p-ISSN 0044-1600
e-ISSN 2392-3458

Zagadnienia Ekonomiki Rolnej
Problems of Agricultural Economics

www.zer.waw.pl

1(366) 2021, 24-45

DOI: 10.30858/zer/132395

Research Papers

AGRICULTURAL DEVELOPMENT PROCESSES IN THE CONTEXT OF GLOBALIZATION CHALLENGES AND NEW APPROACHES TO THE CONCEPT OF SUSTAINABLE DEVELOPMENT

MIECZYSŁAW ADAMOWICZ

Abstract

The subject and aim of the paper is to present general trends of agricultural development, global conditions, and new concepts and forms of sustainable development. As part of the concept of sustainable development, which has been widely recognized as a development paradigm, in recent years we have seen the emergence of more than a dozen new proposals which modify or complement mainstream sustainable development. These concepts also apply to agriculture and rural areas. Based on an analysis of the literature, this paper presents selected concepts: the green economy, smart specializations, smart villages, the circular economy, responsible consumption and production, and the participatory economy. The role of international integration and EU authorities in disseminating these concepts as forms of innovation in the economic systems of the Member States of the European Union has been identified.

Keywords: sustainable development, globalization, smart development, circular economy, participatory economy.

JEL codes: F6, O13, Q01.

Mieczysław Adamowicz, PhD, DSc, ProfTit, Pope John Paul II State School of Higher Education in Biala Podlaska; ul. Sidorska 95/97, 21-500 Biała Podlaska, Poland (m.adamowicz@pswbp.pl). ORCID iD: 0000-0002-1164-4966.

Introduction

Modern agriculture in Poland operates under the influence of various natural, technical, economic, and social factors of an internal and external nature. Its future development will also depend on new, emerging concepts and theoretical approaches which can significantly modify current ways of thinking and existing production systems as well as the functioning of societies. Currently, the major conditions for agricultural development are linked to globalization and international integration, technological progress, diffusion of innovation, and global climate change. Still, a major paradigm of socio-economic development is the concept of sustainable growth and development, which addresses the process of agricultural development in three equal areas: environmental, economic, and social. So far, the process of sustainable agricultural development has been considered mainly in terms of production and supply, while consumption, supply chains, and management of production effects are clearly neglected. However, what can be observed is an intensive search for new concepts and forms of sustainable development. Among many new, emerging concepts, we can mention the "green economy" which is already widely known, as well as new approaches such as the "circular economy" and the "sharing economy". G. Toth (2019) identified as many as a dozen or so modern, broader or narrower, approaches to doing business and gave them the form of business movements (concepts) leading to the sustainability of economic development (Table 2). These numerous new concepts can be divided into two larger groups, one containing concepts geared towards the efficient use of resources and the other – towards the creation of optimal structures of resource use. The objective of this paper is to present and outline these concepts. New concepts will be presented in the light of current, outlined trends of agricultural development and the conditions created by globalization and international integration. While the phenomena of globalization are autonomous and it is not possible for national economic entities and authorities to shape them, Poland, since its accession to the European Union, has had some, although limited, possibilities of influence. This influence can occur through affecting the form of the Common Agricultural Policy and other EU policies shaping agricultural and rural development. These policies, through various forms of support and strategic development programs, have an opportunity to promote new concepts of development, which may include greening the economy, the bioeconomy or the circular economy.

The paper was written using and based on selected literature on the subject and the author's own thoughts.

Globalization as a challenge for agriculture

In the second half of the 20th century, a phenomenon called globalization started appearing more and more often in the area of international relations. Therefore, globalization is a relatively new phenomenon. Its forms and strength of impact on many areas of economic and social life, as well as its effects, were noticed 40-50 years

ago, yet they have never been precisely defined and measured. National and regional development problems, as well as quantitative and qualitative changes in all areas of economic and social life started to be considered through the lens of globalization. Globalization has also become an important background for processes of agricultural development and structural changes in rural areas. The challenges stemming from globalization are objective; they reach countries and regions, sectors of the economy, and economic entities across state borders, creating new conditions which cannot be overcome and must be adapted to, so that they do not become a problem, but a factor of development. The process of globalization results in changes to the spatial organization of production and economic relations all over the world and in shifting their center of gravity from the national to the global sphere. The extensiveness and intensity of the processes of globalization, as well as the multitude of channels and ways in which it spreads, mean that the effects of these processes reach entities operating in the most remote corners of the world, and individual local events may have global consequences (Szymański, 2001; Adamowicz, 2005; Coleman, Grant and Josling, 2004; Sobiecki, 2007).

Globalization is a multi-threaded and multi-faceted phenomenon, difficult to define in a precise manner. J.E. Stiglitz understands globalization as the closer integration of the countries of the world as a result of lower communication and transportation costs and reduction of man-made barriers to the movement of goods, services, capital, knowledge, and people from country to country (Stiglitz, 2006). There are many other definitions of globalization describing its essence, forms, effects, and limits of impact. Regardless of the approach, it may be stated that globalization is an important part of modern events, phenomena, and processes taking place in the global economy and affecting what is going on in individual countries, economies, and societies.

Economic globalization also manifests itself on a global scale through the increasingly free movement of goods, services, information, capital, and people. For the purpose of shaping this movement, transnational companies and corporations are established, whose activity is supported by the system of international institutions and organizations. The authors of the report entitled *Limits to Competition* (*Granice konkurencji*) (Grupa Lizbońska, 1996) identified the following seven main areas of globalization: finance; markets and strategies, in particular, competition; technology, research and development, and knowledge; lifestyles and consumption patterns (including culture); governance and legal regulations; political unification of the world; and globalization of perception and consciousness. The first three areas are economic globalization. Experts on this subject have also defined economic globalization to include both autonomous processes taking place on a global scale (global competition, mega-concentration of ownership and capital, strengthening cooperation among companies on a global scale), as well as processes likely to play a part in supporting innovation policy and conscious basing of management on knowledge and intellectual capital, and processes of spreading and widespread use of IT and ICT (Gierszewska and Wawrzyniak, 2001). The essence of economic glo-

balization is the opening of the market across state borders. Détente in international political relations, liberalization of economic relations, and facilitation of contact thanks to the development of modern information technologies has created opportunities for freer movement of goods, capital, information, technologies, innovation, knowledge, and ideas. Although labor and service markets, as well as movements of people, have remained under tight control of national authorities, globalization has also triggered a great mobility of people, including labor resources and human capital. A final result of these phenomena in recent years has been strong migratory pressure from the populations of African and Asian countries to the European Union and other highly developed countries of the world.

Globalization concerns many fields of activity and management, social, political, and cultural life, as well as natural and climatic effects of human activity. We are interested in the following issue: how globalization relates to agriculture and how it affects its development and farmers' behavior. In this matter, opinions are divided, yet the dominant one is that agriculture is not dependent on globalization as much as other sectors of the economy (in particular, finance, industry, and modern technologies). D.E. Reddy (2007) is of the opinion that globalization leads to a reduction in family agricultural production while J. Mellor (2003) states that "globalization can greatly enhance the role of agriculture as an engine of growth in low-income countries by making it possible for agriculture to grow considerably faster than domestic consumption". J. von Braun and R. Birner (2016) identify globalization of agriculture with phenomena, such as: an increased share of food trade in the total production of food; the increased importance of foreign direct investments in the agribusiness sectors, increased international trade in the means of agricultural production and processing of agricultural raw materials, and the internationalization of scientific achievements, knowledge, technology, and information on agriculture and agribusiness. In addition, globalization means the increased importance of regulations related to food quality and standardization, harmonization of consumption patterns, and a stronger impact of processed food on human and animal health and on the natural environment.

When speaking about globalization of agriculture, we must consider this issue in the context of the whole sector of agribusiness and rural areas (Kowalczyk, 2010). Globalization of agriculture through the liberalization of markets takes place indirectly through international trade in raw materials, food, and the means of production, as well as through direct investments related to the concentration of various sectors of agribusiness, particularly the agri-food industry and the agricultural services sphere (Adamowicz, 2008). A specific feature of agriculture's participation in the processes of globalization is the fact that it takes place not through the processes of production and trade in agricultural raw materials, but through the manufacturing effects of the processing industry, trade in food and turnover in other sectors of agribusiness. Agricultural production itself is spatial; it is connected to the immobile factor of land linked with a particular territory. The mobility of agricultural labor is also limited due to lower levels of education of farmers and the lower value of

human capital. The territorial connection of the land factor significantly limits its capacity for concentration, and the prevalence of farming in order to meet national food needs in all countries of the world creates a need for movement on an international scale of only a small part of the agricultural output produced. The bulk of the food needed to satisfy food needs and guarantee the food security of a country is covered by the country's own production, regardless of the level of costs incurred. In theory, the global market could guarantee food security based on import, but only if there were efficient systems to manage global trade which guarantee reliability and stability of supplies. Such management systems and guarantees of supplies have not been developed and cannot be expected.

Agriculture and rural areas in Poland, all economic units and entities, and institutions related to agriculture and other areas of agribusiness are, to some extent, dependent on global phenomena and processes. In the European Union, despite protective barriers imposed by the CAP on agriculture, global forces in many cases exceed the resistance and counteraction capacity of states and of the Union itself. The mechanisms used in this area include international negotiations under the World Trade Organization. The strong impact of globalization is particularly visible in non-agricultural sectors of agribusiness and in international agricultural trade. It must be admitted that processes of globalization are a factor accelerating the transfer of innovation and the implementation of new technologies. The agriculture of the European Union countries benefits from the positive effects of this transfer, but there are types of innovation such as, for example, genetically modified organisms, to which barriers are put up. The urge for liberalization and universalization also in the field of agriculture and the food economy does not guarantee that restrictions and barriers to international trade in agricultural raw materials, food, and the means of agricultural production will be fully effective in the long term.

It should be noted that the unhampered impact of globalization, especially unhampered liberalization of agricultural markets, could lead to the marginalization of agriculture and even to its disappearance in rich industrialized countries. However, the agriculture of these countries is protected by national and Community agricultural policy systems. The protection of the agriculture of these countries is justified not only by sectoral considerations, but also by the increasingly important environmental and public functions performed by agriculture and rural areas. Despite the use of agricultural interventionism and the protection of this sector in highly developed countries, those who suffer a loss due to globalization are small and medium-sized farms while large, specialized, large-scale farms, linked to industrial and trade enterprises within supply chains, gain profit. Therefore, globalization can cause significant changes in the agrarian structure and in the agricultural production structure, thereby threatening the sustainability of the European agricultural model (Kowalczyk and Sobiecki, 2010).

Basic development processes and trends in agriculture

Agriculture has usually been perceived in three aspects: economic, social, and environmental, and its activity and the effects of this activity are considered as part of the concept of multi-functional and sustainable development. The condition and trends of change in each of these aspects are not strictly defined and measured; no fully satisfactory, comprehensive, and coherent theory of agricultural development has been developed. The social and environmental aspects of agriculture are not included in the economic calculation and the economic model of agriculture is also not well established (Czyżewski, 2015). The absence of an adequate profit and loss account regarding the use of environmental resources by agriculture and the scale of undervaluation of farmers' contribution to creating public goods, as well as the absence of a reliable estimate of market-unpaid transfers from agriculture to other sectors of the economy make it difficult for agriculture to play a full and real role in the national economy. The multi-dimensionality and complexity of the issue of agricultural development calls into question the validity of the existing agricultural development model – the model of industrial agriculture, unable to solve the modern agrarian issue. This points to a need to develop a new development paradigm for a sustainable model of agriculture and rural areas, taking into account the prospects for transformation and development of dominant agricultural structures in individual countries or groups of countries (Czyżewski, 2015; Woś and Zegar, 2004; Poczta, 2015).

The contemporary agricultural issue in the economic sphere refers to the provision of food security and competitiveness of the agricultural sector; in the social sphere – income deprivation of farmers and risk to the social position of family farms; and in the environmental sphere – on the one hand, the excessive exploitation of natural resources and negative impact on the climate, and on the other hand – fair valuation of compensation for environmental services and the creation of public goods (Czyżewski, 2015; Wilkin, 2009; Zegar, 2010).

Modern global agriculture is highly varied in regional terms and plays a different role in the national economy of individual countries. Still, there is a large number of countries in the world where agriculture is of fundamental importance, giving employment to the vast majority of the working population and providing a third of national GDP (World Bank, 2008; Adamowicz, 2008). At the opposite end of the spectrum, grouping industrialized and urbanized countries, agriculture employs only 2-3% of the working population and the contribution of agriculture to creating GDP is similar to or even lower than that of employment. Statistical indicators determining the role of agriculture in these countries do not reflect its actual economic and social role. The statistically unrecorded economic surplus generated in agriculture is transferred to other sectors of the economy, and market-unpaid agricultural values generated in agriculture are compensated by grants and subsidies addressed to agriculture under the agricultural policy pursued (Czyżewski, 2015). Between these two groups, there is a whole range of countries with different levels

of agricultural development and different levels of importance of this sector in the national economy. In general, agriculture is still important for the development of European countries at three levels: economic – impact on economic growth and development; social – shaping the living conditions of the population and the level of social well-being; and the level of shaping environmental and climatic conditions. In this paper, we have focused on agriculture in Poland and in other European Union Member States. This group also includes countries with different levels of agricultural development and levels of strength of its impact on the economy and society. Most of the so-called "old EU Member States" are classified as industrialized and urbanized countries with a high level of agricultural development, but more than a third of the current EU Member States are those which became EU members in 2004, and their agriculture, as well as the whole economy, has been subject to a political, social, and economic transformation.

Processes of transformation of conditions for Polish agricultural development

Other important conditions are the spontaneous and impossible to shape processes of globalization, and the processes of European integration that are consciously shaped by the group of Member States. Another important condition is common technological progress and innovation in agriculture and other sectors of the economy, as well as cultural changes in rural communities. One of the spheres of the economy in which these conditions play a key role is the developing sphere of the bioeconomy.

The most important processes which have taken place in the last forty years in agriculture of many countries of the world include (World Bank, 2008; Adamowicz, 2008, 2015):

- dynamic increase in the production and productivity and an increase in the efficiency of use of resources and inputs;
- intensification of market-based international and internal (cross-sectoral) competitiveness;
- reduction in statistical indicators determining the role of agriculture in the national and local economy, i.e., the occurrence of progressive deagrarianization of the economy;
- increased multifunctionality of agriculture and development of non-agricultural forms of farming in rural areas, weakening processes of demographic urbanization in highly developed countries;
- strengthening of consumer requirements in the area of food quality and safety and increase in the market power of large retail chains in food chains;
- increase in the ecological sensitivity of citizens and understanding by farmers of the need to shape the development of agriculture and food economy based on sustainability.

Over the past four decades, the agriculture of industrialized countries has greatly increased its manufacturing capacity through the process of modernization, increased consumption of industrial means of production, application of biological progress, specialization of production, concentration and cooperation with sectors of procurement, industry and trade in increasingly enhanced and diversified supply chains. In these countries, modern, market-oriented, and subsidized farms are able to produce agricultural output which highly exceeds the absorptivity of the internal market. The increased productivity and production all over the world limit export opportunities, which, in combination with the low absorptivity of internal markets, creates barriers and restrictions to agricultural development and strengthens the permanent tendency to lower the level of real prices of agricultural raw materials. A need to maintain employment in agriculture and an acceptable level of agricultural income legitimizes the use of different forms of agricultural support. The development of new agricultural production technologies entailed the emergence of new risks to the natural environment and climate. Climate change, environmental degradation, competition for land and water on the part of other sectors of the economy, growing prices of energy and other industrial inputs, and growing costs of innovation aggravate development problems and increase risks as well as uncertainty as to development prospects. However, there are indications that prices of food will stop falling, which may call into question the advisability of existing efforts to reduce the production, subsidize both producers and consumers of food, and protect the European agricultural model (Kowalczyk and Sobiecki, 2010). The increased demand for bioenergy and other bioeconomy products which are produced by farmers and based on agriculture, may create new foundations for an economic climate for agriculture. Despite the increased productivity and production efficiency, the problem of the shrinking of agriculture as a manufacturing sector in the national economy in favor of new forms of products will continue to grow. However, the limits of this shrinking, which can take a dangerous form of marginalization, are important. It is in the interests of both farmers and consumers not to allow marginalization, as food, especially high-quality and highly diversified food, meets the basic needs of all people.

Agricultural development in countries with favorable climatic and soil conditions, and in particular progress made in developing countries, puts pressure on liberalization of international trade as demanded in negotiations conducted by the WTO. The complete opening to international competition of global agricultural markets and the unhindered progress of the processes of globalization pose a strong threat to agriculture in the European Union countries. The survival prospects of the European agricultural model are therefore inextricably linked to the continuation of the CAP, which is an external protection with freedom of trade within the single market. In addition to competition of third-country agriculture, the agriculture of the European Union countries participates in internal competition taking place both within a country and among the Member States. It is competition both for land and labor resources, for supply and outlet markets, as well as competition

for income transfers in the form of various grants or subsidies. An increasingly important area of manifestation of this competition will be the environmental and climate spheres. Common processes of pollution of the water, soil, and air environment, excessive emissions of carbon dioxide, nitrogen oxides, and nitrates, methane, and other greenhouse gases, devastation of forest resources in tropical zones, large-scale river engineering, widespread land reclamation, improper cultivation in areas at risk of water and wind erosion, application of monocultural crops, expansion of fields threatening biodiversity are only part of large processes affecting the occurrence of adverse phenomena for humans and farming (Adamowicz, 2005). The occurrence of the so-called hole in the ozone layer, global warming, intensification of irregular and unexpected environmental changes in the form of earthquakes, floods, hurricanes, cyclones, storms, and other phenomena increase the risk in naturally exposed farming. Risks in the form of natural disasters are also becoming a real problem for Polish farmers, Polish agriculture, and other related sectors of agribusiness. This requires a different approach to these risks, *inter alia*, by extending the insurance system, also in a compulsory form. The range of natural threats to agriculture also includes previously unknown types of epidemics, such as BSE in ruminants, various types of avian influenza or epidemics in domestic swine, such as current African swine fever (ASF), transmitted by wild boar. The importance of necessary insurance also results from economic globalization expressed by the spatial transmission of business cycles and the rapid movement of price fluctuations among individual geographic markets. The sensitivity of agricultural income to changes on the side of supply and demand in the agri-food market creates a need to build systems for early warning against changes and schemes of insurance against the effects of such changes.

In addition to natural phenomena posing a risk which is difficult to predict, in nature there are permanent processes which create structural problems in a cumulative manner. These are the problems of escalation and structural intensification of shortage (in fact, deficit) of water and the growing problem of renewable energy. Polish agriculture, which occupies 60% of the country's territory, affects the way of using scarce water which also becomes polluted during intensive production. The implementation of the concept of sustainable agricultural and rural development requires a new approach to the problem of water management. It is necessary to strengthen local retention systems, retain rainwater, and construct small dams and water reservoirs in order to retain it as long as possible in agricultural and forestry land (Adamowicz, 2009, 2012).

In many countries of the world, including Poland, there is ongoing work to obtain new energy sources. One dynamically developing sector is the production of energy from unconventional sources, which include wind energy, photovoltaics, the use of bioenergy produced from by-products of crop and livestock production, or deliberately cultivated energy crops, and the production of biogas resulting from biological and physical processes in the processing of biomass.

New forms of sustainable development

The concept of sustainable development, publicized in 1987 by the UN World Commission on Environment and Development, resulted from a need to counteract environmental degradation and quickly grew to cover social and economic aspects of development as well. Since then, it has been expanded by the contributions of various disciplines of science, so as to become the basic paradigm for all development programs, policies, and strategies formulated by international organizations, national governments and local authorities. Still, its essence is to guarantee a sustainable improvement in the quality of life of present and future generations by creating rational proportions among various types of capital – economic, human, social, and natural (Carney, 2002; Borys, 2016; Czudec, Miś and Zając, 2018). The concept of sustainable development is used by various scientific disciplines, entrepreneurs, economic activists, and politicians. Two parallel processes are observed here. The first consists in expanding the field of sustainability beyond environmental, economic, and social aspects. The second means intensifying and strengthening internal ties among these aspects (Adamowicz and Zwolińska-Ligaj, 2020). The concept of sustainable development applies to all areas of the economy of social groups, individual and collective economic entities, private and public institutions, governments, and international organizations. In 2015, more than 190 UN member countries, by adopting the Agenda 2030 document, committed to implementing the 17 Sustainable Development Goals (Table 1), divided into 169 specific tasks, in their national policies. The achievement of the objectives set and the tasks adopted will allow countries, in adapting to specific conditions, to solve many urgent problems concerning poverty, environmental degradation, climate change, ensuring security, supporting collapsing sectors, structural change, etc. The concept of sustainable development refers directly to agriculture and rural areas, which are associated with food security, maintenance of environmental resources, and regeneration of labor resources, preservation of landscapes and of national and regional cultural heritage. A need to implement sustainable rural development was raised in various program documents and strategies in the European Union. Of particular importance are the first Cork declaration of 1996 and Cork 2.0 declaration of 2016, as well as the Europe 2020 Strategy, in which the EU Member States adopted a program for implementing the concept of sustainable development in rural areas and set targets and courses of action in the coming years (Adamowicz, 2015).

Table 1

Seventeen Sustainable Development Goals according to the UN Agenda 2030

1. No poverty 2. Zero hunger 3. Good health and well-being 4. Quality education 5. Gender equalit 6. Clean water and sanitation 7. Affordable and clean energy 8. Decent work and economic growth 9. Industry, innovation and infrastructure 10. Reducing inequality 11. Sustainable cities and communities 12. Responsible consumption and production 13. Climate action 14. Life below water 15. Life on land 16. Peace, justice and strong institutions 17. Partnerships for the goals

Source: Garcia-Feijoo, Eizaguirre and Rica-Aspiunza, 2019.

The "Agenda 2030" and the Paris Climate Agreement, from the viewpoint of agricultural and rural development, point to the five main social and environmental risks and the same number of suggested solutions and synergistic effects. The main areas of risks include the occurrence of: poverty and marginalized communities; hunger and inefficient agriculture; land degradation and deforestation; lack of basic services; and undeveloped and peripheral regions. The suggested sectoral approach pointed to the need to undertake measures such as: development of health services education; biodiversity protection, disaster prevention; improving water, waste and energy management; and bridging the gap between rural and urban areas. It was assumed that the implementation of measures in the indicated areas should bring synergistic effects in the sphere of: migration between rural and urban areas; food security; climate change; environmental pollution; and cohesion and governance in territorial systems. Among the expected effects of future development, the following achievements were recorded: improvement in the quality of life; sustainable agriculture; viability of rural areas and resilience of rural communities; and a circular economy system along with mitigation of various inequalities.

The implementation of the concept of sustainable development applies to the whole economy and society and the use of all resources at the disposal of a state, region, company or international treaty organizations on a varying scale. It also applies to all sectors of the economy and management in urban centers as well as in rural areas. The use of resources and management in agriculture and rural areas is particularly sensitive to a need to make development sustainable due to having natural resources acting as public goods and to playing the role of a reservoir of labor resources for the whole economy. Therefore, from the very inception of the concept of sustainable development, there have been measures to adapt agricultural and rural development policies to the principles and objectives of sustainability. In the European Union, this took place through coordinating the CAP with environmental, energy, and climate policies. Initially, this took the form of limited measures forming a process of so-called greening the agricultural policy, then developing the concept of smart specializations of regions and smart villages, as well as the incorporation of agriculture and other natural sectors into the multifaceted concept of the bioeconomy (Adamowicz, 2020). Nowadays, agriculture and rural areas are becoming an integral part of new, numerous concepts, and forms linked with sustainable development. The list of such forms is provided in Table 2.

Table 2

Concepts and forms of sustainable development

Concept	Essence of the concept
1. Recycling	The reuse of products or parts thereof in the processes of production
2 Waste minimization	Systemic limitation of materials and products not compliant with requirements in production
3. Clean production	Methods of operation preventing the formation of pollutants
4. Zero emissions	Measures limiting emissions of pollutants in the processes of production and at product life cycle stages
5. Zero growth	Limiting production and its undesirable effects to a minimum in order to maintain sustainable development
6. Green economy	Economy geared towards the rational use of resources and limitation of environmental risks
7. Triple bottom line	Large companies impose specific limitations on their own activity in the environmental, social, and economic sphere
8. Life cycleassessment	Limitation of negative environmental impacts at all product life cycle stages
9. Sustainable consumption	Promoting the effectiveness of sustainable use of resources and products also in the area of consumption, in addition to production
10. Corporate social responsibility	Concept according to which organizations integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis
11. Blue economy	Searching for the best technologies that could be used in the economies of the world, for providing basic human needs – potable water, food, jobs, and habitable shelter
12. Creating value	Simultaneous searching for a link between competitive advantage and corporate social responsibility as a way to create a new form of capitalism, reaching economic rationality by means of smart governance
13. Industrial ecology	Attempt to create sustainable industrial ecosystems where waste generation in one process of production or in one factory becomes the base material for another
14. Sharing economy	Attempt to depart from traditional ownership of things through conscious transition to their use on the basis of sharing or lending
15. Smart growth	Economic growth through the use of innovative, smart ways of production
16. Smart city/village	Development of territorial units through the use of innovative, modern, smart factors, and systems of functioning
17. Bioeconomy	Management systems using living organisms, biological processes, and biotechnologies
18. Circular economy	Transition from a linear to circular system of production and consumption guaranteeing reuse of production factors

Source: own study using: Toth, 2019.

In the following part of the paper, we will briefly address selected forms of economic sustainability: smart development, circular economy, sustainable consumption, and sharing economy.

Smart development

For a long time, sustainable growth and sustainable development, worked out theoretically and empowered politically, has been a difficult idea to implement; often it was more postulative and wishful than practical (Dacko and Dacko, 2018). A new perspective for the efficient implementation of sustainable development was opened up by the concept of smart growth and development. This proposal offered an opportunity to combine an emphasis on economic balance, social cohesion, and competitiveness into a single concept. In the European Union policy, demands to implement the concept of smart development appeared in the document adopted in 2010 and entitled "Europe 2020. A strategy for smart, sustainable and inclusive growth." This strategy highlighted a need to link development to the use of knowledge and innovation. This could take place by achieving better results in the spheres of education, research, innovation, and the development of a digital society using new information and communication technologies. The strategy itself set out three interrelated priorities geared towards smart, sustainable, and inclusive growth. Specific parameters were adopted for the individual priorities, also relating to agriculture and rural areas. Smart specializations were selected for countries and regions. The concept was also incorporated into other strategic programs and into the financing framework between 2014 and 2020 (Adamowicz and Zwolińska-Ligaj, 2018; Foray, David and Hall, 2011).

The idea of smart specialization is based on the assumption that no country or region is able to achieve, on its own, satisfactory results in all fields and sectors of the economy, particularly in those where it is required to implement innovation and use modern technologies. The concept has been implemented into the regional policies of all European Union Member States. The concept of smart cities and smart villages relating to urban and rural communities was also developed (Adamowicz and Zwolińska-Ligaj, 2020). They point to a need to use endogenous development potentials, build development on the strengths of a given system, and on available resources supported by an influx of new knowledge, innovation, development of networks of services, and the application of digital information, communication, and management solutions.

Related to smart specializations is the concept of smart cities and smart villages. In smart rural development, priority is given to multi-faceted innovation activities undertaken by both local economic entities as well as local authorities, local communities, and support institutions focused on modernization of rural areas in economic, social, and environmental terms. Rural areas and small settlements taking bottom-up initiatives, using new digital techniques and technologies and organizing network forms of cooperation are able to strengthen local infrastructure, launch various forms of modern agricultural and non-agricultural production, and organize a system of local services improving the overall standard of living in the countryside. The most important areas of action for smart villages include: public services meeting the needs of residents in the areas of education, health, safety, housing, culture, and others;

improving management and co-management of resources and local development; implementing innovation and technological progress; development of communication and internet networks; acquisition of new energy sources and protection of natural potential and landscape (Wójcik, 2018). The idea of smart villages, convergent with the first Cork declaration of 1996 and, in particular, the Cork 2.0 declaration of 2016 on development and improvement in the standards of living in rural areas, was reflected in official documents and initiated measures of the Parliament and the Commission of the European Union in 2017 (EC, 2018).

Circular economy

The concept of the circular economy appeared in the paper by D. Pearce, A. Markandya and E.B. Barbier on the "green economy" in 1989 and then in the publication by T. Jackson in 1993. On a broader scale, it was popularized in reports by the Ellen MacArthur Foundation in 2012 and since that time it has been subject to wide interest on the part of science and politics. Kirchherr, Reike and Hekkert (2017) analyzed 114 definitions of the circular economy and found that it was most often related to a combination of measures: "limit – reuse – reintroduce into the product life cycle". Therefore, it is different from the commonly used model of the linear economy following the principle: "take – produce – use – dispose". However, the circular economy model goes far beyond the practice of ordinary recycling. The circular economy model introduced the principle of skillful design of production, its rational implementation, and use without waste, as well as reuse of materials and raw materials. For this reason, it takes the form of broader measures aimed at achieving sustainable economic and social development. One of the definitions stresses that the circular economy "aims to overcome the take-make-dispose linear pattern of production and consumption, proposing a circular system in which the value of products, materials and resources is maintained in the economy as long as possible" (Merli, Preziosi and Acampora, 2017). Reuse of materials and products is aimed at eliminating the end of the product life cycle, recirculating this product by recycling and restoring its value. The cycle in value chains is closed by cascading production processes. The model, sometimes called "cradle to cradle", increases the efficiency and effectiveness of a production system, reduces waste and emissions of harmful pollutants, and reduces energy consumption. In agriculture, it can also be used to generate renewable energy. The circular economy system can be linked to the development of bioeconomy and, more broadly, to the so-called green economy, where we are dealing with materials and raw materials derived from biomass. In European Union documents, the issue of the circular economy appeared in 2014 and is constantly being complemented and enhanced (Adamowicz, 2020).

Sustainable consumption

At the early stages of evolution of the concept of sustainable development, attention was paid mainly to the sphere of production and to carrying out this production while taking into account the rules and principles set out at the environmental,

economic, and social levels. However, it was soon noted that sustainability is also necessary in other sectors of agribusiness, as well as in the sphere of consumption itself. As early as 1994, during the "European Round Table" at the Oslo Symposium on "clean production", a close link was pointed out between the two elements of sustainable consumption and production, and it was recognized that the "sustainable consumption and production" model better responds to basic needs and brings a better quality of life, while minimizing the use of natural resources and toxic materials, as well as the emissions of waste and pollutants over the life cycle of the service or product, so as not to jeopardize the needs of further generations (Pineiro-Villaverde and Garcia-Alvarez, 2020). This concept was confirmed while preparing a plan of implementation for the 2002 World Summit on Sustainable Development in Johannesburg, at which a 10-year program to support regional and national initiatives accelerating the implementation of sustainable consumption and production principles was developed. This program was then adopted at the Rio+20 conference in Rio de Janeiro. Among the 17 goals of the UN Agenda 2030 adopted in 2015, Goal 12 strictly refers to responsible consumption and production (Table 1). Other binding goals pointed to a need for sustainable management and resource efficiency, reduction in waste generation through coordinated prevention, reduction, recycling, and reuse, as well as provision of adequate information on the need for and principles of sustainable development, and adaptation of a lifestyle in harmony with the natural environment. The necessity for the appropriate technological and institutional solutions, and the need for a systemic approach and efficiency of measures were highlighted. The transition to the use of renewable energy sources and recycling should reduce environmental pressure and rationalize the use of natural resources. Therefore, sustainable consumption became a major challenge of the European Union's environmental policy. Although there is no full unanimity as to the major driving forces of sustainability in the European Union Member States, it can be assumed that at present the main ways of achieving increased productivity and effectiveness of management are as follows: sustainable production, sustainable consumption, and the circular economy.

Participatory (sharing) economy

The sharing economy plays an increasingly important role in everyday life. More and more often, we can observe that the dividing line between personal and commercial resources, between consumers and producers, is being blurred. In the participatory economy, individuals make their property available not through sale, but in the form of "lease", "lending", or "sharing". Not only things, services, and funds are lent, but also personal time offered to the appropriate group of people. Thus, the sharing economy is a new approach to categories of ownership and use of facilities in the market for goods and services. It is an important departure from the traditional way of distributing goods and services, and the traditional model of hiring workers and selling products to consumers. Good examples of such activities include rental of accommodation facilities and apartments (Airbnb), passenger

transport services in cities (electric cars, bicycles, scooters), deliveries provided by Uber, the abundance of offers of quick financing, and others. Also, agritourism and collaborative, as well as service-based, use of machinery in the sector of agriculture match the criteria for this type of service. The phenomenon of the participatory economy and collaborative consumption may result in reducing losses and making better use of resources (Buda, Pethes and Lehota, 2019). The growing acceptance of consumers for this alternative business model depends on a number of factors, among which the leading position is occupied by the development of online-based social media platforms and networks, targeted strategies and marketing campaigns of companies, dynamic development of e-commerce, confidence in intermediary institutions (banks and financial institutions), global dissemination of information, cultural changes strengthening the sense of trust within various groups and communities, as well as the strengthening of public awareness for the validity of the concept of sustainable development and a need to save resources and eliminate waste and loss. The first to point out this phenomenon in the present day were R. Botsman and R. Rogers in their book on "collaborative consumption" (2010). In 2012, L. Gansky wrote about the "network economy", citing examples of the automotive industry making products available not as a transfer of ownership but of shares. Other authors described similar practices (Bardhi and Elkhard, 2012). The term *sharing economy* was first used by T.L. Friedman in 2013. S. Curtis and M. Lehner, associating the sharing economy with sustainability, described this type of economy as the information technology-driven propensity of consumers to have short-term non-investment access to ownership of sought-after attractive goods. In the European Union since 2015, when attention began to be paid to the circular economy, politicians have also become interested in the participatory economy. In the evolving concept, several methods of exchange have been identified. One of them is a division, according to the subject of collaborative consumption, into physical goods, such as cars and apartments, and other goods such as time, knowledge, money. Another aspect is relations among groups of entities in the following models: C2C, B2C, or C2B (B – business, C – consumer). Another method is a division by the way things are paid for, into money exchange and barter exchange. PricewaterhouseCoopers (PwC) estimated in 2014 that in 2013, the share of the participatory economy accounted for only 5% of total production, while by 2025 this share could increase to 50%.

"Green New Deal"

The green economy can be defined as an economy that aims at reducing environmental risks and ecological scarcities, and that aims for sustainable development without degrading the environment (Pearce, Markandya and Barbier 1989; UNEP; 2011; Kahle and Gurel-Atalg, 2014). For several years, this concept has been of interest not only to scientists, but also in social and political circles. From the very beginning, the concept of the green economy has highlighted the importance of a tax system applying the "polluter pays" principle preventing generation

of pollutants and promoting the collection of funds for its remediation. This management system is particularly important in areas of natural value and in production sectors that make heavy use of elements of the natural environment. Its importance has increased along with an increase in the phenomenon of climate change. It is obvious that this concept also applies to agriculture, the sector of agribusiness and the broadly defined bioeconomy. This interest has been reflected in elements introduced in the Common Agricultural Policy, especially after its reform in 1993. Another change in the CAP was marked by the instrument called "greening". However, the process of greening, which expresses concern for the environment, applies not only to sectors that make heavy use of land, water and other elements of the natural environment, but also to the whole economy and human communities. Therefore, this concept has become of interest to global institutions such as the UN ("Strategy 2030") as well as a subject of debate and the formulation of international conventions regarding the environment and climate. This path is also followed by the European Union, which in December 2019 announced a communication on the "European Green Deal" strategy (EC, 2019), convergent with the UN strategy.

The "European Green Deal" Strategy includes a set of ambitious, multi-directional recommendations pertaining to policies that shape the ways of managing the environment and also to direct entities managing the use of environmental resources. The concept of a "green new deal" has been recognized by the European Commission as a new growth strategy aimed at guaranteeing the efficient use of resources in production processes and not emitting greenhouse gases. The "European Green Deal" strategy requires the modification of various Community policies relating, in particular, to sources of energy supply, industrial sectors, production and consumption, transport, and agriculture. To this end, attention should be paid to the protection and renewal of ecosystems, sustainable use of resources, and improvement of public health (Wrzaszcz and Prandecki, 2020). This also requires translating these general objectives into regulations on standardization, innovation, dialog with social partners, and international cooperation. Key initiatives to implement the "European Green Deal" between 2020 and 2021 are as follows:

1. Further greening the Common Agricultural Policy and implementation of the Farm to Fork Strategy;
2. Biodiversity conservation and protection;
3. Setting ambitious targets in the climate protection package;
4. Clean, affordable, and secure energy;
5. Seeking to achieve zero emissions and risks for a toxic-free environment;
6. Mobilizing measures for the implementation of industrial development strategies according to the principle of a clean circular economy;
7. Sustainable smart mobility;
8. Consistent application of the concept of sustainable development to all areas of the European Union policy.

Conclusions

The adaptation of agriculture and rural areas in Poland to internal changes, civilizational progress, and the impact of the global environment has been accelerated by the requirements and conditions created by European integration. The results of scientific research, movements, and ideological concepts emerging on a global and European scale, concerning current and future problems of socio-economic development, are rapidly translated within the European Union into development concepts, programs, and innovation activities. We often deal not only with the demand model for innovation, but also with the model which is forced (model for the mandatory implementation of innovation) by integration mechanisms.

For a dozen or so years, we have observed the emergence of numerous new aspects and concepts of development. Most, if not all, new concepts emerge and develop according to the trend of sustainable development whose history goes back more than 30 years.

The sustainability of socio-economic development, including rural development, has become a well-established development paradigm, which links current development with ensuring that the development conditions of future generations are not worsened. The distinctive features of modern development trends, aimed at economic growth, improving the living conditions of society, and addressing social issues, include concern for preserving environmental values, protection against climate change, rational use of material resources, transition to renewable energy sources and smart forms of supporting regional and local development, transition from a linear to circular management model, highlighting consumer responsibility, and expanding the collaborative, participatory method of managing resources. All new innovative development concepts relate, fully or partially, to agricultural and rural development. If the Polish countryside and agriculture are not to be left behind other EU countries, it is necessary to develop research on factors and ways of adapting and implementing these concepts to the national and regional conditions of Poland.

References

Adamowicz, M. (2005). Globalizacja a procesy rozwojowe rolnictwa. *Roczniki Naukowe SERiA*, Vol. VII, Issue 4, pp. 14-19.

Adamowicz, M. (2008). Teoretyczne uwarunkowania rozwoju rolnictwa z uwzględnieniem procesów globalizacji i międzynarodowej integracji. *Roczniki Nauk Rolniczych*, Seria G, Vol. 94, Issue 2, pp. 49-64.

Adamowicz, M. (2015). Wspólna polityka rolna wobec rodzinnych gospodarstw rolnych stanowiących podstawę europejskiego modelu rolnictwa. In: A. Chlebicka (ed.), *Ekonomiczne mechanizmy wspierania i ochrony rolnictwa rodzinnego w Polsce i innych państwach Unii Europejskiej* (pp. 46-61). Warszawa: FAPA.

Adamowicz, M., Zwolińska-Ligaj, M. (2018). New Concepts for Rural Development in the Strategies and Policies of the European Union. *Economic and Regional Studies/Studia Ekonomiczne i Regionalne*, 11/3.

Adamowicz, M., Zwolińska-Ligaj, M. (2020). "Smart village" as a Way for Sustainable Development of Rural Areas in Poland. *Sustainability*, No. 12.

Adamowicz, M. (2020). Biogospodarka jako koncepcja rozwoju rolnictwa i agrobiznesu. *Zagadnienia Ekonomiki Rolnej / Problems of Agriculture Economics, No. 4*(365), pp. 135-155.

Bardhi, F., Eckhard, G.M. (2012). Access-Based Consumption: The Case of Car Sharing. *Journal of Consumer Research*, 39.

Borys, T. (2016). Aksjologiczne podstawy zrównoważonego i inteligentnego rozwoju. *Ekonomia i Środowisko, 3*(58).

Botsman, R., Rogers, R. (2010). What's Mine Is Yours: How Collaborative Consumption Is Changing the Way We Live. Collins, London, Vol. 5.

Buda, G., Pethes, B., Lehota, J. (2019). Dominant Consumer Attitudes in the Sharing Economy – A Representtive Study in Hungary. Resources, 12.

Carney, D. (2002). *Sustainable Livelihood Approaches. Progress and Possibilities for Change*. London: DFID.

Coleman, W., Grant, W., Josling, T. (2004). *Agriculture in the New Global Economy*. Cheltenham, Northampton: Edward Legar.

Curtis, S.K., Lehner, M. (2019). Defining the Sharing Economy for Sustainability. *Sustainability, 11*(3), pp. 567. Retrieved from: https://doi.org/10.3390/su11030567.

Czudec, A., Miś, T., Zając, D. (2018). *Zrównoważony rozwój obszarów wiejskich w wymiarze regionalnym*. Poznań: Bogucki Wydawnictwo Naukowe.

Czyżewski, A. (2015). Teoriopoznawcze przesłanki rozwoju rolnictwa rodzinnego. In: A. Chlebicka (ed.), *Ekonomiczne mechanizmy wspierania i ochrony rolnictwa rodzinnego w Polsce i innych państwach Unii Europejskiej* (pp. 9-35). Warszawa: FAPA.

Dacko, A., Dacko, M. (2018). Studia nad rozwojem obszarów wiejskich – od paradygmatu wzrostu do rezyliencji. *Wieś i Rolnictwo, No. 2*(179), pp. 49-64.

EC (2013). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: European Green Deal, COM, 640.

EC (2018). EU Action for SMART VILLAGE, 12. April 2017. Retrieved from: http://enrd.eceuropa.eu (access date: 30.05.2018).

Foray, D., David, P.A., Hall, B.H. (2011). Smart Specialization. From Academic Idea to Political Instrument, the Surprising Career of Concept and the Difficulties Involved. MTEI Working Paper, EPFEL, Lausanne.

Friedman, T.L. (2013). Opinion/Welcome to the "Sharing Economy". *The New York Times*, 20 July, 2013.

Gansky, L. (2012). *The Mesh – Why the Future of Business Is Sharing.* New York: Penguin Group.

Garcia-Feijoo, M., Eizaguirre, A., Rica-Aspiunza, A. (2020). Systematic Review of Sustainable-Development-Goal Development in Business Schools, 12, 440.

Gierszewska, G.,Wawrzyniak, B. (2001). *Globalizacja a wyzwania dla zarządzania strategicznego*. Warszawa: Poltext.

Grupa Lizbońska (1986). *Granice Konkurencji*. Warszawa: Poltext.

Jackson, T. (1993). *Clean Production Strategies Developing Preventive Environmental Management in the Industial Economy*. Boca Raton: CRC Press.

Kahle, L.R., Gurel-Atay, E. (2014). *Communicating Sustainability for the Green Economy* (1st ed.). New York. Retrieved from: https://doi.org/10.4324/9781315705491.

Kirchherr, J., Reike, D., Hekkert, M. (2017). Conceptualizing the Circular Economy: An Analysis of 114 Definitions. *Resources, Conservation and Recycling*, Vol. 127, pp. 221-232.

Kowalczyk, S. (2010). Globalizacja agrobiznesu; specyfika, wymiary konsekwencje. *Zagadnienia Ekonomiki Rolnej, No. 323*(2), pp. 6-26.

Kowalczyk, S., Sobiecki, R. (2010). *Europejski Model Rolnictwa wobec wyzwań globalnych*. Warszawa: SGH.

Mellor, J. (2003). Globalisation and the Traditional Role of Agriculture. In: *Trade Reforms and Food Security. Conceptualization the Linkages*. Rome: FAO.

Merli, R., Preziosi, M., Acampora, A. (2018). How Do Scholars Approach the Circular Economy? A Systematic Literature Review. *Journal of Cleaner Production*, Vol. 178, pp. 703-722.

Pearce, D.W., Markandya, A., Barbier, E.B. (1989). *Blueprint for a Green Economy*. London: Earthscan.

Pineiro-Vallaverde, G., Garcia-Alvarez, T. (2020). Sustainable Consumption and Production: Exploring the Links with Resources Productivity in the EU-28. *Sustainability*.

Poczta, W. (2015). Poziom, struktura i kierunki zmian wsparcia finansowego rolnictwa rodzinnego w Polsce i w innych krajach UE. In: A. Chlebicka (ed.), *Ekonomiczne mechanizmy wspierania i ochrony rolnictwa rodzinnego w Polsce i innych państwach Unii Europejskiej* (pp. 109-122). Warszawa: FAPA.

Price Waterhouse Coopers (2014). *The Sharing Economy – Sizing the Revenue Opportunity.* London: PCW.

Readdy, D.E. (2007). *Impact of Globalization on Small Farmers Worldwide: Implications on Information Transfer*. 73rd IELA Conference, Durban, 19-23.08.2007.

Sobiecki, R. (2007). *Globalizacja a funkcje polskiego rolnictwa*. Warszawa: SGH.

Stiglitz, J.E. (2006). *Globalizacja*. Warszawa: Wyd. Naukowe PWN.

Strategia 2030. United Nations General Assembly (2015). The 2030 Agenda for Sustainable Development, New York.

Szymański, W. (2001). *Globalizacja – wyzwania i zagrożenia*. Warszawa: Difin.

Toth, G. (2019). Circular Economy and its Comparison with 14 Other Business Sustainability Movements. *Resources*, 8, 159.

UNEP (2011). *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication.* Retrieved from: https://www.unep.org/greeneconomy.

Wilkin, J. (2009). Wielofunkcyjność rolnictwa – konceptualizacja i operacjonalizacja zjawiska. *Wieś i Rolnictwo, No. 4*(145).

World Bank (2008). *Agriculture for Development.*World Development Report, Washington DC.

Woś, A., Zegar, J.S (2004). Rolnictwo społecznie zrównoważone – w poszukiwaniu nowego modelu dla Polski. *Wieś i Rolnictwo*, No. 1.

Wójcik, M. (2018). *Inteligentny rozwój obszarów wiejskich (smart rural development): koncepcja, wymiary metody*. Łódź: Global Point.

Wrzaszcz, W., Prandecki, K. (2020). Rolnictwo a Europejski Zielony Ład. *Zagadnienia Ekonomiki Rolnej / Problems of Agriculture Economics, No. 4*(365) Special Issue, pp. 156-179. Retrieved from: https://doi.org/10.30858/zer/131841.

Von Braun, J., Birner, R. (2016). Designing Global Governance for Agricultural Development and Food and Nutrition Security. *Review of Development Economics*, 21.

Zegar J.S. (2010). Ekonomia wobec kwestii agrarnej. *Ekonomista*, No. 6.

PROCESY ROZWOJOWE ROLNICTWA W KONTEKŚCIE WYZWAŃ GLOBALIZACJI I NOWYCH UJĘĆ KONCEPCJI ZRÓWNOWAŻONEGO ROZWOJU

Abstrakt

Przedmiotem i celem pracy jest przedstawienie ogólnych tendencji rozwojowych rolnictwa, uwarunkowań globalnych oraz nowych koncepcji i form zrównoważonego rozwoju. W ramach koncepcji zrównoważonego rozwoju, która została powszechnie uznana za paradygmat rozwojowy w ostatnich latach pojawiło się kilkanaście nowych propozycji modyfikujących czy uzupełniających główny nurt trwałego i zrównoważonego rozwoju. Koncepcje te dotyczą również rolnictwa i obszarów wiejskich. Na podstawie analizy literatury problemu przedstawiono w pracy zarys wybranych koncepcji: zielonej gospodarki, inteligentnych specjalizacji, inteligentnych wsi, gospodarki cyrkularnej, odpowiedzialnej konsumpcji i produkcji oraz gospodarki partycypacyjnej. Wskazano na rolę integracji międzynarodowej i organów unijnych w upowszechnianiu tych koncepcji jako form innowacji w systemach gospodarczych krajów członkowskich Unii Europejskiej.

Słowa kluczowe: zrównoważony rozwój, globalizacja, inteligentny rozwój, gospodarka cyrkularna, gospodarka partycypacyjna.

Accepted for print: 15.03.2021.

Unless stated otherwise all the materials on the website are available under
the Creative Commons Attribution 4.0 International license.
Some rights reserved to the Institute of Agricultural and Food Economics – National Research Institute.