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NATURAL RESOURCES USAGE AS A BASIS FOR TRANSFORMATION OF AGRICULTURAL PRODUCTION IN UKRAINE

The following article seeks to provide a brief analysis of some of the currently outstanding issues present in the field of agricultural production, which expose further risks for the national food security, and further suggests a solution for future development of the economic sector.

Keywords: *agricultural production, transformation, natural resource usage, sustainability, circular economy.*

Талавиря Микола, Войтовська Яна. Використання природних ресурсів, як основ трансформації сільського виробництва в Україні.

Зроблено короткий аналіз деяких актуальних питань, що існують в даний час у галузі сільськогосподарського виробництва, що наражає на подальший ризик національну продовольчу безпеку, та надалі пропонує рішення для подальшого розвитку економічного сектора. За останні десятиліття сільськогосподарський бізнес в Україні значно зростає, використовуючи природні ресурси для примноження обсягів його виробництва надзвичайно неефективно. Це стосується використання землі, води, джерел енергії, лісів тощо. Ефекти, спричинені необережним використанням природних ресурсів, посилюються постійними змінами клімату, що суттєво знижує ефективність сільськогосподарського бізнесу в Україні. Зайве говорити, що ця ситуація поклала свій слід на стан продовольчої безпеки всієї країни.

Ключові слова: *сільськогосподарське виробництво, трансформація, використання природних ресурсів, стійкість, кругова економіка.*

Relevance of research topic. For the last decades agricultural business in Ukraine has been extensively growing, while using natural resource assets for

multiplying its production volumes in remarkably inefficient way. This concerns use of land, water, sources of energy, forests and others. The effects caused by reckless natural resources usage is being reinforces by the ongoing climate change, which significantly reduces performance of the Ukrainian agricultural businesses. Needless to say, that this situation lay its footprint on the state of the food security of the whole country.

Formulation of the problem. In the view of the current situation, there is an urgent need to review existing approaches of managing of agricultural business and form new methods corresponding to newly emerged risks. This calls for searching of innovative means of business management. Therefore, the main objective of this article is to analyse the current institutional problem and further issues of natural resources usage in agricultural production of Ukraine.

Analysis of recent researches and publications. In the recent years there have been a great number of researchers discussing the mentioned range of problems in their scientific papers, including M.V. Gazuda, V.V. Poliovska, Z.M. Gerasymiv, V.P Nahirna, S.M. Halatur, N.L. Kusyk, S.D. Fedorova, B.V. Pogrishchuk, I.V. Martusenko.

Presenting main material. Socio-economic changes happened following a breakup of USSR accompanied with climate change implications have become common for the whole Ukraine, boosting depreciation of the country's natural resources. One of the major issues that it has led to is land degradation. Different forms of land degradation have affected fertility of Ukrainian famous black soils resulting in huge economic losses for agricultural production and gross domestic product of the country. The most common in terms of land coverage degradation processes include soil erosion by wind and water (around 58% from the total land area), inundation of land, acidification, salinization and sodification. Food and Agriculture Organization of the United Nations has reported that world economy is losing annually around 40 billion US dollars in monetary value due to land degradation (Stoiko & Stadnytska, 2016). Further, it has been estimated that the content oforganic matter in Ukrainian black soils has dramatically dropped by 0,22% during the period of 1986–2010 years.

The root causes of land degradation in Ukraine are being intensive chemical-based agricultural production, overuse of arable lands and unsustainable forestry practices. In the sequence of cause-and-effect linkage, degradation of soils state first results in decrease of productivity, causing further reduce in incomes for rural areas and potential risk of fall in food security for rural population.

According to the Ukrainian Hydrometeorological Centre weather anomalies have been observed in Ukraine, including increase of annual average temperatures, recurrence and intensity of extreme weather events, such as droughts, which occur every two or three years on 10 to 30 percent of country's territory and every 10–12 years on 50 to 70 percent of the total area. These are just a few examples of the drastic

consequences caused by land degradation and desertification problems aggravatedby the rapid climate change. Gradually, climatic zones are shifting, and rising temperatures are creating conditions for spread of pests and diseases affecting critical crops and tree species.

The impact of climate change was recorded in Ukraine throughout the years with average monthly airtemperature (minimum and maximum) hitting new records and abnormally hot summers like the one in 2010 (Zoi environment network, 2012). And together with given land degradation and desertification it led to huge losses in biodiversity, deterioration or disappearance of water bodies, intensification of the water supply problems for human consumption and industrialpurposes and, as a consequence, worsening of populations living conditions. These are new risks, to which most of the agricultural businesses in Ukraine are not prepared to confront and, thus, experiencing enormous production losses, while deteriorating the situation further.

Institutional environment plays significant role in ensuring sustainable use of natural resources in agriculture, not least of which are public authorities. Subsequently, the current setting of the national institutional structure, responsible for natural resources management in agricultural sector of economy, is lacking coordination. In Ukraine the responsibilities lay on a number of national and sub-national institutions with different mandates (Table 1), which spread within the sectors of land and forest management, including environment, agriculture, with unclear ownership and tenure rights.

Table 1

Institutional framework (GEF, 2017)

Institution	Roles
National, Oblast and Rayon overnments	
Ministry of Energy and Environmental Protection	Responsible for rational use, reproduction and protection of natural resources; protection and rational use of lands; conservation, restoration and sustainable use of biological and landscape diversity, preparation of relevant legislation and regulations.
Ministry of Economic Development, Trade and Agriculture of Ukraine	The Ministry is in charge of development and realization of agrarian and forestry state policy, state supervision of land use and land protection. It can prepare draft legal acts and submit them to the Cabinet of Ministers
State Forest Resources Agency of Ukraine	The Agency develops proposals on improvement of legislation and regulations and duly submit them to the Minister of Agrarian Policy and Food for consideration; performs state management and supervision of forestry and hunting; organizes implementation of fire protection and forest-protection measures in areas belonging to its jurisdiction.

Institution	Roles
Oblast and Rayon State Administrations	The authority of Oblasts and Rayons State Administrations on land management includes: use of natural resources; environment protection;disposal of state-owned lands within the limits determined by the Land Code;coordination of land management and state control over land use and protection;implementation of national policies for land use and protection, development of economic incentives for sustainable land use and protection, some other issues according to the law «On Land Protection».
Oblast and Rayon Councils	The Oblast and rayon Councils do not have legal rights to manage lands outside of settlements' boundaries
Research Institutes	
National Academy of Agrarian Sciencies	Includes over 50 Institutes, scientific centres and experimental stations. The main objective of the Academy is scientific provision of development of the agro-industrial sector of the country, which envisages implementation of fundamental research, organization and coordination of applied scientific agriculture researches, etc.
Leonid Pogorilyy Ukrainian Scientific Research Institute on Forecasting and Testing Machinery and Technologies for Agricultural Production	The institute is a key Ukrainian organisation providing state control for producing and export of agriculture machinery and equipment, assessment and optimisation of technologies, transfer of innovations, etc.
State Institution «Soils Protection Institute of Ukraine»	The institute is a sole state organization which is responsible for the State soil monitoring and agrochemistry passportization of agricultural lands.
National Scientific Centre «Institute for Soil Science and Agrochemistry Research named after O.N. Sokolovsky» of the National Academy of Agrarian Science of Ukraine	The institute is a leading science- and methodology center that manages and coordinates relevant research and development activities related to soil science, agrochemistry and soils protection for over twenty entities of National Academy of Agrarian Sciences of Ukraine, Ministry of Agrarian Policy and Food, Ministry of Education, Youth and Sports.
NGOs	
National Association of Agricultural Advisory Services of Ukraine	The purpose of the Association is to promote the improvement welfare of rural populations and rural development by increasing the knowledge and practical skills of rural populations and agricultural producers and protect the social, economic, professional and other common interests of its members.

While further analysing the functions of management and regulation accomplished by the State Land Resources Agency of Ukraine, State Forestry Agency of Ukraine, State Fisheries Agency of Ukraine, State Inspectorate of Agriculture of Ukraine, it should be noted that they are to some extent overlapping and duplicating

with the functions and tasks of the key Ministries. On the other hand, they accumulate attention to specific types of natural resources and state regulation of their use (Gazuda & Poliovska, 2015). All this just worsens the situation and implies additional risks for agricultural businesses operating in the country, profits of which are already being impressed by the implications of the climate change, including natural disasters, and consequences of depreciation of natural resource assets, such as land degradation.

Ensuring food security remaining to be one of the main tasks of the national security of any country, including Ukraine, and introduction of environmentally friendly approaches in agricultural production in the context of sustainable development is a priority to achieve successful functioning of the agricultural sector of the national economy. Inthisregard, there is an urgent need to establish a new model for the economic development and public management respectively that will be directed towards sustainable usage, conservation and restoration of the natural resources (Lobozynska & Nazarkevych, 2017).

In order to address existing challenges and, therefore, minimise the risks for efficient agricultural production and not to jeopardize national food security, there is a need to strengthen policy and environment with further transformation of the current economic model towards implementation of environmentally balanced natural resource usage technologies, such as multidimensional cyclical approach used in the model of circular economy. The paradigm of the circular economy includes 'circularity' of natural resource use, bringing different elements together, such as policy makers and businesses, into a single framework to enable a more systemic approach and creating additional value for the resources put in use (Preston, Lehne & Wellesley, 2019).

Conclusion. There is an urgent need to addresscurrent challenges occurred in the field of natural resource usage in relation to agricultural production in Ukraine and move toward more sustainable approach. With this in mind, a complete transformation of the methodologies and technological practices used in agricultural production should be made towards more sustainable means, including those based on the principles of circular economy in particular.

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