**Strategies of Organic Agriculture in Russia: Opportunities and Barriers**

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Agriculture as fundamental activity of man was traditionally considered as economic activity with important social functions. It provides a significant part of the world population with jobs and income. In recent years, the model of organic farming is actively developing which focuses its attention mainly on the ecological aspects, the problems of greenhouse gas (GHG) emissions, etc. Follow the increasing consumer demand and environmental consciousness of people organic agriculture demonstrates stable growth (2015, for instance, growth in Germany by 11.1 percent). To estimate this new agriculture model, it is reasonable to take into account more thoroughly the social and economic dimensions. It cannot be ignored numerous examples of violating the law on minimum wage by eco-farmers to ensure their price competitiveness with conventional farms (http://www.zeit.de/2016/13/landwirtschaft-oekobauer-mitarbeiter-ausbeute). Agriculture in Russian Federation is faced today with the challenges of growth in the domestic demand of the population for food. Moreover, agriculture must ensure reducing the burden on the environment in terms of greenhouse gas emissions in the context of the decisions taken at the conference in Paris-2015. Lack of mineral fertilizers for many years on the fields is a significant advantage for the development of the organic agriculture. Furthermore, the demand on the organic products grows today.

To define future perspective of traditional and organic agriculture and to elaborate for this sector a proper government policy necessary to pay attention to the Paris Agreements, namely to the goal to limit global temperature rises to levels “well below 2 °C above pre-industrial ones” (the 1.5°C goal). Notice that the annual total non-CO2 greenhouse gas emissions from agriculture comprise about 10-12 % of global anthropogenic emissions. In the E.U. the agricultural sector accounts for 10 percent of the total EU GHG emissions and about 17 percent of the non-ETS GHG emissions; in Russia this sector accounts for 6.28 percent of the total GHG emissions (https://unfccc.int/files/ghg\_emissions\_data/application/pdf/rus\_ghg\_profile.pdf). Obviously, organic farming can significantly contribute to reducing GHG emissions from agriculture to adapt to climate change.

Agriculture is one of the sectors that are most vulnerable to adverse climate impacts: in accordance with expert estimations, global food production could drop by 17 percent for each degree of temperature rise because of extreme weather events (drought, flooding, etc.). Simultaneously, agriculture plays a significant role in ensuring food security for a growing world population: it is expected to grow by 60% by 2050 (http://www.arc2020.eu/2015/12/what-will-the-paris-agreement-mean-for-farming-food/).

These findings provide a basis for usefulness of different models of agriculture and of the elaboration of a balanced development strategy. This can be achieved addressing to the contemporary conceptions of *sustainable development*, which demonstrate a holistic view at the economic, ecological and social challenges to society and a balanced way of development goals and strategies at the international, national, regional levels, as well as at micro (namely, business) levels.

Based on this concept we show that with respect to social and certain ecological problems traditional agriculture has not negligible advantages compared to ecological agriculture, especially if the attention is drawn to the above mentioned global task to supply the increasing world population with food and also to provide for this people proper quality of job and living conditions. Furthermore, the preferences to either traditional or to organic agriculture which can be found in the literature depend mainly on the perspective of the authors to the national, international, inner-generational and intergenerational aspects.

The huge agricultural land of 38.8 mil hectares, estimated by 2013, Jan. 1, has not seen any chemical fertilizers for many years, offers great opportunities, but so far, organic agriculture occupies only about 0.1 percent of this land.

The absence of a contemporary legal regulation in Russia constitutes serious barriers to dissemination of organic as well as integrated farming. The Russia´s national standard of organic agriculture (GOST R 56508-2015) approved by 2015, June 30, needs international acceptance, especially from the European Union. Under these circumstances, best international practices need application, including the EU experience to coordinate the agricultural and environmental policy, which is currently being adapted to the target settings of the Paris agreements. These are the following documents, which are developed and consistently implemented in the EU: Action Plan for the future of Organic Production in the European Union (Brussels, 24.3.2014. COM (2014) 179 final) which also contributes to the objectives set out in the Europe 2030 Strategy. In line with that document, the Common Agricultural Policy and the 7th Environment Action Program 2020 require attention. Notice, that in Russia there are no analogues of a number of the above-mentioned documents, making it difficult to conduct an effective public agricultural policy based on the principles of sustainable development. As a positive signal can be seen the development of the government draft plan of implementation of measures for the ratification of the Paris Agreement and its implementation. Among the activities of the plan that relate to the competence of the Ministry of Agriculture is the elaboration of Action plan to reduce greenhouse gas emissions and some other measures.

The authors provide also an analysis of the transition to the organic agriculture by implementing the methods known in the international arena, for various Russian regions. The authors identified factors, contributing to the development of organic agriculture and further have identified regions with have the greatest potential for the development of organic agriculture, and the regions with a predominant development of traditional agriculture. The differentiation strategy of the development of organic farming should base on the currently existing opportunities and barriers. The authors suggest some recommendations for the modernization of social and environmental agricultural policy in Russia.

These are two factors of production of organic food, which can be a driver for development: unused agricultural land and the unemployment rate in rural regions. Firstly, every region was analyzed by the quality of environment. It was calculated the volume of total emission of pollutants in air per one square kilometer of each region. So we found the most polluted regions: Kemerovo region (0,01405 thousand tons per one square kilometer), Lipezk region (0,01363), Tchelyabinsk region (0,00708), Tula region (0,00580), Sverdlovsk region (0,00506), Moscow region (0,00498), Samara region (0,00488), Belgorod region (0,00436), republic Tatarstan (0,00433). A high level of emission of pollutants in air can characterize the level of total environmental pollution in the region. So in marked regions development of organic agriculture needs more investment in cleaning of soil and water. For example, the most clean region in Russia has 0,00003 thousand tons of pollutants in air per one square kilometer. That is Tchukotka.

Moreover, organization of organic farms can be a driver for social and economic development in rural areas. As a result, it was identified promising areas. A significant part of the promising regions located in the Eastern part of Russia - the Far East and Siberia, as a traditional agriculture is developing successfully in the European part of Russia (Belgorod region, Lipezk region and other).

Regional analysis on the presence of free production resources can identify the most promising for the development of organic farming regions: Zabaikalski region, Volgograd Region., Irkutsk region, Dagestan, Jewish Autonomous Region, Republic Altai, Republic Buryatia, Altaiski Krai, Sverdlovsk region.

Table 1 Regions with productive potential for development of organic agriculture

|  |  |  |
| --- | --- | --- |
|  | Area of unused agricultural land, thousand ha | Unemployment rate in rural territory 2015, % |
| Zabaikalski region | more than 2000  | 14,4 |
| Altaiski Krai | more than 2000 | 9,5 |
| Sverdlovsk region | more than 2000 | 9,6 |
| Jewish Autonomous Region | 1000-2000 | 11,4 |
| Republic Altai | 1000-2000 | 9,7 |
| Republic Buryatia | 1000-2000 | 11,3 |
| Volgograd Region. | 500-1000 | 9,8 |
| Irkutsk region | 500-1000 | 10,5 |
| Republic Dagestan | 500-1000 | 11,2 |

Source: gks.ru, Report on the status and use of agricultural land in Russia. 2014 (http://rosagroland.ru/)

Unused land is an important reserve for development of organic farming. But every year quality of unused agricultural land degrades. Land is declared as unused in case if within three years it has not carried out the work. As a result, the soil is covered with shrubs, weeds and other debris. The costs of preparing a soil reduces the attractiveness of organic farming. To solve the problem of unused land, currently adopted a law on seizure of land for agricultural purposes. This allows finding more effective owner, if the soil isn’t worked for three years.

Second barrier to develop organic agriculture is lack of qualified personnel in rural areas. The unemployment in rural areas reaches twenty eighth percent in Ingushetia. But these people could be hired in organic farms only as a trained staff. This could solve the social problem in rural territory, but organic farming needs in qualified specialists. Development of organic farming must be provided by special courses.

In addition, it inhibits the development of organic farming, low incomes of people. In large cities such as St. Petersburg and Moscow, the demand for organic food rises despite of higher prices compared with traditional food. But the supply is limited due to the limited production resources and short shelf life.

In Eastern part of Russia demand on organic food is lower than in big cities of Europeans part of Russia, but production resources are more available. So unused agricultural land in the eastern part of Russia can be used for the production of organic crops, including for export. That could solve problem with unemployment in rural areas.

Thus, the development of organic farming can be seen not only as a way to reduce greenhouse gas emissions, but as a solution of social and economic problems of Russian regions.