity in tenure rights due to short-term lease contracts. Outmigration of young people and the demographic trends provide two additional problems: First, the labor force basis for agricultural farms is diminishing; and second, the declining population makes the region even less attractive for those who might be willing to stay and invest long term.

On the other hand, there are promising ideas and opportunities: easy to be developed once such as the need to explain the suitability of minor tillage operation to farmers or to make environmental friendly farming as a condition to rent land from the land redistribution funds. More demanding ones are eliminating inconsistencies in the land reform creating conflicting incentives and loopholes making less powerful

smaller farmers vulnerable to inequitable outcomes, as well as strengthening agricultural production cooperatives in their role of providing public goods, including measures for more sustainable land use.

There are special conclusions which can be drawn from the studies collected under this chapter for political and administrative actors in South Siberia where monitoring and controlling turns out to be largely ineffective or includes prohibitive high administrative transaction costs. Either way, one has to rely on the voluntary commitment which needs a basis of well-educated and knowledgeable farmers, or there should be a direct shift toward more voluntary-based policy measures such as supporting education and advisory service in reaching the aim of sustainable land management.