



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

Papers downloaded from AgEcon Search may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Research Papers

LONG-TERM STRATEGY FOR SUSTAINABLE DEVELOPMENT OF AGRICULTURE IN POLAND

JÓZEF STANISŁAW ZEGAR

Abstract

The aim of the article is to outline the approach to developing a long-term strategy for sustainable development of agriculture in Poland. The author presents the issues to be considered when pursuing such a strategy. It is limited to three issues: justification for agricultural transformation towards sustainability, approach to strategy pursuing and strategy outline. The analysis was made on the basis of literature and the author's own reflections.

It was found that the transformation of agriculture towards sustainability requires developing an appropriate long-term strategy, which in particular would create a framework for ongoing programs and policy interventions. When implementing the strategy – generational change – some objectives result directly from EU policy – in particular achieving climate neutrality and preventing biodiversity decline. Moreover, the objectives which cannot be ignored include soil fertility and food security. There is a need to develop scenarios for achieving these objectives with regard to the welfare and aspirations of the new generation, taking into account progress (innovation) and new demographic, climate, environmental, social, and cultural conditions at the national and international level.

Keywords: agricultural transformation, development strategy, systemic approach, holistic approach.

JEL codes: Q18, Q10, O29.

Introduction

The aim of the paper is to outline an approach for developing a long-term strategy for sustainable development of agriculture in Poland by presenting key issues that should be taken into account while developing such a strategy. The issues determining the choice of strategic options in shaping the trajectory of sustainable development of agriculture in Poland in the long term were considered to be crucial. In this case, a long-term strategy means one that takes into account the generational change in family farming, which is 40 years. Therefore, the strategy horizon falls in the decade beginning in the second half of this century.

The call for developing a long-term strategy for sustainable development of agriculture in Poland results from the conviction about the inevitability of the transformation towards sustainability in a peculiar situation, namely where the industrial transformation has not been completed yet, but new challenges requiring such a transformation have already appeared. Environmental barriers and the weaknesses of industrial agriculture are the main factors here. The role of agriculture in this regard is vital when taking into consideration food production for basic human needs and the two-way impact on environmental resources and values, as well as the impact on climate change. Moreover, the potential of agriculture to produce biomass for non-food purposes and renewable energy is also at stake here.

A long-term strategy is needed for the policy¹, which basically means setting strategic objectives starting from a vision and “values”² and ways of achieving them. Each stage of development is characterized by its own strategic objectives.³ Nowadays, the general objective of agricultural development is the transformation towards sustainability. And here the problem of choosing the appropriate trajectory (path) of this transformation arises. As far as the trajectory of industrial transformation of agriculture has already been set and empirically experienced, there are many potential trajectories towards sustainability and one must be chosen that is optimal and effective. The idea is to pursue strategic objectives along a chord rather than an arc trajectory. Such a strategy would thus be a kind of compass for shorter-term strategies and programs, which by their very nature are oriented toward meeting the needs of the current generation (not to mention the tenure of the government), generally ignoring longer-term needs. Short- and medium-term strategies are frequently changed during their implementation due to the decisions of politicians limited by the election calendar. Long-term strategy is also needed

¹ “Failure to root agricultural policy in a developmental vision for agriculture and the economy as a whole will make it unstable, inefficient, and ineffective” (Wilkin, 1995, pp. 17-18).

² Strategy is first and foremost a choice of values to which we adhere or which we consider important. A century ago, Władysław Grabski came to the following conclusion: “Politics must serve ideals: it must be conscious of ideals” (Grabski, 1919, p. 10).

³ This is also a result of various risks changing over time: “each new stage of development (...) brings new risks and modifies the old ones” (Kleer and Kleiber, 2015, p. 15). For example, in the period of industrialization, one of such goals aimed at solving the classic agrarian question, i.e. sufficient supply of affordable food, freeing labor from agriculture for other sectors and supporting the livelihood of peasant families, and after the crisis of the 1930s, to support the income of farm families.

to target the activities of farms and other entities in the agricultural sector, as their activities determine the development of agriculture. Some of the effects of these activities may be undesirable. In particular, as regards achieving production or economic effects at the cost of excessive pressure on the environment. Therefore, it is necessary to define boundary conditions for the decisions of these entities which are determined by autonomous servomechanisms. The strategy may also be helpful in pursuing social support for the implementation of strategic objectives, taking into account the potential divergence of strategic objectives from the objectives of the population, if only due to intergenerational contradictions. These include the effects of unduly limiting the choices of future generations and overlooking the contradictions between present and future interests. Such a strategy also conveys an important message to society and its various organizations, so that they may reflect on the question: where are we heading? For we are living in turbulent and challenging times, as history has accelerated a lot, the changes are occurring faster and the challenges are becoming more difficult.

Polish experience in developing a long-term agricultural development strategy is quite modest, just as its experience with longer-term plans for the whole economy⁴. In communist Poland, the transformation of family farming into a socialist economy was assumed as the strategic objective of the agricultural policy, which was to be achieved by a social and technical reconstruction of agriculture⁵. After the political transformation, there were attempts to formulate the agricultural development strategy in the new political situation. However, these were medium-term strategies at most. The first of them was formulated under the auspices of the World Bank at the beginning of the political transformation. This strategy, referring to the development of the agricultural sector and agri-food industry, assumed that agribusiness problems should be solved through privatization and demonopolization processes, which would lead to increased efficiency via greater competitiveness (WB, 1990). This corresponded to the neoliberal doctrine at the peak of its development. Such a horizon was also present in other agricultural development strategies undertaken several times by the Ministry of Agriculture and Rural Development (MRiGW). These strategies were usually built according to a specific formula: general goals assumed as strategic objectives, domestic and foreign macroeconomic conditions, internal conditions of agriculture, and political interventions. These strategies also recognized the need to take care of the environment, for example in the assump-

⁴ The Fifteen-Year Plan of Economic Development proposed by the Minister of Treasury Eugeniusz Kwiatkowski in December 1938 should also be mentioned here. During the communist era, three perspective plans were developed: for 1961-1975, 1971-1990, and 1986-1990 with a perspective until 1995. These plans did not become official. The same happened with subsequent strategic plans. It is also worth mentioning the efforts for a long-term strategy until 2050 made by the Polish Academy of Sciences (PAN, 2011).

⁵ It failed due to the objective conditions: 1) the general economic development of the country did not create opportunities for non-agricultural sectors to absorb the labor force released from agriculture; 2) the industry did not provide agriculture with sufficient industrial means of production; 3) in meeting the demand for food, family farming had the advantage due to its higher productivity; 4) the political landscape and resistance of rural residents. Such an objective hung over agriculture like the sword of Damocles until 1983, when the authorities recognized the equality of agricultural sectors.

tions of the socio-economic policy for rural areas, agriculture, and food economy of 1994 until 2000 (MRiGŻ, 1994). Only a few years later, the Ministry of Agriculture and Rural Development developed a new strategy, which set preparation of agriculture for integration with the European Union as one of the four priorities (MRiGŻ, 1998). In 1999, the Ministry of Agriculture and Rural Development developed the strategic document "Cohesive Structural Policy for the Development of Rural Areas and Agriculture" and in 2004 the document "Strategy for the Development of Agriculture and Rural Areas for 2007-2013" (with elements of forecast until 2020). A more comprehensive strategic document was adopted by the Council of Ministers in April 2012, namely "Strategy for the Sustainable Development of Rural Areas, Agriculture and Fisheries for 2012-2020". (MRiRW, 2012), which assumed the sustainable development of agriculture in terms of three aspects of sustainability (environmental, economic, and social) as the strategic direction of agricultural development. This strategy was replaced by a new one adopted by the Council of Ministers on 15 October 2019, and namely "2030 Sustainable Rural Development, Agriculture and Fisheries Strategy" (SZRWRIR 2030)⁶. This strategy conveys a vision for Polish rural areas and agriculture in 2050 as follows:

"Rural areas in 2050 are an attractive place to work, live, rest and carry out agricultural or non-agricultural activities. It is also an area providing public and market goods while preserving unique natural, landscape and cultural values for future generations through sustainable development of competitive agriculture and fishing(...). The agricultural system is based on family farms developing in a sustainable and responsible manner, using modern technologies. The contribution of small and medium-sized farms in ensuring sustainable development of agriculture has been increased"⁷.

In the transformation period, the issue of agricultural development strategy was discussed by many authors (Woś, 1992; Majewski and Dalton (eds.), 2000; Wilkin (eds.), 2005; FAPA, 1998).

The contents of various papers presented here are based on national and international literature. In order not to create an extensive bibliography, it is limited only to works that have been cited or are particularly interesting (in the author's opinion) in terms of the discussed topics⁸. Many literature items can be found in the publications made under the Multiannual Programmes for 2005-2019, presented in 50 publications comprising the series entitled *Z badań nad rolnictwem społecznie*

⁶ It is one of the sector strategies integrated with the medium-term national development strategy "Strategy for Responsible Development until 2020 (with a Perspective to 2030)", where the objective of the agri-food sector was to increase competitiveness, while ensuring the country's food security and taking environmental requirements into account.

⁷ The National Strategic Plan for the CAP prepared by the Ministry of Agriculture and Rural Development should also be regarded as a strategic document.

⁸ As a side note, I would like to point out that the exponentially increasing number of publications causes a growing information overload, which often allows for justifying opposing views. Economic literature predominantly uses quantitative models, which significantly expands the cognitive opportunities, but such models generally ignore the essence of things resulting from Leibniz's principle: *nihil est sine ratione*. The information from the model is often regarded as the information about reality.

zrównoważonym (From the Research on Socially Sustainable Agriculture), published by the IAFE – NRI (IERiGŻ-PIB, 2005-2009; IERiGŻ-PIB, 2011-2014; IERiGŻ-PIB, 2015-2019), as well as in other publications of the author which are referred to in the text.

The paper focuses on three issues: the rationale for agricultural transformation towards sustainability, the approach to strategy construction, and the strategy outline.

Agriculture on a path of transformation towards sustainability

Agriculture develops by successive transformations. In the pre-industrial period agriculture represented a relatively closed, organic system with weak connections with the surroundings. This fundamentally changed with the emergence of capitalism, accompanied by industrial transformation, which gradually seeped into agriculture as well. The trajectory of the industrial development of agriculture – encompassing intertwined processes of mechanization, intensification, concentration, and specialization – was determined by physical servo-mechanism captured in the metaphor of technology treadmill, as well as economic servo-mechanism captured in the metaphor of market treadmill (Cochrane, 1958; Czyżewski, 2017). Industrialization has forced the boundaries of the agricultural system to expand to include new segments of agribusiness in order to untie and meet the goals of the system. The current post-industrial transformation of agriculture towards sustainability further expands these boundaries as it occurs in the context of transition to a knowledge-based economy, information society, and globalization. After the agrarian and industrial civilization, we are entering a new era where, *inter alia*, knowledge is replacing capital, diverse and renewable sources of energy are becoming more widespread. Mass production is giving way to diversified production tailored to specific needs (demand). What we are witnessing now is a transition towards a network (information) society, and in terms of agriculture a transition to a farmer's economy (in Poland, this will probably occur in the strategy horizon together with a generational change, with a significant reduction in the number of auxiliary and hobby farms), and a transition from agriculture based on petrochemicals to agriculture based on genetic and agrobiological technologies. Biotechnology is developing rapidly; attempts are being made to replace some parts of field production with laboratory production, while new opportunities are being opened up by robotization and digitalization, as well as aquaculture or vertical farming⁹. There are also new development barriers and risks (global, regional, national).

At the same time, a great challenge has simultaneously arisen regarding how to meet the requirements of food, environmental, and economic security. The problem of food and economic security prevailed during the industrialization of agriculture, back then as an agrarian issue, whereas now its novelty lies in the requirement of simultaneity with environmental security. In Poland, as in other developed coun-

⁹ It refers to vertical hydroponic cultivation, especially in cities, which brings significant savings in terms of land, water and CO₂ emissions per unit of product (shorter transport), however, it has also a downside, which is the high demand for electricity.

tries, maximization of agricultural production is no longer the main goal. Nevertheless, production growth is still necessary due to food security issues (national and global) and the transition towards a bioeconomy. However, this must not compromise environmental security. New aspects have emerged within the field of food security, such as food quality (food safety), while environmental security no longer just revolves around the environment, but above all around the climate and satisfying the growing demand for ecosystem goods and services. Economic security focuses on a fair (parity) income for those working in agriculture and an income for the agricultural sector that enables it to develop as desired.

Today, given the growing environmental constraints, it is necessary to shift the development of civilization towards sustainability to overcome the emerging environmental barrier. On a global scale, this barrier began to pose a threat to the development of civilization only in the second half of the twentieth century. This fact is reflected in the idea of eco-development. However, it soon became apparent that development also needed to incorporate many other factors that affect the achievement of civilizational development goals in different relationships with the natural environment. Therefore, the idea of eco-development was modified and transformed into the idea of sustainable development¹⁰. Such development seeks to answer the question of how to enhance human welfare while keeping development within the limits of our planet's resources. This question arose, because the industrial model of development proved to be unsustainable. The concept¹¹ usually includes three aspects (spheres) of sustainability, namely environmental, economic, and social – formulating corresponding objectives and ways to achieve them. The need for sustainable development is a necessity first and foremost at the planetary level, in the face of an enormous challenge: how to feed the world while preserving biodiversity and the ability of the global ecosystem to provide environmental (ecosystem) services, and freeing humanity from the dangers of overusing synthetic chemicals and other artificial substances. This challenge – referred to as the *magnum opus* of the modern world – is made all the more difficult by the fact that market forces, dominated by corporations, are pushing an industrial model that is driven by the goal of capital accumulation rather than food security or ecological requirements, and by the absence of a world government that imposes a framework for cooperation that determines the to-be or not-to-be of humanity. Every country, region, or economic actor (producer, consumer) can contribute. One must first start with oneself.

¹⁰ The concept of sustainable development is not uniformly understood and defined. The discourse is marked by two main directions. The first direction takes as its basis the relationship between the spheres, or a certain equilibrium. The other, on the other hand, assumes that certain criteria are met – the critical thresholds of sustainability in individual spheres. This concept evolves as we learn more about the real world and the relationships that occur in the biosphere. With regard to agriculture, an overview of dozens of definitions of sustainability is provided in the paper by Velten, Leventon, Jager, and Newig (2015).

¹¹ The concept is even referred to as a new paradigm that should take into account natural constraints (Rist, 2015, p. 273). This new paradigm – the paradigm of sustainability – recognizes that growth is needed to increase prosperity, but in a situation where we cannot change environmental limits or human nature, then economic activity must be decoupled from its environmental pressures. In other words, social norms must be changed (Jackson, 2009).

In the implementation of sustainable development, agriculture has a special place because of its role: 1) in the use of ecosystems and their resources (especially land and water, as well as biodiversity); 2) in the production of biomass – the real added value of our planet – food and raw materials for other needs; 3) in the creation of jobs and a source of livelihood for a large population; 4) in the socio-cultural sphere: contribution to the treasury of culture, preservation of traditions, preservation of national and state values. Sustainable development of agriculture must be considered at all levels of the hierarchical structure of the agricultural system. In the case of farms (microeconomic level), economic objectives are paramount. At the level of countries (macroeconomic level), social objectives take priority, while at the global (planetary) level, environmental objectives should be regarded as the most important due to the natural and immovable limits of the biosphere (Zegar, 2012).

Methodology for pursuing the strategy for sustainable development of agriculture in Poland

For a long-term strategy, the sustainable development of agriculture¹² needs to start from the inexorable limits in terms of climate, soil, biodiversity, and food, rather than from development factors that are market-driven and appropriate for shorter-term programs. This strategy should have a horizon of at least one generational change to encompass the transformation towards sustainability. A long-term strategy cannot be specific, but general, also because of the uncertainty that characterizes the future. This uncertainty concerns above all the circumstances of development over the entire time span enclosed by the strategy horizon. Obviously, in such a long period of time it is impossible to predict specific quantified conditions, and therefore a long-term strategy focuses on qualitative phenomena and not quantitative ones, as is the case with strategies encompassing shorter horizons. A great deal of work is needed to anticipate future conditions, but it must be expected that they will remain uncertain. The same uncertainty concerns the development trajectory which should lead to the implementation of strategic objectives. Hence, the call for pursuing an evolutionary strategy – a progressive one – with certain “safety nets” to counteract possible risks to the implementation. This is also the purpose of multi-variant strategy pursuing, taking into account the uncertainty of conditions (resources) and available means. Three variants are most commonly used: optimistic, pessimistic, and most probable.

In pursuing the sustainable agricultural development strategy, it is advisable to take a systemic approach¹³ – regarding **agriculture as a complex system** in dynamic

¹² The issue of choice, which is not easy anyway, is the scope of long-term strategy: to cover only agriculture, agriculture and other segments of food economy, agriculture and rural areas or other aspects.

¹³ The systemic approach and methods of studying the system in relation to agriculture and food economy are presented more extensively in numerous papers (Zegar, 1975; Zegar, 1981; Woś and Zegar, 1983; Zegar and Wrzaszcz, 2017).

terms¹⁴. Systemic approach involves considering various phenomena comprehensively in their internal and external relations. System analysis involves examining the structure and functioning of individual elements of the system (they are autonomous to some extent) and examining how these elements are organized into a whole and how the functioning of this whole is reflected in the functioning of individual elements.

For the sake of clarity, the agricultural system will be referred to as a system including agricultural arrangement, which is a natural object (agriculture) and steering arrangement (institutional, political), whose task is to choose strategic objectives and steer this system in their pursuit. An agricultural system (arrangement) may be regarded as a transformer of input into output. The former includes material supplies, money supplies, control norms, and information. The latter includes products, physical and ecosystem services, money and information flows. Some quantities at the output of the system are subject to strategic objectives. In this system, there are regulated quantities and variables (which can be shaped, determined) and unregulated ones (which can only be predicted). Internal correlations refer to the relationships between elements of a system. At the macroeconomic level, the agricultural system (arrangement) includes, apart from farms, many other entities involved directly or indirectly in the process of agricultural production. Thus, the agricultural arrangement is a whole with a hierarchical structure of sub-systems of different levels. An agricultural system's environment is an overarching system that represents a collection of other systems. This set includes systems such as environmental, social, macroeconomic, political, European, and global. The market system with its mechanisms is the system external to the agricultural system in terms of control. In the case of strategic orientation towards sustainable development of agriculture, the "output" components of the system should meet the sustainability requirements inherent in the trajectory towards sustainability. The problem is further complicated by the hierarchical structure of the system expressing sustainable agricultural development. It turns out that achieving the optimum at the level of elements (parts) of the agricultural system often means a lack of optimum at the level of the whole system. This is precisely the effect of the compounding error. In the sustainable agricultural development strategy, it is necessary to aim both at balance between functions of agriculture (intrinsic, horizontal objectives) and balance between vertical levels. Undoubtedly, however, there is a need for knowledge about the current state of affairs in the field of agriculture, conditions, and possible actions, that is, knowledge about the development and functioning of the agricultural system.

The systemic approach requires switching research methods from reductionism to holism. Starting from strategic objectives, one should try to comprehend the main elements of sustainable agricultural development system. Thus, when pur-

¹⁴ I would like to note that there is no uniformity in the meaning of the term "system", which can be explained by the fact that each system is derivative of the purpose against which it was distinguished. The agricultural system, as a socio-economic system, can be considered especially complex and large – i.e. so complicated that it is impossible to describe it precisely. This system differs from the technical (physical) system, which should be emphasized in view of the not infrequent practice of modeling agriculture as if it were a technical object.

suing a long-term strategy, one should not assume a “bottom-up” approach (as it is usually the case in shorter-term strategies), but rather a “top-down” approach – considering the whole as the starting point, i.e. regarding the agricultural system as a whole characterized by peculiar regularities¹⁵. It concerns both the horizontal scope (aspects, factors, elements, etc.) and the vertical system. This is reflected in the optimality criteria adopted and the relationships between them.

The principle of holism applies both to a systemic view of this development and to the formulation of strategies to control it. In the first case, it is about reflecting the multifunctionality of agriculture in the environmental, economic, and social areas, and the numerous and different nature of couplings (relations) involved in the agricultural system. In the second case, it is a matter of setting goals and the relations between them, their desired levels of achievement and ways of influencing the agricultural system, so that the behavior of this system leads to the accomplishment of set goals. The basic mechanism of selection and increased effectiveness in market economy – competition mechanism – does not fully serve this purpose. At the microeconomic level, it is undoubtedly an excellent mechanism, but selfish behavior of individuals (entities) may turn out to be contrary to the common good – it may lead to overexploitation or even destruction of common goods.

Finally, the important practical issue: who should develop the strategy? Developing a strategy should be the task of politics, but the shortcomings of political institutions resulting from, for example, the tenure and interests of political formations calls into question their ability to look beyond the upcoming elections. Nor could the scientific community develop such a strategy. The right institution which could develop the strategy would be a public institution dedicated to strategic studies¹⁶ working closely with academic institutions.

Elements of the strategy

The long-term strategy for sustainable development of agriculture in Poland includes the following elements: 1) strategic vision, 2) strategic direction (specifying the vision), 3) strategic objectives (specifying the “end” of the strategic direction), 4) conditions of development (sectoral, macroeconomic, and international), 5) the dominant model of action (method of control leading to the achievement of strategic objectives – scenarios and directions of activities of political institutions), 6) a set of result indicators in the context of strategic objectives (monitoring).

¹⁵ Experience shows a tendency to follow the first scheme, which favors the departmental (branch) strategy. It is easier, but it results in overextended strategy with many objectives. In the case of shorter-term programs, it does not undermine their usefulness. The opposite is the strategy built according to the second scheme, where first objectives are formulated referring to the whole, i.e. the whole system, and then possibly followed by more detailed objectives. This corresponds to the principle of holism.

¹⁶ In the first years of systemic transformation, such role was played by the Central Planning Office transformed into the Government Centre for Strategic Studies; unfortunately, it was closed down after a few years. The Center for Strategic Analysis in the Chancellery of the Prime Minister, established in 2018, whose tasks include the development of draft strategies for public policies, can hardly be considered as such.

Strategic vision provides an overall picture of “what we want to achieve”. (Naisbitt, 1997, p. 123), i.e. the desired state¹⁷ in the time horizon of the strategy, but the vision is also relevant for today’s choices and actions. Vision grows out of “values” professed or considered important. In other words, it expresses dreams in a sense, but subject to an assessment of their feasibility. A vision is always fraught with uncertainty. Nevertheless, it should contain a significant level of feasibility, so that the desire does not turn into wishful thinking. Some elements of the state of the future are already written in the pages of history and are visible today, while others can be predicted with greater or lesser probability, but of course there are also those that are unlikely, but cannot be excluded. The vision in this case indicates the desired shape of agriculture, which will respond to future environmental, social, and economic challenges and contribute to social welfare. This corresponds to the idea of sustainable agricultural development as conceived by the generation that is coming of age today. In a pragmatic approach, it is necessary to formulate different visions of the future and to establish non-transgressive limits (necessities). This is what prognostic studies are for.

The **strategic direction** of development is chosen from among various alternative paths (scenarios) to reach the condition meeting the “vision”. One of them leads to the implementation of the vision with the highest possible probability¹⁸. The choice of the strategic direction is within the range: deepening the industrialization of agriculture (albeit with greater care for the environment) – implementing agro-ecological technologies.

Strategic objectives result from the vision and are formulated on the basis of “values” in the outlined acceptable space. These goals are ex definitione long-term and rather stable, while the desired level of their achievement may be adjusted as the trajectory is followed and the conditions and development factors change. If there are more objectives, it is necessary to put them in order – to distinguish the superior objective and subordinate ones. This may prove difficult, because strategic objectives are of different nature and cannot be expressed in scalar, but must be expressed in vector, terms. It is generally believed that strategic objectives should express public preferences and should be set by public referendum, i.e., determined by a majority in a democratic process. However, whatever is good for the current generation may not be acceptable to a future generation, if only because of intergenerational cultural differences. In the most general terms, raising the level

¹⁷ The question arises here about the condition that is desired, but by whom? In the short term, such state is determined by a community vote. However, it may be in conflict with the desired state in the long term, which cannot be determined by voting, but may be established by scientific research (e.g. using the foresight method).

¹⁸ This challenging task can be addressed in several ways (Grin, Rotmans, Schot, Geels, and Loorbach, 2010). At the macro level, the trajectory should lead towards sustainability, while at the micro level it should lead towards maximization of welfare.

of social welfare¹⁹, which is integrally connected with sustainable development, should be considered a social strategic objective. Welfare today is not the same as tomorrow: what is important today and what will be important tomorrow? Material goods are important, but so are immaterial goods. Undoubtedly, the natural environment is becoming increasingly important²⁰.

Transcending the boundaries of the Earth – the biosphere – reveals new strategic goals driven by the necessity for humanity to survive. They must also be applied to agriculture, which plays a leading role in the relationship between economic development and the environment. In the large bio-geochemical cycles identified so far in the strategy horizon, climate change, biodiversity, and soil fertility appear to be particularly relevant²¹. In this context, achieving climate neutrality for agriculture, preventing the biodiversity decline and increasing soil fertility, which is essential for food security, must be adopted as necessary strategic objectives. Strategic objectives resulting from necessity should take precedence and for their realization it would be desirable to develop appropriate scenarios. It is only within the space encompassed by the trajectories for achieving these objectives that the social objectives associated with the other components of welfare may be realized. There is concern, however, that the latter will not satisfy people in real time.

The achievement of objectives always takes place under certain **conditions** of a different nature. In this case, these include environmental, economic (including resources and the ability to transform structures), social (including demographics), political, and external conditions resulting from European integration and globalization. Identifying and anticipating the conditions and determining their impact on the implementation of objectives is an important stage in strategy development. It is not only about recognizing potential risks, but also the forces (factors) that make strategy implementation efficient.

The end state of the system is the result of **mechanisms and actions** not monitored and monitored by the controlling party (the state). The former are expressed by autonomous forces and the latter by political actions. The former are economic and social mechanisms (laws) for controlling development (or, more precisely, the system) to achieve the adopted strategic objectives. The primary economic mechanism is the market. State policy complements, rather than opposes, the market mechanism. Just as the market is not free of shortcomings, politics is not devoid

¹⁹ The scope of this concept goes beyond the subjective individual feeling of happiness and life satisfaction, and includes, among others, material and non-material conditions of life, social order (social disproportions and inequalities, social security, inclusion of social groups in the shaping of community life, elimination of unemployment and social exclusion, preservation of the natural environment for future generations, etc.), as well as the objectives of the social sector. Social objectives are differentiated depending on the stage of development and the system of values (culture) and may conflict with the objectives of economic entities.

²⁰ The natural purpose of agriculture is to produce food, but nowadays this is not enough, as numerous disadvantages have become apparent in the “agriculture-environment” relationship, detracting from the non-food components of individual welfare. Social demand for non-commodity goods produced by agriculture, ecosystem services, as well as climatic, water, and biodiversity conditions has emerged. In particular, food security, environmental security, and economic security are components of this goal.

²¹ The first two objectives are also set by the EU in the European Green Deal and Biodiversity Strategy.

of weaknesses, including those resulting from the subjectivity of political institutions. The success of policy largely depends on the accurate identification of problems (challenges) that require resolution in achieving strategic objectives. A SWOT analysis may be helpful in this respect, but the aim is not so much to diagnose the current state (the present) as to recognize the next states on the development trajectory. This diagnosis should also include the means at our disposal in the process of strategy implementation – which are independent and which can be shaped? The development trajectory set by the strategy includes some moments where the trajectory paths diverge, that is, choice options (dilemmas) arise. Policy can – and this is highly desirable – use market mechanisms as instruments of influence. Innovation, legal norms, money transfers must be seen as part of the means of strategy implementation. It is also highly desirable that the activities cover the main fields (areas) of the strategy and provide for synergy effects.

The strategy requires the establishment of indicators to monitor progress in achieving objectives and giving feedback to take corrective decisions if necessary. It is also necessary to monitor the effects of the strategy in other areas. These indicators are an integral element of any strategy. Appropriate indicators can be defined only after the strategy has been developed. Indicators of agricultural sustainability need to be established for each level of management (i.e., farm, sector, national, global), and should be regionally differentiated according to regional variations in natural and economic conditions of agriculture²².

Conclusions

Transformation of agriculture towards sustainability requires the development of an appropriate long-term strategy, which in particular would create a framework for ongoing programs and policy interventions. The presented outline – an overview of the issues – of such a strategy requires in-depth research and discussion by an interdisciplinary group of experts. In the period of strategy implementation – generational change – some objectives result directly from the EU policy, in particular those concerning achieving climate neutrality and preventing biodiversity decline. Also, what should not to be overlooked are the objectives concerning soil fertility and food security. There is a need to develop scenarios for achieving these objectives with reference to the welfare and aspirations of the new generation taking into account progress (innovation) and new demographic, climate, water, social, and cultural conditions both at the national and international level. Options for steering the transition towards sustainability also need to be considered. The idea is to make the inevitable transition towards sustainability as effortless and socially cost-effective as possible. The initiative to undertake work on a long-term strategy for sustainable development of agriculture lies with state institutions.

²² There is extensive literature on the subject, a review of which is provided in the paper (Hayati, 2017). For the environment, the EU has adopted the DIPSIR (Driving forces – Pressures – State – Impact – Responses) model and a set of such indicators has been established based on that model.

References

Cochrane, W.W. (1958). *Farm Prices. Myth and Reality*. Minneapolis: University of Minnesota Press.

Czyżewski, B. (2017). *Kierat rynkowy w europejskim rolnictwie*. Warszawa: PWN.

FAPA (1998). *Identyfikacja priorytetów w modernizacji sektora rolno-spożywczego w Polsce*. Warszawa: Fundacja Programów Pomocy dla Rolnictwa.

Grabski, W. (1919). *Materiały w sprawie włościąńskiej. III. Studja nad systemem polskiej polityki agrarnej*. Kraków: Nakład Gebethnera i Wolffa.

Grin, J., Rotmans, J., Schot, J., Geels, F., Loorbach, D. (2010). *Transitions to Sustainable Development. New Directions in the Study of Long Term Transformative Change*. New York – London: Routledge.

Hayati, D. (2017). A Literature Review on Frameworks and Methods for Measuring and Monitoring Sustainable Agriculture. Technical Report no. 22. Rome: Global Strategy Technical Report.

IERiGŻ-PIB (2005-2009). Program Wieloletni 2005-2009. Retrieved from: <https://www.ierigz.waw.pl/publikacje/raporty-programu-wieloletniego-2005-2009>. (access date: 13.04.2021).

IERiGŻ-PIB (2011-2014). Program Wieloletni 2011-2014. Retrieved from: <https://www.ierigz.waw.pl/publikacje/raporty-programu-wieloletniego-2011-2014>. (access date: 13.04.2021).

IERiGŻ-PIB (2015-2019). Program Wieloletni 2015-2019. Retrieved from: <https://www.ierigz.waw.pl/publikacje/publikacje-programu-wieloletniego-2015-2019>. (access date: 13.04.2021).

Jackson, T. (2009). *Prosperity without Growth. Economics for a Finite Planet*. UK-USA: Earthscan.

Kleer, J., Kleiber, M. (2015). *Zagrożenia globalne barierami rozwoju*. Warszawa: Komitet Prognoz „Polska 2000 Plus” PAN.

Majewski, E., Dalton, G. (red.). (2000). *The Strategic Options for the Agro-Food Sector in the Light of Economic Analysis*. Warszawa: FAPA.

MRiGŻ (1994). Założenia polityki społeczno-gospodarczej dla wsi, rolnictwa i gospodarki żywnościowej do roku 2000. Warszawa: MRiGŻ.

MRiGŻ (1998). Średniookresowa Strategia Rozwoju Rolnictwa i Obszarów Wiejskich. Warszawa: MRiGŻ.

MRiRW (2012). Strategia zrównoważonego rozwoju wsi, rolnictwa i rybactwa na lata 2012-2020. Warszawa: MRiRW.

Naisbitt, J. (1997). *Megatrendy. Dziesięć nowych kierunków zmieniających nasze życie*. Poznań: Zysk i S-ka.

PAN (2011). Raport Polska 2050 (oprac.: M. Kleiber, J. Kleer, A.P. Wierzbicki, B. Galwas, L. Kuźnicki, Z. Sadowski, Z. Strzelecki). Warszawa: Komitet Prognoz „Polska 2000 Plus” PAN.

Rist, G. (2015). *Urojenia Ekonomii*. Warszawa: Instytut Wydawniczy Książka i Prasa.

Velten, S., Leventon, J., Jager, N., Newig, J. (2015). What Is Sustainable Agriculture? A Systematic Review. *Sustainability*, No. 7, s.1-33.

WB (1990). An Agricultural Strategy for Poland. Report of the Polish-European Community. Washington, D.C.: World Bank Task Force, World Bank.

Wilkin, J. (1995). Polityka rolna państwa: poziom niezbędnnej aktywności. *Wieś i Rolnictwo*, No. 1, pp. 7-19.

Wilkin, J. (ed.). (2005). *Polska wieś 2025. Wizja rozwoju*. Warszawa: Fundusz Współpracy.

Woś, A. (1992). *Strategie rozwoju rolnictwa*. Warszawa: Wydawnictwo Naukowe PWN.

Woś, A., Zegar, J.S. (1983). *Gospodarka żywnościowa. Problemy ekonomiki i sterowania*. Warszawa: PWE.

Zegar, J.S. (1975). *Sterowanie produkcją rolną*. Warszawa: IRWiR PAN, PWN.

Zegar, J.S. (1981). *Informacja i sterowanie w gospodarce żywnościowej*. Warszawa: PWE.

Zegar, J.S. (2012). *Współczesne wyzwania rolnictwa*. Warszawa: Wydawnictwo Naukowe PWN.

Zegar, J.S., Wrzaszcz, W. (2017). The Holism Principle in Agriculture Sustainable Development. *Economic and Environmental Studies*, Vol. 17, No. 4(44), pp. 1051-1069.

KWESTIA DŁUGOOKRESOWEJ STRATEGII ZRÓWNOWAŻONEGO ROZWOJU ROLNICTWA W POLSCE

Abstrakt

Celem artykułu jest zarysowanie podejścia do opracowania długookresowej strategii zrównoważonego rozwoju rolnictwa w Polsce. Przedstawiono zagadnienia, jakie trzeba rozważyć, budując taką strategię. Ograniczono się do trzech zagadnień: uzasadnienia transformacji rolnictwa ku zrównoważeniu, podejścia do budowy strategii oraz szkicu strategii. Analizy dokonano na podstawie literatury przedmiotu i własnych przemyśleń autora.

Stwierdzono, że transformacja rolnictwa ku zrównoważeniu wymaga wypracowania stosownej strategii długookresowej, która w szczególności tworzyłby ramy dla bieżących programów i interwencji polityki. W okresie realizacji strategii – zmiany pokoleniowej – niektóre cele wynikają wprost z polityki UE – w szczególności dotyczące osiągnięcia neutralności klimatycznej i powstrzymania redukcji bioróżnorodności. Również nie do pominięcia są cele dotyczące żywiości gleb i bezpieczeństwa żywnościowego. Zachodzi potrzeba opracowania scenariuszy dochodzenia do tych celów z odniesieniem do dobrostanu i aspiracji przychodzącego na świat pokolenia – uwzględniając przy tym czynnik postępu (innowacje) oraz nowe uwarunkowania demograficzne, klimatyczne, środowiskowe, społeczne, kulturowe – krajowe i międzynarodowe.

Slowa kluczowe: transformacja rolnictwa, strategia rozwoju, podejście systemowe, ujęcie holistyczne.

.Submission date: 03.03.2021

Final revision date: 29.03.2021.

Acceptance date: 01.06.2021.

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.

