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CONTENTS

Erman Akilli.....	7
TURKISH FOREIGN AIDS: TIKA CASE.....	7
Katarzyna Boratyńska	14
THE MARKET AND THE ROLE OF THE STATE IN THE ECONOMIC CRISIS: LESSONS FROM THE THREAT OF BANKRUPTCY OF AGRICULTURAL BIOGAS PLANTS	14
Piotr Dominik, Anna Fabisiak.....	24
CARING FOR CULINARY PRODUCTS AND TRADITIONS IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT OF RURAL AREAS	24
Magdalena Jaworska	31
TRENDS IN THE LEVEL OF THE COMPONENTS OF THE ENVIRONMENTAL SUSTAINABLE DEVELOPMENT'S ORDER IN RURAL AREAS IN YEARS 2005 - 2015	31
Hanna Klikocka, Oskar Klikocki	41
ANALYSIS OF FOOD SECURITY IN POLAND IN RELATION TO SUSTAINABLE DEVELOPMENT OF AGRICULTURAL PRODUCTION	41
Władysław Kusiak, Marta Molińska-Glura, Krzysztof Moliński, Anita Biszof, Elżbieta Mikołajczak, Agata Dolacińska-Śróda, Sylwia Klus, Vladislav Kaputa, Leszek Wanat.....	53
ECONOMIC, SOCIAL AND ERGONOMIC CONDITIONS OF WOODEN PEWS FUNCTIONALITY	53
Władysława Łuczka.....	61
DEVELOPMENT OF ORGANIC FOOD PRODUCTION AND PROCESSING FOLLOWING THE ACCESSION TO THE EUROPEAN UNION	61
Arkadiusz Malkowski	68
REVITALIZATION AS A TOOL OF MANAGING THE DEVELOPMENT OF RURAL AREAS ON THE EXAMPLE OF KARLINO MUNICIPALITY	68
Piotr Nowaczyk.....	74
PROFITABILITY ASSESSMENT OF SAILING PROJECTS IN WEST POMERANIA ON THE EXAMPLE OF THE DARŁOWO MUNICIPALITY.....	74
Magdalena Okupniak, Leszek Wanat, Elżbieta Mikołajczak, Łukasz Sarniak, Agata Dolacińska-Śróda.....	82
SELECTED OUTLIER IDENTIFICATION METHODS IN THE WOOD-BASED SECTOR COMPETITIVENESS POTENTIAL RESEARCH	82



Camelia Oroian, Antonia Odagiu, Daniela Bordea, Petru Burduhos, Ioan Brasovean, Iulia Muresan	89
TESTING UNCONVENTIONAL SOLUTIONS IN FIGHT AGAINST LATE BLIGHT AND ALTERNARIOSIS IN POTATO, IN TRANSYLVAINIAN PLAIN, ROMANIA	89
Jacek Pieczonka	100
THE VILLAGE RENEWAL SCHEME AS AN ELEMENT FOSTERING ENTERPRENEURSHIP IN RURAL AREAS: THE CASE OF THE OPOLE VOIVODESHIP	100
Agnieszka Piekutowska, Katarzyna Wierzbicka	110
THE INFLOW OF FOREIGN DIRECT INVESTMENTS INTO POLAND – THE SCALE AND SOURCES	110
Beata Sadowska, Piotr Szczypa, Marta Nowak, Krzysztof Adamowicz	121
FOREST EDUCATION AS THE MANIFESTATION OF ENTREPRENEURSHIP OF THE STATE FORESTS NATIONAL FOREST HOLDING	121
Norbert Szalaty, Monika Wojcieszak	128
THE CHOSEN ASPECTS OF HAUSHOLD EXPENDITURES ON ORGANIC FOOD IN WIELKOPOLSKA	128
Jarosław Świdwiński	134
EFFECT OF UNCONTROLLED URBANISATION ON RURAL AREAS AROUND CITIES	134
Katarzyna Wierzbicka, Agnieszka Piekutowska	143
EXPENDITURES ON RESEARCH AND DEVELOPMENT ACTIVITIES AS A FACTOR IN THE DEVELOPMENT OF INNOVATION	143
Monika Wojcieszak, Agnieszka Wojcieszak	153
SOURCES OF HORTICULTURAL INVESTMENTS IN THE KALISZ DISTRICT AS A PART OF SELECTED MEASURES UNDER THE 2007-2013 RDP	153
Weronika Wyduba, Sławomir Kalinowski	161
UKRAINIAN NATIONALS IN THE LABOR MARKET OF WIELKOPOLSKA	161
Karina Zawieja-Żurowska, Piotr Szczypa, Krzysztof Adamowicz	169
REALIZATION OF PRINCIPLES OF SOCIAL ECONOMY IN FOREST MANAGEMENT	169
Reviewers of INTERCATHEDRA	177



Dear Readers!

We put in your hands the next issue of Scientific Quarterly “Intercathedra”. It is a special number, because it constitutes the beginning of changes in our journal. The 54th issue of the journal is the last one published in such format and simultaneously the first one, in which I have had an unprecedented honor to act as the editor-in-chief. Starting from the next issue, the publishing house, journal format, numbering and the cover are going to change. I hope, that these changes will suit you and the papers published in the journal will stimulate polemics, in-depth research and analyses, as well as allow a broad look at presented issues. We encourage you to discuss them in social media and to visit our website www.intercathedra.pl

I am grateful to the current editor-in-chief – prof. dr. hab. Wojciech Lis, for his work, engagement and continuous development of the journal. I would also like to thank the former editorial committee – dr Elżbieta Mikołajczak, dr Włodzimierz Popyk, dr Marek Tabert, dr Jarosław Lira and Ms. Agata Nieboj (language editor) – without your dedication “Intercathedra” could not be published.

The Scientific Quarterly “Intercathedra”, starting from New Year, will be issued by the Scientific Publisher of the Poznan University of Life Sciences. Despite a number of changes, which will occur in the journal, still 10 points will be granted for each published paper (in accordance with the “Unified List of Scientific Journals” of the MoSaHE, part B, position 689). The main profile of the journal (economics of the agri-food sector, food economy, problems of the rural areas development, regional policy in rural areas, social policy in rural areas, financial management in agribusiness companies, agricultural real estate market, consumption and prosumption of agri-food goods as well as wood and forestry economics) also will not change.

I strongly encourage you to read “Intercathedra”!

Sławomir Kalinowski



*Erman Akilli*¹

TURKISH FOREIGN AIDS: TIKA CASE

Abstract: After World War II, relationship definition between states started to change; during bipolar system based world, interdependence started to be crowned between states. Meanwhile, thanks to ‘the Marshall Plan’ implemented by US, showed ‘foreign aid’ concept could be a tool for diplomacy to states. At that time on, very first steps of ‘foreign aids’ as a concept used as direct financing application by developed countries to underdeveloped or developing countries. After years, ‘foreign aids’ concept got evolved and got diversified, in terms of content and the number of aid providing countries. After dissolution of the Union of Soviet Socialist Republics (USSR), new foreign policy opportunities aroused for Turkey; those newly independent Turkic states provided a foreign policy destination for Turkey. Thus, Turkey founded TIKA, in order to claim this opportunity through providing technical assistance primarily to those newly independent Turkic states of the Central Asian and South Caucasian Turkic states via TIKA. Later on, in line with the developments both in domestic politics and in the international arena, Turkish foreign aid started to reach other countries in different parts of the world. Undoubtedly, it is clear that TIKA’s uniqueness and its having a pivotal role in Turkish Foreign Policy braced up from the ‘Soft Power’ concept. In this paper, its aimed to review TIKA’s activities in worldwide.

Keywords: TIKA, Turkish Foreign Policy, Foreign Aids, Soft Power.

INTRODUCTION

Aftermaths of World War II echoed through countries by poverty, starvation and breakdown. Since 1945 in the international system, constituting sustainable peace sought in the concept of interdependency which must arouse on a common agenda for the states and thanks to the success of Marshall Plan that common agenda established between states in the terms of foreign aids. In the literature of International Relations, foreign aid(s) generally explained as; “international transfer of capital, goods, or services from a country or international organization for the benefit of the recipient country or its population”. Through foreign aids, underdeveloped or developing countries overcome their domestic obstacles with the support of donor states for a better future.

However, after the dissolution of USSR, effectiveness of the foreign aids has become more important according to changing nature of the international system; switching from bipolar to unipolar/multipolar world order, many countries suffered more than ever in order to fit into the new world order. Furthermore, foreign aids’ nature also changed from “capital, goods or services” to “development” aids as well. Due to those events in the international system, Turkey also founded her development aid agency at 1992, as “Turkish Cooperation and Coordination Agency (TIKA)”.

Since that date, TIKA’s activities can be reviewed under two major periods; from 1992 to 2002 and from 2002 up to today. In the first period, TIKA focused its activities on young Turkic states, in the manner of technical infrastructure aids and TIKA completed 2241 projects during this period. In the second period, TIKA quadrupled its projects between 2003-2011 years, when those projects focused on periphery states such as (1) Afghanistan- %20.61, (2) Bosnia-Herzegovina - %6.76, (3) Palestine- %5.47 and (4) Lebanon- %3.89. Concisely, TIKA has changed the appearance of Turkey’s foreign policy and made it an active efficient actor in various far regions. Hence, TIKA has constituted a unique place for Turkey in this manner. Undoubtedly, it is clear that TIKA’s uniqueness and its having a pivotal role in Turkish Foreign Policy braced up from the ‘Soft Power’ concept. Now TIKA acting as a locomotive institution for Turkish foreign policy and having activities through 150 different locations with 50 project offices; thanks to TIKA’s activities around

¹ *Ahi Evran University, International Relations Department, ermanakilli@ahievran.edu.tr*



the world, at 2016, Turkey donated more than 6.5 Billion USD as foreign aid/humanitarian assistance and Turkey is 2nd of top donors in the world. (TIKA, 2016: 89) In this paper, it's aimed to review Turkish Foreign Policy with perspective of foreign aids in general, and through activities of TIKA in particular. After explaining TIKA's foundation and role in Turkish foreign policy, which is connoted with 'soft power' concept, TIKA's activities around different geographies will be reviewed.

FOUNDATION OF TIKA

After embracing 'soft power' concept and get to use 'soft power' tools in diplomacy, it widened the horizon of Turkish foreign policy. Considering its status as a peripheral state during the Cold War era, Turkey now has the vision of one of the central states of the international system regarding foreign policy actions in the global arena. This success in foreign policy is boosted by TIKA, one of the executive tools of Turkey's foreign policy in different regions and continents around the globe. In this way, foreign aid and humanitarian diplomacy are becoming key tools in states' foreign policy agenda. Thus, TIKA constitutes a unique institution for Turkey in this manner. It is clear that TIKA's uniqueness and pivotal role in foreign policy has been bestowed via the 'Soft Power' understanding in Turkish foreign policy (Akıllı, 2016a).

Before reviewing TIKA's operations in the Central and Eastern European region, it is essential to consider its roots, which date back to the early 1990s. After the dissolution of the USSR, the international system had to shift and reshape its structure due to the new world order that rose from the ashes of that bipolar world system. During this process, Turkey had to revise her foreign policy destinations according to the new opportunities around the periphery. For sure, this process gained momentum due to the newly emerged, cognate Turkic Republics after the dissolution of the USSR (Kazakhstan, Tajikistan, Uzbekistan, Azerbaijan and Kyrgyzstan). As a result, Turkey sought out partnership opportunities according to mutual Turkic origin. Prior to the 1990's, Turkey had very poor interactions with those states and their people. Many authors mentioned this type of low profile relationship status as a 'consent to resignation' from the region due to the dominant state identity of Turkey during that period – referred to as 'western' state identity arising from the Kemalist understanding of foreign policy and domestic politics. According to the western state identity understanding, Turkey's sole foreign policy destination must be to the 'west' world only. In other words, regions such as Central Asia, the Middle East, the Far East, Latin America and the Caribbean etc. were intentionally ignored. As mentioned earlier, after the Cold War, Turkey also needed to revise her foreign policy understanding and state identity as well (Akıllı 2016b).

Thus, Turkey expanded her 'helping hand' to cognate Turkic states at first in the manner of social, commercial, economic, educational and cultural projects and then to establish cooperation in various other areas. In order to coordinate and implement those operations in the region, TIKA was founded in 1992. Since then, TIKA's activities can be reviewed under two major periods; from 1992 to 2002 and from 2002 to today. In the first period, TIKA focused its activities on young Turkic states, in the manner of technical infrastructure aid, and TIKA completed 2241 projects during this period. In the second period, TIKA quadrupled its projects between 2003-2011. These projects focused on other periphery states such as (1) Afghanistan- %20.61, (2) Bosnia-Herzegovina - %6.76, (3) Palestine- %5.47 and (4) Lebanon- %3.89 (TIKA 2011a).

On October 24, 2011, with Decree Law Number 656, in order to enhance the technical partnership and coordination process, TIKA was reconstructed with "The Law on the Organization and Tasks of the Turkish Cooperation and Development Administration Directorate", which was put into force on publication in the Official Gazette Edition no. 28103, dated November 2, 2011 (TIKA History). With this reconstruction process, TIKA's activity area was enlarged to the whole globe, not being restricted only to the periphery or Turkic states as it had been before. These new activity areas brought new missions for TIKA: restorations of Ottoman legacies such as mosques, bridges,

caravanserai(s) etc. These new mission changes imply a new general approach in Turkish Foreign Policy as well.

In addition, TİKA's budget was increased nearly 10 times compared to the period between 1992-2002 and in 2011 TİKA provided 1.273.000.000 USD total aid to many countries (TİKA, 2011b). Considering these facts, it is clearly seen that TİKA has a major meaning and role in Turkish Foreign Policy and the ruling of the AK Party. Öktem compared TİKA with its most powerful equivalent in the world: the German International Cooperation Community (Deutsche Gesellschaft für Internationale Zusammenarbeit-GIZ), which has endorsements amounting to 2.6 Billion USD per year. But TİKA has three times this amount according to 2011 data (Öktem, 2012, p. 85). Nonetheless, Öktem implies that according to the 'Pro Active Foreign Policy' understanding of the Turkish Foreign Policy, TİKA widened its activity areas and services. He mentions that TİKA has a wide range of activity areas; from the Middle-East to the Balkans, from Central Asia to Latin America, and also has a wide range of services/aids in education, health, and development etc. (Öktem 2012).

SOFT POWER-TİKA-TURKISH FOREIGN POLICY

Drawing on the conceptualization of soft power given by Joseph Nye Jr, the article studies two linked elements of Turkish soft power: *agents* and *behavior*. Turkey's soft power has gained importance thank to the gradual involvement of new state and non-state actors (*agents*) along with the adoption of novel frameworks, such as cultural diplomacy, public diplomacy and humanitarian diplomacy (*behavior*) (Akıllı-Donelli 2016).

Power is one of the most central and yet problematic concepts in political science and international relations (IR), where it has a variety of forms, and features. In the most general sense, power may refer to any kind of influence exercised by objects, individuals, or groups upon each other (Dahl, 1968). One of the most influential definitions of *power* remains that of Max Weber, who defines power as the "probability that one actor within a social relationship will be in a position to carry out his own will despite resistance, regardless of the basis on which this probability rests" (Weber 1967). In other words, power is a 'zero-sum' game, either you win or you lose. According to the literature, the best way to materialize national interests is to use military and economic power elements with a view to forcing other actors to undertake a cost-benefit calculation. In summary, most actors pursue a 'carrot and stick' policy in their foreign policies (Oğuzlu 2007). However, in a post-modernist and globalized society, 'soft' power, which is based on a 'value-based' notion of power, become increasingly important compared to 'hard' power military and economic resources. With plenty definitions of *power existing in IR*, this work assumes one definition asserted by Joseph Nye Jr, who argues that power is "the ability to influence the behavior of others to get desired outcomes one want" (Nye 2004). During last two decades Nye's concept of soft power became a widely known notion in International Relations discipline literature and elsewhere; it is now a term used by scholars, policymakers, and others but in many different ways (Akıllı-Donelli, 2016: 162-163). The origin of the concept being deeply related to analysis of US power and foreign policy during the 1980s, when rejectionist theories and interpretation of the international order had strength in mainstream International Relations discipline debates (Nye 2008a). The definition of soft power has been closely linked with Nye who first coined this term. The concept of "soft power", which Nye mentioned in his book, "Bound to Lead: The Changing Nature of American Power (1990)", strengthened by his Soft Power: The Means to Success in World Politics (2004)", and further elaborated in "The Powers to Lead (2008)", is rooted in the idea that alternative power structures exist in international relations alongside with economic and military power. Soft power is neither an evolution or involution nor a substitute for hard power, it is simply another form of power. (Akıllı-Donelli 2016).

According to Nye, “the distinction between hard and soft power is one of degree, both in the nature of the *behavior* and in the tangibility of the *resource*” (Parmar-Cox 2010). Unlike the hard power, soft power explains fields of influence and attraction beyond military and economic indicators, it refers to a country’s social human capital. This is the reason why it is different from country to country (Akıllı-Donelli 2016). Soft power is an autonomous form of power, which has its rules, features and characteristics, and “does not depend on hard power” (Nye 1990). According to Nye, soft power could be better seen as a strategy for a country to gain its objectives without coercion or payments, but with attraction founded on culture, political values, and legitimate and moral foreign policy. Moreover, it helps to shape international institutions and policy agenda. To Nye soft power explains the “attractiveness of a country’s *culture*, political notions and policies”, the power of attraction, as opposed to the power derived from military force and economic sanctions. In sum, soft power rests on the ability to shape the preferences of others, without the use of force, coercion or violence. That is co-opt people rather than coerce them (Akıllı-Donelli 2016).

As we have seen, the co-optive or soft power rest on *resources*, *behavior* and *agents* that hold them together. *Resources* are tangible or intangible capabilities, goods, instruments at disposal; *behavior* is the action itself, the manner or way to act, the conduct of *agent*. In terms of resources, soft power resources are the assets that produce attraction; and cooptive power can be seen in the attraction exerted by an agent through a certain behavior (Akıllı-Donelli 2016). According to Nye, soft power of a country rests on three resources: its *culture* (in places where it is attractive to others), its *political values* (when it lives up to them at home and abroad), and its *foreign policies* (when they are seen as legitimate and having moral authority). This is because “in international politics, soft power largely produced by resources of an organization or a country that relies on values expressed in its culture; thus, this expression reflects as an outcome both for internal practices and policies as well as relations with others” (Nye 2008b). Culture, education, arts, media, film, literature, higher education (universities, research centers, think tank, etc.), non-governmental organizations, tourism, platforms for economic cooperation and diplomacy are all soft resources to be used to produce and to feed soft power (Seib 2009).

Another important feature of Joseph Nye’s theory, also useful to understand Turkish foreign policy agenda, is about the *agents* or *actors* that really hold soft power. The definition of hard and soft power given by Nye does not differentiate between agents either (Akıllı-Donelli 2016). For many years international affairs has been understood in state-centric terms, and only recent studies consider non-state actors in terms of contributions and challenges to a government’s decision-making process (Snyder-Sapin-Hudson, 2003). Even if Nye is commonly known as one of the fathers of interdependence theory in his works there is a lack of attention given to non-state actors or agents. However, we can argue that institutions, large corporations, civil society’s organizations and movements, and even individual hold soft power (Carlsnaes-Risse-Simmons 2000; Nye-Donahue 2000).

TIKA’S ACTIVITIES IN DIFFERENT REGIONS BY NUMBERS

In 2016, Turkey provided 7.943,3 Million USD for foreign aids (TIKA 2016); that consists of bilateral development aids, development assistance and humanitarian assistances. Below there are countries that received top bilateral official development aids that Turkey have provided in 2016. Those countries are: Syria (5.851,23 Million USD), Somalia (59,63 Million USD), Palestine (43,12 Million USD), Afghanistan (32,69 Million USD), Bosnia-Herzegovina (30,29 Million USD), Kyrgyzstan (25,39 Million USD), Macedonia (18,96 Million USD), Kazakhstan (18,96 Million USD), Azerbaijan (14,24 Million USD) and Niger (11,91 Million USD).(TIKA, 2016: 19)

As mentioned at above, Turkey have provided foreign aids towards to world in many different regions. Considering to 2015-2016 years, Turkey have almost doubled the amount that have provided in 2015 at 2016. According to the TIKAs report, mentioned regions are: Europe (2015:

222,9 Million USD-2016: 190,4 Million USD), America (2015: 19 Million USD-2016: 6,5 Million USD), Africa (2015: 183,4 Million USD-2016: -306,2 Million USD), Oceania (2015: 0,2 Million USD-2016: 0,5 Million USD), Middle East (2015: 2988,4 Million USD-2016: 5943,2 Million USD), Far East (2015: 6,1 Million USD-2016: 13,4 Million USD), South and Middle Asia (2015: 256,6 Million USD-2016: 191,5 Million USD), Asia regional (2015: 169,3 Million USD-2016: 0,1 Million USD), undistributed to regions (2015: 0 Million USD-2016: 198,1 Million USD) and total number of (2015: 3845,9 Million USD-2016: 6237,5 Million USD).

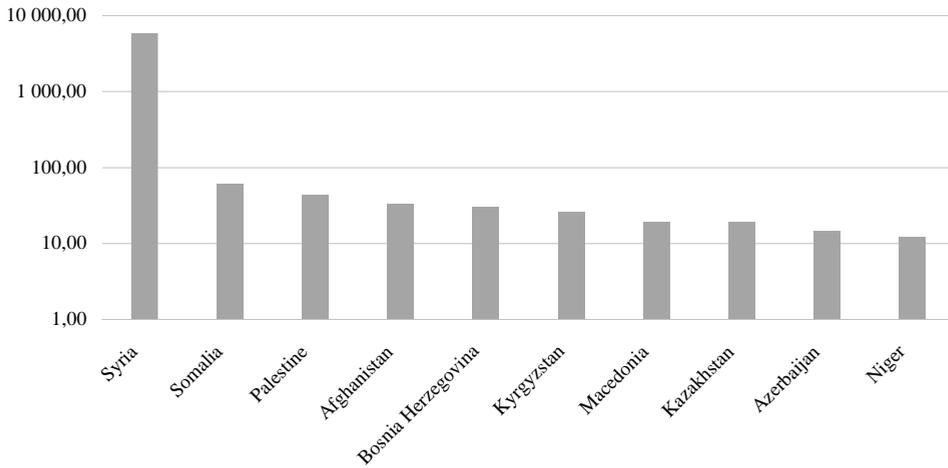


Fig. 1. Countries That Received Top Bilateral Official Development Aids at 2016

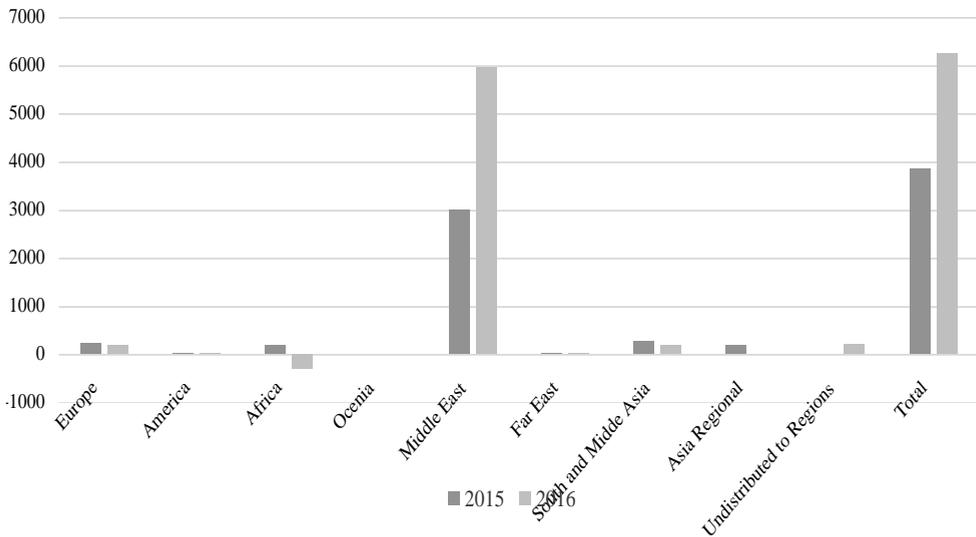


Fig. 2. Regional Distribution of Turkey's Bilateral Official Development Aids

CONCLUSION

TIKA's foundation was a step towards long forgotten cousins under Soviet regime, a step to empower cultural and state level bonds between newly founded Turkic states after the dissolution of USSR. With that step, it's expected that Turkey could forge close relations with those states through foreign aids and development projects; so, this attempt would open a new foreign policy destination for Turkey. Considering to historical events, indeed that step opened a new destination for Turkish foreign policy for this manner.

Since 1990s, Turkey using foreign aids as a tool for foreign policy. Hence, contrary to its starting origin, Turkish foreign aids, which focused only on Central Asia and South Caucasus towards to newly independent Turkic states, now reaching out all around the world through TIKA. From Bosnia-Herzegovina to Bishkek, from Kabul to Bogota; TIKA carries on activities over 150 different locations with 50 project offices. Thanks to TIKA's activities around the world, at 2016, Turkey donated more than 7 Billion USD as foreign aid/humanitarian assistance and Turkey is 2nd of top donors in the world.

Through this reach out, friendship and security circles also grow and wraps around Turkey. Furthermore, being a major donor for foreign aids, also enhances Turkey's positive image abroad and empowers Turkey's 'Soft Power' capacity.

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Katarzyna Boratyńska²

THE MARKET AND THE ROLE OF THE STATE IN THE ECONOMIC CRISIS: LESSONS FROM THE THREAT OF BANKRUPTCY OF AGRICULTURAL BIOGAS PLANTS

Abstract: The scale of bankruptcies and business failures aggravates during the economic crisis. This phenomenon is also observed in the agribusiness sector. Agribusiness characteristics - unique for this subset of the economy - determine not only their specificity, but also the propensity of economic operators to develop and fail in this environment. The properties of agribusiness can either catalyze or inhibit liquidation of the business operator. The primary goal of the paper was to identify the role of the state as regards counteracting crisis-related phenomena as compared to the self-regulating market mechanism. The article presents threats and barriers to the development of agricultural biogas plants using a PESTLE analysis. The research identified high expenditures and the long investment period as principal factors of risk of bankruptcy of agricultural biogas plants. The correct location of an agricultural biogas plant is also very important, that is whether it is located near the source of raw material for the production of biogas and a consumer of heat. The bankruptcy of a biogas plant entails job cuts and an increase in unemployment in rural areas, thus there is room for the role of the state to develop institutional and financial instruments that would make it possible to counteract/reduce these adverse social phenomena.

Key words: market, state, economic crisis, business failure, agricultural biogas plant

INTRODUCTION

In economic science, theories derived from natural science are distinguished. They refer to the stages of life of a living organisms. As assumed, industries and enterprises are subject to cycles correlated with specific stages of development. Based on the "birth" and "death" of the individual, the concept of natural evolution and the theory of the company's life cycle considers the issues of its creation, development, survival and bankruptcy. Bankruptcy is then viewed as an inseparable part of a properly operating system, leading in a more or less predictable way, to the natural decline of the company's life (Pieńkowska 2005). When examining the life cycle of an agribusiness enterprise, it should be noted that each phase of its life features different dynamics and diversified development trends. In the growth phase, a start-up tends to be capital-intensive and intensifies production. Liquidity problems may then arise, production develops, the number of buyers and the amount of revenue increases. The use of production capacity and fixed assets improves, while technological and economic efficiency increases. Meanwhile, work expenses grow. The company is slowly "maturing," it has already established a stable market position in the local environment, which matters for institutional contacts. As growth proceeds, production and income stabilizes. Next, the enterprise enters its decline phase. This manifests itself in a reduction in the production and supply rate, coupled with a mismatch between business and market needs. The company may last many years in this phase, with the owner not even realizing that the company is in decline or waning.

In the theory of Nassim Nicholas Taleb, the crisis was called a "black swan in the order of events," a phenomenon that is very rare and difficult to predict. Nouriel Roubini enters into polemics with this statement, calling it a "white swan." He claims that crises are predictable and quite often recurring phenomena (Roubini, Mihm, 2011). During the global economic crisis, the scale of business bankruptcies intensified. Uncertainty prevailed, both on stock exchanges and in financial institutions. The investment banks and other entities that invested in subprime loans

² Department of Finance, Faculty of Economic Sciences, Warsaw University of Life Sciences – SGGW, 166 Nowoursynowska Street, 02-787 Warsaw, e-mail: katarzyna_boratynska@sggw.pl

incurred heavy losses. Furthermore, no-one knew who held these financial instruments in their portfolios, or how much they held. The uncertainty as to risk location developed into overall distrust and anxiety in financial institutions around the world. It created a crisis of confidence among banks, and credit transactions dried up on the interbank market. Banks became reluctant to lend to other banks and enterprises. Lending for the economy decreased, amidst tightened credit terms and conditions. This factor particularly affected the crisis of non-financial sectors of economy (Stiglitz, 2010).

Both before and during the crisis, many threats to the global food economy emerged. Growing protectionism and speculation rank among the most important ones. Worldwide price increases affected virtually all commodities. Prices also soared on the agricultural commodity markets. The price of cereals and rice rose two-and-a-half-fold, of meat, one-and-a-half-fold, and of sugar, more than two-fold. According to Orłowski (2011), commodity supply lagged behind growing demand. Woś (2004) claimed that the external situation of agriculture, and especially the process of integration with the EU, required active state participation, which leads to the strategy of regulated changes. Exogenous and endogenous determinants of business bankruptcies can be distinguished. In agribusiness, there are factors that can catalyze or inhibit this phenomenon, generating social and private costs for many stakeholders. The point is how to finance these costs. The paper seeks to identify the role of the market mechanism and the state, which can introduce regulatory instruments through their institutions and in this way counteract crisis-related phenomena and curb the scale of bankruptcies in agribusiness. Examination of bankruptcies of agribusiness enterprises should take account of the diverse nature of the system entities. The available statistics only cover companies across part of agribusiness, being the food industry and agriculture, apart from private farms. Meanwhile, the bankruptcy of agricultural biogas plants is hardly covered in the literature, so it is worth identifying and closing the research gap, both cognitive and empirical in this field of research.

RESEARCH METHODOLOGY

The paper explores the role of the state in counteracting crisis phenomena vis-à-vis the self-regulating market mechanism. The following specific objectives are identified:

- to discuss bankruptcy in a market economy,
- to define the role of the state and the market in the crisis in selected economic thoughts,
- to present the operation and role of agricultural biogas plants in Poland,
- to determine the risk factors for bankruptcy of agricultural biogas plants and the role of the State in counteracting crises.

The author follows such research methods as descriptive analysis, comparative analysis and the PESTLE method. The article presents threats and barriers to the development of agricultural biogas plants, using a PESTLE analysis, which extends the PEST method. This tool examines the company's macro-environment. The authorship of this concept is credited to Francis Aguilar (1967), the Harvard professor who defined a tool called ETPS (later PEST). The name is an acronym for four English words that describe particular areas of a macro-environment. These are: the political environment (**P**olitical), for instance, developing food policy; the economic environment (**E**conomic), by way of illustration, interest rates, inflation, economic growth/crisis, the unemployment rate; the socio-cultural environment (**S**ocial/Socio-cultural), to name a few examples, issues related to the country's demography and the preferred lifestyle of its consumers; the technological environment (**T**echnological), such as the level of innovation and new technologies. The PESTLE analysis additionally includes the legal (**L**egal) and environmental (**E**nvironmental) background. It is also worth taking into account the ethical aspects (**E**thical) of industry operations. Once the macroenvironmental factors have been determined, their positive (chances) and negative (threat) impact on the business of agricultural biogas plants can be assessed. The paper mainly identifies threats and barriers in the operation of agricultural biogas, which may

lead to their liquidation. Individual macro-factors often interact with one another and it is difficult to clearly assign them to only one group.

THE BANKRUPTCY OF ENTERPRISES IN A MARKET ECONOMY

Experience from the recent crisis in the global economy shows that bankruptcies are inseparable from the essence of a market economy. Quoting F. Borman, *"Capitalism without bankruptcy is like Christianity without hell."* The market has a self-cleaning function for ineffective entities. Their resources can be used more effectively by more competitive operators. According to J. Schumpeter's "creative destruction" theory, the market eliminates the unfit or least fit actors. As the rate of changes in the modern world increases, the economy becomes the "economy of impermanence." "... *Almost all forms of business become impermanent and their life cycles get shorter and shorter. This applies not only to technologies, products, but also to workstations, methods of communication, production and trade, education, and even models of family and professional life...*" (Mączyńska 2009, pp. 138-139).

Not only individual units, but also entire industries or even countries, can go insolvent. During a recession in an industry or region, the number of bankruptcies increases, thus supporting the supply of assets of liquidated entities, which reduces their prices and extends the liquidation process. According to Mączyńska (Bankruptcy... 2010, p. 5, 10) *"Bankruptcy by liquidation should be the last resort, since this form of bankruptcy involves particularly high costs, including externalities, mainly social ones. By way of illustration, bankruptcy and liquidation of enterprises stimulate unemployment, and thus boost expenditure on unemployment benefits"*. Interestingly enough, arrangement and recovery proceedings are not very popular in Poland. Undoubtedly, growth in successful recovery and restructuring processes could contain social costs. The Act of 15 May 2015 Restructuring Law (Journal of Laws of 2015, item 978, as amended), which entered into force on 1 January 2016, superseded the Act of 28 February 2003 Bankruptcy and Reorganization Law (Journal of Laws of 2003, No. 60, item 535, as amended) and marked a positive change.

THE ROLE OF THE STATE AND THE MARKET IN THE CRISIS IN SELECTED ECONOMIC SCHOOLS

Table 1 presents the results of a comparative analysis pointing out the main differences between the role of the State and the market in counteracting imbalances and bankruptcies in selected economic theories.

The classical school (from the mid-9th century to the 1930s) examined the economy in a state of equilibrium with a perfectly developed mechanism for adjusting the market system dysfunctions. Accordingly, any intervention is unnecessary, as market mechanisms suffice. The neoclassical school extended the classical economy of A. Smith. The most prominent followers of this theory included W.S. Jevons, A. Marshall, K. Menger and L. Walras. The key assumptions of the neoclassical school include: perfect competition, J.P. Say's market mechanism and law of markets. According to the authors of this school, public investments are unnecessary, and public funds fully "push out" private funds (Table 1).

The neoclassical school gave rise to the Austrian school, which presents a very extreme subjective-marginalist approach. Its origins date back to the 19th century and the works of C. Menger. Other representatives of this school include F. Hayek, L. von Mises, F. von Wieser, M. Rothbard and J.H. De Soto. According to its assumptions, the business cycle in modern economies is primarily due to excessive credit expansion. This, in turn, causes information disruptions on the market and subsequently, incorrect allocation decisions of businesses. Restrictions may also occur in capital and other production factors. The growing demand for capital goods boosts their prices. As the cost of capital, labor, etc. grows, so do consumer prices. Further credit expansion is the only remedy for the flagging economic conditions, which intensifies the crisis (Koryś).

Table 1. The role of the State and the market in crisis conditions in selected economic theories

State	Market
Classical school	
- State intervention is unnecessary,	- a well-developed mechanism for correcting the market system deficiency, - market mechanisms suffice,
Neoclassical school	
- the business cycle in modern economies mainly reflects excessive credit expansion, - it causes information disruptions on the market and then wrong allocation decisions of businesses, the role of the State-created legal and institutional framework in ensuring full competition in the economy, - macroeconomic policy should only protect and strengthen the action of the market mechanism, State intervention disturbs the market mechanism,	- free price formation and perfect competition, as the pivotal elements coordinating the operation of entities in the conditions of continuous states of imbalance and uncertainty,
Monetarism	
- minimal state interference, - deactivation of economic policy in all areas, except monetary policy,	- a vision of ideal free-market based society,
Keynesian school	
- J.M. Keynes challenged the prevailing belief of economists that where the government does not disturb economic processes, the market itself develops the equilibrium of full employment,	- recessions during the business cycle, due to naturally self-regulating processes, are short-lived phenomena,

Source: Own study based on Roubini, Mihm, 2011; Zamora 2015; Koryś.

The neoclassical school prioritizes the free market, free price formation and perfect competition as the key elements coordinating the activities of entities amidst continuous imbalance and uncertainty (Table 1). Austrian school supporters highlight the State-created legal and institutional framework in ensuring full competition in the economy. They also call for "privatizing" the issuing of money, limiting income redistribution, or abandoning price controls. Macroeconomic policy should only protect and strengthen the operation of the market mechanism. Only a free market, a flexible labor market, low taxes and stable law can help. They oppose State intervention as it disturbs the market mechanism. Austrian school concepts have failed to play an important role in the mainstream economic theory or in macroeconomic policy.

M. Friedman, the founder of monetarism, formulated a theory which incorporated the vision of an ideal free-market-based society and a thesis about the exogenous nature of the money supply. According to M. Friedman, the scope of economic policy should be significantly reduced, while extending market mechanisms (Koćwin). A free market economy, in which state interference is minimal, is stable (Table 1).

New classical macroeconomics, developed in the 1970s by R. Lucas, M. Parkin, R. Barro, T. Sargent, E. Prescott, and P. Minford, represented a new approach to neoclassical thought. The approach rests on three assumptions: the rationality of expectations, assumption of continuous cleaning up of markets, and aggregate supply, that is, rational decisions of enterprises and employees (Landsberg 2009). State intervention regarding fiscal and monetary policy was not accepted in the aggregate supply school. Economic policy should be limited to the minimum and focus on price stabilization and supply policy. State intervention is unnecessary both in the short and long term, because business operators adapt to the State policy.

The concept of rational expectations is another school linked to the neoclassical theory. It was founded in 1961 by J. Muth, and developed in the 1970s by R. Lucas, T. Sargent and N. Wallace.

The main assumption is the ineffectiveness of macroeconomic policy, because entities, acting in their own interest and predicting economic phenomena based on all available information, are able to take rational decisions and modify their expectations in accordance with their knowledge, etc. The business cycle theory assumes that production and employment fluctuations reflect changes in real factors in the economy, with quickly adapting markets that remain in equilibrium. The school was founded by Finn E. Kydland and Edward C. Prescott (<https://www.nbportal.pl/slownik/teoria-realnego-cyklu-koniunkturalnego>).

The economics of supply draws on classical economics (among others, D. Hume, A. Smith) and Austrian school (L. von Mises, F. von Hayek). R. Mundell, A. Laffer and J. Wanniski are founders of this school. They assumed that it was State intervention, pursued in accordance with the theory of John M. Keynes that has pushed the American economy into crisis since the mid-1970s. They argued that the crisis may not be overcome by State intervention measures, which only distort the market mechanism. Supply economics derives from two assumptions: long-term stability of the market system, and the decisive role of the individual in the course of economic processes. According to the economics of supply, production or supply is the key to well-being, while consumption or demand is only its effect. Just as consumption is secondary to production, aggregate macroeconomic demand depends solely on aggregate supply. This is the essence of J. B. Say's law, which supply economics seeks to rehabilitate following the criticism of J. M. Keynes made in Keynesian law (aggregate demand principally determines macroeconomic conditions) (Zamora 2015, p. 21).

Along with the neoclassical school, the Keynesian idea is the most influential thought in macroeconomics. The inspiration behind this approach was the work of J.M. Keynes: *General theory of employment, interest and money*, which came out in 1936. This work came as a response to the major economic crisis in the USA in the 1920s and 1930s. J.M. Keynes questioned the widespread belief of economists that where the government does not disturb economic processes, the market itself develops equilibrium at full employment. According to the classical theory, the very nature of market equilibrium prevents overproduction and economic crises in the long run, and thus the economy may not reach equilibrium amidst high unemployment (Koryś). Respectively, unemployment is the major economic problem and will tend to remain low over the long term thanks to self-regulating market mechanisms. Recessions during the business cycle, coming as a result of naturally triggered self-regulatory processes, are short-lived phenomena (Zamora 2015, p. 22).

Exchange rate fluctuations in the Polish zloty, payment bottlenecks and a drop in demand on the Polish market were considered to be the major risks stemming from the crisis by Polish enterprises. A decline in revenues and orders coupled with an increase in costs (in particular, of materials and commodities used in operations), lending constraints and suspension of investments were the most common consequences of the crisis. Enterprises also faced problems with growing debt and debt service cost. The crisis most often impacted enterprises through a shrinking trade portfolio (85% of responses). On the other hand, recession-typical phenomena were less frequent, such as a decrease in profitability (27%) and late payments (24%) (*Światowy kryzys ...*, 2011, p. 12).

THE ROLE OF AGRICULTURAL BIOGAS PLANTS IN POLAND

According to Majewski, Sulewski & Wąs (2016, p. 5) the issue of renewable energy sources is one of the most frequently discussed lastly and this refers to the future of energy sector considerations. Many factors influence on that topic, namely: the limited resources of raw materials fossil and a large share of energy in greenhouse gases emission as well as increase of energy sector security. The climate and energy package that was adopted by EU Member States in 2007 assumes, among the others the limit of greenhouse gases emissions and improvement of energy security.

Considering, it is important to increase the share of energy from renewable resources in the total energy consumption. The research by Dzikuć & Urban (2014) indicates that negative impact on the environment resulting from the use of coal in energy production is an incentive for Poland to take actions aiming at increasing renewable energy sources in this process.

The national renewable energy action plans (RES) primarily assume the development of sources based on wind energy, biomass and biogas production. According to the national renewable energy action plans (2010), the overall national target for the share of energy from renewable sources in the final gross energy consumption is to stand at 15% in 2020 (7.2% in 2005), and the expected volume of energy from renewable sources corresponding to the 2020 target is 10380 tons. The share of energy from renewable energy sources pursued a path of steady increase in Poland between 2003 and 2011 (*Energia ...* 2013). Renewable energy in Poland is developing fastest in regions featuring high RES potential. The interest of investors and the supportive attitude of local authorities are also important. The most renewable energy is produced in the following provinces: Kujawsko-Pomorskie, Zachodniopomorskie, Pomorskie and Wielkopolskie. Biogas technology in Poland is based on organic commodities, including agricultural waste.

Biogas technologies that include agricultural biogas have a small share in renewable energy sources in Poland. Figure 1 presents changes in number of agricultural biogas plants. In 2011 the register of Agricultural Market Agency included only 8 installations. The number of agricultural biogas plants increased to 78 in 2016. This was a significant increase (Figure 1).

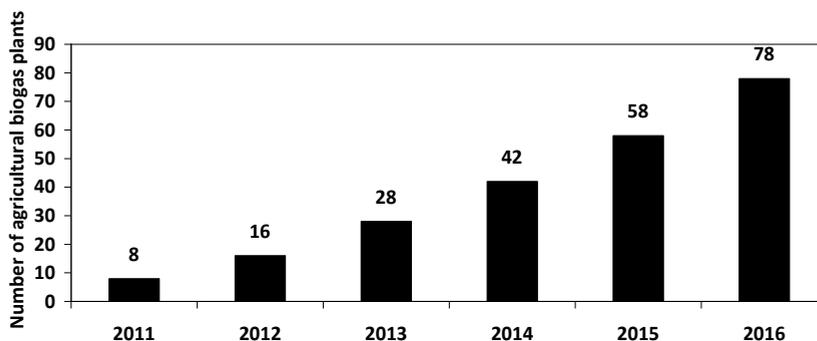


Figure 1. Number of agricultural biogas plants in Poland in 2011-2016

Source: Dane dotyczące działalności wytwórców biogazu rolniczego w latach 2011 – 2016, Biuletyn Informacji Publicznej Krajowego Ośrodka Wsparcia Rolnictwa,
<http://bip.kowr.gov.pl/informacje-publiczne/odnawialne-zrodla-energii/biogaz-rolniczy/dane-dotyczace-dzialalnosci-wytworcow-biogazu-rolniczego-w-latach-2011-2016> (retrived: 04.01.2018).

Table 2 includes information about quantity of biogas, electricity and heat that was produced by agricultural biogas plants. It is worth mentioning that the quantity of agricultural biogas production and the quantity of electricity from agricultural biogas production increased almost six times in the analyzed period. This indicates quantitative development of agricultural biogas plants. On the other hand, the majority of these entities struggling with some financial troubles. There is still a huge gap comparing the level of domestic electricity production by agricultural biogas plants (0,14% of total domestic consumption) to the level of total domestic electricity consumption (161438 GWh in 2015). Considering the plans of 2000 agricultural biogas

plants creation by 2020, it seems that this strategy is not succeed. The policy that supports more ecological economic growth and positive impact on development of renewable energy sources is badly needed.

Table 2. Production of agricultural biogas, electricity and heat from agricultural biogas in 2011-2015

Year of production	Quantity of agricultural biogas production (in mln m ³)	Quantity of electricity from agricultural biogas production (in GWh)	Quantity of heat from agricultural biogas production (in GWh)
2011	36,646	73,433	82,638
2012	73,152	141,804	160,128
2013	112,412	227,890	246,557
2014	174,253	354,978	373,906
2015	206,236	429,400	224,996

Source: Dane dotyczące działalności wytwórców biogazu rolniczego w latach 2011 – 2016, Biuletyn Informacji Publicznej Krajowego Ośrodka Wsparcia Rolnictwa,

<http://bip.kowr.gov.pl/informacje-publiczne/odnawialne-zrodla-energii/biogaz-rolniczy/dane-dotyczace-dzialalnosci-wytworcow-biogazu-rolniczego-w-latach-2011-2016> (retrived: 04.01.2018)

The main objective of the study by Piwowar & Dzikuć (2013) was a comparative evaluation of the technical potential of existing installations for the production of agricultural biogas in Poland by region and voivodeship. The study discusses the technical parameters of agricultural biogas manufacturing installations, including annual yield, installed power (electrical and thermal), as well as their annual electrical and thermal output (Table 3). Table 3 presents technical parameters of installations in agricultural biogas plants in Poland by region. Most of installations of agricultural biogas plants is located in the North-western and Northern regions. The North-western and Northern regions present the highest annual output of agricultural biogas manufacturing installations as well the highest installed power of the system and the highest annual output of manufacturing installations. The Southern region represents the lowest level of all of these above parameters (Table 3).

Table 3. Technical parameters of installations in agricultural biogas plants in Poland by region

Specification	Number of installations (pcs.)	Annual output of agricultural biogas manufacturing installations (m ³ /year)	Installed power of the system		Annual output of manufacturing installations	
			electrica l (MW _e)	thermal (MW _t)	electricity (MWh _e /year)	heat (MWh _t /year)
Central region	1	7 920 000	2,00	2,13	15 920,00	1 7024,00
Southern region	1	1 106 683	0,53	0,54	4 471,00	4 625,00
Eastern region	3	10 870 960	3,00	3,06	2 4076,12	24 149,36
North-western region	10	34 196 875	9,09	9,57	72 683,00	76 268,85
South-western region	4	18 226 875	5,43	5,76	44 312,00	46 922,00
Northern region	10	48 939 325	13,34	12,05	100 557,84	92 639,11
Total	29	121 260 718	33,38	33,10	262 019,96	261 628,32

Source: Piwowar, A, Dzikuć, M. (2013). Charakterystyka podmiotów zajmujących się wytwarzaniem biogazu rolniczego w Polsce, *Journal of Agribusiness and Rural Development*, 1(27) 2013, p. 211.

The principal threats and barriers to the development of agricultural biogas plants in Poland include: legal barriers, environmental protection issues (fertilization rules, connection conditions, environmental impact), financial barriers (low capital expenditure, insufficient competence of financial institutions' employees about biogas plants, subsidies not being involved), organizational barriers (lack of skills, insufficient knowledge and education). The main risk factors for bankruptcy of agricultural biogas plants are shown in Figure 2.

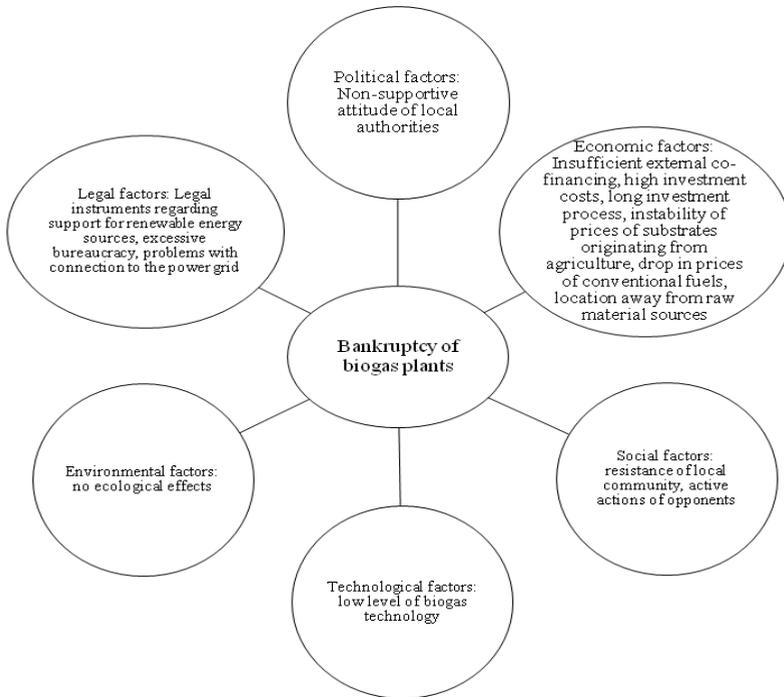


Figure 2. Risk factors for bankruptcy of agricultural biogas using the PESTEL method

Source: Own study.

The relevant system of supporting and financing measures in this area and crisis prevention is one of the cornerstones for the development of biobusiness. Potential sources of financing investments in biobusiness include, to name a few, assistance funds (for instance EU structural funds) and loans from the banking and non-bank sector. Budgetary determinants which stimulate the innovative potential of biogas plants via appropriate tax solutions, such as tax credits for the purchase of new technology, may also play an important role. Furthermore, a significant mission as regards counteracting the crisis in agribusiness has been vested in the State.

SUMMARY

In the theory of economics and individual economic schools, various methods of influencing the economy by the State during the crisis were pointed out. Individual states or supranational institutions influence the economic situation during the crisis. Further efforts are required as regards, for example, financial market regulation. The post-crisis situation shows that the current macroeconomic equilibrium in the majority of countries that have dealt with the crisis is of a short-lived nature and stabilization is not deep. Various scenarios are possible, ranging from rapid economic growth to long-lasting stagflation and possible further recession.

Agricultural biogas plants are gaining popularity, however, they operate in a turbulent environment, which increases bankruptcy risk. Among the main risk factors of bankruptcy, high expenditures and a long investment period have been identified. The correct location of the agricultural biogas plants is very important, that is, near the source of a commodity for the production of biogas and the consumers of heat. Bankruptcy of biogas plants means job cuts and higher joblessness in rural areas. Simplification of laws and increasing financial aid would contribute to faster development of biogas technology in Poland.

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Piotr Dominik³, Anna Fabisiak⁴

CARING FOR CULINARY PRODUCTS AND TRADITIONS IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT OF RURAL AREAS

Abstract: The study analyzes the role of traditional dishes, food products and customs related to their production and consumption in relation to the sustainable development of rural areas.

Traditional food is usually created on the basis of environmentally-friendly methods. The revitalization of culinary traditions contributes to the harmonious development of rural areas: it activates the local community, creates new sources of income, strengthens cultural identity and increases the tourist attractiveness of the regions. The concept of sustainable development, understood as a harmonious interaction of economic, social and natural systems, aims to achieve contemporary benefits for future generations. The search for and implementation of various activities in rural areas can stop negative demographic and social processes through multi-functional rural development using regional and traditional products.

Key words: production, sustainable development, regional food, rural areas.

INTRODUCTION

The aim of the study is to analyze the role of traditional dishes, food products and customs associated with their creation and consumption in the implementation of the idea of sustainable development of rural areas. For the purpose of the topic, the method of analyzing the literature of the subject, as well as the actual use of good practices of sustainable development during the production of traditional culinary products was used. The work is descriptive and analytical. The work presents a critical analysis of the needs and benefits related to the care of culinary products and traditions.

POSITIVE IMPACT ON THE ENVIRONMENT OF CULINARY REGIONAL PRODUCTS

Regional products are products that are produced in a defined geographical area and have unique characteristics that distinguish them from products found elsewhere.

The specific features of regional products are determined by tradition, culture and the specificity of nature, naturalness, method of production and components used to produce them. On the one hand, they may be a showcase of a given region and shape a local image, and on the other hand, the area itself determines their character (Gąsiorowski 2007).

Increasing interest in regional and traditional products is analyzed in the context of regionalism as a phenomenon of opposing globalization, which is a response to negative aspects resulting from industrial food production or as a change in consumer preferences resulting from the desire to preserve and show the richness of cultural heritage (Żakowska-Biemas 2012). The production of this type of goods is very often carried out according to old recipes and therefore the technological process itself is not a threat to the environment. The next element is often the ecological character of regional products. As a result, the problem of pollution of nature by pesticides or excess of used fertilizers disappears, which in case of conventional agriculture often causes big problems. The last element to be moved is the fact that very often these products can be found only in the selected area. They are produced locally and sold on site. This, in turn, reduces greenhouse gas emissions and reduces air pollution. (Minta, Tańska-Hus, Nowak 2013)

³ School of Tourism and Recreation, Vistula University – 3 Stokłosy St., – Zip Code: 02-787 Warsaw – Phone: (+4822) 4572300 – Fax: (+48 22) 4572303 – e-mail: p.dominik@vistula.edu.pl

⁴ School of Tourism and Recreation, Vistula University – 3 Stokłosy St., – Zip Code: 02-787 Warsaw – Phone: (+4822) 4572300 – Fax: (+48 22) 4572303 – e-mail: a.fabisiak@vistula.edu

Regional products can also help shape local landscape and help maintain balance in nature. Increasingly, agricultural activity is perceived as an activity that contributes to maintaining high natural values and increases species biodiversity (Musiał 2005).

TRADITIONAL CROPS

An important role is also played by running and returning to traditional crops such as buckwheat, sorrel, spelled and herbs (thyme, oregano, lavender, sage, basil and many others) (Machnik 2008). One of such plants is periwinkle formerly used for the production of dyes. As a medicinal plant, it blocks hemorrhage, improves the blood supply to the head (thereby alleviating the pain) and the heart muscle, also relieves toothache. In Masuria, it is used to decorate Easter baskets (as in boxing Wielkopolska in Wielkopolska, and in boletus - in boletus).

On the other hand, dishes are prepared from bred or obtained from surrounding ecosystems of plants and animals. Each region in Poland has its own specific products. In Pomorze, these are mainly fish, in Podhale - meat and cheese from sheep's milk, in Sandomierz and the Lublin region - grains and the noblest species of fruit and vegetables (Krysztofiak 2003).

Currently, the so-called apiturystyka - tourism related to beekeeping and honey production (Kłosiewicz, Kłosiewicz 2011). The best-known apiarian open-air museum is located in Greater Poland in Swarzędz. There are also tourist trails associated with this form of tourism. One of them is the "Małopolska Honey Country" trail promoting open-air museums and beekeeping museums and agritourist beekeeping farms located in the Małopolska region. All agritourism farms, marked on the trail, conduct beekeeping activities and offer tourists the opportunity to taste honey, participate in works in the apiary and relax in the surroundings of nature (Woś, Bień 2013). Another example is the Lubuskie Wine and Honey Route, which also refers to the most well-known type of culinary tourism, which is, of course, enotourism, that is traveling along the vineyard route and tasting wines.

DEFINITION OF SUSTAINABLE DEVELOPMENT

The definition of sustainable development was officially adopted in 1987 in the Report of the World Commission on Environment and Development. It is "a process aimed at satisfying the developmental aspirations of the present generation, in a manner enabling the pursuit of the same aspirations for future generations" (www.unesco.org, 2013.05.16.). It was emphasized that in order to achieve these goals, different activities are needed in three key areas:

- economic growth and an even distribution of benefits.
- protection of natural resources and the environment.
- social development.

Regional products can play an important role in sustainable development. This applies not only to environmental aspects, but also to typical economic ones, which on the one hand will give positive economic effects, and at the same time will take care of the natural environment as much as possible and will not result in excessive exploitation of resources. In addition, sustainable development also means equalizing opportunities between regions with high development potential (most often with the character of large urban agglomerations) and areas with lower development potential. According to such assumptions, the development of the regional products market may favor sustainable development of rural areas, because it gives an opportunity to create new jobs on the spot, raise income and activate some of the local community (Minta, Tańska-Hus, Nowak 2013).

Analysis of the offers of organizations supporting culinary tourism, movements, associations, and activities of public authorities shows that we have several basic forms of actions shaping such an offer.

1. Certification.

Restaurants, products and events can be certified. Certificates are issued by industry associations, public bodies or tourist organizations.



a. Cooperation with restaurateurs and giving them certificates. Certificates of Slow Food, for example, after the verification process, give their certificates. The first of them was a restaurant in Wzgórze Dylewskie, and the condition was to include at least three typical regional dishes in its menu and use of local products accepted by Slow Food Polska. Currently, there are nearly thirty such restaurants in Poland.

b. Certifying products. Slow Food acknowledges its certificates in the categories of cheese, meats, alcohol, bread, honey, juices, preserves, oils, cakes and cookies.

c. Certifying events and initiatives, for example the Best Certificate

The Tourist Product is awarded by the Polish Tourist Organization (Małopolska Festiwal Smaku, Zielona Góra Wine Festival, International Bread Fair and Living Gingerbread Museum (Plebańczyk 2013).

2. Organization of own events and patronage (Association of Polish Winemakers and Miodosytyniki organizes an open nationwide Home-made Nalewki Competition, Slow Food festival in Sopot; Landbrand organizes the Night of the Restaurant, in Krasnystaw there is a National Festival of Chmielarzy and Brewers, which is accompanied by events such as Consumer Beer Contest, Miss Chmielaki's election and the National Chmielarska Session.

Regional events organized by public authorities or under their patronage, such as the Małopolska Festival of Taste, can also be added to this category.

3. Providing tourists with places where products are made, eg beer companies operating in Poland. The breweries are available from Grupa Żywiec and Kompania Piwowarska.

6. Creating culinary routes. The first of them was the Culinary Tourist Trail.

(www.dobrysmak.pl, access: 2013.05.20). Culinary trails are created based on the tradition of the region (Silesian Culinary Trail, Białystok Culinary Trail), monoprodukt offer (Lubuski Wine and Honey Trail), product groups (Małopolska Fruit Route) (Plebańczyk 2013).

RURAL DEVELOPMENT - SUSTAINABLE OR MULTIFUNCTIONAL?

Local development is understood as a process in which the use of human and natural resources plays a fundamental role in order to create employment and achieve prosperity in a given local system (Gorzelać 1992). Agriculture has many functions, it also plays an important role in rural areas - it generates new but also additional fields of economic activity, including those related to processing, warehousing, food logistics, tourism, trade or accompanying services. Support for agriculture and rural areas within the framework of the Common Agricultural Policy enables the implementation of numerous reforms not only of an agrarian nature, but also of environmental or social nature. For several decades, the EU has been trying to develop solutions that would contribute to bridging the disproportion between the village and the city, and, on the other hand, integrate these areas and their inhabitants through complementary and joint actions (Borkowska 2012). Multifunctionality of agriculture is an indispensable condition for sustainable development (Wilkin 2010). It consists in the fact that apart from the basic function of agriculture, which is the production of food products (raw materials) and other organic raw materials used for industrial production, it produces goods and services, and performs other functions that are important for the closer and further environment of the farm. This definition also includes regional food products produced in rural areas. They are recognized in the Community as the cultural heritage of Europe. The legacy of culture and nature has traditionally been considered a non-economic factor of spatial development. Treated as a resource, they can be transformed into capital that can play an important role in the sustainable development strategy, both at the local and national level (Janikowski, Krzysztofek 2009). Idea (Quality Policy UE) distinctions among the vast assortment offer (ie mass, industrial, conventional agri-food products) of agricultural and food products of a regional and traditional nature was a response to the protection of products against unfair competition, creating conditions for consumer protection as well as guaranteeing safety food offered for sale (Borkowska 2012).

The concept of bioregionalism as an alternative form of environmental protection assumes that the world of nature and the world of culture should be treated as a spatial biological-social organism, the individual components of which co-constitute one another. The concept of bioregionalism promotes the development of societies based on respect for resources and local values. The basic form of organization of societies should be a bioregion, an area whose boundaries are defined by nature, not by man. Such an entity does not have to have strict limits, which is important in the case of wider than range values. The balance between the social, economic and natural systems is particularly important in rural areas, where human activity is directly in contact with landscape and nature, which is a generator of activities related to the main function of the village, that is, food production. Bioregionalism should be promoted and implemented in regional politics and tourism strategies (Kiryłuk 2009).

REGIONAL PRODUCTS IN SUSTAINABLE DEVELOPMENT OF RURAL AREAS IN POLAND

An opportunity for the presence not only of the product on the market, but also its producers are increasingly popular and sought after by consumers products of a regional and traditional nature. The food quality system under the Quality Policy EU protects over a thousand agricultural and food products - original food constituting the cultural heritage (including culinary) of a given country, region, place, tradition before falsification by entering it into the Register of Protected Designations of Origin and Protected Designations by the European Commission Geographic or to the Register of Guaranteed Traditional Specialties. Poland, becoming a full member of the EU, also benefits from this possibility.

Measures for sustainable development are aimed at increasing the importance of food certification as a tool to improve competitiveness in rural areas and disseminating up-to-date knowledge about the certification of Polish products and foodstuffs and sharing experience and increasing practical skills in the application of the certification system in four provinces: Lubelskie, Lubuskie, Podkarpackie and Świętokrzyskie. By promoting their own products, they promote the region while influencing the awareness of the final consumer in the role of high-quality food in a balanced diet creating demand for it. (Certified traditional products and sustainable development of the region) (www.ksow.pl, 08.03.2017).

Therefore, in the case of the future presence of the product on the market (its commodity scale), an important issue is the need for individual or group producers (including farmers, processors etc.) to co-create organized or grouped groups whose common goal would be: to concentrate production and supply, selling products of group members (or organizations, eg cooperatives, etc.), planning the scale and range of production, adapting the product (offer) to the needs and requirements, and also striving to reduce production costs and stabilize product prices. A special role, especially in multifunctional and sustainable development of rural areas, is played by family business entities that, regardless of their legal form, scale of activity or size, maintain their current jobs and create new jobs, especially for local people, use the potential and values of production factors, change the way and living conditions and the model of not only their own consumption, stimulating economic growth, etc. (EEC Council Regulation). Many products should be considered as comprehensive in stimulating the activity and attractiveness of the region, which is oscypek cheese, Podhale cheese, redykołki or Podhalańska lamb. In addition to the meaning of the final product, the consumer's policy is important, that is actions taken by interested parties to stimulate the development of pastoralism in Poland, thus affecting not only biodiversity and balancing the development of less-favored areas, but also indirectly activating the environment for common activities for the development of the region.

The traditional products market is the protection of the environment on a local scale. Thanks to the development of the traditional products market, there will be funds for the return of old breeds,

such as Złotnicka or Puławy pigs, as well as sorghum, millet, the act of ancient varieties of fruit trees (eg pulpwood, antonin, costel or Hungarian plum) (Sieczko 2008).

Another aspect is the economic dimension of sustainable development. Domestic breeds, due to their perfect adaptation to the environmental conditions in which they were produced, are perfect for keeping small, poorly mechanized farms. A small scale of production exposes small farms to all the consequences of fluctuations in purchase prices of agricultural products. Delaying the date of sale is not always possible due to the usefulness of the product for consumption (eggs, milk), and also because the continued maintenance of animals generates costs and prevents sales in the optimal weight (for example, broilers and fattening pigs). As a consequence, production often becomes unprofitable, as costs exceed income. This problem, with a large scale of production, is much smaller, because the larger scale allows for continuous sales. Regular production causes that although some products are sold at low prices, however, there are also periods of favorable purchase prices throughout the year. Therefore, for small farms the support of animal production on native breeds can be - and in many cases is - a way to improve their financial condition. Firstly, in some regions only the native breed can make full use of the available feed resources (eg poor, mountain, hard-to-reach pastures are well used by Polish red cattle). Secondly, for farmers breeding native breeds, farmers receive a subsidy, which covers the income differences that are obtained when using the native race, and which could be obtained by maintaining a more high-yielding breed. Thirdly, the products obtained from them are of excellent quality. So you can get a higher price for them (for example, eggs for green leg hen, known for low cholesterol). Products obtained from native breeds can also be processed in a traditional way. In February 2005, the Regional Union of Sheep and Goat Breeders in Nowy Targ submitted an application for a "Protected designation of origin" for oscypek. The procedures for entering the oscypek in the European list of regional products were successful and, in accordance with Commission Regulation (EC) No 127/2008 of 13 February 2008, the product was included in the register of protected designations of origin and protected geographical indications. Oscypek must be produced from sheep's milk of the "Polish Mountain Sheep" sheep. If cow's milk is used, it must come from cows of the "Polish red cow" breed. Therefore, only milk obtained from native animal breeds can be used for their production. This cheese should only be produced from May to September and must be sold in its entirety. In addition to oscypek, Polish milk products such as sheep cheese and redykołka are also protected (IJHAR-S, 2010). The coverage of these products with EU protection favors the interests of producers, and through the preservation of the traditional way of their production, part of the local community finds permanent employment. In the economic dimension, the protection of the genetic biodiversity of livestock is consistent with the idea of sustainable development. Considering the ecological dimension of genetic biodiversity conservation. As mentioned above, breeders who are the beneficiaries of all animal genetic resources conservation programs must be managed in accordance with the principles of good agricultural practice (Szulc 2011).

Recognizing the problem of protection of local breeding species, programs aimed at cultivating old traditions are introduced (Zarzycki, Korzenich 2013). Another element is the greater involvement of local communities in maintaining traditions and customs and a stronger interest of tourists in pastoralism and active protection of nature. In 2010, the local government of the province Śląskie decided to continue the program until 2014, and later it was extended until 2020 (Jaremicz 2017). The Sheep Plus program enables not only production, but also the sale of several dozen products, such as food (bundz, bryndza, oscypek) as well as non-food products.

More and more consumers value regional products made according to old, precisely defined recipes. The European system of protection of regional and traditional products has over 1,000 items in the register. The most comes from Italy and France. So far, 37 Polish products (meats, fruit, vegetables, bakery products, honey, cheese and oils) have been included on the list. The Protected Designation of Origin is given to a product that originates from a specific place, region, and its

name refers to the place where it is made and highlights the relationship with it. The quality or characteristics of the product are essentially or exclusively attributable to the specific geographical environment, which consists of natural and human factors. Polish products with this sign include: bryndza podhalańska, 'Piękny Jaś' beans from the Dunajec Valley, seaweed beans, zatorski carp, honey from the Sejny region, oscypek, Podkarpacki honeydew honey, redykołka, nadwiślanka cherry.

The Protected Geographical Indication also means products from a specific place. The difference with the PDO is that in the case of PGI, at least one production stage takes place in this area.

Polish products with this mark include: Kielkowska andruty, Lubliner onion, Ruthenian bread, Korczyńska beans, Grójec apples, Łącko apples, Poharianian lamb, Lisiecka sausage, Silesian potato flour, Drahim honey, Miód honey, heather honey from the Lower Silesian Forests, Cracow bagel, rogal świętomarciński, ser koryciński swojski, suska sechłońska, śliwka szydłowska, strawberry Kaszubska, Wielkopolska fried cheese. Positive verification by the European Commission is awaiting (until early December last year) krupniok.

Traditional Specialty Guaranteed is granted to products having a specific character, feature or set of features that clearly distinguish them from others, similar. The product must be made from traditional raw materials or have a traditional composition or production method for at least 30 years.

Polish products with this mark include: mead (półtorak, dwójniak, trójniak, czwórniak), kabanosy, juniper sausage, hunting sausage, oil oil (www.poradnikzdrowie.pl/zywienie/przydatne-w-kuchni/polskie-produkty-regionalne-and-traditional-protected-in-uelista_43453.html, 01/08/2018).

In Poland, 1661 traditional culinary products are currently produced in 16 provinces. According to the data published on the website of the Ministry of Agriculture and Rural Development, the most traditional products come from Podkarpacie (221) and then from the Lublin region (184) and Pomerania (177). Among these products, fruit and vegetables and fish and their preserves play the most important role in sustainable development. An important role is also played by various honeys, as well as dairy and meat products and products from cows, goats and sheep (www.minrol.gov.pl 8.01.2018).

SUMMARY

The concept of sustainable development understood as a harmonious cooperation of the economic, social and natural systems in order to achieve spatial, economic, social and ecological order is very important especially for sensitive and important for Europe rural areas. Nowadays, these are areas that due to their specificity and functions require not only from decision-makers, but also from their inhabitants to engage in raising the level and quality of life. They imply dynamic changes based on available natural capital, human capital, social capital, financial and production capital. The search for and creation of various activities, through multifunctional rural development (including regional or traditional products), may be one of the directions accelerating the process of development of entrepreneurial activities in rural areas. Regional products, not only food-related, play an important role in the sustainable development of rural areas. They constitute a chance of functioning on the market, especially in small farms, and are an interesting alternative or complementing or diversifying activities by other economic entities in rural areas.

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*Magdalena Jaworska*⁵

TRENDS IN THE LEVEL OF THE COMPONENTS OF THE ENVIRONMENTAL SUSTAINABLE DEVELOPMENT'S ORDER IN RURAL AREAS IN YEARS 2005-2015

Abstract: The aim of the elaboration is presenting the dynamics and the ways of changes in the level of the chosen environmental order's parameters in the context of implementation of sustainable development in the rural areas of Wielkopolska in the years 2005-2015. The research proceedings consisted of three stages: choosing the factors describing the thematic areas of the environmental order, analysis of the dynamics of particular components of the environmental order and constructing a ranking of the counties. The results of the research indicated that the largest development in implementing the sustainable development in the range of the chosen five components of the environmental sustainable development's order was made in the Koło county. The demanded direction and the rate of the changes characterized the Kępno, Złotów, Pleszew and Międzychód counties, however, none of those counties was the pioneer in reference to the studied factors. The analysis also enabled selecting the areas in which the actions related with the idea of sustainable development should be intensified. In the Gniezno, Gostyń, Czarnków-Trzcianka, Kalisz and Chodzież counties the unfavorable trends were observed.

Key words: sustainable development, environmental domain, rural area, Wielkopolskie voivodeship, dynamics

INTRODUCTION

The sustainable development in an interdisciplinary and complex approach which allows for a system solution of the problems from various areas and helps to provide a long-term and constant increase. The most relevant aspects of the sustainable development are: harmonization of the social-economic development with the natural environment, rational use of the environmental resources, lack of the actions leading to the irreversible changes in the environment, the necessity to self-limit of the units and societies, the increase and maintenance of the high quality of life (of the current and future generations), limiting the unfavorable influence of the human activity on the environment and on shaping the appropriate proportions between the ecological, social and economic dimensions (Roszkowska, Karwowska 2014). Those aspects result from two constitutive ideas of the sustainable development, which are the satisfaction of the basic needs and the limitation of the resources. The measurement of the progress in pursuit and achievement of sustainable development is the integral part of the EU Sustainable Development Strategy. In Poland there is lack of a separate country sustainable development strategy, however, in various strategic documents in the long-term perspective the social-economic aims and the directions of the actions according to the constant and sustainable development were determined (Dolata 2015), taking into consideration the social, economic and ecological cohesion, which became the basis for selection of the factors monitoring their implementation.

However, implementation of the idea of sustainable development is a complex process in practice (Abele, Gútpinter, Koenig, Kruska, Sum 2010). Its' prime element is the measurement of the actual condition and the ability to assess if it is characterized by the durability or not. In order to make such an assessment, the factors of sustainable development are used (Dobrzańska 2009). They constitute an information-diagnostic tool facilitating the assessment and managing the social,

⁵ *Katedra Ekonomii, Wydział Ekonomiczno-Społeczny, Uniwersytet Przyrodniczy w Poznaniu, ul. Wojska Polskiego 28, 60-637 Poznań, email: jaworska@up.poznan.pl*

economic and environmental spheres on the local, regional and national levels⁶. The factors of sustainable development are the signal informing about the current condition, they allow to measure the changes. In monitoring of the effectiveness of the undertaken actions, one factor should be especially important, namely the progress made by the regions in the process of striving for the determined aims or its' lack. Therefore, in determining the tendencies describing the direction of those changes (development) the trends, which additionally may indicate the distance devising the particular areas from the reaching the expected condition, turn out to be necessary. Observation of the factors and trends allows to react on the emerging problem situation before it gets stronger.

This assumption and the need to monitor the components of the sustainable development and the problems connected with that became the basic premises of this elaboration. Those issues take on special significance in reference to the rural areas which in Poland occupy over 93% of the country area and culminate various valuable natural public goods, fulfilling the basic environmental functions for the whole country (Dolata, Jaworska 2018). Thus, the aim of this research is to present the dynamics and the direction of the changes in the level of chosen parameters of the environmental order in the context of implementing the conception of the sustainable development in the rural areas of Wielkopolska in years 2005 – 2015.

The difficulties which in reality take place in the process of implementing the concept of sustainable development imply unceasing necessity to take actions contributing to the development of the education and practice in this range. In Polish literature the issues connected with the level of sustainability were presented m. al. by Poskrobko (2010, 2011, 2012), Borys (2002) and by Piontek (2002). The important elaboration on sustainable development with the central theme related to use and protection of the natural environment is the Burchard-Dziubińska, Rzeńca and Drzazga's monograph (2014). The issues connected with the environment's protection are also considered separately by other authors. The problems of participation in sustainable development which concern the rural areas were presented m. al. by Adamowicz (2000, 2006) and Stanny and Czarnecki (2010), Dolata (2015), and the regional recognition of the ratio analysis of the environmental order was used by Przybyłowski and Kałaska (2013) and Becla (2011).

According to M. Stanny, the methodology used to determine the level of sustainable development is still disappointing, and the concept of its' measurement are far from satisfactory (2011). The attempt to evaluate the level of the sustainable development was taken also by: Kusterka (2005), Roszkowska and Karwowska (2014) and Sokolowska and Filipowicz-Chomko (2015). Florczak reviewed the factors used in the record and monitoring of implementing the rules of the sustainable development, taking into account its' social-economic and ecological aspects, simultaneously approximating the practical problems connected with the measurement of the eco-development (2008). Furthermore, the economic aspects of the sustainable development were presented m. al. by Bal-Domańska and Wilk (2001).

OBJECTIVE, MATERIALS AND METHODOLOGY

In order to meet the objective, the empirical ex post analysis (2005-2015) of the value of the factors describing the environmental order was used, using the selected methods of the descriptive statistics dedicated to the analysis of the dynamics of the economic phenomena: one of the basic

indexes of the dynamics: $i_n = y_n / y_0$, where y_0 means the value in the base year, y_n means the

⁶ The factors of sustainable development, they take into account 7 key fields: (1) the climate changes and pure energy, (2) sustainable transport, (3) diversified consumption and production, (4) protection and management of the natural resources, (5) public health, (6) social integration, demography and migration, (7) challenges connected with the global poverty and sustainable development (The CSO factors of sustainable development). The current set of factors in the conception made by EU contains over 130 factors (Sustainable development in the European Union 2015).

value in the researched year, the chain dynamics indexes: $i_{n-1}^n = y_n/y_{n-1}$ allowing to evaluate the changes of the researched phenomenon between the highlighted periods (years) and the mid-term rate of changes (T), which enables evaluating the changes in the whole period covered by observation. It has been calculated using the geometric mean: $T = (\bar{y}_g - 1) \times 100$, gdzie

$$\bar{y}_g = \sqrt[n-1]{\prod_{i=2}^n \frac{y_i}{y_{i-1}}}.$$

The basic source of the data was the internet database shared by the Central Statistical Office in Warsaw – Local Data Bank (BDL, 2017). According to CSO classification the environmental order embraces the following thematic areas⁷: climate changes (3 factors), energy (4 factors), protection of air (4 factors), marine ecosystems (1 factor), freshwater resources (3 factors), land use (3 factors), biodiversity (2 factors), waste management (4 factors). However, in relation to the rural areas on the levels of communes (NTS5) in the BDL there is no particular statistical data essential to construct various factors, not only in the range of the environmental order, but also in the remaining orders.

The spatial range of the research embraced the rural areas of Wielkopolska (sum of the rural communes and the rural areas separated from the urban-rural communes).

The research proceedings consisted of three stages. In the first one, having made an overview of the components describing the thematic areas of the environmental order and taking into consideration the substantive and statistical reasons, five factors were chosen for the research, including two stimulants: woodiness (% of the forests in the general area) and the participation of the population using the services of the sewage treatment plant in the general population (in %) and three destimulants: water usage (in m³/person), mixed waste (in kg/ person) and electric energy usage (in kWh/person). The second stage of the research embraced the analysis of the dynamics of the particular components of the environmental order. The last, third stage was based on constructing a ranking of counties. In order to do this, an ordering of the counties according to the average change rate value of each of the factors was made, and then points from 1 to 31 were assigned to them, when founded that the largest amount of points concerns the most beneficial changes, meaning the lowest in the case of destimulants and the highest in the case of the stimulants.

RESULTS OF THE STUDY

Wielkopolska is located in the western part of Poland, occupying the area of 29826 km² (9,5% of the country's area), of which 94,9% are the areas located outside of the administrative borders of the cities (28305 km², which is 9,7% of the general rural areas in Poland)⁸. 3475 000 inhabitants live in this area (9% of the country's population). Wielkopolska consists of 35 counties (including 4 cities with county rights) and 226 communes (19 urban ones, 90 urban-rural ones, 117 rural ones). The number of the people in the rural areas is 1568 thousands, which is 45,1% of the general inhabitants and 10,3% of the rural areas' inhabitants in Poland. Compared to the 2005, the population status of the rural communes and part of the urban-rural communes of the voivodship increased by 8,4% (in comparison to population increase in Wielkopolska by 3,1%). The differential industry, agriculture, well developed services and still expanded infrastructure create favorable conditions for the Wielkopolska voivodship's development. Thanks to that, it has the dominant significance on the economic map of Poland. The region potential's further development, according to the adopted Development Strategy for the Wielkopolska Region is to be based on m.

⁷ The actual factor are divided according to four orders: the social order, economic order, environmental order and institutional-political order. Each of orders embraces the areas to which appropriate factors were ascribed (BDL, CSO 2017).

⁸ CSO: condition for the year 2015.

al. improvement of the environmental condition and rational management of the natural resources (Environmental protection program for Wielkopolska region 2012). It is consistent with the actions aiming implementation of the rules of the sustainable development.

The landscape of Wielkopolska is dominated by extensive, flat tracts of fields and large forest complexes (Environmental protection program for Wielkopolska Region 2012), however, their arrangement is quite uneven. In 2015 the woodiness rate shaped on the level of 25,7%, wherein in the relations to the rural areas it was higher and it was 26,3%. Compared to the 2005, the woodiness of the rural areas increased barely by 0,29 of the percentage point. Despite the fact that the analysis of the value of this factor in particular years indicated the expected changes' direction, the rate of those changes was relatively low. The annual average rate of the increase in Wielkopolska amounted to 100,11 compared to 100,24 for the general Poland rural areas (Tab.1). The highest values were noticed in the Koło county (100,48). In case of six counties the relative increments of the rate was characterized by the falling trend. Such situation demands mindfulness at least for two reasons. Firstly, in order to reach the woodiness rate 30% in 2020 according to the adopted strategy of Energy Security and the Environment, such rate of the increase is too slow (Directions of development of the rural areas 2010)⁹. Secondly, the forests are the integral element of the natural environment, they have a beneficial effect on shaping the climate, water balance, preservation of the biological potential of the species, they counteract the soil erosion processes. They play an important production and social functions (Factors of Poland sustainable development 2011).

The functioning of so-called sustainable landscape is also connected with appropriate water resources management. Water plays a special role in the processes which take place in the ecosystems, constituting indispensable for their functioning abiotic environment element. It is a very precious, specific, renewable raw material and simultaneously it is scarce, without any substitute, and its' resources are subject to season and annual fluctuations. Water plays various roles in the economic activity, thus, it is important to use it rationally and economically (The factor of green economy in Poland 2017), which is determined mainly by the production intensiveness and the level and patterns of individual consumption. As a result of the increasing investment expenditures favorable to the water economy, the water consumption for needs of the national economy and population per one person in the years 2005-2015 systematically decreased, both for Poland and for the voivodship. In case of the rural areas, a reverse trend has been observed. The average annual rate of the changes amounted respectively 102,45 and 100,31 (Tab.1). The exploitation of the water resources has been developing in undesirable direction, and however it might be explained mainly by increasing industry demand and watering the agricultural and forest lands, it demands special observation. The most important relative increase took place in the following counties: Czarnków-Trzcianka county (107,91) and Chodzież county (105,91), and the lowest the lowest in Wągrowiec county (97,82) and Nowy Tomyśl county (97,14). Ultimately, the unit factor of the water consumption in the voivodship in 2015 reached the level of 107,3m³/person.

One of the easily recognizable issues of the country is unregulated matter of the water and sewage management and the waste management, what results in visible, large environment pollution. Thus, the important action in the matter of sustainable development is the protection of the water resources from degradation and pollution caused by the sewage. Although the amount and the quality of water (in relation to surface and underground waters) for the voivodship's economy is disappointing, they are expected to improve due to the actions taken for pollution limitation, m. al. from the agricultural sources and the improvement of the sanitation state of the rural areas. The evaluation of the progress in this range, where the factor showing the percentage of population

⁹ The increase of the forest areas also allows to realize other important mission which is fight against water and wind erosion (The factors of Poland's sustainable development 2015).

using the sewage treatment plant was useful, is positive. In 2015 it reached 44,3%, increasing each year by 6,67% (Tab.1).

Table 1. The dynamics of selected factors of the environmental order of the rural areas in years 2005-2015 (average annual rate of changes)

Specification	Forest cover	Mixed waste collected	Consumption of water	Beneficiary of sewage treatment plants	Consumption electric energy
POLSKA	100,24	104,23	102,45	106,86	101,17
WIELKOPOLSKIE	100,11	105,74	100,31	106,67	100,57
chodzieski	99,96	113,75	105,91	106,05	101,15
czarnkowsko-trzcianecki	100,09	112,17	107,91	105,43	100,70
gnieźniński	99,99	104,71	100,68	104,12	100,56
gostyński	99,94	106,37	102,11	108,49	100,81
grodziski	100,00	104,40	103,76	102,83	99,73
jarociński	100,22	109,78	101,85	105,18	100,02
kałiski	100,06	110,96	100,92	105,10	101,23
kępiński	100,16	106,07	99,54	110,27	100,22
kolski	100,48	101,49	97,69	104,79	96,98
koniński	100,31	108,57	101,27	105,18	100,13
kościański	100,03	104,31	101,52	106,05	100,46
krotoszyński	100,04	117,46	98,79	106,41	99,72
leszczyński	99,98	105,56	100,83	113,20	100,56
międzychodzki	100,07	102,35	101,25	109,74	100,46
nowotomyski	100,05	111,12	94,28	109,61	100,93
obornicki	100,06	112,00	104,44	116,51	100,68
ostrowski	100,09	110,92	96,84	108,30	101,68
ostrzeszowski	100,06	114,06	99,60	107,58	100,06
pilski	100,19	100,65	103,37	104,75	101,04
pleszewski	100,32	103,87	100,86	107,47	100,60
poznański	100,10	102,52	100,62	104,73	100,81
rawicki	99,96	116,85	99,19	116,07	99,97
ślupecki	100,15	101,18	102,31	101,77	100,07
szamotulski	100,07	107,33	99,17	105,86	100,34
średzki	99,98	102,21	99,54	105,71	100,73
śremski	100,00	115,76	94,95	107,08	100,88
turecki	100,17	110,33	99,02	102,41	101,17
wągrowiecki	100,16	103,05	96,97	103,91	100,40
wolsztyński	100,02	102,93	101,05	110,41	100,10
wrzesiński	100,02	101,17	100,17	110,74	101,13
złotowski	100,26	102,91	99,89	106,25	100,53

Source: calculations and the author's study based on Local Data Bank CSO, 2017.

Simultaneously it should be emphasized that the trend showing the system transformations of wastewater treatment was growing in all of the researched subareas, and the situation is the most preferable in the following counties: Leszno county (121, 22) and Oborniki county (127,59). Undoubtedly, it is the effect of development of the sewage collection and treatment systems. It embraced the exploitation of new sewage treatment plants, development of water supply and sewage network and also exclusion of the outdated and inefficient objects from use, modernization of the existing treatment plants and investing in equipment reducing the pollution load in the

sewage. Moreover, The amount of biological sewage treatment plants and of the treatment plants with increased biogen removal has grown¹⁰.

When evaluating the level of environmental order of sustainable development, the municipal waste and their limitation are very significant. The value of the factor showing the amount of produced waste in kilograms per one person annually in the rural areas generally increased both in Poland and in the Wielkopolska voivodship – annual average respectively: 4,23% and 5,74% (Tab.1). It is a negative phenomenon, however, simultaneously it is inevitable. The perfect condition would be the limitation of waste amount by half, compared to the current state, which in 2015 was 142,3 and 195,4 kg. The increasing consumerism, combined with inefficient solution of the waste management leads to constant increase of the described factor (The factors of the green economy in Poland 2017). Additionally, the analysis of the phenomenon dynamics in the cross-section of the counties indicated its' diversity: from 100,65 in the Piła county and 101,17 in the Września county to 115,76 in Ostrzeszów county and 116,85 in the Rawicz county. Therefore, the values of the factors indicated that in each of the studied subarea the amount of the collected mixed waste successively increased. In the light of such unfavorable processes in waste management, the special attention should be paid to the actions minimizing waste generation and maximizing their management, and to limitation to the necessary minimum the waste storage in the environment. Noteworthy is the fact that the dynamics of the consumption increase in the household sector was higher in the studied years from the dynamics of the waste amount increase (The factors of the green economy in Poland 2017). From the presented situation a conclusion is coming, that the taken actions conducive to implementation of the sustainable development in the Wielkopolska voivodship are concentrated on decreasing waste production through propagation of appropriate consumption patterns and the ecological awareness development of the society, must be continued with no less intensity (The environment protection program of the Wielkopolska voivodship 2012).

The irrational energy use in the production processes and in the households also leads to issues with environment pollution (through the greenhouse gases emission). Combined with the increasing request for energy, it becomes a cause of the energetic resources depletion (The factors of green economy in Poland 2017). Simultaneously, it should be emphasized that in the last few years in Poland the primary energy share, whose carrier primarily is the coal and lignite, and the increase of energy consumption itself was lower than the development rate of GDP, which indicates relative break of dependence between the economic growth and the energy consumption (The factors of green economy in Poland 2017). The values of the diagnostic variable may constitute a confirmation that in the rural areas in particular counties the actions aiming limitation of the electric consumption are concentrated in an inefficient way. In 2005 in the rural areas it amounted to 727,9 kWh per capita and having been characterized by average annual changes rate amounting 100,57 it stood at 770,5 kWh in 2015 (Tab.1). The majority of the voivodships is characterized by undesirable direction of changes, and only in the following counties: Grodzisk county, Koło county, Krotoszyn county and Rawicz county a negative trend in the range of the level of the researched component was noticed (the average annual changes rate shaped at a level below 100). The observed tendencies are the succession of the growing durable goods consumption, thus, the actions aiming the progress of the energetic efficiency and increase of participation of energy coming from the renewable sources in the energy carries structure is very significant. Wielkopolska is a region characterized by favorable conditions for development of the power engineering coming from the renewable sources, the majority of the Wielkopolska counties has potential possibilities for the practical energy engineering use from at least two sources: the wind energy or the sun energy or the energy from

¹⁰ Despite the changes on the rural areas the target value of the factor determined for the year 2020 in „The Strategy Energetic Safety and Environment” has not been reached yet (The factors of Poland’s sustainable development 2015).

the wastewater management, where they adopted the demanded direction, and also the forest management in the Czarnków-Trzcianka and Kalisz counties. The observed undesirable tendencies in the dynamics of the indicators describing the environmental order pay special attention to the urgent issues, which should be solved as soon as possible in order to minimize their negative influence on the environment in the future.

SUMMARY

The conception of sustainable development in the rural areas is a difficult idea to realize in the current economic and social conditions. Passing from the declared ecological values to specific practical actions constitutes a huge challenge, which demands long time perspective. The analysis of the progress in the process of implementation of the sustainable development, through presenting the dynamics and direction of changes in the level of selected parameters of the environmental order in the rural areas of Wielkopolska in the cross-section of years 2005-2015, allowed to formulate the following conclusions and generalizations:

1. The analysis of the woodiness factor in particular years of the researched period indicated demanded direction of changes, however, the rate of those changes was relatively low. The highest values of the average annual rate of changes were noticed in the Koło county. In case of six counties the relative increase of the factor was characterized by the falling trend.
2. The exploitation of the water resources has been developing in the undesirable direction, and although it should be explained by the increasing industry demand and watering the agriculture and forest grounds, it demands special observation. The highest relative increases took place in the following counties: Czarnków-Trzcianka county and Chodzież county, and the lowest in the Wągrowiec county and Nowy Tomyśl county.
3. The evaluation of progress in the range of the wastewater management, where the factor showing the percentage of population using the sewage treatment plants was useful, is positive. The trends showing transformations of the wastewater treatment system was increasing in all researched counties, and the most preferable condition is in the following counties: Leszno county and Oborniki county.
4. The values of the factor showing the amount of collected mixed waste gradually increased in each of the studied counties. Taking into consideration such unfavorable tendency, the actions minimizing their creation, maximizing their management and limiting their storage to the necessary minimum should be paid more attention.
5. The majority of the voivodships is characterized by undesirable direction of changes in the level of electric Energy consumption. Only in the following counties: Grodzisk county, Koło county, Krotoszyn county and Rawicz county the falling trend was noticed in the range of the researched component. The observed tendencies confirm the significance of actions aiming improvement of the energetic efficiency and increase the share of energy gained from the renewable sources in the energy carriers structure.

The empirical analysis of created ranking of counties indicated that the largest progress in implementing the sustainable development in the range of selected five components of the environmental order's sustainable development in years 2005-2015 was done in the Koło county area. In the first five there were also: Kępno county, Złotów county, Pleszew county and Międzychód county, however, none of them was not a pioneer in reference to the researched factors. The analysis of the amount of gained points in particular components clearly identified the areas in case of which the action connected with realization of sustainable development idea should be intensified. In the following counties: Gniezno county, Gostyń county, Czarnków-Trzcianka county, Kalisz county and Chodzież county, placed in the last places, the changes which are not favorable to implementation of sustainable development conception in the range of environmental order were noticed.

In the end, it should be emphasized that only the range and character of the changes in view of selected components of the environmental dimension are presented in the elaboration, and the gained results are only one of the elements of the comprehensive research embracing the sustainable development in the rural areas of the voivodship.

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*Hanna Klikocka*¹¹, *Oskar Klikocki*¹²

ANALYSIS OF FOOD SECURITY IN POLAND IN RELATION TO SUSTAINABLE DEVELOPMENT OF AGRICULTURAL PRODUCTION

Abstract: The objective of the article is to define food security and the means of measuring it and to analyze the state of agricultural production and food self-sufficiency in Poland. The country currently ranks 60th in the world and fifth in the European Union in agricultural land area.

The balance of trade in agri-food products in 2010-2014 was negative, i.e. imports dominated over exports, despite a considerable surplus in the production of commodities such as milk, poultry meat, beef, vegetables and fruits (particularly apples). Pork production was insufficient; Poland imported in order to meet demand. In 2015, Poland has achieved a positive balance of foreign trade. Nevertheless, in 2010-2015 Poland was predominantly food self-sufficient, as evidenced by the volume of production and consumption of certain agricultural products. Economic access to food, defined as the proportion of expenditures for food and non-alcoholic drinks in total consumer spending, remained stable. There are, however, population groups in Poland which are unable to afford a meal with red meat, poultry or fish every other day. This deprivation in Polish households affected on average 17.7% to 6.75% of families in the years 2008-2016.

Keywords: sustainable development, agricultural production, supply, food security, food safety

INTRODUCTION

Hunger and undernourishment have accompanied humankind throughout human history and are currently one of the greatest dangers facing humanity. The danger of this phenomenon has political, economic and humanitarian aspects. Hence food security remains a major challenge for agriculture in the European Union. According to Food and Agriculture Organization the demand for food will double by 2050 (FAO Rome 1996, 2002, 2003). This in conjunction with the worsening water shortage already observed in over 30 countries worldwide and climate change, which is already affecting EU countries and will have particularly severe consequences in tropical and subtropical countries already struggling with the problem of food, will pose a serious challenge for agricultural production, which ensures food security for the entire globe. According to Maslow's hierarchy of needs theory; only when basic physiological needs such as adequate food are met can needs of a higher order appear. Food security is currently one of the most important global challenges of the modern world, and should be examined not only on the scale of an entire country but also at the level of the family, as the basic unit of society (Michna 1988, Mięka 2012).

The aim of the article is to analyze the level of agricultural production in Poland in 2010-2015 in terms of ensuring adequate access to agricultural products for its people. Food self-sufficiency and economic access to food were assessed in the study. The level of food self-sufficiency was determined by analyzing the production and consumption volume of selected agricultural raw materials and products and calculating the balance of trade in agri-food products. Moreover, the issue of food safety is described in terms of the law and food self-sufficiency is defined. The means of measuring the Global Food Security Index is presented as well

¹¹University of Life Sciences in Lublin, Department of Economics and Agribusiness, 20-950 Lublin, Akademicka 13, Poland, e-mail: hanna.klikocka@up.lublin.pl

¹² War Studies University, Faculty of National Security, 00-910 Warszawa-Rembertów, Al. gen. A. Chruściela „Montera” 103, Poland

(<http://foodsecurityindex.eiu.com>). The main sources of data were reports published by the European Statistical Office (Eurostat) and the Central Statistical Office of Poland (GUS).

THE CONCEPT OF FOOD SECURITY

Food security is a complex and multifaceted problem currently facing the world and European countries, it includes food self-sufficiency, economic access to food, and food safety (Baranowska-Skimina 2012, Grębowiec 2012). The term “food security” appeared among concepts of food policy in the early 1970s; its negation is food insecurity. Previously the concept had been used by military staff in operations or in reference to the economic and political dependence of countries unable to produce adequate amounts of food (Michna 1988). Currently, food security refers to the ability to ensure self-sufficiency in supplying food products (Mikuła 2012).

An official definition of food security was first formulated at the World Food Conference in Rome in 1974. According to this definition, food security is the “availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices”, i.e. economic access to food at the individual, household, regional and national level (FAO 1996, 2002, 2003, Mikuła 2012). In the 1990s the concept of food security was expanded to cover food safety, the nutritional value of food, and food preferences influenced by social and cultural factors. Food security in Poland is written into its national security strategy. It is defined as the situation in which every household has factual access to the food needed for all persons and is not at risk of losing this access (MRiRW 2008).

The literature names three aspects of food security: availability, access, and adequacy. Availability means having a sufficient amount of food for the entire population at all times to sustain human life; access means that the supply of food is not restricted, and adequacy is understood as a nutritionally balanced food ration free of pathogens and toxins (Małyśz 2009, Leśkiewicz 2012).

The concept of “*food safety*” in legal language refers to the characteristics of a food product which ensure that it will have no harmful effects on the health of the consumer (the quality aspect), while “*food security*” refers to the aspect of quantity. In legal language, food security can be defined as a certain optimal state recognized by the legislature which should be achieved according to the relevant provisions of international, EU and national law (Leśkiewicz 2012, Krajewski 2014).

At the EU level, food security is defined by the objectives of the Common Agricultural Policy. In the international realm, food security is associated with the human right to food and the ability to provide it. The phenomenon of the impossibility of providing food is known even to the world’s most developed countries, and measures to combat it are taken in both the European Union and in the United Nations. Food safety, according to the Polish legislature, refers to the “conditions that must be met (...) and the actions that must be taken at all stages of production or marketing of food to ensure human health and life” (Dz.U. (Journal of Laws) 2010.21.105). The European Union has developed its own food safety system based on a Rapid Alert System, through the European Food Safety Authority with national checkpoints.

Food security is most often measured on the basis of the trade balance in agri-food products (Hałasiewicz 2011). We may also speak of global food self-sufficiency, which depends not only on the level of agricultural production and freedom of trade, but also on the development of processing and distribution. Currently there is enough food produced in the world to feed its entire population, while the undernourishment occurring in many parts of the world is primarily due to imperfect distribution and poor political and institutional solutions (Skrzypczyńska 2011).

FOOD SECURITY IN INTERNATIONAL LAW

The right food is part of the human right to life, nourishment and human dignity; a lack of food often involves humiliation and a poor psychological and physical condition. According to the Universal Declaration of Human Rights adopted by the United Nations on 10 December 1948 (art.

3), "Everyone has the right to life, liberty and security of person." Furthermore, art. 25 par. 1 of the Declaration states that "Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control" (UNESCO). Issues associated with the right to food were also covered by the International Covenant on Economic, Social and Cultural Rights of 19 December 1966 (<http://www.IRINNEWS.org>). The issue of food safety in EU countries is discussed in a White Paper of the European Commission from 2000. It proposes a strategy for ensuring a high level of food safety, specifying about 80 measures, including legislation.

In the European Union food security issues are dealt with by the Treaty of Rome (now the Treaty of Lisbon, OJ 2007/C 306/01), which in art. 39 defines the objectives of the Common Agricultural Policy, which include ensuring security of supply and reasonable prices to the consumer.

The problem of food security is taken up again in CAP reform 2014-2020 (Chądzyński 2012). According to the provisions of CAP 2014-2020, the challenge during this period will be to solve problems related to food, natural resources and territorial challenges.

Food safety is one of the priorities of the EU food security system, including the Rapid Alert System for Food (Leśkiewicz 2012). The proper functioning of the system is to be ensured by institutions and government bodies set up to this end at the EU level and in the individual member states. The system also defines the appropriate operating procedures in crisis situations. The rules governing the production and distribution of food, as well as control and monitoring procedures, cover nearly every aspect of this area. It seems, therefore, that in the realm of regulations an exhaustive level has been attained.

MEASURING FOOD SECURITY

Taking into account the nature of food security, the Economist Intelligence Unit (EIU), sponsored by DuPont, developed the Global Food Security Index in 2012, in order to investigate the affordability, availability, safety and quality of food in 109 countries (currently 113), based on analysis of 28 factors, using data from the UN, IMF, FAO, World Health Organization and World Bank. An important category in this index is affordability, i.e. the ability of consumers to purchase food products. Calculation of affordability takes into account several factors, including the share of food consumption in household expenses, the percentage of the population below the global poverty line, per capita GDP, and access to financing for farmers. The next indicator is availability, which is calculated on the basis of factors such as the sufficiency of food supply, the level of political stability, the stability of agricultural production, and the level of food loss. The third indicator is food quality and safety, which includes diversification of the diet, food standards, the availability of micronutrients, and protein quality (Kraciuk 2016). According to the current estimation of the Global Food Security Index, Poland ranked 27th among 113 monitored countries in 2017 (<http://foodsecurityindex.eiu.com>). Its overall score was 72.1 of a possible 100, indicating a slight downward trend with respect to the previous year (74.2). This means that Poland is among the countries with the best results in the world. Among European countries, Poland is 17th, just below the Czech Republic and above Greece (<http://foodsecurityindex.eiu.com>).

RESEARCH RESULTS

1. AGRICULTURAL PRODUCTION

In terms of arable land area Poland currently ranks 57th (2010) and 60th (2015) in the world and 5th in the European Union. Poland has the sixth largest population in the EU, but is first in employment in the agricultural sector. In terms of the scale of agricultural production, it is at the forefront of countries in the world and in the European Union, especially in production of rye, oats,

potatoes, sugar beet, rapeseed and apples. In addition, Poland is a major producer of meat and milk (table 1).

Farmland in Poland covers nearly 15 million hectares (table 2). The largest portion of agricultural land is occupied by cereals, including wheat and rye, which are strategic plants for food security. There is also a significant share of vegetable crops and especially of fruit, including apples, of which Poland is the largest producer in the European Union. The state of livestock production is also good, with relatively large populations of cattle and poultry (table 2).

Table 1. Polish participation in the Agriculture of the World and in the EU (2010 and 2015)

Description	The World				EU			
	Share Polish (%)		Polish place		Share Polish (%)		Polish place	
	2010	2015	2010	2015	2010 UE-28	2015 UE-28	2010 UE-28	2015 UE-28
The surface	0.2	0.2	69	69	7.1	7.2	5	5
Agricultural area	0.3	0.3	57	60	7.7	7.7	5	5
The population	0.6	0.5	34	34	7.7	7.7	6	6
in this agricultural	0.2	0.2	48	49	27.4	28.1	1	1
Production:								
Wheat	1.4	1.6	16	14	6.9	7.4	4	4
Rye	23.9	18.3	2	3	38.7	31.4	2	2
Barley	2.9	2.3	12	12	6.6	5.4	5	6
Oats	6.8	6.4	4	3	18.1	18.5	1	1
Potato	2.5	1.9	7	9	15.3	13.1	2	3
Sugar beet	4.4	5.0	7	7	9.5	10.5	3	3
Raps	3.7	4.6	7	7	10.8	13.5	4	3
Apples	2.7	3.8	5	4	17.4	26.3	2	1
Meat	1.2	1.2	15	15	8.0	8.6	5	5
Milk	2.0	2.0	12	12	8.3	8.3	4	4
Number of cattle	0.4	0.4	45	43	6.4	6.6	7	7
Number of pigs	1.6	1.2	9	15	9.7	7.9	3	6

Source: Year of elaboration based on (Statistical Yearbooks of Agriculture. Section III. Review International, with subsequent years 2016e and 2017).

Analysis of trends in 2010-2015 shows a steady decrease in the area of sown crops, and from 2014 a decrease in fruit plantations as well. This is not a cause for serious concern, as it is not indicative of a threat to food security in terms of production of cereals, vegetables and fruits. As regards the livestock population in 2010-2014, we can see a diminishing decline in the size of the pig population, followed by a slight increase in 2015. This can be considered a favorable phenomenon, as pork accounts for the largest portion of meat consumption among Polish people (table 3). The decline in pork production in 2010-2013 was strongly influenced by very high production costs and the very low purchase price of livestock (table 2).

Consumption of cereal grains (processed grain) in Poland was 108 kg per person in 2010-2013, and this value remained constant. In 2014 and 2015 grain consumption decreased by 2 and by a next 3 kg per person. Similar trends were noted in consumption of potatoes, vegetables and fruit. Consumption of milk and poultry increased steadily, while that of pork and beef decreased. This is reflected in the consumption expressed in kcal, which decreased every year over the period analyzed. As shown in table 3, the energy value of daily food consumption by Poles in 2013 was 2,187 kcal, while in 2014 and 2015 it improved slightly, as the caloric value consumed per day increased to 2,280 and 2 217 kcal. In the case of certain age groups and groups of working people

this value was very low, possibly indicating undernourishment among Poles, as research by FAO indicates an average daily energy requirement of 2,350 kcal/person (Kwasek 2012).

Table 2. Area shown (in thous. ha) and the number of animals (in thous. phys. PCs.) in Poland in the years 2010-2015

Description	The size of the marketing year					
	2010	2011	2012	2013	2014	2015
<i>Plant production (in thous. ha)</i>						
Agricultural land	14 859.7	15 133.9	14 969.2	14 609.2	14 558.4	14543.3
Cereals	8 583	7 597	7 803	7 704	7 479	7 485
Potato	508	375	393	359	337	267
Vegetables	206	159	179	175	142	163
Fruit	404	410	421	427	420	381
<i>Herd of livestock (in thous. phys. PCs.)</i>						
Cattle	5 700	5 742	5 762	5 777	5 860	5 920
Including milk cows	2 688	2 646	2 626	2 578	2 530	2 479
Pigs	14 279	15 244	13 509	11 581	11 162	11 724
Poultry	126 744	142 460	152 213	125 424	129 122	133 087

Source: elaboration based on (Statistical Yearbooks of the Republic of Poland. Section XVI. Agriculture, with subsequent years 2015a and 2016a).

Table 3. The consumption (kg) of certain foodstuffs per capita in Poland in the years 2010-2015

Description	The size of the marketing year					
	2010	2011	2012	2013	2014	2015
<i>(kg)</i>						
4 grain cereals (products)	108	108	108	108	106	103
Potato	110	111	111	102	101	100
Vegetables	106	104	103	102	104	100
Fruit	44	42	46	46	47	53
Milk	189	194	193	206	205	213
Pork meat	42.2	42.5	39.2	35.5	69.5	70.9
Beef	2.4	2.1	1.6	1.5		
Poultry meat	24.6	25.0	26.1	26.5		
Intake of kcal	2 340	2 279	2 287	2 187	2 280	2 217

Source: elaboration based on (Production and foreign trade in agricultural products. Information and statistical of GUS, with subsequent years 2015b and 2016d)

Table 4 shows that Poland has not been and is not a surplus country in food production every year and for all types of agricultural products. In the 2010/2011 marketing year there was a deficit of demand for grain amounting to 91,000 metric tons. This can be explained by the fact that the cereal market is characterized by high fluctuations in supply, depending on weather conditions. The cereal supply and demand balance also depends to a large extent on changes in the demand for feed, which depends in turn on the situation in animal production. In 2011/2012 there was a potato deficit, which at 240,000 metric tons was relatively high.

Table 4. Domestic production and consumption of selected agricultural products for the period 2010-2015 (1000 tonnes)

Description	The size of the marketing year					
	2009 /2010	2010 /2011	2011 /2012	2012 /2013	2013 /2014	2014 /2015
<i>Basic cereals (wheat, barley, rye, oats) (1000 tonnes)</i>						
Production	28 020	25 088	24 255	24 413	24 262	27 325
National consumption	25 318	25 179	25 340	23 922	22 720	21 952
Surplus/deficit	2 702	-91	1 085	491	1 542	5 373
<i>Potatoes (1000 tonnes)</i>						
Production	9 703	8 448	9 362	9 041	7 290	7 690
National consumption	9 605	8 313	9 602	8 535	6 908	7 364
Surplus/deficit	98	135	-240	506	382	326
<i>Vegetables (1000 tonnes)</i>						
Production	5 601	4 878	5 575	5 430	4986	5 607
National consumption	5 183	4 575	5 092	5 057	4 809	5 144
Surplus/deficit	418	303	483	373	177	463
<i>Fruit (1000 tonnes)</i>						
Production	3 646	2 744	3 415	3 843	4 128	4 189
National consumption	3 642	3 245	3 406	3 341	3 696	3 953
Surplus/deficit	4	-501	9	502	432	236
<i>Milk (million l)</i>						
Production	11 921	12 052	12 299	12 348	12 607	12 859
National consumption	10 133	10 166	10 198	10 941	10 881	11 045
Surplus/deficit	1 788	1 886	2 101	1 407	1 726	1 814
<i>Meat in chilled weight (1000 tonnes)</i>						
Production	3 327	3 400	3 455	3 484	3 830	4 088
National consumption	2 690	2 698	2 591	2 458	2 675	2 724
Surplus/deficyt	637	702	864	1 026	1 155	1 364
<i>Beef in cold weight (1000 tonnes)</i>						
Production	373	361	350	341	397	441
National consumption	91	81	60	57	61	46
Surplus/deficyt	282	280	290	284	336	395
<i>Pork in cold weight (1000 tonnes)</i>						
Production	1 516	1 544	1 463	1 415	1492	1581
National consumption	1 626	1 636	1 511	1 367	1 504	1591
Surplus/deficyt	-110	-92	-48	48	-12	-10
<i>Poultry meat in cold weight (1000 tonnes)</i>						
Production	1 386	1 445	1 591	1 677	1 894	2 021
National consumption	948	962	1 004	1 020	1 084	1 043
Surplus/deficyt	438	483	587	657	810	978

Source: elaboration based on (Production and foreign trade in agricultural products. Information and statistical of GUS, with subsequent years 2015b and 2016d)

This is a cause for concern, as Poland has been and remains a leader in potato production in the EU and on a global scale. This is because most soils in Poland are conducive to the cultivation of potatoes, while other intensive crops can be unreliable. It should be noted, however, that in the 2013-2015 the balance in the production of potatoes was highly favorable. In 2010-2011 there was a deficit in fruit production. Not until 2013-2015 did production significantly surpass the demand for

the fruit. Vegetable production in the years analyzed substantially exceeded domestic demand, but the surplus in 2014 was much smaller - nearly 50% lower than in 2009-2013.

Production of milk, beef and poultry meat in Poland in 2010-2015 significantly surpassed domestic consumption. Pork production, however, did not cover the demand for it, which was linked to the reduction in the pig population. Only in 2013 did production meet the Polish population's demand for pork, but this was mainly due to a decrease in pork consumption in favor of milk and poultry meat. In the final year analyzed, 2015, domestic production of pork also failed to meet demand, so this situation is a cause for concern.

To measure foreign trade in food products, GUS (2015b and 2016d) takes into account four categories: processed food, live animals and animal products, vegetable products, and fats and oils. The data in table 5 show that in 2010-2014 the value of both exports and imports of agri-food products increased. However, during this period the foreign trade balance in agri-food products was negative. This was the result of a negative fat and oil balance in each year (2010-2014), and also a negative balance in vegetable products in 2010-2012 (GUS 2015a). These figures can be considered disadvantageous in terms of ensuring food self-sufficiency in Poland. In 2013-2014 the negative trade balance was nearly four times lower than in 2010-2011, which should be regarded as highly favorable for Poland, as the country has good natural conditions for agricultural production and is able to produce quantities of food and fodder surpassing its own needs. This also means that a portion of its products can be allocated for export, which may contribute to the purchase of other food products or industrial technologies from other parts of the world, e.g. tea, coffee or feed additives, thereby significantly diversifying food consumption. In 2015, Poland has achieved a positive balance of foreign trade (table 5).

Table 5. Foreign trade of agricultural and consumption products on background of foreign trade turnover in Poland in the years 2010-2015 (current process, million Euro)

Description	2010	2011	2012	2013	2014	2015
Import	134 055	155 843	162 032	164 024	176 141	185 168
Export	120 264	139 685	150 855	161 970	173 368	187 710
The balance	-13 791	-16 159	-11 177	-2 055	-2 774	2 466

Source: elaboration based on (Statistical Yearbooks of Agriculture).

Section II. Food industry. Foreign trade, with subsequent years 2015a and 2016d) (1 Euro = 4 PLN)

2. ECONOMIC ACCESS TO FOOD IN POLAND

The next condition of food security is economic access to food. Table 6 presents the price indices of consumer goods and services and food in Poland in 2010-2015, as well as the percentage of expenditures for food and non-alcoholic beverages in total household spending. In nearly all years analyzed the prices of food and non-alcoholic beverages decreased at a faster rate than total housing costs or the price of energy carriers. The percentage of food expenditures in total household expenditures in 2010-2015 was nearly constant, ranging from 24.6% (2010) to 24.9% in 2011-2013 and decreasing slightly to 24.4% in 2014 and to 24.0% in 2015.

The Central Statistical Office defines three economic poverty lines: (1) the extreme poverty line, (2) the statutory poverty line, and (3) the relative poverty line (Gulbicka et al. 2015). Table 7 presents the percentage of individuals in households below the relative poverty line, i.e., in which expenditures were less than 50% of mean expenditures for all households (based on the results of a household budget survey).

Table 6. Price indices of consumer goods and services, the consumption of individual food and non-alcoholic beverages, and the share of spending on food and non-alcoholic drinks in the general consumption expenditure of households in the years 2010-2015

The type of the pointer	The size of the year					
	2010	2011	2012	2013	2014	2015
Consumer goods and services price index (previous year = 100)	102.6	104.3	103.7	100.9	100.0	99.0
Individual consumption of food and non-alcoholic beverages (previous year = 100)	103.3	103.6	103.0	100.3	100.0	99.8
The share of expenditure on food and non-alcoholic drinks in the general consumption expenditure of households (%)	24.6	24.9	24.9	24.9	24.4	24.0

Source: elaboration based on (Sowiak 2015, *Annual macroeconomic indicators of consumer prices of goods and services since 1950*; *Macroeconomic indicators GUS 2016b*)

Analysis of the data indicates that the poverty level in Poland in 2010-2015 was fairly stable, averaging over 17%. Both men and women were affected. It may be noted here that in 2015 the poverty rate among women declined more with respect to 2010-2014 than among men. Overall, however, the results of the analysis indicate that nearly every fifth person in Poland may have limited access to food. As the price of food increases it becomes less accessible, especially for families with the lowest incomes. This is confirmed by analysis of the material deprivation rate as regards households that can afford a meal with red meat, poultry or fish every other day (figure 1).

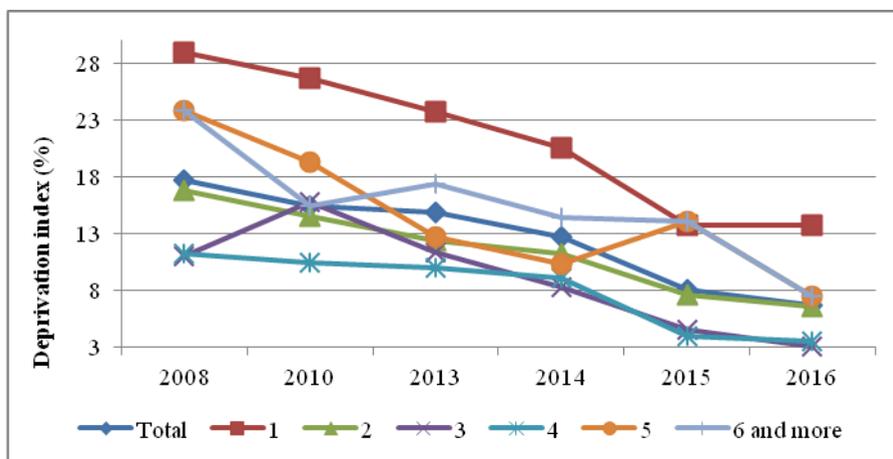
Table 7. Polish population (million) and the at-risk-of-relative poverty rate (%) after social transfers in Poland (total and by gender) in the years 2010-2015

Description	Years					
	2010	2011	2012	2013	2014	2015
<i>The population (in thous.)</i>						
Men	18 653	18 655	18 649	18 630	18 620	18 598
Women	18 655	19 884	19 884	19 884	19 859	19 839
Total	38 530	38 538	38 533	38 496	38 484	38 437
<i>The size of the pointer in a year (%)</i>						
Men	17.4	17.8	17.1	17.3	17.2	18.1
Women	17.7	17.6	17.1	17.3	16.8	17.2
Total	17.6	17.7	17.1	17.3	17.0	17.6

Source: elaboration based on (*Macroeconomic indicators, GUS 2016b*; *Economic poverty in Poland, GUS 2015c*; *The Demographic Yearbook, GUS 2016c*)

Polish households in 2008, 2015 and 2016 this need was unmet in 17.7%, 8.1% and 6.7% of families. A complete nutritious meal was more frequently unaffordable to individuals living alone or in households with more than six people. Single-person households were likely elderly individuals or people living on pensions. Households with three or four children were also unable to meet their basic needs at a satisfactory level. The situation of households consisting of four individuals was most favorable, and in 2016 three-person households; nevertheless, on average every tenth person in this category could not afford a meal with meat every other day. The

more favorable situation of families with children may also be due to the fact that social assistance in Poland in many cases involves providing meals at school, or partial financing of them. This is an important measure, but does not fully solve the problem of undernourishment in children.



Explanation: 1 - single adult, 2 - single adult with dependent children, 3 - two adults without 1 child, 4 - two adults with 2 children, 5 - two adults with 3 or children 6 - two adults more as 3 children

Figure 1. Material deprivation rate (%) for it is not possible to ensure that every other day a meal with meat, fish or poultry red in total households in Poland in the years 2008-2016

Source: (EU-SILC, 2010, 2013, 2014, 2017).

Currently, owing to state aid under the “500 Plus” program (Dz.U. 2016, poz. 195.), Polish families, including children, may not face such high deprivation rates, and food needs may be satisfied at appropriate levels for life and human dignity. In discussing the material deprivation rate only in regard to food, without considering other indicators (e.g. going to a movie, museum or restaurant), it is to be hoped that an appropriate social policy and attention to the development of Polish agriculture, including strengthening the position of Polish pork production, will help to maintain food security in Poland and, through balancing of supply and demand, will contribute to an appropriate level of consumption.

3. FOOD SELF-SUFFICIENCY

Food (raw material) self-sufficiency, according to Gulbicka et al. (2015), is understood as (1) the ability to satisfy food needs solely from the country’s own resources, with the complete elimination of imports (economic autarky); (2) meeting the food needs of the population with domestic production even with a high level of imports, which are compensated for by corresponding exports, where the import and export of food and agricultural commodities should be in balance.

Food self-sufficiency in the conditions of a closed economy (economic autarky) is justified in extreme conditions, such as international conflicts (Sobiecki 2007). Food self-sufficiency in the conditions of an open economy means specialization and highly developed business contacts. Sobiecki (2007) notes that the European Union should produce at least enough to meet 75% of the population’s demand for food—a level of internal production which is currently achieved. In most EU countries the level of agricultural production is high and the changes in demand for food are small, as they have reached a high level of food consumption in terms of caloric value and

nourishment (Gulbicka et al. 2015). In an open economy, food self-sufficiency means a balance of foreign trade in agri-food products while the nutritional needs of the population are met at the level of international standards.

In the conditions of globalization of the market economy, a measure of a country's food self-sufficiency is the balance of foreign trade in agri-food products. Table 5 shows that this balance was negative for Poland in 2010-2014. In 2015 balance was positive, which can be regarded as highly favorable for the country. This approach to self-sufficiency has the advantage of expanding the range of products available in Poland to include those which for various natural or economic reasons are not produced domestically (Sobiecki 2007).

Food (raw material) self-sufficiency can be evaluated by the index used by the European Statistical Office (Gulbicka et al. 2015). This index is expressed as a percentage and represents the ratio of domestic production to consumption of domestic agricultural products (irrespective of their source). Table 5 shows that in 2010-2015 Poland was essentially self-sufficient in products of plant and animal origin, except for pork.

RECAPITULATION AND CONCLUSIONS

The results of research on production and consumption of basic agricultural raw materials indicate that Poland is a self-sufficient country with surpluses in food production.

In 2010-2015, however, the degree of self-sufficiency in the grain of basic cereals was varied, with a deficit of 91,000 metric tons only in 2011. In 2012 potato production was insufficient to meet demand, with a deficit of 240,000 metric tons. During this period there was a surplus in vegetable production. Fruit production in 2010 and 2012 bordered on the level of domestic consumption. In 2011 there was a very high deficit of 501,000 metric tons, and in 2013 and 2014 and 2015 surpluses of 502,000 and 432,000 and 236,000 metric tons. In the case of milk production, throughout the period analyzed Poland was self-sufficient and even had surpluses. The milk surplus increased proportionally over the years. Despite the decrease in the size of the dairy cow population, unit productivity increased. In 2010-2015 Poland had large surpluses of poultry meat and beef, which increased every year. The level of self-sufficiency in pork varied substantially; in 2010-2012 there was a deficit, but it diminished with each subsequent year. In 2013 a surplus of 48,000 metric tons was achieved, but in 2014 and in 2015 a reduction in pork production was again observed, of 12,000 and 10,000 metric tons.

Analysis of the balance of foreign trade in agri-food products in Poland did not confirm food self-sufficiency in the years 2010-2014; Poland imported agri-food products for a sum exceeding exports of such products. The positive balance in 2015 can be regarded as relatively favorable. This can be considered a signal of positive changes for food security in Poland.

Economic access to food, despite the increase in prices, remained stable, probably owing to increased wages in the country. Nevertheless, among members of the population with the lowest income (about 15%), many households state that they cannot afford to have a meal with red meat, poultry or fish every other day. The systematic decrease in the caloric value of meals consumed, which in 2013 fell to 2,187 kcal per person per day, is also a cause for concern. In 2014, however, the caloric value of food consumed by residents of Poland increased, although this may have affected only certain groups, and not necessarily the neediest.

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Władysław Kusiak¹³, Marta Molińska-Glura¹⁴, Krzysztof Moliński¹⁵, Anita Biszof¹⁶, Elżbieta Mikołajczak¹⁷, Agata Dolacińska-Śróda¹⁸, Sylwia Klus¹⁹, Vladislav Kaputa²⁰, Leszek Wanat²¹

ECONOMIC, SOCIAL AND ERGONOMIC CONDITIONS OF WOODEN PEWS FUNCTIONALITY

Abstract: The presence of sacral furniture in social life in Poland is a universal phenomenon, exerting influence on the development of material and spiritual culture. The paper attempts at identifying the most important ergonomic and socio-economic factors determining the functionality of wooden pews used in Poznań, the capital of the oldest Polish diocese of the Roman Catholic Church. Hence, statistical relations were sought between the structural features of pews and their age, and then, using comparative and descriptive analysis, factors describing their functionality were selected. The research was carried out in an interdisciplinary, international research team, combining the experience of forestry sciences in the field of wood sciences, as well as medical and economic sciences. In conclusion, economic and technological recommendations were formulated that could indicate the optimal directions for the development of a specific market for sacral furniture in Poland, whose dominant part is the production of pews.

Key words: church furniture, pews, functionality, ergonomics, wood market, Poland.

INTRODUCTION

The form and style, but at the same time the comfort and usability of sacral furniture have a direct impact on the quality of human participation in social, cultural and religious life. This reason belongs to one of many that justify undertaking research on functionality conditions of wooden pews, which are an important part of religious buildings equipment in Poland. In view of Poland's belonging to the spiritual and cultural heritage of Christian Europe, it is understandable that science is interested in various aspects of sacral architecture and art.

Much less attention was devoted to research work on the issues of sacral buildings equipment, including in particular the study of sacral furniture. Although pews are usually the third part of the religious buildings surface, their selection is usually left to the individual vision of the designer. In countries where Christian Protestant churches dominate, the problems of the pews functionality were raised relatively more frequently (Harsimowicz 1983; Wojdak 2011; Jodkowski 2014). Developing the current scientific discussion in this area (Jabłoński 2008, Wypych 2009, Kusiak Jabłoński and Wypych 2009, 2011, Kusiak et al. 2017), based on the experience of the Roman Catholic Church, seems justified and needed. On the grounds of the available literature on the subject (Brown 1987, Choodoung and Smutkupt, 2012, pp., 540-544, Czyżewski 2008, Gyurkovich 2009, Martellotta and Cirillo 2009, Kuljian 2013, Kaputa et al. 2016) and authors' own studies (Kusiak et al. 2017, Paluš et al. 2017), factors were selected based on which research on the pews functionality was carried out.

¹³Poznan University of Life Sciences, Department of Occupational Health and Work Protection, ul. Wojska Polskiego 28, 60-637 Poznań, kusiak@up.poznan.pl;

¹⁴Poznan University of Medical Sciences, Department of Computer Science and Statistics, mglura@ump.edu.pl;

¹⁵Poznan University of Life Sciences, Department of Mathematical and Statistical Methods, krys@up.poznan.pl;

¹⁶Koszalin University of Technology, Faculty of Civil Engineering, Environmental and Geodetic Sciences, sofie_99@wp.pl;

¹⁷Poznan University of Life Sciences, Department of Economics and Wood Industry Management, emikolaj@up.poznan.pl;

¹⁸The European Academy of Hotel Management and Catering Industry, agata.sroda@wshig.poznan.pl;

¹⁹Poznan University of Life Sciences, Department of Finance and Accounting, sylwia.klus@up.poznan.pl;

²⁰Technical University in Zvolen (Slovakia), Department of Marketing, Trade and World Forestry, kaputa@tuzvo.sk;

²¹Collegium Da Vinci in Poznań, Faculty of Social Sciences, ul. T. Kutrzeby 10, 61-719 Poznań, leszek.wanat@cdv.pl, corresponding author.

These factors include at least four main areas: design (sacral architecture), technology (construction), economic (funding) and social (religious culture). In the social aspect, the question is sought as to the extent to which the use of sacral furniture affects building social relations. This question refers to both material culture (architecture and church art), and also spiritual culture (the quality of religious life).

In the economic dimension, an answer is generally sought to the question about financial costs (regarding the design, construction, and maintenance of pews). At the same time, however, questions are asked about efficiency: functional (ergonomics, functionality, comfort of use) and economic (potential benefits, measured by the number of religious practices participants and the amount of their donations to the church community /in Poland, there is no so-called church tax/). In the social dimension questions are asked about development, and sometimes even about preservation of religious traditions and culture, which is closely related to social culture and economic culture, exerting influence not only on the quality of life, but also indirectly on economic activity, entrepreneurship, i.e. indirectly on economic growth and development (Kaczocha and Sikora 2016, Sikora et al. 2015, Wanat 2009, 2016, Wanat and Lis 2009). In this context, the need to continue research on the most popular sacral furniture - pews, and in particular their constructional and functional features, was observed.

THE IDEA OF RESEARCH, MATERIAL AND METHOD

The inspiration for the concept of research was a variety of the pews design, used in Roman Catholic churches in Poland, depending on the age of pews, that is the date of their manufacture. In the face of the identified differences, the research question about the potential relationship between the period of production and constructional features of pews cannot be considered a matter of no importance or neutral. Obtained answers can be a hint for designers and manufacturers of pews (most often made of wood), and also for users of these pews, active but also incidental participants of religious life.

It has been identified that the pews tested have four basic functions. They are used for sitting, kneeling, maintaining a comfortable standing position and comfortable movement in the inner space of pews. Considering such diverse and specific functions of pews, it is difficult to find strict recommendations regarding their construction (standards, literature, design recommendations). In Poland, manufacturers are guided first of all by their own experiences (individual approach), sometimes but not always referring to recommendations of the Polish Standard: Furniture for Sitting (normative approach), more often following the recommendations of users (investor's approach), sometimes formulated by the church administration (e.g. Curia of the Archdiocese of Lodz, see: Dąbrowski, 2013).

The research covered 76 types of pews located in 70 Roman Catholic churches in Poznań (www.archpoznan.pl, accessed 13/12/2017). In addition, a similar number of pews in selected Roman Catholic basilicas of other cities were selected for comparative analysis, including: Łódź, Opole, Nysa (Poland) and Bardejov (Slovakia). In this research group statistical relations were searched for. The inventoried pews were divided into three groups, taking into account the age criterion (date of manufacture) and type (construction). A group of historical desks (the first group), consisting of 31 types of the oldest pews, was designated. New pews were included in the second group. The group consisted of 33 types of pews distinguished by a modern and simple finish. The third group included 12 types of pews of mixed, board construction. Their characteristic feature is a simple structure, consisting in mounting seat boards, backrest and a kneeler on metal frames. All pews were inventoried: measured, described and photographed.

The research material was collected on the basis of measurements carried out in Roman Catholic churches from the administrative area of Poznań, subordinate to the Curia of the Archdiocese of Poznań from the deaneries: Poznań-Rataje, Poznań-Nowe Miasto, Poznań-

Piątkowo, Poznań-Starołęka, Poznań-Winogrady (www.archpoznan.pl, accessed 13/12/2017). For comparative analysis, similar groups and numbers of pews from cathedral basilicas and new churches were chosen for selected cities in Poland (Łódź, Opole, Nysa), (archidiecezja.lodz.pl and www.diecezja.opole.pl, accessed 13/12/2017) and in Slovakia (Bardejov), (<http://www.ke-arcidieceza.sk>, accessed 13/12/2017), in the archdiocese of Koszyce, and the deanery directly adjacent to the diocese of Tarnów in Poland.

Table 1. Types of pews according to the criterion of age (date of manufacture) and construction

Types/groups	Type name	Description	Quantity
Type (group) 1	old benches (antiques)	The oldest designs of church pews, produced up to the conventional caesura, which is marked by the ending of the Second Vatican Council (end of 1965);	31
Type (group) 2	new benches	Pews, which by the form and style refer to simple structures, typical of modern times, corresponding to the architecture of new, modern churches;	33
Type (group) 3	board (mixed) benches	New pews a mixed metal and wooden structure, consisting of a seat board, a backboard and a kneeling board, metal frame mounted on a skeleton.	12

Source: Authors' own elaboration based on (Kusiak et al. 2017, p. 256-258)

The measurements included a set of pews features characterizing the following wooden structural elements: the seat board, the kneeling board and the book-rest board. 18 parameters were chosen: pew height (1), pew length (2), seat length (3), seat height (4), seat depth (5), backrest height (6), chair inclination angle (7), backrest reclining angle (8), the distance between the pews in the row (9), the width of the passage inside the pew (10), the length of the kneeler (11), the width of the kneeler (12), the angle of the kneeler (13), the height of the kneeler (14), the height of the desk (15), width of the book-rest (16), length of the book-rest (17), angle of the book-rest (18). The measurement was made on the basis of data for one, purposefully selected pew located in the middle part of the row. The measurements of the length, width and height of the pew were made using a 3-meter-long steel measure (with an accuracy of 1 mm). A tubular vial was used to measure the angle of inclination, and then calculations were made using mathematical formulas on the basis of the given sections of the sides. It should be noted that making a synthetic division of the examined pews into three groups was preceded by agglomeration analysis, carried out for the whole set. Then, eight features were selected and considered for a detailed examination of the pews functionality, i.e. the height of the pew (1), the seat height (4), seat depth (5), width (12) and the angle of the kneeling (13), height (15), width (16) and desk inclination angle (18).

In turn, the identification of the most important economic and social conditions was made on the basis of authors' own research, carried out using a questionnaire survey, participant observation, intelligence techniques and in-depth interviews. Questions were asked, among other things, about the quality and comfort of using pews for all selected groups and types of pews, as well as the number of religious participants in sacral buildings using old, new and mixed board pews.

DISCUSSION AND ANALYSIS OF RESULTS

On the basis of the conducted research, it was shown that dimensions of the majority of analyzed pews did not meet the recommendations of the standard describing the construction of sitting furniture. This applies in particular to the height and depth of the pew seat and the ergonomic backrest angle. In turn, in surveys (at the same time referring them to the standardization requirements), it was identified that the factors determining the comfort of use were primarily the structure and shape of the pew (over 87.6% of answers). Moreover, in the kneeling position,

dimensions of the kneeling board (78.6%) and the angle of its inclination (86.3%) play an important role, while the comfort of standing and moving in the inner space of the pew (passing) is crucial for the width of the walkway (92.8%). It can be assumed that pews of dimensions significantly differing from the standardization requirements are considered uncomfortable.

As already mentioned, there are no special recommendations or standards for the construction of church pews. The freedom of their design means that contractors and investors are sometimes guided primarily by dimensions (surface area) and financial limitations (investment budget). Therefore, the comfort and other functional aspects of pews and their decorative form (sacral art) become of secondary importance. It also results from the fact that in Poland the Roman Catholic Church lives primarily off the voluntary donations of the faithful.

Based on research (including anthropological and physiological studies), the conditions to be fulfilled to ensure the proper sitting position are determined. It was pointed out (Peacock, Northam and Diels 2008; Wykowska 2009; Muszyński 2016; Kusiak et al. 2017) that the “sitting position should be characterized by: high torso stability” (associated with the limitations of the apparent movements and allowing the body to maintain a given position); the “best possible coordination of limbs; relief of lower limbs and relief of the circulatory system”. A sitting position “can be harmful if you have: hanging feet due to the lack of footrest and behind the high seat; too shallow a seat and buttock pressure (resulting from a soft or poorly formed finish)”, (Kusiak et al. 2017, p. 255).

It was identified that functionally the most beneficial was a full backrest of the pew, and not only the one made in the form of a backboard (in accordance with the normalization requirements, the backrest of the pew should form an obtuse angle from 100° to 110°). It is worth emphasizing that the function of the pews footrest fulfills the kneeling board, which makes the sitting position more comfortable. In addition, the comfort of kneeling is influenced by the inclination (81.3%) of the kneeling plank (up to 34,5%). The pew has a knee-board position in relation to the front edge of the seat (this dimension was measured in a vertical view). This dimension also affects the comfort of kneeling and sitting (78.4%).

Too small passage width may cause difficulties when standing up and moving in the inner space of the pew and going outside. Seeking the optimal dimensions of the pews and comparing the analysis of the available literature with the results of authors' own research, the difficulty in the pews design was pointed out. It should include the combination of two important functions of pews, i.e. kneeling and moving. The book-rest should be placed at an angle to allow comfortable use of the prayer books in each position: standing, sitting and kneeling. Very often, the book-rest acts as a backrest, the width of which determines the space between the user of a given pew (in a kneeling position) and the preceding person (in a sitting position), deciding on the comfort or discomfort of use.

A separate group of pews are still numerous, historical, carved pews. These are sometimes works of art which through their ornaments and dignity give a sacral atmosphere to sacral interiors. This state has been identified to make users (even subconsciously) treat them as more comfortable (86.8%), regardless of the actual functional features.

Jabłoński (2008), Wypych (2008), and then Kusiak et al. already tried to ergonomically assess pews in the churches of Poznań (2009, 2011), showing no significant statistical relationships in these studies. In this manuscript, a detailed statistical verification of the results was performed by analyzing the confidence intervals (0.95) for all the pews features considered. It was shown (variability analysis) that in the types of examined pews there were significant differences for 6 examined traits (regarding directions of changes and their size). The following parameters were clearly differentiating types of pews: the height of the pew (1), the height of the seat (4), the angle of the knee (13), the height (15), the width (16) and the angle of the desk (18), (Kusiak et al. 2017, p. 259-263). Selected results are illustrated graphically (Fig. 1 and Fig. 2).

It has been observed that the height of the pew seat is a feature with a variable tendency (increase after the initial decrease), the scale of changes is different (disjoint confidence intervals for types 1 and 2, and separately, a smaller variation between type 3 and types 1 and 2 - common parts of intervals confidence). This trend is illustrated in Figure 1.

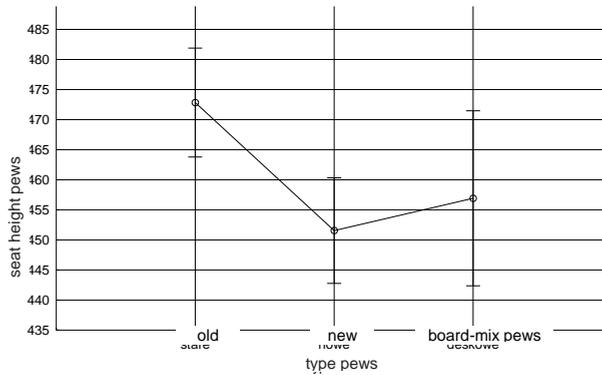


Figure 1. Analysis of confidence intervals for pews seat height

Source: Authors' own elaboration based on Kusiak et al. (2017, p. 259-263)

In the case of pews, the value of this parameter was not reduced, not only between type 1 and type 2 pews, but also between type 2 and the type 3 pews (the largest drop in height occurred between type 1 and 2 - separate confidence intervals). The width of the kneeler as well as its angle of inclination were also reduced (there was a change resulting from the construction of an almost flat knurled plank, which allowed a direct passage on this board). The height of desk mounting in pews also decreased, and a similar tendency was observed in relation to the desk inclination angle and the width of the book-rest.

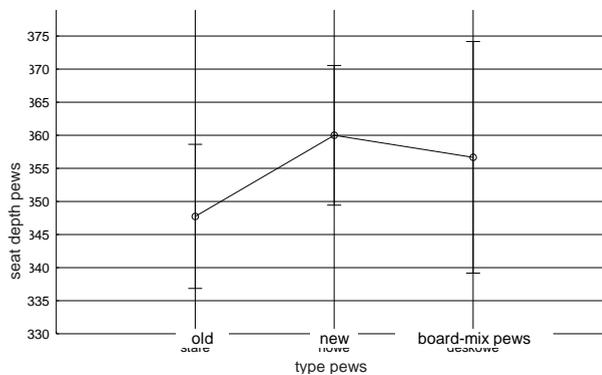


Figure 2. Analysis of confidence intervals for the depth of the seat

Source: Authors' own elaboration based on Kusiak et al. (2017, pp. 259-263)

Analyzing the depth of the pew seat, which is one of the key parameters when it comes to the convenience of use, a changeable tendency was noticed (type 1 pews were clearly “shallower” than type 2). This increase seems to be related to the tendency to improve sitting comfort



(standardization indications, in relation to the seat depth from 360 mm to 450 mm, were met by 48.9% of the pews tested (Figure 2).

Based on the comparative analysis of data concerning the examined pews from the administrative area of Poznań, for which a similar sample was selected from cathedral basilicas and new churches in Łódź, Opole and Nysa (Poland) and in Bardejov (Slovakia), similar results were obtained by analyzing confidence intervals (0.95) for the identical features of pews considered, the differences of which did not exceed the statistical error (error 9.7%). On this basis, it was assumed that the trend identified in Poznań and in the capitals of the Roman Catholic dioceses in Łódź and Opole, as well as in the deanery capitals having their own historical basilicas, i.e. in Nysa and Bardejov (Slovakia), was similar, which entitled the authors to analogous inference. No statistically significant differences were identified in this respect.

CONCLUSIONS

The paper attempts to identify the most important ergonomic and socio-economic factors determining the functionality of wooden pews used in Poznań, the capital of the oldest Polish diocese of the Roman Catholic Church. The results were verified by means of the comparative analysis with other selected Polish diocese capitals (Łódź and Opole) and deanery capitals, having their own basilicas in Poland (Nysa) and Slovakia (Bardejov). Statistical relationships were sought between the constructional features of pews and their age, and then the most important factors describing their functionality. In the course of the research, convergent results were obtained without significant statistical differences. Summing up, one should indicate both the limitations of the research method and the necessity of multi-aspect analysis of the pews functionality. Unfortunately, given the non-fulfillment of the assumption about homogeneity of variance, it was not possible to include a classical analysis of variance in the designed research scenario, performing a verification for confidence intervals, which were determined for selected structural features of the examined pews.

The pews in question were grouped and three leading types were identified: old, new and board (mixed), and these groups are distinguished by the period of production (age) and constructional features. It was shown that in addition to the increase in the dimension of the depth of the pews seat, the remaining construction dimensions decreased. This applies even to the width and height of the pews book-rest, its location and angle of inclination, which probably results from the change in functionality of individual structural elements. The inclination angle of the kneeling board also changed to an almost flat board, horizontally located (type 3). It can be assumed that the evolution of the pew construction began parallel to the changes that were introduced in the liturgy of the Roman Catholic Church based on the constitution and documents of the Second Vatican Council. In qualitative research, taking into account behavioral aspects, the relationship between the comfort of using pews and their historical construction was identified, with a clear preference for type 1, i.e. pre-conciliar (pews made before Vaticanum II). In addition to ergonomic preferences (comfort and quality of sitting and kneeling), dependencies of an economic nature were also identified (including the relation of income dependence of Polish parishes, living mainly off the donations of the faithful, from the functionality of furniture intended for religious worship), also indicating the preference for pews type 1 by religious life participants.

It should be assumed that identified tendencies will sooner or later be noticed by church institutions (as investors), and also by designers and manufacturers of pews, both for economic reasons (financing and maintenance) and social ones (religiousness), spiritual development (participation in religious culture events). The tendency to care for the quality of spiritual life, including the comfort of sacral space use, indicates a return to at least some traditional forms of pews, enriched with modern elements (such as heating) and innovation development.

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*Władysława Łuczka*²²

DEVELOPMENT OF ORGANIC FOOD PRODUCTION AND PROCESSING FOLLOWING THE ACCESSION TO THE EUROPEAN UNION

Abstract: This paper discusses the evolution of organic food production and processing based on biannual organic agriculture reports published by the General Inspectorate of Agri-Food Trade Quality (GIJHARS). The subject matter of the analysis are the changes in organic farmland, in the number of and area structure of farms and in organic production and processing, seen from a spatial perspective. The timeframe of this study is the period of the Poland's membership in the European Union, i.e. 2004-2016. This paper concludes that organic farming experienced dynamic growth until 2013. In 2013-2016, a decline in the area of organic farmland was recorded, accompanied by a decrease in the number of organic farms in 2014-2015. It was concluded that in Poland, the volume of organic production and processing is too low.

Keywords: development, European Union, Poland, production, processing, organic food

INTRODUCTION

Today, plant protection products are commonly used in conventional farming. This provides increasingly better growth opportunities for organic farming which intentionally avoids such products in order to preserve the sustainability of the natural rural environment while offering high-quality foods. With its specific approach to the production of agricultural raw materials, this farming system is distinguished by its care for the public good which is the natural environment and the health of food consumers. The development of organic farming does not result in such adverse impacts as (and is some kind of counterbalance to) conventional farming. It helps preserve soil fertility, biodiversity and environmental sustainability in rural areas. The above argues in favor of supporting the development of organic farming not only with public resources but also with private funds of consumers who affect its economic sustainability by making their purchases.

Also, organic farming is a major sector of the economy due to its role in the durable and sustainable development of rural areas. It combines together the activities that contribute to economic objectives (food production, profitability of farms), environmental objectives (caring for the natural environment) and social objectives (jobs, food safety). Organic farming is also a part of new challenges resulting from the need to improve the levels of innovation in the economic and social sphere under the conditions of increased competitiveness in food markets. Innovativeness is reflected by all components of organic food management, from the production through to processing and distribution. Various forms of Schumpeter's innovation exist at subsequent stages of organic product creation, including process and product innovation as well as marketing innovation. Organic production, which excludes the use of agricultural chemistry, demonstrates demand for, and requires the use of, innovative solutions and highly specialized knowledge in the field of plant protection, yield improvement, feed management, animal breeding and processing. In this type of production, innovativeness is a highly complex process due to inability to use many chemical substances and components. Therefore, for organic farmers, excluding these measures means a high production risk. Minimizing that risk should be the objective of production support activities.

PURPOSE AND METHODS OF STUDIES

The purpose of this paper is to analyze the evolution of organic food production and processing following the Poland's accession to the European Union. The subject matter of the analysis are the changes in organic farmland, in the number of and area structure of farms and in

²² Poznań University of Life Sciences, Department of Economics, Wojska Polskiego 28, 60-627 Poznań, Poland, e-mail: a

organic production and processing, seen from a spatial perspective. The timeframes of this study are the period of the Poland's membership in the European Union, i.e. 2004-2016.

The source material for this analysis was statistical data from biannual reports on the condition of Polish organic agriculture published by the General Inspectorate of Agri-Food Trade Quality (GIJHARS), documents delivered by the Ministry of Agriculture and Rural Development, and relevant domestic literature. The objective scope of this analysis was conditioned by the availability of statistical data on organic foodstuffs production and processing. This study used descriptive statistics methods as well as tabular and graphical presentation methods.

RESULTS OF THE STUDY

A breakthrough for the development of organic farming, the Poland's accession to the European Union was followed by the introduction of legal regulations aligned with the Union legislation and by the implementation of the support system (Organic Farming Act, Łuczka 2016). The support is justified by a comprehensive approach to the implementation of environmental objectives which involve lower yield rates and higher unit costs of certain productive inputs and result in the loss of a part of the potential farming income and in lower production profitability. However, the costs related to environmental measures in organic farming and to the delivery of public goods, e.g. biodiversity in rural areas, cannot be expected to be borne by farmers alone. If these goods are accessed by the society, it is an important argument for allocating more support to organic farming than to conventional farming. Another major argument is the delivery of foods with rich health properties which is beneficial to consumers as it provides them with a broader selection of high-quality products in the foodstuffs market.

Prior to the Poland's accession to the EU, the level of support allocated to organic farming was very low. Initially, i.e. in 1989, subsidies were introduced to co-finance the costs of farm inspections, and were disbursed to inspection bodies. In 1999, per-hectare payments were made available to organic farmers. The rates and farm area limits changed each year. A degressive formula was used to calculate the payments in function of farm area. Generally, payment rates were relatively low. A significant increase was observed only after the Poland's accession to the EU which provided an incentive for many farmers to shift to organic farming.

After the Poland's accession to the EU, support was offered for organic farming under the Rural Development Plan (2004-2006 RDP) and the Rural Development Programs in the 2007-2013 and 2014-2020 Financial Perspective (with EUR 28.5 billion, Poland is the EU's fifth beneficiary of funds allocated under agricultural programs). The support was a strong financial incentive for the farms to shift to organic methods. The high interest in the organic farming package, especially during the 2004-2006 RDP and 2007-2013 RDP, was caused by the relatively high level of payments allocated and the relatively low requirements to be met by eligible beneficiaries. That situation changed only upon the entry into force of the 2014-2020 RDP (Table 1). A change of major importance was the introduction of degressive rates, with 100% of the base rate disbursed for agricultural land area ranging from 0.1 ha to 50 ha; 75% for areas ranging from 50 ha to 100 ha; and 60% for areas in excess of 100 ha.

In the period under consideration, Poland experienced a dynamic growth of the number of organic farmers (Fig. 1). Started in 2004, that trend continued for a decade until 2013. In 2014 and 2015, a decline in the number of organic farms was recorded. In 2013, the number of farms was 26,598; in the next two years, it went down to 24,829 and 22,277, respectively. In 2016, it increased slightly to reach 22,435. Note that 2014 was the first year (since 2004) to witness a decline in the total number of organic producers and a reduction in the number of organic farmers. The decline in the number of farms over the 2014-2015 period was caused by changes in the allocation of subsidies for organic farming which became dependent on the production volume and area of agricultural land (Regulation of the Minister of Agriculture and Rural Development). As regards the latter

aspect, degressive rates were applied which resulted in smaller amounts of aid accessed by large farms.

Table 1. Payment rates in the organic farming package under the 2014-2020 RDP

Environmental payment rates			
No.	Organic farming packages	Organic farming variants	Payment rates
1.	Package 1. Cultivation of agricultural crops during the conversion period		PLN 966 per ha
2.	Package 2. Cultivation of vegetable crops during the conversion period		PLN 1557 per ha
3.	Package 3. Cultivation of herbs during the conversion period		PLN 1325 per ha
4.	Package 4. Cultivation of horticultural crops during the conversion period	4.1.1. Cultivation of horticultural crops during the conversion period	PLN 1882 per ha
		4.1.2. Cultivation of berries during the conversion period	
		4.2. Extensive cultivation of horticultural crops during the conversion period	PLN 790 per ha
5.	Package 5. Fodder crops cultivated in arable land during the conversion period		PLN 787 per ha
6.	Package 6. Permanent pasture in the conversion period		PLN 428 per ha
7.	Package 7. Cultivation of agricultural crops after the conversion period		PLN 792 per ha
8.	Package 8. Cultivation of vegetable crops after the conversion period		PLN 1310 per ha
9.	Package 9. Cultivation of herbs after the conversion period		PLN 1325 per ha
10.	Package 10. Cultivation of horticultural crops after the conversion period	10.1.1. Cultivation of basic horticultural crops after the conversion period	PLN 1501 per ha
		10.1.2. Cultivation of berries after the conversion period	
		10.2. Extensive cultivation of horticultural crops after the conversion period	PLN 660 per ha
11.	Package 11. Fodder crops cultivated in arable land after the conversion period		PLN 559 per ha
12.	Package 12. Permanent pasture after the conversion period		PLN 428 per ha

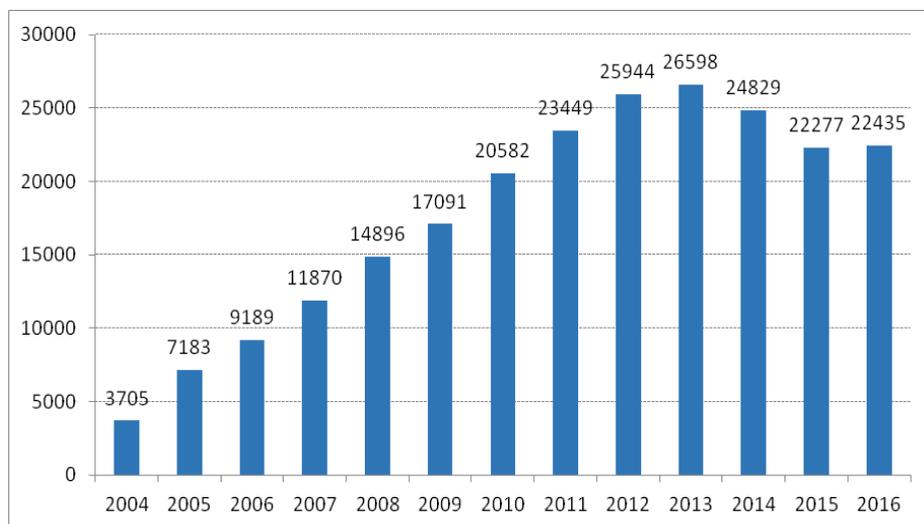
Source: Regulation of the Minister of Agriculture and Rural Development on detailed conditions and procedure for granting financial aid under the "Organic farming" measure covered by the 2014-2020 Rural Development Program.

In Poland, organic farming is dominated by vegetable production. In 2016, 83.2% of producers were engaged exclusively in vegetable production while the other 16.8% dealt with both vegetable and livestock production. Organic farmers represent a vast majority (98% approximately) of organic producers. The other 2% were organic producers active in organic products processing, and in the marketing of domestic organic products and organic products imported from third countries.

The spatial distribution of the largest number of farms changed in 2016 compared to 2004. In 2004, the largest number of organic farms were located in the Świętokrzyskie, Zachodniopomorskie and Lubelskie voivodeships whereas in 2016, the highest figures were reported in the Warmińsko-mazurskie (4,142), Zachodniopomorskie (2,573) and Podlaskie (3,437) voivodeships. The total number of organic producers in the above voivodeships was more than 39% of the total number of organic producers on a countrywide basis. The concentration of organic farms in three voivodeships located close to each other provides favorable conditions for the development of various forms of regional collaboration aimed at reducing the barriers to the processing and distribution of organic food. However, these opportunities are not fully exploited, which is illustrated by the low level of

interest on the part of farmers in the establishment of producer groups as a form of integration with major importance for a more efficient disposal of products on the market.

Figure 1. Number of organic farmers in Poland in 2004-2016



Source: own study based on the Report on the condition of Polish organic agriculture in 2015-2016, GIJHARS, Warsaw.

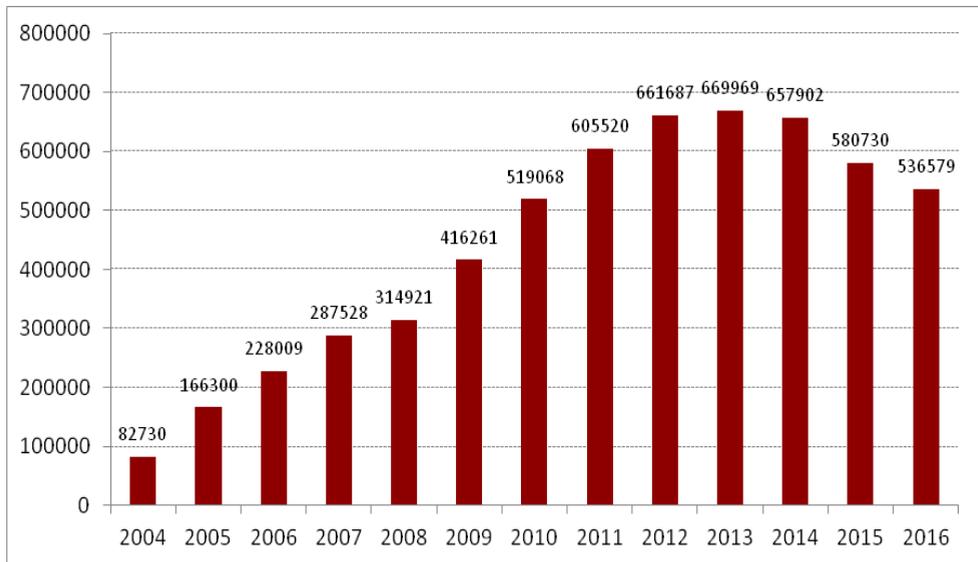
In the period covered by this study, the largest area of organic farmland in Poland (667,902.1 ha) was recorded in 2014 (Fig. 2). Over the next two years, it declined to reach 536,579 ha in 2016. In Poland, the average area of an organic farm in 2016 was in excess of 25 ha, with the national average farm area of 10 ha. After 2004, the average area of organic farms grew dynamically for a decade. This was caused by the increased share of large farmers who enrolled for agri-environmental programs to be granted with subsidies. A significant part of them did not run any agricultural activities.

The area of organic farmland was spatially diversified. For several years, organic farms have been concentrated in three regions: the Warmińsko-Mazurskie (108,667 ha), Zachodniopomorskie (100,570 ha), and Podlaskie (55,168 ha) voivodeships. Organic farms from these three voivodeships represented over 46% of the total area of organic farmland on a countrywide basis. In turn, the smallest area of organic farms was reported in the Opolskie (3,216 ha), Śląskie (5,324 ha) and Kujawsko-Pomorskie (9,267 ha) voivodeships.

In 2016, in the structure of arable land, the largest area was occupied by crops intended for animal fodder (206,171 ha; 35.5%), grassland and pasture (157,984 ha; 27.2%) and cereals (101,436 ha; 17.5%), with a total share of 82.2%. Horticultural crops and berries had a low share of 6.6%. The situation was slightly better as regards vegetable crops with a share of 9.7%, representing a growth by 2.7% compared to 2015. When it comes to organic livestock farming, the activity levels have been negligibly low for many years, as reflected by the poor supply of meat and meat products in the domestic market. In 2015-2016, the number of beef cattle, pigs and sheep declined to 8,433 (by 7.8%), 4,449 (29.5%) and 19,474 (24.4%), respectively. At the same time, the number of laying hens, broilers, goats and dairy cattle increased to 179,764, 36,337, 3,519 and 11,864, respectively. When converted to per-100-ha ratios, these figures are extremely low and demonstrate the existence of production barriers and the absence of effective drivers of animal production growth in organic farms. In 2016, there was 2.2 dairy cattle, 1.6 beef cattle and less than 1 pig per 100 ha. Although

the organic farming support system is in place, these levels have changed little over the period considered. This suggest organic farming is dominated by vegetable production and has a disadvantageous structure (Brodzińska 2014, Pawlewicz, Szamrowski 2014).

Figure 2. Area of organic farmland in Poland in 2004-2016 (ha)



Source: own study based on the Report on the condition of Polish organic agriculture in 2015-2016.

In the period considered, the key determinant of changes in the processing sector was the number of processing plants which grew 10 times, from 55 in 2004 to 546 in 2016. In this context, it needs to be noted that 436 producers were active in the production of processed organic products in 2016, and their production volumes were low. Therefore, the dynamic growth of the number of processing plants does not translate into a dynamic growth of production volumes of processed products. The production volume of cow's milk was 242,031 hectoliters (Table 2), with the highest levels reported in the Małopolskie voivodeship. In the last year under consideration, there was a breakthrough increase in milk processing volumes, from 4,096 tons in 2015 to 149,305 tons in 2016. Also, a quite important increase in the volumes of processed vegetables and fruits (reaching 3,821,028 tons) was reported. As regards this industry, the Zachodniopomorskie voivodeship demonstrated some outstanding statistics, and was ranked first with a share of 78.8%. The production volume of the meat and fish processing sector grew to reach 154,038 tons. However, this is not much, considering the unmet demand for these products. In this respect, Poland finds itself in a situation similar to that of most of the EU countries where meat and product processing plants are not fully developed due to lack of production capacities. In Poland, a worrying development is the concentration of meat processing in two voivodeships only (Małopolskie and Podkarpackie), located far away from metropolitan markets for organic products, i.e. Warsaw, Poznań and Tricity. Despite a quantitative growth (of the number of processing plants), the Polish processing sector remains poorly developed and is one of the reasons behind the narrow range of organic foods available in the market (Smoluk-Sikorska, Łuczka 2014). The market consequences are the relatively low share of processed products and the high price levels resulting from their rarity.

Table 2. Production of selected organic products by voivodeships in 2016

Voivodeship	Cow's milk (hectoliters)	Milk processing and cheese making	Fruit and vegetable processing (tons)	Milling of cereals (tons)	Meat and fish processing (tons)
Dolnośląskie	8,279	2.64	581.51	240.33	0
Kujawsko-Pomorskie	9,630	2,900	1,593.27	2,070.6	36
Lubelskie	1,895	0	36,2442.22	21,66.01	294.67
Lubuskie	385	0	26,276.02	0	26
Łódzkie	2,276.5	0	2,616.91	289.9	0
Małopolskie	63,966.89	192.81	5,872.03	13.22	141,321.31
Mazowieckie	22718.3	137,619.76	247,111.12	2,534.6	934.79
Opolskie	0	0	0	3.6	0
Podkarpackie	38,700	548.56	85,251.25	600.64	10,865.75
Podlaskie	12,287.5	2,234.22	11,464.22	347.1	0
Pomorskie	16,620	5400	7743.7	2	101.61
Śląskie	705	0	321.12	86.67	0
Świętokrzyskie	11,039	0	2,915.71	0	0
Warmińsko-Mazurskie	19,155	394.6	53.46	151.1	0
Wielkopolskie	270	12.67	54,831.7	472.37	43.65
Zachodniopomorskie	34,104.55	0	3,011,953.94	4.8	415
Poland	242,031.74	149,305.26	3,821,028.19	8,982.94	154,038.77

Source: own study based on the Report on the condition of Polish organic agriculture in 2015-2016, GIJHARS, Warsaw.

CONCLUSIONS

Based on the above analysis, several conclusions may be drawn concerning the production and processing sectors of Polish organic farming after the accession to the European Union.

1. Since 2004, Polish organic farming has been among the fastest growing sectors of food economy. This period witnessed an increase in the area of organic farmland and in the number of organic farms. The growth processes of organic farming are strictly related to the support granted to organic farmers from the Union and national budget.

2. However, the dynamic growth of organic farming did not contribute to an adequate increase in the production and processing of organic foods. The shortage of supply in the organic food market reflects its immaturity and requires the reorientation of the support system focused on stimulating production growth.

3. The diagnosis of the development of Polish organic farming is the basis for making recommendations to the national agricultural policy makers. They should consider the rationale behind the reorientation of support mechanisms (including environmental payments) increasingly linked to production so as to stimulate the supply and processing of organic products.

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*Arkadiusz Malkowski*²³

REVITALIZATION AS A TOOL OF MANAGING THE DEVELOPMENT OF RURAL AREAS ON THE EXAMPLE OF KARLINO MUNICIPALITY

Abstract: The article discusses the issue of the development of rural areas. It refers to the question of revitalization of degraded areas with a special emphasis on the rural areas. The aim of this study is to outline the concept of creating revitalization programs, taking into account their role in establishing the foundations for the development of local communities.

Keywords: revitalization, local development, rural areas
JEL Classification; O10, O12, O21

INTRODUCTION

The political changes in Poland, initiated in the early 1990s, were connected with very dynamic socio-economic changes which took place over a relatively short period of time. The results of those changes influenced all branches of the economy; however, as numerous research shows, rural areas had been especially affected. The dynamics of the economic processes taking place all over Poland made the economic, social, and mental weakness of Polish agriculture visible, and at the same time constituted a stimulus to search for new directions of development. Statistical data concerning the Polish food export in the second decade of the twenty-first century indicates that Polish agriculture and processing industry managed to build, not without effort, a competitive position on international markets. It especially concerns the export of Polish food to the EU member states. The research conducted by the author and encompassing the West Pomeranian and Lubuskie provinces indicates, nonetheless, that the success in food export is not synonymous with building the competitiveness of the entire Polish agriculture, which is dominated by small semi-subsistence or social farms (Malkowski, Malkowska 2017). The lack of a consistent, long-term policy creating the foundations of agricultural development in Poland in a special way affected also rural areas, which are abundant in the country. The aforementioned political changes in the case of numerous areas resulted in the emergence and perpetuation of unfavorable socio-economic phenomena occurring in those areas. In particular, this applies to: unemployment, devastation of technical infrastructure, the exodus of young educated people

The aim of this study is to use the Local Revitalization Programs as an example of a tool which can be used to plan the development of rural areas. In the article, the author presents the results of research conducted in 2017 in the urban-rural Karlino municipality located in the West Pomerania province. The research was done while creating a participatory project of the Local Revitalization Program. The article presents the results of qualitative research conducted in the process of revitalization in Karlino municipality. It uses the results of surveys and focus studies conducted among the residents of Karlino municipality. Those results served to verify the following hypothesis: the Local Revitalization Program can be an effective tool activating the communities in rural areas, as well a tool for managing the development of those areas.

In the process of delimiting the degraded area, various sources of information were used, so that the employed approach is holistic, combining quantitative and qualitative methods. For the indicated analytical units statistical material was obtained from the resources of the Main Statistical Office (Bank of Local Data), the Municipal Office of Karlino, MGOPS (Municipal Social Services Office), the District Employment Agency, the police. Additionally, a survey was used to examine the opinions of the residents on the emergence of degraded areas and the reasons behind their emergence.

²³ West Pomeranian University of Technology in Szczecin, Department of Economics, Arkadiusz.Malkowski@zut.edu.pl

THE QUESTION OF THE DEVELOPMENT OF RURAL AREAS IN ECONOMICS

Rural areas are territories outside of the administrative boundaries of cities. This means that rural areas constitute more than 80% of Poland's total area. According to the data of the Main Statistical Office, rural areas are inhabited by over 30% of Poland's population. This means that in comparison with other EU states, the percentage of countryside residents in the overall population in Poland is relatively high. We can assume that Poland is a country with a high potential located in the rural areas. This concerns particularly the number of people but also other endogenous development factors, such as the unique character of cultural heritage, the natural resources, and the economic potential. The changes that took place in Poland in the time of socio-economic transformation affected rural areas in a particular way, by exacerbating certain socio-economic phenomena, such as: aging of the rural population, high unemployment rate, exodus of young people to the cities, changes in the character of use of rural areas. This prompted a search for new directions of development of rural areas and contributed to a revival of old and appearance of new concepts of development of those areas. Literature on the subject extensively describes concepts of sustainable development as well as those which assume that the direction of the necessary changes in the functioning of rural areas is polarization of their development. According to Churski (2005), the polarization and diffusion model is one of the "old" theories of regional development. Already in 1955, Perroux (1995) introduces the notion of growth poles into the economic discourse. He points to the role of strong, sector centers in economic development, at the same time emphasizing the scope of the diffusion of their growth. A similar view is shared by Williamson (1965), who, in his works on regional development, argues that due to the peripheral regions' lower capacity to absorb and create investments, as well as to their limited budgetary resources, the development of centers and urban regions with a relatively bigger development potential should be supported.

The opponents of this concept in their works point to the inevitability of peripheralization of areas located outside the growth centers (Strzelecki 2011, Barro, Sala-i-Martin 1991, Henley 2005). This is supposed to result from the time shift between the success of a growth area and the appearance of the first transfers (diffusions) of benefits to the environment. In this case, peripheralization of weaker areas seems inevitable.

The contemporary approach to the development of agriculture and rural areas is based on the concept of multifunctional development, relating to a consistent connection of social, environmental, and economic goals. The beginning of such a perception of development in the EU states dates back to the 1970s. The concept originates from the doctrine of J. M. Keynes which assumed the necessity of state's intervention in regions where developmental barriers accumulate (Strzelecki 2011). A multifunctional development of rural areas consists in departing from the agricultural function as the only one or dominant role, and a decidedly greater diversification of economy (Rosner 1997). In his works, Rosner highlights the strong correlation between the mono-agricultural character of rural municipalities and the high unemployment rate. The concept of multifunctionality of the development of rural areas emphasizes the necessity to develop the traditional agricultural function and all forms of industrial and service activity which are not harmful to the environment (Kłodziński 1996, Hall, McVittie, Moran 2004, Adamowicz 2005, Malkowska 2014). The process of change and the management of that change is the essence of revitalization programs (Malkowski 2016).

REVITALIZATION OF RURAL AREAS

The subject of research was Karlino municipality, located in the West Pomerania province. The problems connected with the underdevelopment of rural regions, and particularly the post-state farm communities, affected this region quite severely. A characteristic feature of rural areas in West Pomerania – including Karlino municipality – was a large participation of state farms (the so-called

PGR) in agriculture. Apart from their productive function, these units organized social life in the rural areas and maintained the socio-economic activity of small and medium towns.

Many families and even entire rural communities were helpless in confrontation with market economy. In the case of the entire West Pomerania province, the regression of former state farm villages lead to the exclusion of the local communities residing in them. The exclusion has primarily a social dimension (high unemployment rate, depopulation of rural areas), but also an economic (low income limiting the access to many goods and services), and a spatial one (difficult access to urban centers, limited communication). Therefore, it is necessary to design new tools which would facilitate a reversal of the processes of marginalization of rural areas. An example of new solutions implemented with the aim of reviving the development of degraded regions are the revitalization programs (Espinosa, Hernandez 2016).

In the most commonly used sense of the word, revitalization comprises activities focused on reviving degraded areas of cities, e.g. post-industrial ones, whose aim is to find a new purpose for them and to create conditions in which the areas change their function (Skrzypczak, Łukowski 2011). The very term revitalization is derived from Latin: "vitalis" – "proper of life, capable of living." It is a paradigm of development referring not only to spatial categories, but above all to economic development and the improvement of living conditions of local communities. The residents of degraded areas constitute a territorial community which is a subject of various activation concepts and programs. The main objective of a revitalization program is to bring a given area out of the state of crisis (Ziółkowski, Górniak 2007) by removing the causes of its degradation.

The revitalization process entails brining the degraded area out of the state of crisis. A degraded area is a space in crisis due to the concentration of negative social phenomena, in particular unemployment, poverty, poor education or social capital, as well as inadequate level of participation in public and cultural life. An element of the revitalization process is drafting a strategic document presenting specific actions leading to bringing the area out of crisis.

RESULTS

The conducted focus research showed that with the liquidation of the state farming system and the development of the private sector in the countryside, the functions of rural areas in Karlino municipality have been greatly transformed. Within the rural areas of Karlino municipality remain devastated livestock buildings, abandoned warehouses and offices, residential buildings, but above all: the people – former state farmers and their families. A specific symbol of that state farming past of the area is the abandoned and decaying palace in Karścino. While it used to be a symbol of the region's strength, today it exemplifies the situation of post-state farming areas in Karlino municipality.

Creating a revitalization program in Karlino municipality was preceded with quantitative and qualitative research. The aim of the research was to indicate the degraded areas within the municipality. Identifying the negative social, economic, spatial, and infrastructural phenomena is key to a proper diagnosis of crisis areas. Indicators adopted for the purpose of assessing the situation in Karlino municipality were selected to illustrate the situation in various areas of the municipality in several categories. A set of 15 indicators was used in the analysis²⁴. The municipal area was

²⁴ Indicators selected to delimitate the degraded area: W1. Depopulation, W2. Percentage of people in pre-working age in the overall population (per 1000 persons), W3. Aging index, W4. Number of people using social assistance per 1000 persons, W5. Number of people using social assistance – permanent benefit per 1000 persons, W6. Number of people using social assistance – temporary benefit per 1000 persons, W7. Number of people using social assistance – special-purpose benefit per 1000 persons, W8. Supplemental nutrition for children – number of children per 1000 persons, W9. Number of crimes per 1000 persons, W10. Ratio of people in the post-working age to the total number of population per 1000 persons, W11. Number of business owners per 1000 persons, W12. Number of newly registered business operators per 1000 persons in working age, W13. Ratio of the unemployed to the number of persons in working age, W14. Overall housing resources per person, W15. Number of residential buildings constructed before 1970.

divided into 4 analytical units. Ratio analysis was conducted based on standardization method to determine the intensity of negative social phenomena in particular areas. The method allows to hierarchize the areas of a given municipality according to the degree of degradation.

The conducted research allowed to delimit the degraded area in Karlino municipality, encompassing all rural areas (area number 4) and part of the urban area (area number 2). For the purpose of distinguishing the area for revitalization, a summary of standardized indicators in particular analytical units was used – Table 1.

Table 1. Social sphere indicators

Name	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
AREA I	-0.14	-0.94	-0.71	1.09	1.384	1.20	1.35	1.29	1.46	-0.69	0.97	0.89
AREA II	0.81	1.40	1.45	-0.80	-0.554	-0.69	-0.68	-0.81	-0.78	1.42	-0.51	-0.76
AREA III	-1.37	-0.11	-0.14	-0.90	-0.880	-0.94	-0.82	-0.78	-0.24	-0.03	-1.15	-0.97
AREA IV	0.69	-0.35	-0.61	0.60	0.050	0.44	0.16	0.30	-0.44	-0.71	0.68	0.84
Name	W13	W14	W15									
AREA I	0.97	0.18	-0.03									
AREA II	-0.85	0.84	-0.57									
AREA III	-0.88	0.42	-0.82									
AREA IV	0.75	-1.44	1.41									

Source: own study.

The in-depth studies conducted as part of the revitalization process in Karlino municipality showed that the largest accumulation of negative processes and phenomena connected with the post-state farming past of the areas affect the following towns in particular: Mierzyn, Karścino, Poblócie Wielkie, Ubyślawice, Karlinko.

Observation and interviews as well as statistical analyses allowed to identify the most important problems of the local community.

Karlino is an urban-rural municipality and as such is characterized by a qualitative and quantitative diversification of problems in its specific areas. Owing to the research conducted, the main directions of development of rural areas could be identified.

- Creating conditions conducive to increasing the number of residents in the revitalized area and in the entire municipality. Depopulation is the main issue in Karlino municipality. In a special way it affects the area of revitalization;
- It is crucial to initiate actions which would stop the migration and result in increasing the attractiveness of the degraded area for the new residents;
- Creating attractive conditions for young people so they will want to stay and work in the revitalized area;
- Creating conditions for the development of high quality educational services for children, adolescents, and older people. It concerns also the part of the community which had been hitherto excluded from social life;
- Creating a high quality space conducive to integration of the community in the revitalized area;
- Increase in the economic activity of the residents. A low level of economic activity resulted in the accumulation of negative socio-economic phenomena in the revitalized area;

- Acquisition of new investors creating high quality attractive workplaces;
- Thermal efficiency improvement of residential buildings;
- Solving the problems connected with water and sewage management in the revitalized area;
- Improving the aesthetic and safety in the entire revitalized area;
- Caring for public space which should be friendly and accessible to everyone;
- Improving the technical condition of buildings in the revitalized area;
- Improving the technical condition of roads and sidewalks in the revitalized area;
- Development of communication connections within the municipality and outside of it;

CONCLUSIONS

Rural areas in Karlino municipality have been particularly affected by the changes which had taken place in agriculture in West Pomerania within the last twenty years, when state farms and the so-called production cooperatives were liquidated. Changing the resulting situation of rural areas in Karlino municipality requires taking long-term measures to identify and solve the main issues. The revitalization program is an example of a tool which allows the rural community to express their needs and at the same time to encourage activation in the realization of submitted revitalization projects. Unlike many similar strategic programs functioning in municipalities, revitalization is clearly social in character. It allows every resident, entrepreneur, association to engage in the process of development programming. The success of revitalization projects lies primarily in changing the mentality of the residents in rural areas. It is showing that their issues are important and possible to overcome. In the author's opinion, the experiences connected with the preparation of the revitalization program showed that it can be an effective tool in implementing a long-term development strategy in rural areas. The success of the revitalization process in Karlino was the very conception of the program, but most of all the revitalization projects designed and submitted by residents, entrepreneurs, and social organizations. Quantitative and qualitative research conducted by the author indicates the need to redefine the directions of development for the rural areas in Poland, to specify the tools of regional policies which would allow to use the potential of rural areas.

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*Piotr Nowaczyk*²⁵

PROFITABILITY ASSESSMENT OF SAILING PROJECTS IN WEST POMERANIA ON THE EXAMPLE OF THE DARŁOWO MUNICIPALITY

Abstract: The main objective of the article was to assess the profitability of sailing investments realized in West Pomerania. Achieving this goal made it possible to answer the question about the purposefulness of using sailing tourism for local development. Both primary and secondary sources were used in the article. Research findings have shown that sailing facilities may generate income. Port municipalities benefit from tax revenues. Sailing expenses provide money for the local economy, stimulating the development of enterprises. Sailing tourism thus becomes an important aspect of local economy development of West Pomerania. The profitability of sailing investment depends on the volume of tourist traffic. Maintaining it on a high level requires promotional activities. A change in the construction of sailing facilities should be considered. Expanding the scope of provided services, as well as cooperation of the public institutions, the private sector, and the world of science, could potentially increase the attractiveness of West Pomerania as far as sailing is concerned.

Key words: local development, sailing tourism, investment profitability.

INTRODUCTION

Nautical tourism in European countries has been treated as a key element of regional and local development (Durydiwka 2013, Guzik and Ostrowska 2013). The development of sailing takes place on various latitudes and in different climatic conditions. The construction and equipment of sailing facilities – harbors and marinas – as well as the scope of associated services show a large variation (Luković 2012). The aforementioned conditions influence the volume of sailing traffic and as a result also the profitability of sailing investments and benefits for the local economy.

An essential element that makes possible the provision of sailing services is the infrastructure, the basic element of harbors and marinas (Mazurkiewicz 2010)²⁶. Infrastructural investments are characterized by a high capital intensity. The benefits from their operations are either spread over a long period of time or non-existent. For this reason, infrastructural projects very often show negative profitability for the beneficiaries, which means that the net income does not cover the investment costs (Brzozowska 2006). Therefore, the main initiator of infrastructural investments is the public sector. The lack of profitability is not, nonetheless, a premise to discontinue investments (Fabrycky at al.), since the main objective of the public sector is to cater to the collective needs of the local communities. In the case of public entities, investment projects cannot generate income understood as financial flows related to the direct investment operations. Investment objects, however, have a broad spectrum of impact on the local economy. They stimulate the development of local entrepreneurship and increase the demand for new jobs (Ławińska 2014).

Among the experts on the subject, opinions on the purposefulness of development of sailing tourism in Poland are divided (Szwichtenberg 2001, Kowalska 2010, Łapko 2015). Possessing natural assets for sailing creates a chance for port municipalities. Basing the development on sailing tourism is all the more justified, as coastal regions in most cases classify as rural areas. They are characterized by an above-average unemployment rate, which is a result of the lack of large urban centers – especially in the central coastal strip – as well as their agricultural character, and a deep

²⁵ West Pomeranian University of Technology Szczecin, Faculty of Economics, Department of Marketing, Żołnierska 47, 71-210 Szczecin, piotr.nowaczyk@zut.edu.pl

²⁶ The main components of marinas and harbors are: piers, approach fairways, docks, energy, water, and sanitary networks, yacht lifting equipment, parking spaces, rest and refreshment rooms.

regression of fishery (Kaup 2010). On the other hand, however, the short tourist season and the high capital intensity of the sailing infrastructure raises the question about the validity of the development of nautical tourism.

The main purpose of this article is to assess sailing investments realized in West Pomerania. The analysis of investment profitability will be conducted from the perspective of a marina operator, a beneficiary of the investment, and the local community²⁷. Reaching our objective will allow to answer the question about the purposefulness of using sailing tourism in local development.

Due to the research material at our disposal and the limitations in access to statistical data, research was narrowed to the marina in Darłowo, whose construction was part of the West Pomerania Sailing Route project – a network of tourist ports in West Pomerania. However, in the majority of coastal municipalities the conditions for the development of sailing are similar. Thus, the conclusions can likely be applied to all of them.

It should be pointed out that in both Polish and foreign literature the economic aspects of the development of nautical tourism have not been thoroughly researched yet (Mańkowski 2008, Łapko 2015). There is, therefore, a gap in knowledge, and the author of the following article will attempt at filling it.

The choice of the subject matter for this article is all the more justified since the intensive development of sailing infrastructure, which took a few years (Heflich 2011), has been completed²⁸. It is possible to preliminarily assess the investment activities.

Both primary and secondary sources were used in the article. The literature on the subject and numerous publications and scientific studies have been consulted. Research was conducted in the form of in-depth interviews with representatives of small seaports. Especially valuable data were obtained from the manager of the Darłowo Seaport Management (ZPM). On the basis of collected material, comparative and cause-and-effect analyses of the occurring phenomena were conducted.

SPECIFICS AND ASSESSMENT OF THE PROFITABILITY OF INFRASTRUCTURAL PROJECTS

Among the basic methods of assessing the profitability of infrastructural projects are financial analysis and economic analysis (Drobniak 2008). Financial analysis is conducted from the perspective of the beneficiary and serves to establish the financial flows related directly to the functioning of the investment. It takes into account the size of investment outlays and the profitability of the investment – rate of return on the operational level. Economic analysis, on the other hand, determines the importance of the project for the local community (Zarzecki 2007). It thus corrects the financial analysis as far as financial flows connected with the operations of business entities, employees' salaries, and tax revenues are concerned. The main indicators used in the assessment of profitability of infrastructural projects by means of financial and economic analyses are: the financial and economic net present value. With the use of these NPVs, it is possible to calculate financial flows to be generated by the project in the reference period, for the beneficiary and for the local community accordingly. The discount rate used in the formula allows to express the future financial flows as present value.

Hereby article to rating of financial profitability of marina in Darłowo used a break-even point method. Her appointment has required of the financial profitability of an investment - FNPV/C. An

²⁷ In West Pomerania, sailing facilities are usually operated by Seaport Authorities – municipal entities, while local governments are the investment beneficiaries.

²⁸ The investment process with the aim of expanding the sailing infrastructure within the "West Pomerania Sailing Route" project covered the years 2010-2015, and within "The Żuławy Loop" project – 2010-2014. The majority of sailing infrastructure in Poland was built/modernized as part of these two projects.

account of source of investment financing (PLN 1 200 000 000)- assets of Darłowo municipality (PLN 500 000 000) and EU subsidy (PLN 700 000 000) - in calculations take FNCP/C index in variant without EU subsidy and in variant with union funds. To illustrate benefits, which generates marina for local economy estimated the size of the tax revenue of the municipality's budget of nautical activities and the amount of tourism's expenditure. Estimation of the size of tax revenue needed to take of two indicators: the share of revenue from sailing in the budget of the ZPM Darłowo and tax revenues the port sector in the budget of the municipality. Based on earlier study assumed was adopted a constant value of the second indicator at the level of 4 %. When estimating amount of tourist spending was necessary to the knowledge of the data about the number of sailors visiting the port and their average expenditure per day of stay. Based on the number of calls to the yacht port and information obtained in the course of the research, it was found that the average time a yacht in the harbor is 4 nights and the average number of sailors on the unit it's 3 perso. Information about average tourism expenditures with share on foreign and domestic sailors as established on the base of statistic data published by Ministry of Sport and Tourism.

ASSESSMENT OF PROFITABILITY OF THE YACHT MARINA IN DARŁOWO AND IDENTIFICATION OF BENEFITS FROM THE DEVELOPMENT OF SAILING TOURISM FOR THE LOCAL COMMUNITY

Demonstrating the profitability of a yacht marina for a port operator – ZPM Darłowo, requires an analysis of the operator's financial situation. For the first four years of its operation, from 2013 to 2016, the marina was profitable on the operational level (Table 1). This means that the revenue from the port fees paid by sailors exceeded the costs of ongoing maintenance of the facility. From the operational point of view, the investment was a profitable venture.

Table 1. Profitability of the yacht marina in Darłowo (in thousands of zlotys) for the port operator in the period 2013-2017

Characteristics	Years							Total
	Pre-investment period		Post-investment period					
	2011	2012	2013	2014	2015	2016	2017	
Number of yacht callings	200-250		445	533	672	562	483	2695
Revenues	23.8	21.3	105.7	159.7	174.3	151.6	100.3	691.6
Costs	n.d	n.d	67.0	79.2	81.6	110.7	138.7	366.5
Income	n.d	n.d	38.7	80.5	92.7	40.9	-38.4	214.4

Source: Own study on the basis of data from ZPM Darłowo.

The main revenue-generating factor was the increasing interest of sailors in the Darłowo port, which was confirmed by statistics (Table 1). The number of yacht callings at the marina – the only available indicator of sailing traffic – shows a rising trend. An especially intense growth of sailing traffic and thus a rise in profitability occurred in the first years after the marina started operating, i.e. 2013-2015 (Nowaczyk 2015). This would confirm the importance of the infrastructure in the development of nautical tourism. However, in the last two years of the research period: 2016-2017²⁹, there was a decrease in sailing traffic. This was reflected in the decrease in income. At the same time, maintenance costs began to rise. As a result, in 2017 the yacht marina generated losses for the first time.

²⁹ Due to the end of the sailing season in September, it was possible to draw up a financial summary before the end of the calendar year 2017.

The main cause of the worsening financial situation of the marina was the discontinuation of marketing activities. This is confirmed by the analysis of national composition of sailors visiting the Darłowo port. In the recent years, there has been a radical drop in the number of yachts from Germany, which had previously been the largest group of vessels calling at the Darłowo marina. Foreign sailors are especially sensitive to advertising and promotional campaigns. For Polish sailors, especially the residents, the yacht marina in Darłowo is a place they visit frequently and regularly. In the case of local sailors, there has been no decrease in interest in this particular port.

Another cause behind the decrease in income was the steady increase in the maintenance costs, which was connected with the deteriorating technical condition of the infrastructure, mainly the piers. Several years of use showed that the choice of lightweight, wooden piers in a seaport exposed to adverse weather conditions had not been a good choice. After a few years of operation, the piers required not only emergency repairs, but often some major renovations.

A much more difficult task than determining the current profitability of the investment is establishing its profitability in the reference period³⁰. This is caused by the short period of the facility's operation and significant fluctuations in income, which practically make it impossible to forecast financial flows. Due to the aforementioned obstacles, only the BEP has been established, i.e. the point at which total cost equals total revenue. On the basis of FNPV – Financial Net Present Value³¹ in variant with subsidy - it was calculated that the yacht marina in Darłowo will prove to be a profitable investment if it generates a yearly average income of at least PLN 69,000. Data presented in Table 1 show that only in the years 2014-2015 the generated income guaranteed a return on investment. In the entire analyzed period: 2013-2017, the yearly average income was PLN 42,000, so (significantly) below the BEP. Considering that in the following years the maintenance costs will grow, only a significant increase in sailing traffic and/or increase in tourist expenses could guarantee income which might cover the initial investment costs. While FNPV in variant without UE subsidy – and so taking into account the total value of investment in the amount of PLN 1 200 000 – return on investment is made at the average annual profitability of the facility at a much higher level, namely at PLN 166 000. In any of the examined years, port's operator didn't reach so a high income.

Income from the port fee is not the only benefit for the Darłowo municipality. Numerous branches of local economy are connected with sailing tourism, e.g. the transport sector, catering and hotel services. In the port area, entrepreneurs offer the possibility of chartering yachts. The M&W Darłowo shipyard deals with repairs and maintenance of sailing equipment. The yacht marina offers services connected with underwater maintenance of yachts, and there are diving trips organized for the sailors.

Local businesses which provide sailing services generate tax income for the port municipality. To determine its precise amount is not an easy task. There are no official statistical data on the tax income from nautical tourism. Moreover, for the majority of entities providing sailing services is only one of many areas of activity. In this case a size of tax incomes to cities budget estimate in indirect method with taking into account of importance of sailing activity for port and port's sector for municipality. Accumulated value of tax incomes in the years 2013-2016 amounted to almost PLN 650,000, so it exceeded the value of investment outlays of Darłowo municipality. Return on investment from tax revenue alone occurred after almost four years.

The situation may look different if we take into account the profitability of the yacht marina. In the entire period 2013-2016, the marina's operational profitability was at the level of PLN 214,400, thus increasing the benefits from the construction of the facility for the municipality. However, the

³⁰ In the feasibility study for the project "West Pomerania Sailing Route," a fifteen-year reference period was assumed, for which financial flows were calculated.

³¹ In accordance with the guidelines of the European Commission for projects financed from structural funds and the EU Cohesion Fund for the years 2007-2013, the discount rate was established at 5.0 % (POT 2010).



positive perception of the marina's operation could be altered due to the diminishing intensity of sailing traffic and the decreasing profitability and tax revenue. It is, however, difficult to imagine that the tax revenue along with the net profit would not cover the initial investment outlays.

Table 2. Method of assessing tax revenues from sailing tourism (in thousands of zlotys) in the budget of the Darłowo municipality in the years 2013-2016

Time range	The amount of revenue of ZPM Darłowo (thousands of zlotys)	Revenue of ZPM Darłowo from the servicing of sailing traffic (thousands of zlotys)	The share of revenue from servicing of sailing traffic in the total revenue of ZPM Darłowo	The adopted for the calculations share of tax revenue of the port sector in the budgets of port municipalities	The size of tax revenues from sailing tourism in the local budget (thousands of zlotys)
2013	2,797	106	4%	4%	81
2014	2,050	160	8%	4%	162
2015	4,250	174	4%	4%	97
2016	1,253	152	12%	4%	302
Total	10,350	592	6%	4%	642

Source: Own study on the basis of data of ZPM Darłowo, Darłowo City Hall, and Pluciński (2001), Matczak (2016).

Finally, the estimation of net economic benefits for the local economy from the development of sailing tourism remains (tab. 3.). On it measure to take a size of sailing's expenditures, which in the years 2013-2016 exceeded the sum of PLN 5,000,000. Considering that the majority of sailing services is provided by local businesses, the major part of the estimated amount will penetrate into the local economic cycle.

After taking into account the financial flows of the yacht marina's operator, the tax revenues, and the sailing expenses, it can be concluded (recognizing the imperfection of the calculations) that the development of sailing infrastructure generates net profit for the local economy.

Table 3. Estimate value of sailors' spendings (in thousands of zlotys) in Darłowo municipality in the years 2013-2016

Years	Number of yacht callings	Number of yacht callings divided into:		The average time of stay in the marina (days)	Number of sailors per vessel	Sailors' spendings (thousands of zlotys)		Expenses total (thousands of zlotys)
		domestic	foreign			Domestic	Foreign	
2013	445	163	282	4	3	311	813	1,124
2014	553	145	408	4	3	139	1,023	1,162
2015	672	191	481	4	3	209	1,501	1,710
2016	562	213	349	4	3	250	1,081	1,331
Total	2,232	712	1,520	4	3	909	3,337	5,327

Legend: Domestic, Foreign - average spendings of tourists per one day of stay in Poland in the years 2013-2016 were: for domestic tourists – PLN 159, PLN 80, PLN 91, PLN 98; for foreign tourists – USD 76/PLN 240 (USD/PLN = 3.16 zł), USD 66/PLN 209 (USD/PLN = 3.16 zł), USD 69/PLN 260 (USD/PLN = 3.77 zł), USD 66/PLN 258 (USD/PLN = 3.91 zł).

Source: own study on the basis of: data from ZPM Darłowo and *Charakterystyka przyjazdów do Polski w latach 2013-2016*, Ministry of Sport and Tourism, Warsaw; *Charakterystyka krajowych i zagranicznych podróży mieszkańców Polski w latach 2013-2016*, Ministry of Sport and Tourism, Warsaw; currency exchange rates from NBP (National Bank of Poland).

SUGGESTIONS OF ACTIVITIES INCREASING THE PROFITABILITY OF THE SAILING INFRASTRUCTURE IN THE MUNICIPALITIES OF WEST POMERANIA

The profitability of sailing facilities depends on the relation of investment outlays to net income. Using lightweight constructions in the yacht marina in Darłowo significantly lowered the investment costs. At the same time, it accelerated the process of deterioration and thus increased maintenance costs already in the first years of operation. It begs the question of whether it would not be better to use a traditional way of constructing sailing facilities, with concrete piers. Undoubtedly the investment costs would rise, but the constructions would be more solid.

On the other hand, income generated by a yacht marina depends on the volume of sailing traffic. In the years 2016-2017, a falling interest of sailors in the marina was mainly caused by the discontinuation of promotional activities. Therefore, an intensive promotion of the marina is recommended with the use of simple marketing tools such as publishing guidebooks, folders, and sailing maps. The target group should especially include foreign sailors. In the long run, the promotional campaign should be strengthened by introducing a system of permanent categorization or joining one of the international yacht marinas associations (Łapko 2015).

An improvement in the marina's profitability should also be sought in the expansion of the scope of provided services. The Darłowo port should include in its offer the possibility of winterizing and storing yachts, and providing vessels with fuel. Equipping the port with a playground and parking space with access to water and electricity will make it more attractive for families sailing on yachts and tourists traveling in campers. In the area of entertainment and educational activities, we can name: organization of sailing and motorboat events, trainings, and conferences. Furthermore, creating local sailing clubs could attract young people and get them interested in sailing. Additionally, what should be considered is supplementing the sailing infrastructure with a preferably all-year accommodation, catering, and recreational base. When it comes to providing tourist attractions unrelated to sailing tourism or even tourism in general – which is practiced in bigger yacht marinas in Europe³² – it could limit the seasonality of sailing traffic (Pełta Żuławska (24)/2017, Lewczuk 2014).

Public institutions and private entities should be involved in the realization of the aforementioned activities (Gorynia and Jankowska 2008). The public sector can support the development of sailing tourism through expanding the infrastructure, as well as promoting sailing facilities and sailing conditions. These actions will increase the attractiveness of providing services by private businesses. The world of science could provide information on the needs of potential customers and new trends in tourism, and so it should be invited to cooperate in order to indicate proper directions of development of sailing tourism.

CONCLUSION

The conducted research has demonstrated that the expansion of sailing infrastructure in West Pomerania might stimulate the volume of sailing traffic. Its sufficient scale could then, in turn, generate net profit for port operators. In the article, the profitability of sailing investments for a port municipality has been demonstrated. Tourist expenses support the development of local entrepreneurship, which leads to the increase in tax revenues. Local economy benefits from the development of sailing tourism. The income from tourism is put into circulation of the local economy. Owing to this, new business operators offering sailing services appear on the market, while the existing ones expand their scope of activity.

³² For instance, the marina in the German city of Kröslin, apart from the typical sailing infrastructure with 500 yacht berths, is also equipped with expanded complementary facilities, among these are: three restaurants, a spa, houses on the water, a post office, a shipyard, 500 winter yacht berths, a hair salon, a mall, apartments on land, a massage salon, a gas station, a playground, a barbecue spot, a gift shop, a conference room, a bank.

The benefits from the development of sailing infrastructure are not given once and for all. It is vital to promote the sailing facilities, especially to foreign sailors. Discontinuation of promotion could potentially reduce the profitability of ports and yacht marinas or expose their operators to losses. Increase in profitability of sailing facilities can be achieved through expansion of the scope of provided services. Sailors should be attracted to ports not only by the natural conditions and surroundings, but also by accommodation, catering, and entertainment base and other tourist attractions. Cooperation between public institutions, business entities, and the science world can increase the sailors' interest in sailing facilities. While investing in the development of sailing infrastructure, the durability of its various components should be taken into account. The example of Darłowo shows that opting for lightweight constructions in a seaport is not the optimal solution.

Considering the risks and taking into account the postulates related to the development of sailing tourism, it can be stated that Sailing tourism becomes important aspect of development of local economy of West Pomerania.

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*Magdalena Okupniak*³³, *Leszek Wanat*³⁴, *Elżbieta Mikołajczak*³⁵, *Łukasz Sarniak*³⁶, *Agata Dolacińska-Śróda*³⁷

SELECTED OUTLIER IDENTIFICATION METHODS IN THE WOOD-BASED SECTOR COMPETITIVENESS POTENTIAL RESEARCH

Abstract: Research in effect analyzing data leads to observations, according to which some values strongly exceed the others. It may cause estimation inefficiency or mistakes in descriptive statistics results. Hence, the use and development of outlier identification methods, which are a part of robust statistics, should be considered necessary. The aim of the article is to define selected outlier identification methods and present the results of using them in the wood-based sector competitiveness potential research.

Key words: outlier, outlier identification methods, wood-based sector, competitiveness potential, hat matrix, leverage values.

INTRODUCTION

The wood market is a particular market. It consists of two complementary sectors of the economy: forestry and arboriculture. Their mutual relations are shaped both by the market mechanism as well as the institutional determinants remaining in connection with the paradigm of sustainable development coming from forestry sciences.

In wood market research, the traditional approach to economics is met with an integral approach. The forest-wood sector is a significant part of the natural economy, and its analysis refers to the achievements of forestry sciences, especially the economics of arboriculture. Undertaking attempts to explain competitive phenomena and tendencies occurring in the wood industry is a remarkable and, simultaneously, difficult challenge, requiring (to capture significant trends) accurate identification and subsequent elimination of outliers.

When we talk about outliers, we usually mean unusual observations, which are different from the others. There are many sources of their formation. Two categories of atypical observations are distinguished in the literature: - incorrectly given ones, which may be improperly recorded during data collection, coding or are deliberately changed, and - observations correctly given, clearly standing out from the others.

The latter usually come from a different population than the key part of the observation, called the core. Hence, the whole set of data can be divided into the core and outliers. Stanisław Heilpern underlines, that there is a lack of a clear and precise outlier definition (Heilpern 2005, p. 65). In table 1 we present selected definitions.

The manuscript uses a proprietary approach, taking into account the identification of observations of extreme values, differing significantly from the majority of observations in the studied population, and, simultaneously, subjecting this choice to a critical descriptive analysis. On this basis, the selection and justification of the possible inclusion or elimination of the identified observations from further research and the inference process were made.

³³Poznan University of Life Sciences, Department of Finance and Accounting, ul. Wojska Polskiego 28, 60-637 Poznań, magdalena.okupniak@up.poznan.pl;

³⁴Collegium Da Vinci in Poznań, Faculty of Social Sciences, ul. T. Kutrzeby 10, 61-719 Poznań, leszek.wanat@cdv.pl, corresponding author.

³⁵Poznan University of Life Sciences, Department of Economics and Wood Industry Management, ul. Wojska Polskiego 38-42, 60-627 Poznań, emikolaj@up.poznan.pl;

³⁶Poznan University of Life Sciences, Department of Finance and Accounting, ul. Wojska Polskiego 28, 60-637 Poznań, lukasz.sarniak@up.poznan.pl;

³⁷The European Academy of Hotel Management and Catering Industry in Poznań, agata.sroda@wshig.poznan.pl;

Table 1. Review and discussion of selected outlier definitions

Type	Type identification	Description	Sources
Type 1	the tail of the statistical distribution	“An outlier is a data value that lies in the tail of the statistical distribution of a set of data values. In the distribution of raw data, outliers are often regarded as more likely to be incorrect. In contrast, an inlier is an erroneous data value which actually lies in the interior of a statistical distribution, making it difficult to distinguish from good data values” (Eurostat glossary 2017).	Eurostat glossary; Statistical themes (2017)
Type 2	separated from others, from a different population	“In a sample of n observations it is possible for a limited number to be so far separated in value from the remainder that they give rise to the question whether they are not from a different population, or that the sampling technique is a fault. Such values are called outliers” (European Commission 2007, p. 119).	European Commission (2007)
Type 3	they are clearly different from others	“Often in a data set we can differentiate values which clearly differ from the others. These we name outliers. Their impact on the results of the methods used, especially classical, closely related to parametric models, is usually quite significant” (Ostasiewicz 1999).	Ostasiewicz (1999)
Type 4	it differs from the pattern, a determined by the majority	“Outlier observation is such an element of the sample that in some way differs from the pattern determined by the majority of the sample elements. (...) Or we define them in terms of the observation position in the sample without referring to the random mechanism that the sample has generated, or assume a certain model of outlying” (Kosiorowski 2012, p. 27).	Kosiorowski (2012)
Type 5	observation far away from others (extreme)	“Extreme observation can be an outlier, when is appropriately far from the others, i.e. when its value is too big or too small, even if it is an extreme value” (Heilpern 2005, p.45-46)	Heilpern (2005)
Type 6	a small part of extreme data, when most have skew distribution	“Outliers are a frequent concern in surveys with quantitative variables like household budget surveys or business surveys on production or turnover. A relatively small fraction of the data has extreme values in one or several variables. Often these extreme values occur when the bulk of the data has already a markedly skew distribution” (Hulliger 2016).	Hulliger (2006)

Source: Authors' own elaboration

THE IDEA OF RESEARCH AND METHOD

While developing the research scenario, the experience of other studies concerning the forest-wood sector was used, in which problems emerged with the identification and elimination of outliers. In addition, references were made to the manuscripts in which proposals for such organization and research optimization were formulated to reduce or eliminate the impact of outliers if possible (Wysocki 2010; Ostasiewicz 2012; Popek and Wanat 2014; Kusiak *et al.* 2017; Paluś *et al.* 2017). The following theoretical approach was proposed in the study:

1. **One-dimensional statistical tests.** The outliers observed in the studies in an unequal way affect the values of the estimation of regression parameters estimated with the least-squares method or the degree of adjustment of the regression hyper-plane to the observations. After separating them from the remaining observations, they significantly change the parameters and sizes of the modelling residues. However, it should be considered that not always the outlier observation

must be part of another population and we cannot reject it in every case. Homogeneity tests of the sample in the one-dimensional case allow the identification of outliers. They make it possible to decide whether the considered observation violates the homogeneity of a sample derived from a normal distribution.

2. **Multi-dimensional-Welsch measure.** In this part of the article we will discuss the methodology that allows for multidimensional identification of outliers and, in particular, influential observations.

For the general form of the linear regression model, which is expressed by the following formula:

$$Y = X\beta + e \quad (1)$$

we can define a square **hat matrix** H , its dimension is $n \times n$ (Ostasiewicz 1999, p. 334):

$$H = X(X^T X)^{-1} X^T \quad (2)$$

It should be noted here that the matrix X is a matrix of explanatory variables values, its dimension is $n \times (p + 1)$, where p is the number of auxiliary variables considered in the given regression model, and n is the sample size.

Hat matrix is symmetric and idempotent. Its diagonal elements ($h_i, i=1, \dots, n$) are named leverage values and they describe the impact of individual observations on the assessment of the parameters of the regression model and meet inequality $\frac{1}{n} \leq h_i \leq 1$.

The strength of the effect of observations increases proportionally to the value of the leverage value. A method of inference are selected - based on the analysis of the descriptive study, formulated according to the main hypothesis: direct or reverse.

The question arises, from which moment - for which value of the influential value, the limit value can be determined, which will allow the assessment of the observation to be influential or not?

Such thresholds were proposed by Hoaglin, Welsch and Velleman.

They are the following (Ostasiewicz 1999; 2012):

a) Hoaglin and Welsch: $h_H = \frac{2p}{n}$, (3)

b) Velleman and Welsch: $h_V = \frac{3p}{n}$, (4)

The classical inference procedure proceeds in such a way that if the observed value of the leverage value is greater than the threshold value h_H or h_V , then we consider the given observation to be influential. In the presented study, the reverse hypothesis was verified, because the analyzed source matrix did not include individual values of each index, but aggregated competitiveness measures (Ostasiewicz 2012). As a result of a descriptive analysis, influential values were determined indicating the competitive ability of the analyzed countries (and their wood markets), the lowest indications for "leverage value" were adopted successively (Popek and Wanat 2014).

THE RESEARCH DESCRIPTION AND RESULTS

The analysis of the competitive position resulting from the competition process is considered in the perspective of the results obtained by competitors (Olczyk 2008). Its aim is to try to determine the place of the industry on the market, defined in comparison to competitors (Gorynia 2010), i.e. the position that the domestic industry achieved in relation to analogous branches of other national economies (Lubiński *et al.* 1995). In the study of the competitive position of the round wood market, selected synthetic measures of a resultant nature were used. In order to obtain an aggregated result, detailed sorting of wood raw material was omitted. Statistical secondary data were included and verified based on the value of exports and imports of round wood in selected countries (OECD

2012; Popek and Wanat 2014). Taking the consistency, comparability and adequacy of the available data as the starting point, the following measures of competitiveness were selected (see table 2):

- SI export specialization indicator (Specialization Indicator),
- coverage of imports by CR export (Coverage Ratio),
- intra-industry trade intensity indicator IIT (Intra-Industry Trade),
- RCA (Revealed Comparative Advantage Index).

Table 2. Comparison of competitive position indicators of selected European countries for round-wood markets, according to the substantive and statistical criterion of the OECD (2017)

Selected countries in Europe	SI Index	CR Index	IIT Index	RCA Index
Austria	2,09	11,88	0,21	-0,79
Belgium	1,15	50,64	0,67	-0,33
Czech Republik	9,31	203,34	0,66	0,34
Denmark	2,72	73,67	0,85	-0,15
Estonia	36,64	559,59	0,30	0,70
Finland	3,68	19,02	0,32	-0,68
France	2,22	223,86	0,56	0,44
Germany	0,93	57,78	0,73	-0,27
Italy	0,19	7,45	0,14	-0,86
Ireland	0,93	76,23	0,86	-0,14
Netherlands	0,21	169,85	0,74	0,26
Norway	2,89	153,73	0,79	0,21
Poland	4,12	165,99	0,75	0,25
Portugal	6,87	79,31	0,88	-0,12
Slovakia	11,77	646,11	0,27	0,73
Slovenia	13,23	245,48	0,58	0,42
Spain	1,79	115,07	0,93	0,07
Switzerland	1,55	408,61	0,39	0,61
Sweden	1,56	15,24	0,26	-0,74
United Kingdom	0,46	93,36	0,97	-0,03

Source: Authors' own elaboration based on Wanat (2015), Wanat and Klus (2016)

To analyze the competitive position indicators: SI, CR, IIT and RCA, a group of 20 countries was selected after verification of statistical data: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Spain, the Netherlands, Ireland, Germany, Norway, Poland, Portugal, Slovakia, Slovenia, Switzerland, Sweden, Great Britain and Italy. Unfortunately, no coherent data were obtained for Lithuania and Latvia (non-compliance of FAO and OECD data), which is why these countries were omitted. Competitiveness measures have been calculated for selected countries.

The values of the SI export specialization index were determined, which enabled to compare the share of round timber exports of the studied country with the share of this raw material in world exports. The high values of this indicator show a strong competitiveness of the examined market.

The export coverage rate for the round wood market was also calculated. The strength of specialization in the studied area is demonstrated by the CR index values, for which indications higher than 100 were obtained (for CR given as a percentage) (Lubiński *et al.* 1995). The CR index is considered a measure of the 'internal comparative advantage', useful for researching the competitiveness of the industry (Pawlak 2013, p. 98). Next, the value of the IIT index of intra-industry trade in round wood was determined, according to the formula of Grubel and Lloyd and the

value of the index of revealed comparative advantages of RCA (Jankowska 2005). The results are summarized in Table 2.

The following assumptions were made to determine influential indications, referring to threshold values:

$$h_H = 0,4$$

$$h_V = 0,6$$

Based on them, calculations were made, the results of which are summarized in Table 3.

Table 3. Identification of influential values and elimination of outliers in the study of the competitive position of round-wood markets in selected European countries

Classification	State	Leverage value
Type 6. (outliers that have no impact)	Estonia	0,815
	Slovakia	0,599
Type 5. (minimal impact)	Switzerland	0,339
	Italy	0,282
Type 4. (low impact)	Austria	0,228
	Sweden	0,198
	Finland	0,172
Type 3. (average impact)	Portugal	0,143
	United Kingdom	0,134
	Slovenia	0,129
	Spain	0,120
Type 2. (significant impact)	Netherlands	0,106
	Ireland	0,103
	Denmark	0,101
	France	0,097
	Czech Republik	0,093
Type 1. (high impact)	Norway	0,089
	Germany	0,085
	Belgium	0,083
	Poland	0,082

Source: Authors' own elaboration

It is worth noting that the proposed method of identifying and then eliminating outliers allows to determine the competitive position of the surveyed European countries, in this case taking into account their primary wood market (round wood) (Wanat and Klus 2015), with a greater precision.

The method gives an additional opportunity to capture and verify some of the characteristics that are not easily discernible using traditional methods. This way (see Table 3), a completely different description of the Estonian and Slovakian markets was noticed (Kaputa *et al.* 2016), whose competitiveness is probably not determined by the classic competitive potential, but it is necessary to seek other additional development factors (in the study, these countries were identified as so-called "non-influential").

Three so-called 'middle' groups (type 2,3 and 4), selected by a descriptive method may be of interest (Ostasiewicz 2012), although other agglomeration methods can be used as well (Wysocki 2010; Popek and Wanat 2014). An important observation is the identification of Poland among the influential leaders of the competitiveness ranking of round wood markets, alongside Germany and Norway. It is necessary to additionally verify the observed influential position of Belgium, about which in this classification decided not so much the market potential as the relative balance between

the internal market and international trade. This indicates different than the so-called resource model of competitiveness, which characterizes Poland.

CONCLUSIONS

The identification and classification of the competitive position in selected European countries, from the point of view of round wood markets in these countries, are usually carried out using traditional methods. This often leads to incomplete knowledge, sometimes to incomprehensible conclusions from outcomes with outlier traits.

For these reasons, the use of both traditional mathematical methods and indicators of competitiveness should be enriched with methods for identifying and eliminating outliers, then with agglomeration methods, and above all with contextual statistical inference, supported by descriptive analysis. This is particularly important when the subject of research is an industry based on natural resources, in this case on round wood.

The research conducted on the basis of a selected case study, which concerned the identification of the competitive position of the Polish round wood market, is also a recommendation for the industry policy. The opportunity of an economic growth, which is the position and potential of the domestic wood market, should be taken into consideration as one of the priorities of the Polish development policy.

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Camelia Oroian³⁸, Antonia Odagiu³⁹, Daniela Bordea, Petru Burduhos, Ioan Brasovean, Iulia Muresan⁴⁰

TESTING UNCONVENTIONAL SOLUTIONS IN FIGHT AGAINST LATE BLIGHT AND ALTERNARIOSIS IN POTATO, IN TRANSYLVAINIAN PLAIN, ROMANIA

Abstract: The identification of organic, unconventional, solutions in order to fight against most encountered plant mites and pathogens is a preoccupation of our days. In this context, the aim of our research consists in testing the possibility of using *Allium sativum* L., and selenium enriched *Allium sativum* L. in fight against late blight and alternariosis in potato, in conditions of obtaining appropriate interests. A bifactorial experimental design with two graduations, according to the randomized blocks methodology, was implemented in pedo-climatic conditions of Transylvanian Plain, Romania. The data were statistically processed with STATISTICA v 7.0. Basic statistics was used for calculation of means, standard deviations, coefficients of variation, and differences between means, for fungal pathogens attack degrees and potato productions. Our research shows that the use of 1.1% aqueous solution of organic selenium enriched *Allium sativum* L. is a valuable alternative in fight against *Alternaria solani* Sorauer, and *Phytophthora infestans* Mont. De Bary, in both Redsec, and Roclas potato varieties, in studied experimental conditions.

Key words: *Allium sativum* L., attack degree, interest, production.

INTRODUCTION

The constraints of our days, when effective control of large and small culture plants and trees pathogens and pests is increasingly confronted with environmental problems but also with the emergence of the phenomenon of resistance of harmful organisms to specific chemical treatments, the identification of unconventional solutions to manage these situations become an urgent issue. A large diversity of unconventional solutions, which consist in the use of plants and insects extracts in fight against phytopathogens and mites are now available worldwide (Chowdappa et al. 2014; Cobos et al. 2015; Gordon et al. 2015; Zamora-Ballesteros et al. 2016; Shuping, Eloff 2017). An important alternative, focusing these realities, is the adoption of the integrated management option. In this paradigm, an important role lies in identifying and testing the plant-based resources with phytonocidal potential (Stenberg 2017).

Potato, one of the most important plant cultures in Romania. It is confronted with the same problems related to the sustainable management of phytosanitary protection, like cereals or forest trees. Based on these prerequisites, results that the approach concerning the identification and implementation of unconventional solutions for antifungal treatments applied to potato culture, may be a solution to solve the potato disease fight in terms of respect against environment and sustainable development (Ianoși et al. 2002).

If we take into account the availability of plants extracts with demonstrated efficient effect on fungal diseases, among large diversity of such plants we also identify *Allium sativum* L. (Bordea et al. 2014; Subhani et al. 2014; Debbarma et al. 2017; Shuping, Eloff, 2017). Because of the wellknown antibactericide and anti-fungal properties, *Allium sativum* L. – the garlic, was tested, in

³⁸ Faculty of Horticulture, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, 3-5, Calea Mănăștur, 400372 Cluj-Napoca, Romania, e-mail: cameliaforoian@gmail.com

³⁹ Faculty of Agriculture, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, 3-5, Calea Mănăștur, 400372 Cluj-Napoca, Romania, e-mail: Antonia.odagiu@usamvcluj.ro

⁴⁰ Faculty of Agriculture, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, 3-5, Calea Mănăștur, 400372 Cluj-Napoca, Romania, e-mail: e-mail:bordeadana@yahoo.com

several studies, with the aim of identifying its ability as antifungal agent, in fight against late blight and alternariosis, diseases produced in plants by the attack of the mushrooms *Phytophthora infestans* Mont. de Bary and *Alternaria solani* Sorauer. Majority of these tests were performed in countries from Asia, where research in this field is more developed compared to European or American (Pandey, 2001; Subhami et al., 2014).

The antifungal mechanism of garlic action may be explained by the fact that, before administration as antifungal agent as spray on the affected plant, garlic is shredded and consequently the cells are destroyed. Simultaneously, garlic releases sulfur-rich allicin, which has an irritant effect on pests and pathogens. This process was originally described as a garlic defense mechanism against birds, insects and worms attacking the plant. Later, this is the property that was successfully exploited when garlic is used as an organic phytosanitary agent (Oroian 2012, Bordea et al. 2013).

Based on above mentioned results and taking into account the synergistic effects of the use of garlic enriched in selenium, as evidenced by scientific experiments (Bordea et al. 2013), our study aims at testing the antifungal effects of the aqueous extracts of garlic and garlic enriched in selenium on the attack of *Phytophthora infestans* Mont. by Bary and *Alternaria solani* Sorauer on potato crops, and also the consequences of using garlic as antifungal agent, upon potato production and economic efficiency under the pedo-climatic conditions of the Transylvanian Plain, Romania, compared with results obtained with conventional phytosanitary treatment, in the same experimental areal.

MATERIAL AND METHOD

The experiments were carried out in the Transylvanian Plane, Pădurenii village, Pădurenii commune, Cluj County (47° 04' 14 N, 24° 00' 0E). The biological material is potato, two Romanian genuine potato varieties, respectively, Redsec and Roclas, namely. The Redsec is a semi/late variety, created at the Station of Research for Potato Culture Târgu Secuiesc. It has the biological capacity of production of 55 t/ha (<http://fermieronline.ro/Soiuri+romanesti+de+cartofi#sthash.SYbOn6V7.dpuf>). The Roclas potato variety is produced by the Potato Institute Braşov and it is a semi-early variety. It has the production capacity of 65.9 t/ha (<http://fermieronline.ro/Soiuri+romanesti+de+cartofi#sthash.FSX1eqIA.dpuf>). The Romanian variety of garlic (*Allium sativum* L.), Sibişel, was obtained from commerce.

The experimental field lays on an area of 100 m². The climate is temperate and soil is of argic chernozem type (faeozem). The soil has characteristics appropriate for potato culture. For the experimental groups, soil was fertilized with commercial NPK fertilizer, in ratio of 15 : 15 : 15.

The attack degrees of *Phytophthora infestans* Mont. by Bary and *Alternaria solani* Sorauer on potato crops were monitored and calculated according to Oroian (2008). The phytosanitary treatments were applied on potato foliar tissue, by spraying. The conventional treatments were applied with the products Infinito 687.5 SC and Alcupral 50 PU, while unconventional treatments were performed with aqueous 1.1% and 2.2% *Allium sativum* L. solutions and aqueous 1.1% and 2.2% organic selenium enriched *Allium sativum* L. (aq.). Alcupral 50 PU was administered in dosis of 3 kg/ha. The product is commercialized as a fine wettable powder, homogeneous, mobile, without agglomeration tendency, green. The active substance is metallic copper (in share of 50%), in the form of copper oxychloride. The producer is Alchimex SA Bucureşti. The Infinito 687.5 SC is produced by S.C. Bayer S.A. The active substances of the product are: 625 g/l propamocarb hydrochloride + fluopicolide 62.5 g/l. It is administered in doses of 1.4 L/ha. The solutions of *Allium sativum* L. were prepared in the Laboratory of Environmental quality Control and Plant Protection from the University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca (UASVM), and organic selenium enriched *Allium sativum* L. was obtained in the greenhouses of the University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca (Muscă 2014).

The experiment was organized according to a bifactorial design (fertilization and phytosanitary treatment) with two graduations (fertilized, and not fertilized; untreated and phytosanitary treated), with three repetitions, in 2017. The experimental design was implemented according to the randomized blocks methodology (Sestraş et al. 2002). The data were statistically processed with STATISTICA v 7.0. Basic statistics was used for calculation of means, standard deviations (s), coefficients of variation (CV%), and differences between means (t-test independent by variables), for fungal pathogens attack degrees and potato productions.

The calculation of the economic efficiency was performed according to Cristache, 2014. We take into account the specific economic indicators, by improving a calculation algorithm in Excel. In order to calculate the field works we used the calculation model that includes the following workmanships: plowing, ditching, planting, rehabilitation, phytosanitary treatments management and harvesting fee. For the calculation of total expenditure for each type of treatment, a more complex model has been used, which takes into account more components (Cristache 2014). In our calculation, we consider the following prices: 4.50 RON/L for diesel fuel needed for field works, 0.7 RON/kg for potato seed, and 5 RON/kg for garlic (*Allium sativum* L.). We consider the price of 35 RON/kg for selenium enriched garlic, obtained in UASVM Cluj-Napoca greenhouses. We consider the following prices for potato production: 0.7 RON for unfertilized untreated potato, 1 RON/kg for conventionally treated and fertilized potato, and 1.70 RON for fertilized unconventionally treated (with garlic and selenium enriched garlic) potato.

RESULTS AND DISCUSSIONS

Analyzing the results obtained as result of administration of the phytosanitary treatment of the Redsec potato variety under experimental conditions characterized by the pedo-climatic regime in the Pădureni area specific to the Transylvanian Plain during the experimental period with unconventional treatments consisting of aqueous solutions of *Allium sativum* L. and *Allium sativum* L. enriched in organic selenium at different concentrations, it was found that there were recorded *Phytophthora infestans* Mont. De Bary attack degrees far below the untreated control, but similar in order of magnitude to those obtained from conventional treatments with Alcupral 50 PU and Infinito 687.5 SC (Table 1).

The analysis of mean attack rates over the entire experimental period, obtained for each phytosanitary treatment variant, including the untreated control (Table 1), highlights the efficacy of the treatments performed with conventional products Infinito 687.5 SC and Alcupral 50 PU, but also with 1.1% aqueous solution of selenium enriched *Allium sativum* L. The best results are reflected by the values of the lowest mean attack degrees (AD), namely AD = 5.32% (treatment with Infinito 687.5 SC), AD = 4.62% (1.1% organic Se enriched *Allium sativum* L. aq.), and AD = 4.28% (Alcupral 50 PU). The increase of concentration of aqueous solutions of garlic with, and without selenium supplements led to inferior results, reflected by the values of the increased mean attack degrees, of AD = 7.03% (2.2% *Allium sativum* L. aq.) and AD = 7.37% (2.2% organic Se enriched *Allium sativum* L. aq.). The biggest mean attack degree, AD = 17.74% is reported in untreated, unfertilized control (Table 1).

In all studied cases, the variability is lower than the threshold of 30% (Merce and Merce, 2009), and this confirm the homogeneity of the data and representativeness of the attack degrees means. The biggest value of the variability (CV=22.90%) is reported in experimental variant where the lowest late blight attack degree is recorded, when phytosanitary treatment was performed with Infinito 687.5 SC, while the lowest (CV=6.01%), where phytosanitary treatment was performed with 1.1% *Allium sativum* L. aq. In control and other experimental variants, variability frames within the interval 7.71% - 13.42% (Table 1). Concerning the values of maximum and minimum, we emphasize the minimum late blight attack degree in Redsec potato variety (3.51%) when treatment is performed with conventional product Infinito 687.5 SC, and maximum, as expected, in



untreated control, 21.42%, respectively (Table 1). These results are not consistent with those obtained by Bordea (2014), in the same areal. The explanation may be put on the climatic conditions, which are also a characteristic of the year, not only of the reference areal, but also on the garlic variety used for preparation of the phytosanitary treatments.

Table 1. The basic statistics of *Phytophthora infestans* Mont. de Bary attack degree (AD%) in Redsec potato variety function of administered treatments, 2017

Experimental variant	n	Mean	S	Min.	Max.	CV (%)
Control	28	17.74 ^d	2.38	15.03	21.42	13.42
Treatment with 1.1% <i>Allium sativum</i> L. aq.	28	6.66 ^{dab}	0.59	4.22	6.76	6.01
Treatment with 2.2% <i>Allium sativum</i> L. aq.	28	7.03 ^{dab}	0.41	5.12	7.12	11.52
Treatment with Alcupral 50 PU	28	5.32 ^{da}	0.81	4.16	8.12	7.71
Treatment with Infinito 687.5 SC	28	4.28 ^{dba}	0.40	3.51	5.15	22.90
Treatment with 1.1% organic Se enriched <i>Allium sativum</i> L. aq.	28	4.62 ^{dba}	0.39	3.88	5.15	8.44
Treatment with 2.2% organic Se enriched <i>Allium sativum</i> L. aq.	28	7.37 ^{dab}	0.98	4.02	7.41	8.01

Note: a – statistically no significant at $p > 0.05$; b – statistically significant at $p < 0.05$; d – statistically significant at $p < 0.001$.

Similar evolutions as those obtained in Redsec potato variety (Table 1), were obtained when Roclas potato variety was analyzed in the same areal and experimental conditions (Table 2), but the mean values of the late blight attack degrees are lower, in majority of groups. Thus, results the efficacy of the treatments performed with Infinito 687.5 SC, and 1.1% aqueous solution of selenium enriched *Allium sativum* L. with close means, followed by the value of the mean attack degree obtained in group where Alcupral 50 PU, was administered. The lowest mean attack degrees (AD), namely AD = 2.37% (treatment with Infinito 687.5 SC), AD = 2.51% (1.1% organic Se enriched *Allium sativum* L. aq.), and AD = 4.72% (Alcupral 50 PU). In Roclas potato variety, also the increase of concentration of aqueous solutions of garlic with, and without selenium supplements led to inferior results, reflected by the values of the increased mean attack degrees, of AD = 5.76% (2.2% *Allium sativum* L. aq.) and AD = 7.69% (2.2% organic Se enriched *Allium sativum* L. aq.). The biggest mean attack degree, AD = 17.75% is reported in untreated, unfertilized control (Table 2).

Table 2. The basic statistics of *Phytophthora infestans* Mont. de Bary attack degree (AD%) in Roclas potato variety function of administered treatments, 2017

Experimental variant	n	Mean	s	Min.	Max.	CV (%)
Control	28	17.75 ^d	1.12	14.07	19.32	6.31
Treatment with 1.1% <i>Allium sativum</i> L. aq.	28	5.76 ^{dab}	0.44	5.16	7.82	7.64
Treatment with 2.2% <i>Allium sativum</i> L. aq.	28	6.69 ^{dab}	0.51	5.55	7.99	7.62
Treatment with Alcupral 50 PU	28	4.72 ^{dab}	0.34	3.82	5.08	7.20
Treatment with Infinito 687.5 SC	28	2.37 ^{dba}	0.42	2.17	3.07	17.72
Treatment with 1.1% organic Se enriched <i>Allium sativum</i> L. aq.	28	2.51 ^{dba}	0.31	1.99	3.61	12.35
Treatment with 2.2% organic Se enriched <i>Allium sativum</i> L. aq.	28	7.59 ^{dab}	0.54	6.11	8.88	7.11

Note: a – statistically no significant at $p > 0.05$; b – statistically significant at $p < 0.05$; d – statistically significant at $p < 0.001$.

In Roclas potato variety, the variability is lower than the threshold of 30% (Merce and Merce, 2009), and this confirm the homogeneity of the data and representativeness of the attack degrees means. The biggest value of the variability (CV=17.72%) is reported in experimental variant where the phytosanitary treatment was performed with Infinito 687.5 SC, while the lowest (CV=6.311%), in control (Table 2). The values of maximum and minimum, of the late blight attack degree in Roclas potato variety are AD = 1.99% when treatment is performed with 1.1% selenium enriched *Allium sativum* L. (aq.), and AD = 19,32% for maximum value, respectively (Table 2).

In both studied potato varieties, Redsec, and Roclas, respectively, very significant differences ($p < 0.001$) are reported between mean late blight attack degrees reported in control, and all six experimental variants, while statistically no significant differences are emphasized between mean late blight attack degrees reported in variants treated with phytosanitary conventional products Alcupral 50 PU and Infinito 687.5 SC, and also unconventionally treated variant with 1.1% organic Se enriched *Allium sativum* L. (aq.) (Tables 1, and 2). When the fight against *Alternaria solani* Sorauer is analyzed, in the same potato varieties, Redsec, and Roclas, respectively, we record bigger attack degrees (Tables 3, and 4), compared to those reported for *Phytophthora infestans* Mont. De Bary (Tables 1 and 2).

The mean attack degrees expressed by the entire experimental period, obtained for each phytosanitary treatment variant, including the untreated control (Table 3), emphasize the efficacy of the treatments performed with conventional product Infinito 687.5 SC and unconventional aqueous solution 1.1% selenium enriched *Allium sativum* L. The lowest mean attack degree (AD), namely AD = 6.64% is reported in experimental variant where treatment was performed with conventional product Infinito 687.5 SC, followed by the value of alternariosis mean attack degree (AD = 6.99%) reported when treatment is performed with 1.1% organic Se enriched *Allium sativum* L. (aq.). The increase of concentration of aqueous solutions of garlic with, and without selenium supplements led to inferior results, reflected by the values of the increased mean attack degrees, of AD = 11.09% (2.2% *Allium sativum* L. aq.) and AD = 12.50% (2.2% organic Se enriched *Allium sativum* L. aq.). The study of *Alternaria solani* Sorauer attack, also emphasizes the biggest mean attack degree, AD = 17.86%, in untreated, unfertilized control (Table 3).

Table 3. The basic statistics of the *Alternaria solani* Sorauer attack degree (AD%) in Redsec potato variety, function of administered treatments, 2017

Experimental variant	n	Mean	s	Min.	Max.	CV (%)
Control	28	17.86 ^d	2.04	14.72	20.55	11.42
Treatment with 1.1% <i>Allium sativum</i> L. aq.	28	10.28 ^{dab}	0.41	8.65	11.97	3.99
Treatment with 2.2% <i>Allium sativum</i> L. aq.	28	11.09 ^{dab}	0.47	10.86	11.92	4.24
Treatment with Alcupral 50 PU	28	9.40 ^{da}	0.59	8.86	10.82	6.28
Treatment with Infinito 687.5 SC	28	6.64 ^{dba}	0.46	5.39	7.88	6.93
Treatment with 1.1% organic Se enriched <i>Allium sativum</i> L. aq.	28	6.99 ^{dba}	0.71	5.01	7.33	10.16
Treatment with 2.2% organic Se enriched <i>Allium sativum</i> L. aq.	28	12.50 ^{da}	0.68	10.32	13.08	5.44

Note: a – statistically no significant at $p > 0.05$; b – statistically significant at $p < 0.05$; d – statistically significant at $p < 0.001$.

In Redsec potato variety, the biggest value of the variability (CV=11.42%) is reported in control, while the lowest (CV=3.99%), where phytosanitary treatment was performed with 1.1% *Allium sativum* L. (aq.). In the other experimental variants, variability frames within the interval 4.24% - 10.16% (Table 3). Concerning the values of maximum and minimum, we emphasize the minimum *Alternaria solani* Sorauer attack degree in Redsec potato variety (5.01%) when treatment

is performed with 1.1% organic Se enriched *Allium sativum* L. (aq.), and maximum, as expected, in untreated control, 20.55%, respectively (Table 3).

In Roclas potato variety (Table 4), the mean values of *Alternaria solani* Sorauer attack degrees are much bigger in all experimental groups. The efficacy of the treatments performed with Infinito 687.5 SC, 1.1% aqueous solution of selenium enriched *Allium sativum* L. and Alcupral 50 PU, are the best. The lowest mean attack degrees are AD = 10.44%, corresponding to the treatment with Infinito 687.5 SC, AD = 11.02%, corresponding to the treatment with solution of 1.1% organic Se enriched *Allium sativum* L. (aq.), and AD = 11.14%, corresponding to the treatment with Alcupral 50 PU. In Roclas potato variety, also the increase of concentration of aqueous solutions of garlic with, and without selenium supplements led to inferior results, reflected by the values of the increased mean attack degrees, of AD = 16.95% (2.2% *Allium sativum* L. aq.) and AD = 17.80% (2.2% organic Se enriched *Allium sativum* L. aq.), the last one also being the biggest mean attack degree, by entire experiment, even slight bigger compared to the mean values of AD = 17.76% reported for untreated, unfertilized control (Table 4). The biggest value of the variability (CV=11.32%) is reported in control, while the lowest (CV=1.36%), where phytosanitary treatment was performed with 1.1% *Allium sativum* L. (aq.). In the other experimental variants, variability frames within the interval 2.96% - 5.57% (Table 4). Concerning the values of maximum and minimum, we emphasize the minimum *Alternaria solani* Sorauer attack degree in Redsec potato variety (9.01%) when treatment is performed with unconventionally with 1.1% organic Se enriched *Allium sativum* L. (aq.), and maximum, as expected, in untreated control, 20.42%, respectively (Table 3).

Table 4. The basic statistics of the *Alternaria solani* Sorauer attack degree (AD%) in Roclas potato variety, function of administered treatments, 2017

Experimental variant	n	Mean	s	Min.	Max.	CV (%)
Control	28	17.76 ^{ab}	2.01	14.72	20.42	11.32
Treatment with 1.1% <i>Allium sativum</i> L. aq.	28	16.95 ^{ab}	0.23	15.65	17.97	1.36
Treatment with 2.2% <i>Allium sativum</i> L. aq.	28	15.22 ^{ab}	0.45	14.86	17.92	2.96
Treatment with Alcupral 50 PU	28	11.14 ^{ba}	0.62	9.86	12.82	5.57
Treatment with Infinito 687.5 SC	28	10.44 ^{ba}	0.33	9.39	11.88	3.16
Treatment with 1.1% organic Se enriched <i>Allium sativum</i> L. aq.	28	11.02 ^{ba}	0.41	9.01	11.33	3.72
Treatment with 2.2% organic Se enriched <i>Allium sativum</i> L. aq.	28	17.80 ^a	0.72	17.32	19.08	4.04

Note: a – statistically no significant at $p > 0.05$; b – statistically significant at $p < 0.05$.

In both studied potato varieties, Redsec, and Roclas, respectively, means are representative, and data are characterized by a good homogeneity. Also in both studied potato varieties, Redsec, and Roclas, no significant differences ($p > 0.05$) are reported between mean *Alternaria solani* Sorauer attack degrees reported in control, and groups unconventionally treated with solutions 1.1%, and 2.2% *Allium sativum* L. (aq.) and 2.2% selenium enriched *Allium sativum* L. (aq.), while between control and experimental variants treated with Infinito 687.5 SC, Alcupral 50 PU, and 1.1% selenium enriched *Allium sativum* L. (aq.), the differences are statistically significant ($p < 0.05$). The differences between mean *Alternaria solani* Sorauer attack degrees reported in variants treated with phytosanitary conventional products Alcupral 50 PU and Infinito 687.5 SC, and also unconventionally treated variant with 1.1% organic Se enriched *Allium sativum* L. (aq.) are statistically not significant at significance threshold of 5% (Tables 3, and 4).

If we analyze the potato production, in both studied varieties, function of phytosanitary treatments, we obtained different results, function of both administered treatments, and variety. In

Resec potato variety (Table 5), the biggest mean of production is reported in experimental variant treated with Infinito 687.5 SC, 7.11 t/ha, respectively, followed by the mean production reported in experimental variants treated with 1.1% aqueous solution of selenium enriched *Allium sativum* L. and Alcupral 50 PU, of 6.86 t/ha, and 6.76 t/ha, respectively. The lowest mean production of 4.58 t/ha is reported in experimental variant treated with 2.2% aqueous solution of selenium enriched *Allium sativum* L. value close to the means reported in experimental variants treated with 2.2% aqueous solution of *Allium sativum* L., and in unfertilized, phytosanitary untreated, control, of 4.79 t/ha, and 4.89 t/ha (Table 5).

Table 5. The basic statistics of the production reported in Redsec potato variety (t/ha), function of phytosanitary treatments, 2017

Experimental variant	n	Mean	s	Min.	Max.	CV (%)
Control	50	4.89 ^a	0.85	3.97	6.44	17.38
Treatment with 1.1% <i>Allium sativum</i> L. aq.	50	5.68 ^a	0.28	2.85	8.42	4.93
Treatment with 2.2% <i>Allium sativum</i> L. aq.	50	4.97 ^a	0.47	3.34	7.61	9.46
Treatment with Alcupral 50 PU	50	6.76 ^a	0.66	5.73	9.14	9.76
Treatment with Infinito 687.5 SC	50	7.11 ^a	0.38	6.25	9.87	5.34
Treatment with 1.1% organic Se enriched <i>Allium sativum</i> L. aq.	50	6.85 ^a	0.43	6.82	9.58	6.28
Treatment with 2.2% organic Se enriched <i>Allium sativum</i> L. aq.	50	4.58 ^a	0.79	3.94	8.31	17.25

Note: a – no significant at $p > 0.05\%$.

The biggest values of the production variability are reported in control (CV=17.38%), and in experimental variant where treatment was performed with 2.2% aqueous solution of selenium enriched *Allium sativum* L. (CV=17.25%). The lowest production variability (CV=4.93%) is emphasized in experimental variant where phytosanitary treatment was performed with 1.1% aqueous solution of *Allium sativum* L. In the other experimental variants, variability frames within the interval 5.34% - 9.76% (Table 5).

In Roclas potato variety, bigger mean productions were obtained (Table 6), compared to those reported in Redsec variety (Table 5). The biggest mean of production is reported in experimental variant treated with Infinito 687.5 SC, 7.47 t/ha, respectively, followed by the mean production reported in experimental variants treated with 1.1% aqueous solution of selenium enriched *Allium sativum* L. equal to 7.33 t/ha, and Alcupral 50 PU, of 6.99 t/ha, respectively. The lowest mean production of 5.89 t/ha is reported in unfertilized, phytosanitary untreated control (Table 6). Similarly with data emphasized in Redsec variety, the biggest production variabilities are reported in control (CV=22.58%), and in experimental variant where treatment was performed with 2.2% aqueous solution of selenium enriched *Allium sativum* L. (CV=22.61%). The lowest production variability (CV=13.92%) is emphasized in experimental variant where phytosanitary treatment was performed with 1.1% aqueous solution of organic selenium *Allium sativum* L, while in the other experimental variants, variability frames within the interval 16.17% - 19.46% (Table 4).

The variability lower than 30% (Merce and Merce, 2009), demonstrates the homogeneity of data, and also shows that means are representative, for the productions of both studied potato varieties, Redsec, and Roclas, respectively. Also, in both studied potato varieties, no significant differences, at significance threshold of 5%, were identified between the means of productions, function of phytosanitary treatments.

Table 6. The averages and parameters of dispersion of the total production tubercles of tubercles (t/ha) of the experimental plots of potatoes, Roclas variety, in experimental year 2013

Experimental variant	n	Mean	s	Min.	Max.	CV (%)
Control	50	5.89 ^a	1.33	3.97	6.44	22.58
Treatment with 1.1% <i>Allium sativum</i> L. aq.	50	6.22 ^a	1.11	2.85	8.42	17.85
Treatment with 2.2% <i>Allium sativum</i> L. aq.	50	6.27 ^a	1.22	3.34	7.61	19.46
Treatment with Alcupral 50 PU	50	6.99 ^a	1.13	5.73	9.14	16.86
Treatment with Infinito 687.5 SC	50	7.47 ^a	0.89	6.25	9.87	16.17
Treatment with 1.1% organic Se enriched <i>Allium sativum</i> L. aq.	50	7.33 ^a	1.02	6.82	9.58	13.92
Treatment with 2.2% organic Se enriched <i>Allium sativum</i> L. aq.	50	6.06 ^a	1.37	3.94	8.31	22.61

Note: a – no significant at $p > 0.05\%$.

As regards the economic efficiency of the experimental treatments administered in potato studied varieties, there are reported very large differences (Fig. 1, and Fig. 2). Thus, in Redsec potato variety, interest was obtained for five experimental variants, while in control and experimental variant where unconventional treatment with 2.2% aqueous solution of organic selenium *Allium sativum* L, important loss (-40%, and -50%, respectively), is reported. The biggest interest resulted in experimental variant treated with Infinito 687.5 SC (+46%), while for experimental variants treated with 1.1% organic selenium enriched *Allium sativum* L. (aq.), and Alcupral 50 PU, also consistent interest is reported, in share of 29%, and 27%, respectively (Fig. 1).

If we discuss the results concerning the interest obtained for the other studied potato variety, Roclas, respectively (Fig. 1), we also find positive interest in only five experimental variants of the total of 9, but the shares are lower compared to those reported in Redsec variant (Fig. 2).

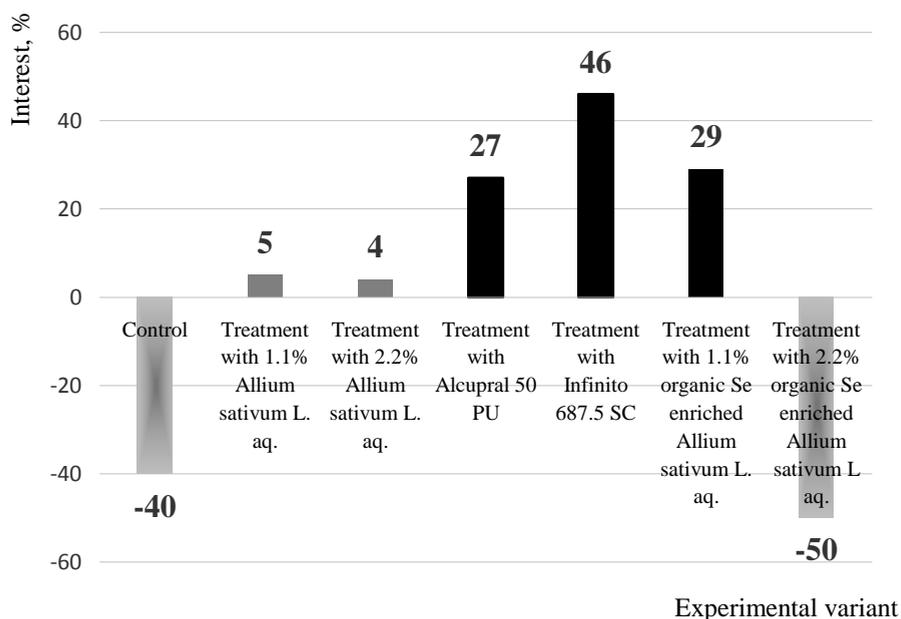


Fig. 1. The economic efficiency of experimental treatments in Redsec potato variety, 2017

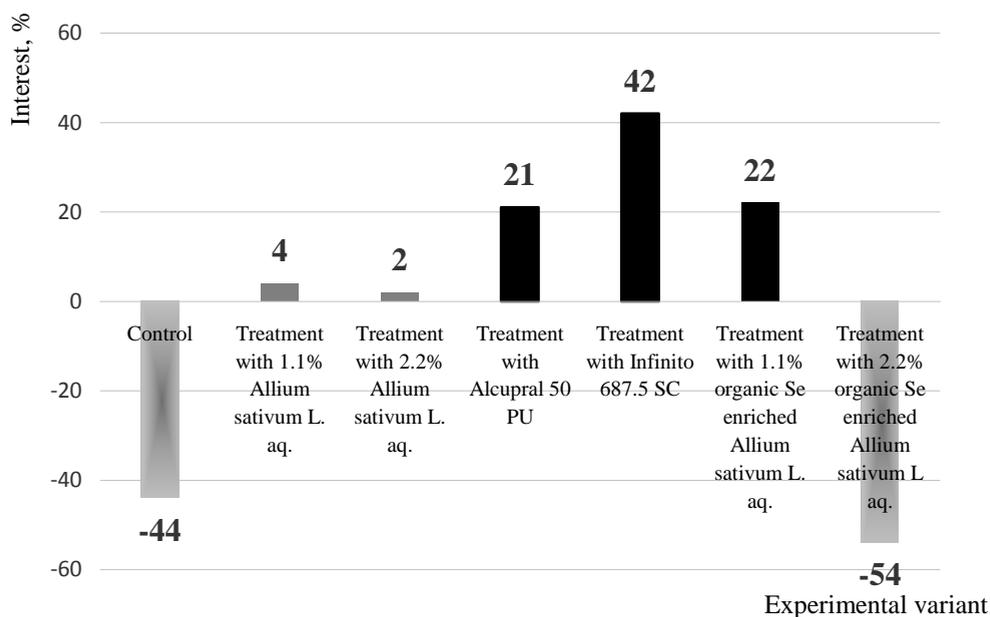


Fig. 2. The economic efficiency of experimental treatments in Roclas potato variety, 2017

Thus, in Roclas potato variety, in control a loss of 44% is reported, and in experimental variant where unconventional treatment with 2.2% aqueous solution of organic selenium *Allium sativum* L., bigger loss, in amount of 54%, is reported. The biggest interest resulted in experimental variant treated with Infinito 687.5 SC (+42%), and for experimental variants treated with 1.1% organic selenium enriched *Allium sativum* L. (aq.), and Alcupral 50 PU, almost the same interest is reported, in share of 22%, and 21%, respectively (Fig. 2).

CONCLUSIONS

The hierarchy of the efficacy of the conventional, and unconventional phytosanitary products administered as treatments against *Phytophthora infestans* Mont. De Bary, and *Alternaria solani* Sorauer attacks in both potato varieties studied in experimental areal located in Transilvanian Plane, Redsec, and Roclas, respectively, in descendent order, is the following: Infinito 687.5 SC, 1.1% organic Se enriched *Allium sativum* L. (aq.), Alcupral 50 PU, 1.1% *Allium sativum* L. (aq.), 2.2% *Allium sativum* L. (aq.), 2.2% organic Se enriched *Allium sativum* L. (aq.). The late blight occurrence is less intense compared to alternariosis, in both potato varieties, Redsec, and Roclas, respectively. The smallest mean attack degrees of *Phytophthora infestans* Mont. De Bary, are reported in Roclas variety, in variants treated with Infinito 687.5 SC, AD% = 2.37%, and with 1.1% organic Se enriched *Allium sativum* L. (aq.), AD% = 2.51%, while *Alternaria solani* Sorauer smallest mean attack degrees are reported in Redsec potato variety, also in variants treated with Infinito 687.5 SC., AD% = 6.64%, and with 1.1% organic Se enriched *Allium sativum* L. (aq.), AD% = 6.99%.

In pedo-climatic conditions of Transilvanian Plane, Romania, Redsec potato variety is more resistant against alternariosis, while Roclas potato variety, against late blight, while the biggest productions are obtained in Roclas variety, with the biggest mean productions reported in

experimental variants when phytosanitary treatments are performed with Infinito 687.5 SC. (7.47 t/ha), and with 1.1% organic Se enriched *Allium sativum* L. (aq.), where a mean production of 7.33 t/ha is recorded. No interest is reported in both studied potato varieties, when phytosanitary treatment with 2.2% organic Se enriched *Allium sativum* L. (aq.) was administered (with loss of 50% in Redsec and 54% in Roclas), and when no fertilization and no phytosanitary treatments were administered (loss of 40% in Redsec, and 46% in Roclas). Biggest interest are reported for phytosanitary treatments performed with Infinito 687.5 SC. (interest of 46% in Redsec, and interest of 42% in Roclas), and with 1.1% aqueous solution of organic Se enriched *Allium sativum* L. (interest of 29% in Redsec, and interest of 22% in Roclas).

Based on low late blight, and alternariosis attack degrees, productions and interests values, our research shows that the use of 1.1% organic Se enriched *Allium sativum* L. (aq.) is a valuable solution in fight against *Alternaria solani* Sorauer, and *Phytophthora infestans* Mont. De Bary, in both Redsec, and Roclas potato varieties, not only for organic, but also in conventional potato culture.

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*Jacek Pieczonka*⁴¹

THE VILLAGE RENEWAL SCHEME AS AN ELEMENT FOSTERING ENTREPRENEURSHIP IN RURAL AREAS: THE CASE OF THE OPOLE VOIVODESHIP

Abstract: The village renewal as a development method is one of the ways to achieve development goals, understood not only as an improvement of the infrastructure quality but broader as improvement of the widely comprehended quality of life, which cannot be achieved without involvement of the inhabitants.

The aim of this article is an attempt to present the Village Renewal Scheme (shown by the example of the Opole Voivodeship) as an element stimulating local communities, strengthening social capital and contributing to support of entrepreneurship in rural areas.

It was to achieve the aim that the reports of the village administrator's offices (about 600 per year) on the implementation of the Village Renewal Scheme in the years 2010-2015.

The most important conclusion resulting from the conducted research is that the village renewal scheme has proved to be an effective concept and method for development of rural areas, in which it was implemented so far. Therefore, it was possible to mobilize numerous rural communities with small amount of funds to many activities, which was reflected in the number of implemented projects, generating significant effects with strong developmental stimulus.

Key words: village renewal, rural areas, development.

INTRODUCTION

It was in the programming period for the years 2014-2020 that the EU financial support had been addressed to Polish agriculture and rural areas for the implementation of the objectives set out in the Strategy for Sustainable Development of Rural Areas, Agriculture and Fisheries, which reflects the priorities of the EU policy within the scope of sustainable socio-economic and environmentally-friendly development of rural areas.

The successful implementation of the sustainable development depends on the equal treatment of all the listed goals (orders), which means on the comprehensive approach. These issues are particularly visible at the municipality (local) level, since the development of local communities should be perceived as a process of continuous improvement in the quality of life of local communities based on mutually balanced social, economic and ecological factors.

The development of rural areas depends mainly on locating various non-agricultural activities, which should eliminate the monofunctionality of the rural areas in order to develop broadly defined entrepreneurship.

The village renewal as a development method is one the ways to achieve development goals, understood not only as an improvement of the infrastructure quality but broader as an improvement of the widely comprehended quality of life, which cannot be achieved without involvement of the inhabitants themselves.

The village renewal scheme initiated in the Opole Voivodeship 20 years ago is the longest active program of activating local communities and at the same time the first one, which applied the method of the long-term strategic planning at the level of the village administrator's offices. The village renewal scheme as a way to develop rural areas is characterized by:

- Bottom-up initiatives and involvement of local communities,

⁴¹ Faculty of Economics, University of Opole, ul. Ozimska 46a, 45-058 Opole, jpieczonka@uni.opole.pl.

- Use of the resources available in the village,
- Planning the development of own village and striving after achieving the adopted vision and goals,
- Development of the public space with participation of the inhabitants,
- Support of the municipality for village initiatives and help from the region.

The process of village renewal significantly stimulates local communities and builds society. Activation of inhabitants results not only in creation of new cultural and recreational facilities or renovation of old buildings in the village. These measures rebuild identity, integrate inhabitants and increase the quality of life in the village.

The aim of this article is an attempt to present the Village Renewal Scheme (shown by the example of the Opole Voivodeship) as an element stimulating local communities, strengthening social capital and contributing to supporting entrepreneurship in rural areas.

It was to achieve the aim that the reports of the village administrator's offices (about 600 per year) on the implementation of the Village Renewal Scheme (in the years 2010-2015) and the resulting information (such as the number of villages participating in the scheme, the value of the funds used for implementation of various projects and their number, which illustrated the level of people involvement) were analyzed.

OPPORTUNITIES OF DEVELOPMENT OF RURAL AREAS, INCLUDING ENTREPRENEURSHIP DEVELOPMENT

The development of rural areas is of the local nature. The local development as a category of socio-economic development is defined as comprehensive creation of the best possible living conditions in the local environment or improvement of the organization, structure and functioning of local development resources (Chądzyński 2007).

I. Pietrzyk has acknowledged that the main factor of regional and local development is the mobilization of the endogenous potential in regions, whose aim is to launch the sustainable dynamics of local development. Therefore, the local development can be defined as an endogenous "bottom-up" way of generating development dynamics in a wide spatial scale. It is a process of mobilizing local material and human resources using various "micro-initiatives" (Pietrzyk 2000).

The prerequisite for strengthening development in the local scale is creation of a local environment, which consists of people and institutions concentrated on and collaborating for an acceptable and understandable program. The local development occurs in the economic, cultural, political and social spheres. The local development at the social level consists in the possibility of articulating group interests, formation of associations and taking responsibility for the spheres of everyday life and their managing in the fields of education, culture, health and social care (Chądzyński 2007).

According to Pietrzyk, successful local development depends on the existence of the effective leadership, wide-ranging participation of the population in the undertaken activities, mutual trust, seeking consensus in cooperation and public-private partnerships. The quality of the local social capital is of particular importance in the bottom-up development processes.

Nowadays, when doing business in rural areas, two factors are of great importance: distance from urban centers and low population density which generates significant challenges. As E.J. Malecki and B.Moriset (2008) notice, the big distance from towns means more difficult access to markets, factors of production, costly and time-consuming business trips. The lower population density means bigger dispersion of local resources (mainly human resources (human capital)) and sales markets. The dispersed nature of production and places of residence of the population causes their peripheralization in the access to traditional sources of knowledge and markets.

However, the existence of many development barriers does not mean that the rural areas have no chance for development. It is in recent years that the improvement of the social capital and access to information can be noticed in the rural areas.

Therefore, it is necessary to take into account local and regional strengths. The use of local natural and socio-economic characteristics should foster greater efficiency and diversity of enterprises in rural areas.

The use of diversity and specific competitive advantages is one of the main objectives in the modern planning of socio-economic development of regions. Therefore, it is necessary to take into account local and regional strengths to a greater extent. The use of local natural and socio-economic characteristics should foster greater efficiency and diversity of enterprises in rural areas.

For example: emphasizing distinctive cultural features, promoting regional and local products, caring for specific elements of the landscape architecture, use of natural resources, etc. In the regions, the businesses with features arising from the location in relation to large urban centers and their accessibility, the quality of the natural environment and specific economic and socio-cultural functions of the area should be developed (Bański 2014).

Table 1. Development (strategies) documents containing elements of development of rural areas

Document	Depiction of the entrepreneurship issue
National Development Strategy for the years 2007-2015	Finding of the too weak non-agricultural activity, the necessity of modernization of the food sector and development of infrastructure fostering creation of new companies in rural areas
Mid-term National Development Strategy 2020	Finding of the necessity of diversification of economic activity in rural areas, which should be fostered among others by improving education level of inhabitants of a village, creating conditions for raising professional qualifications and supporting social activity.
Long-term National Development Strategy. Poland 2030	Emphasizing the importance of competitiveness and innovativeness, which will play a key role in the development of the diversifying economic activity in rural areas in the coming years.
Strategy of Human Capital Development	Paying attention to the decline in the number of people in working age, which makes it necessary to look for "reserves" and new solutions. Among others, it is proposed to reformulate labor market policy into a one creating offers for people who are currently inactive and to increase the cost-effectiveness of employment.
The National Strategy for Regional Development - Regions Towns Rural Areas	Supporting the network of advisory institutions and business incubators or improving business cooperation, which will result in increasing their competitiveness and economic potential.
Strategy for Sustainable Rural Development, Agriculture and Fisheries for the years 2012-2020	Emphasizing the great importance of the business environment institutions and the need for their support and development. It is also concluded that stimulating entrepreneurship in rural areas and increasing their investment attractiveness are a way to diversify the forms of economic activity in rural areas and create additional sources of income.

Source: Own study.

K. Heffner is of a similar opinion and believes that the sources of positive changes in rural areas can be found in the greater use of local resources and potentials understood as material and non-material development factors. The first group consists of the cultural heritage elements of the village, such as the settlement system, the type of buildings as well as the technical and social

infrastructure. Its condition and usability significantly affect development opportunities of the village. This group of resources includes also human capital, whose quality and size is a key factor in development. In the group of immaterial resources of the village, those characteristics of inhabitants are fundamental, which are associated with experience, skills, entrepreneurship, education and innovativeness. A separate asset of a village, which not only significantly affects but very often determines implementation of a village renewal scheme is the quality of the natural, cultural and social environment (Heffner 2007).

Therefore, the policy of the development of rural areas should ensure that these specific opportunities and competitive advantages are properly used, meet new challenges related to the need of diversifying economic functions by introducing new forms of non-agricultural employment and supporting a system of services and facilities for different populations living in rural areas. The depiction of entrepreneurship in the documents devoted to rural development policy is presented in the Table 1.

While summarizing the information contained in the Table 1, it should be concluded that all strategic documents take into consideration development of entrepreneurship, including enterprises in rural areas, and they describe the issue with varying degrees of detail and address it differently.

SOCIAL CAPITAL

An important factor in development of cooperation among entrepreneurs in rural areas is the level of social capital. The social capital is a feature of the community and its sources are in the culture and collective ethos of social groups. It is in this case that social activity and density of social networks in which people are involved, social activities, membership in non-governmental organizations are very important. Relationships based on trust and mutuality are also very important (Osiecka-Chojnacka, Kłos 2010).

According to Halamska (2008), social capital is a certain property, characteristic of the community, which promotes individual and collective actions of social actors. It is a certain "synthetic property", which consists of many elements such as organizations, participation in organizations, network coverage, trust, social solidarity, cooperation, its scope and willingness to cooperate, existence of information and communication networks, internal cohesion and stratification of a village as well as empowerment that appears in the sense of influence on public, local affairs as well as real use of this influence.

According to Szafraniec, this capital can be defined as "social resources," and it is: a certain general willingness of rural communities to take local initiatives, to engage in solving problems important for them, and the quality of the social ties and the level of identification of local (and wider) community as well as existence of local leaders (Szafraniec 2007).

W. Kłodziński concludes that the condition for a success of development projects in rural areas is not accumulation of material resources, but people, their entrepreneurship, ability to self-organization and cooperation as well as emergence of respected leaders (Kłodziński 2006).

These leaders shall create the elite of rural communities playing a key role in capitalizing of social resources related to "the sense of social trust, strength of ties and the sense of influence on affairs of own villages and communities" (Fedyszak-Radziejowska 2004).

It is in present-day development strategies that the importance of the so-called "soft resources" determining the so-called smart development is emphasized. According to some researchers (Sosenko 2008), the involvement of human capital in economic processes brings the greatest benefits, when it is used in cooperation and collaboration.

The emergence of an entrepreneurial society in rural areas is a result of needs of the socio-economic development. Entrepreneurial society should be defined on the basis of the following characteristics:

- Continuous improvement and extension of knowledge,



- Rational and effective economic decision making,
- Creating and applying innovative solutions,
- Constant mobility in pursuit of a goal,
- Striving after improving quality of production or services provided.

So, in that case, the ways to prepare villagers for new opportunities for acquiring knowledge should be sought. Especially in the less urbanized areas with a poor development potential, non-agricultural activities should be developed in order to exploit the region's natural values and turn them into goods and services. These activities should strengthen competitiveness of farms and villages. Promotion of small producers in rural areas may safeguard the needs of the local population, create a micro-market for services and production and thus create jobs.

RURAL RENEWAL SCHEME IN THE OPOLE VOIVODESHIP

Germany is a pioneer of the Village Renewal Schemes in Europe. While analyzing the decades of experience resulting from the West European Village Renewal Schemes, it can be concluded that there are two ways of their implementation. The first one could be observed in Germany, especially in Bavaria, Baden-Württemberg and Rhineland-Palatinate, while the second one in Lower Austria. Due to differences in the implementation process of village renewal schemes in these countries (historically conditioned), there are two ways which can be mentioned: "Bavarian" top-down and "Lower Austria" bottom-up (Wilczyński 1999, Bład 2005). However, it should be emphasized that despite some differences, both ways aim at the same goal of improving living conditions in rural areas and engaging residents in the development of their rural areas.

In Poland, the earliest attempts of implementation of the idea of village renewal in the form of a "Village Renewal Scheme" were made in the Opole Voivodeship. Hence its influence on other regional programs and the shape of support from the EU funds determined on the central level. It should be noted that the Opole scheme was created under the influence of the scheme of the Partner Federal State of Rhineland-Palatinate and was developed with the support of Lower Austria. The dissemination of the experience gained from the Opole Village Renewal Scheme was started already in 1998 and resulted in the initiation of village renewal schemes in the following voivodeships: Pomeranian (2001), Silesia (2002) and Kuyavian-Pomeranian (2002).

Village Renewal is generally a process of improving living conditions of rural residents. Due to the fact that the renewal concerns both the spiritual, cultural and material heritage, it is quite difficult to formulate a clear definition of this process.

According to R. Wilczyński: "Village renewal is a process of shaping living conditions of people in rural areas, whose animator and subject is the local community. It affects the standard of living and its quality as well as sources of income, while preserving the village identity reflected in values of rural life, strengthening and development of the spiritual, cultural and material heritage of the village." (Wilczyński 2003)

According to the same author, the space of a village renewal scheme includes four thematic areas. In the first place, there is a particular concern for the economic life of the village which is focused on inhabitants and their creativeness as well as searching for new economic opportunities, while providing appropriate support from outside. The next area of action is improvement of the standard of living in the village, which is inextricably linked with shaping of material factors. The third element covers the quality of life, which means everything that is related to the non-physical, spiritual and social needs of man. However, the most important is to preserve the identity and integrity of the village and the value of rural life rooted in the culture and tradition at every possible level. The nature and tradition of the place, which play a significant role in the perception of settlement landscapes, should be taken into account at any time" (Wilczyński 2003).

According to R. Wilczyński, the village renewal concept is a unique trend: it strongly emphasizes the importance of the human factor as the subject and the driving force of development.

It assumes that the growth of living standards and satisfaction with the place of residence in rural areas depends on mobilization of all own resources and the use of external support available from the European Union structural funds (Wilczyński 2002).

Village renewal is a result of the cooperation of inhabitants, who want to improve their environment through changes in infrastructure, services, architecture, culture, social life, education, agriculture, space, communication, etc. The village renewal is also an opportunity to change the mentality of its inhabitants and stop the disintegration process. It is reflected both in economy, architecture, social life, culture and the environment.

The village renewal does not substitute for restructuring and modernization of agriculture but supports these processes. It facilitates farmers acquisition of additional sources of income, as well as the use of facilities, real estates and equipment, which were unused in rural areas.

The Opole Village Renewal Scheme has been operating since 1997 and is the longest-running regional program in Poland. It is a distinguishing feature and hallmark of the region and one of the most important national social innovations in the field of development of rural areas. The position of a pioneer and activity in promoting of the experience caused that other regional programs have largely adopted the Opole solutions. Since the moment of launching the scheme by the voivodeship self-government in 1999 the number of its participants doubled every 4 years. After 10 years of operation of the program (2007), the number of officially reported village administrator's offices reached 551. Further growth was slower and in 2012, 719 villages (70% of all village administrator's offices) were formally registered in the program.

An incremental increase in the number of the registered village administrator's offices took place in 2003 (by 74 village administrator's offices) and 2007 (by 145 village administrator's offices), which was associated with the beginning of successive tenures of local governments and village authorities and announced support for village renewal from the European Union funds (at the beginning in the years 2004-2006 from SOP and later in the years 2007-2013 from RDP) as well as announced and implemented will of the voivodeship self-government that the participation in the program would be rewarded in access to these funds. The projects from the village administrator's offices participating in the scheme received a so-called regional point while applying for SOP funds - village renewal activities, preservation and protection of cultural heritage.



Figure 1. The number of village administrator's offices in the Opole Voivodeship, in which projects under the Rural Renewal Scheme were implemented

Source: own study based on annual reports from the Rural Renewal Scheme implemented by the village administrator's offices in the Opole Voivodeship

In the years 2010-2016, the number of village administrator's offices participating in the program was fluctuating but it ranged from 600 to almost 700.

Village Renewal was implemented in the years 2004-2006 as part of the Sectoral Operational Program: "Restructuring and Modernization of the Food Sector and Rural Development", Measure 2.3 "Village renewal and preservation and protection of cultural heritage". In the Rural Development Program 2007-2013, the Village Renewal has been included as one of the points in the Axis 3: "Quality of life in rural areas and diversification of rural economy", which was included in the point 3.4. - "Village renewal and development".

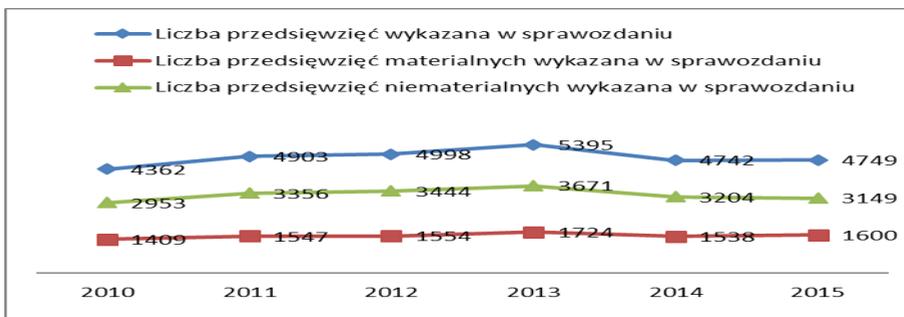


Figure 2. The number of projects implemented under the Rural Renewal Scheme in 2010-2015

Source: own study based on annual reports from the Rural Renewal Scheme implemented by the village administrator's offices in the Opole Voivodeship



Figure 3. The value of projects implemented under the Rural Renewal Scheme in 2010-2015

Source: own study based on annual reports from the Rural Renewal Scheme implemented by the village administrator's offices in the Opole Voivodeship



Figure 4. The number of projects implemented under the Rural Renewal Scheme in 2010-2015 per 100 inhabitants

Source: own study based on annual reports from the Rural Renewal Scheme implemented by the village administrator's offices in the Opole Voivodeship

In the places, where village renewal occurred as a process of development, it brought a number of effects. There have been significant changes in the appearance of public spaces, properties and community facilities improving community life and recreation in the villages. Traditions, history and memorabilia have been used on a massive scale to reproduce the past of villages and use it as development "material".

Village renewal helps also to preserve vitality of rural areas and stimulate the increase of their attractiveness as a place of work and residence, and consequently to improve living conditions of the rural population.

Being the leader of a village renewal scheme, or at least the advanced stage of this process, causes that the village starts to stand out from the commune and even the region becoming a more attractive place to invest, since a success of a project is more probable.

One of the fundamental results of a renewal process consists in multiplicity and variety of events.

Many village administrator's offices organize a lot of projects of a cyclical nature every year.

The versatility of the projects implemented by the village administrator's offices and their aims are a proof that the activities within rural renewal schemes support sustainable development, which harmoniously combines economic, social, cultural and environmental needs.

The results of the cooperation of village administrator's offices and communes are reflected in projects improving the quality of life and shaping the image of the villages that is especially important.

The number of executed projects was at the level of 4362 to 5395, with a significant predominance of immaterial projects.

The value of projects (material and immaterial) implemented in the village administrator's offices of the Opole Voivodeship under the program amounted to PLN 26,138 million in 2015 and to PLN 38,205 million in 2014. In the period under research, the level of social activity (measured by the number of projects per 100 inhabitants) was very similar: in the last five years covered by the research 1.4 to 1.5.

SUMMARY AND CONCLUSIONS

The aim of the research was to present the village renewal scheme implemented in the Opolskie Voivodeship and some of the achievements within the scope of improving the social capital through, among others, increase of the local communities' integration, sense of responsibility for their development through projects implemented by the village administrator's offices against the background of the generally described problems concerning rural areas and their development (i.e. sustainable and multifunctional development).

The implementation of joint projects leads to mobilization and cooperation within the society, strengthens faith in own strengths, stimulates optimism, and most importantly stimulates bottom-up activities at the village level. The bottom-up nature of village renewal schemes is the most important feature and the involvement of village leaders for new ideas, consistent with the intentions of the smallest communities, is often a key issue for a successful program.

The village renewal scheme implemented in the Opole Voivodship allows rural communities to decide directly on the goal. Therefore, the implementation of socially desirable initiatives contributes to sustainable socio-economic development and stimulates the population as well as results in improved quality of life in rural areas. It can be assumed that the value added of VRS is measured primarily by social effects in the development of social capital in rural areas.

Conclusions:

- 1) Village renewal schemes have proved to be an extremely effective concept and method of development of rural areas, where they have been implemented so far. With small amount

- of funds, it was possible to mobilize numerous rural communities to many activities generating significant effects with a strong developmental stimulus.
- 2) It can be generally accepted that the activities undertaken under village renewal schemes support sustainable development, that is the one, which harmoniously combines economic, social, cultural and environmental needs.
 - 3) The number of the village administrator's offices involved in the Rural Renewal Schemes has increased to more than 600 at the beginning of the program and stays at this level.
 - 4) The value of the projects implemented in the voivodeship can be estimated for about PLN 30 million
 - 5) The number of the projects per 100 inhabitants has been about 1.5 for a few years.
 - 6) The villages advanced "inward" in the process of renewal are already taking "outward" measures creating their offers.
 - 7) The village renewal schemes need new impulses, transition to revenue-generating activities and ensuring continuation and development of rural areas, especially in the face of negative demographic phenomena.

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*Agnieszka Piekutowska*⁴², *Katarzyna Wierzbicka*⁴³

THE INFLOW OF FOREIGN DIRECT INVESTMENTS INTO POLAND – THE SCALE AND SOURCES

Abstract: International flows of foreign investment are the result of globalization processes in the global economy. They may take the form of portfolio investments or foreign direct investments (FDIs), which are increasingly perceived as a source of economic development. New technologies, access to knowledge, growing employment and labor productivity are just some of the benefits associated with their inflow. FDIs have also become an important source of financing development processes in Poland. However, the influence of FDIs on the economy is not only connected with benefits but also with some dangers, such as tax avoidance on the part of foreign investors or poorer balance of trade. The aim of the article is to analyze the scale and sources of FDIs in Poland as well as the benefits and dangers connected with them. The article is also an attempt to answer the question of what factors motivate investors to invest abroad; in other words, what factors determine the attractiveness of Poland as the place of foreign investments.

Key words: Foreign Direct Investments, FDI determinants, foreign investors, Polish economy, investment attractiveness.

INTRODUCTION

International flows of foreign investment are the result of globalization processes in the global economy. They may take the form of portfolio investments or foreign direct investments (FDIs), which are increasingly perceived as a source of economic development. FDIs have a number of different definitions. One of them refers to “investing capital abroad, involving the investor establishing a new business or purchasing ownership rights to an existing enterprise to the extent that allows direct participation in management” (Karaszewski 2004).

FDIs are regarded as the safest and most beneficial form of international capital flows. Making up for insufficient accumulation in a country, they become the source of new technologies, and hence, modern products and production processes. It is vital in the age of globalization of the world economy and enhanced competition, especially for countries where national business entities have limited investment capabilities (Zachorowska 2006).

FDIs have also become an important source of financing development processes in Poland. They played an important role mainly during the formation of market economy. They stimulated economic growth, created new jobs, allowed quicker modernization and ensured greater competitiveness of the economy (Janasz 2011). However, the influence of FDI on the economy is not only connected with benefits but also with some negative consequences, such as tax avoidance on the part of foreign investors or poorer balance of trade.

Given the importance of FDIs for the country's economy, it seems legitimate to analyze their scale and sources from the point of view of Polish economy. The article points out the benefits connected with foreign investments, but also the negative consequences of international capital flows. The article is also an attempt to answer the question of what factors motivate investors to invest abroad; in other words, what factors determine the attractiveness of Poland as the place of foreign investments.

⁴² Białystok University of Technology, Faculty of Management Engineering, ul. Ojca Tarasiuka 2, 16-001 Kleosin, e-mail: a.piekutowska@pb.edu.pl

⁴³ University of Białystok, Faculty of Economics and Management, ul. Warszawska 63, 16-062 Białystok, e-mail: katarzynawierzbicka@uwb.edu.pl

The applied research method involves the analysis of literature and statistical data from reports and materials provided by institutions such as the National Bank of Poland⁴⁴ or the Ministry of Development. Secondary data sources such as domestic and foreign literature made it possible to systematize the knowledge on FDIs in Poland concerning the reasons for investing in a country and the effects of such investment. Statistical data, in turn, was a valuable source of information about the scale and directions of FDIs. Comparative analysis and the interpretation the available research findings was used to formulate conclusions significant from the point of view of the assumed goals.

THE VALUE AND SOURCES OF FDIS IN POLAND

The inflow of foreign capital in Poland can be divided into three stages:

- years 1976-1985 – the stage of initial opening of Polish economy to foreign capital,
- years 1986-1989 – the stage of moderate opening of Polish economy to foreign capital,
- since 1989 – the stage of opening of Polish economy to foreign capital (Pilarska 2005).

In the 1990s, Polish economy was gradually joining the global financial system. Liberalizing capital flow and creating legal conditions for investment effectively motivated foreign investors to invest their capital in Poland. In 1989, USD 9 million came to Poland as part of FDIs. In 1990, the amount was USD 111 million, and in 1991, USD 249 million. By the end of 2003, a total of USD 69,441.0 million was invested in Poland. The beginning of the transformation period was the most dynamic, and the years 1999, 2001 and 2002, the least dynamic. In 2007, the inflow of FDIs in Poland grew up to EUR 16,582 million and was more than 6% higher than in 2006⁴⁵ (Janasz 2011, Raport ...2009).

In 2008, capital from foreign direct investments amounted to nearly EUR 10 billion, and had dropped by 42% as compared to the year 2007. Companies from the EU invested the most: 91.1% of the total FDI amount. The highest funds came from Germany, Luxembourg, Sweden, France, Cyprus, Austria, Iceland, the USA, Great Britain and Spain. The larger part of the amount was invested in enterprises dealing with services, industrial processing, as well as production and supply of electricity, gas and water (Zagraniczne inwestycje...2010).

Table 1. FDI inflow in Poland in the 2006-2012 period (million euros)

Year	Contributed capital	Re-invested profits	Other capitals (mostly loans)	Total
2006	5,913	4,510	5,318	15,741
2007	5,613	6,782	4,847	17,242
2008	6,698	- 713	4,143	10,128
2009	3,799	3,582	1,962	9,343
2010	3,181	5,627	1,699	10,507
2011	2,424	5,177	7,232	14,832
2012	- 2,637	4,440	2,913	4,716

Source: (Zagraniczne inwestycje...2012, Zagraniczne inwestycje...2013)

In 2009, the value of FDIs decreased again as compared to the previous year and was estimated at EUR 9,343 million. This was the result of turbulence on financial markets connected with the global crisis. It was also the period when the level of inflation in Poland exceeded 4% and the GDP

⁴⁴Since 1996, the National Bank of Poland has been publishing data on foreign direct investments in accordance with international standards.

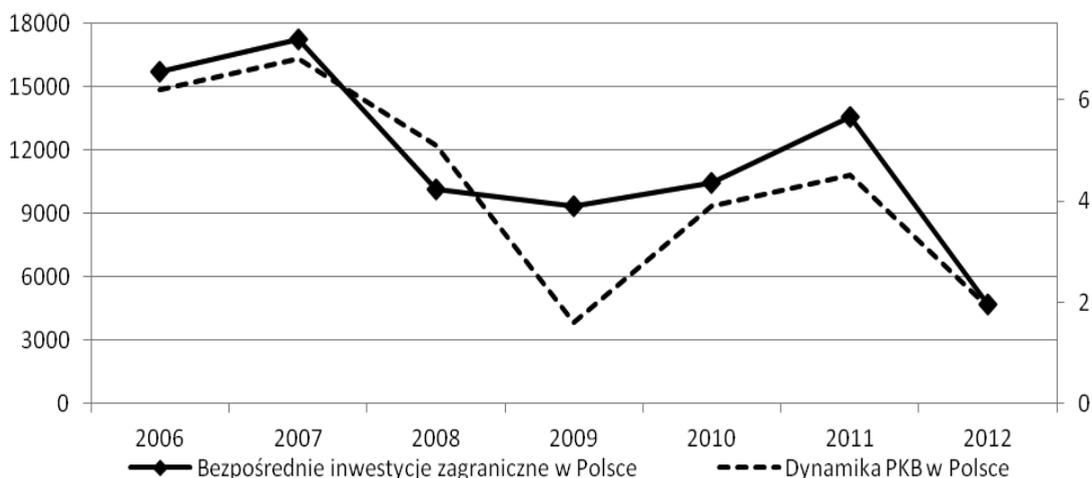
⁴⁵Data from the Polish Information and Foreign Investment Agency (PAIiZ) and the National Bank of Poland (NBP).

growth rate decreased. Since 2010, the inflow of foreign capital in Poland has clearly intensified. In this period, the balance of capital flow is positive, which means that foreign capital has not been leaving Poland (Jasiniak 2014).

The main source of foreign capital is still the members states of the EU, with the Netherlands, France and Germany being the most important investors. In the 2006-2012 period, the proportion of foreign capital from the USA was reduced (from 5% in 2006 to 2.6% in 2012). The same occurred in the case of Belgium, whereas the proportion of capital from Luxembourg grew (from 3.1% in 2006 to 8.2% in 2012) (Jasiniak 2014).

In comparison to 2011, in 2012 there was a clear drop in FDI in Poland: by more than 68%. The greatest decreases were observed in the influx of capital contributions and the influx of other capital (Table 1). At the same time, the highest influx of foreign investments was from Germany (EUR 3,494 million) and France (EUR 3,132 million). Many investors from Luxembourg and the Netherlands withdrew from Poland (- EUR 3,222 million and - EUR 1,708, respectively) (Zagraniczne inwestycje...2013).

Figure 1. FDI (EUR million, left axis) vs GDP dynamics in Poland (right axis) in the 2006-2012 period.



Source: (Stawska 2014)

In the 2006-2012 period, there was a clear drop in both FDI in Poland and the dynamics of economic growth (Figure 1). The changes in FDI and GDP were somewhat coincident. The financial crisis at the time definitely contributed to those negative tendencies; besides, there is obviously some connection between FDI and economic growth in Poland (Stawska 2014).

In 2013, the net amount of FDI influx in Poland was EUR 2,208 million, which was a poor result within the latest 10 years. In addition, the amount was less than half the amount of 2012. The state of economy – both in Poland and globally – was not conducive to FDI transactions. Investment inflow from Great Britain and Germany was the greatest (Table 2). At the time, FDIs mostly involved enterprises dealing with ITC, wholesale and retail trade, and auto repair. In financial and insurance sectors, capital outflow was observed instead (Zagraniczne inwestycje...2014).

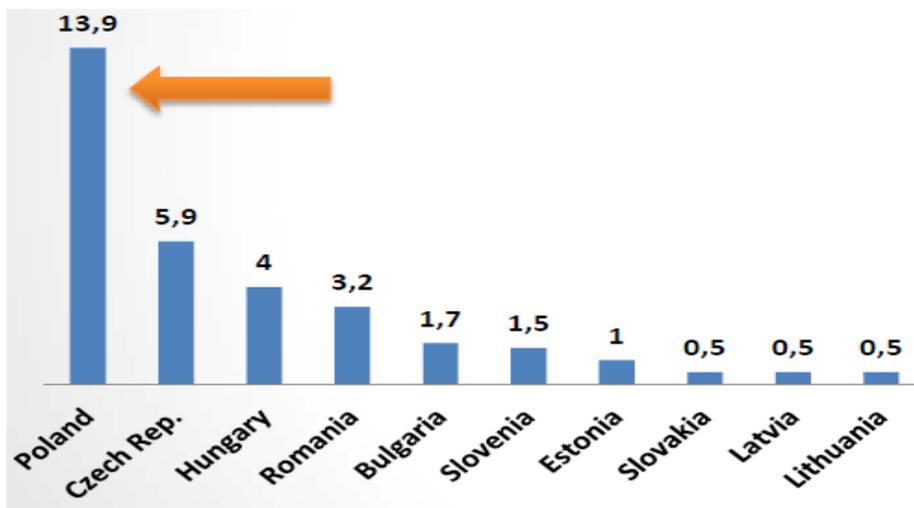
Table 2. Sources of FDI influx in Poland in the 2008-2013 period

Item no.	2008	2009	2010	2011	2012	2013
1.	Germany	Germany	Jersey	Luxembourg	Germany	Great Britain
2.	Netherlands	France	Germany	Spain	France	Germany
3.	Luxembourg	Luxembourg	Luxembourg	Germany	Great Britain	Switzerland
4.	Sweden	USA	Cyprus	Sweden	Austria	Austria
5.	France	Sweden	Sweden	France	Cyprus	Netherlands
6.	Cyprus	Austria	France	Cyprus	Switzerland	Ireland
7.	Austria	Netherlands	Italy	Greece	Spain	Norway
8.	Iceland	Italy	Spain	Belgium	Belgium	USA
9.	USA	Spain	Great Britain	Great Britain	Italy	France
10.	Great Britain	Denmark	Ireland	Curacao	Ireland	Spain

Source: (Bezpośrednie inwestycje... 2015)

In 2014, FDI inflow in Poland amounted to USD 13.9 billion, which was the highest value among all new EU members (Figure 2) (World...2015). Investors from Luxembourg and the Netherlands contributed the most to that amount (PLN 16 billion and PLN 14.5 billion, respectively). Investors from Austria and Sweden withdrew from Poland. Most FDIs were in enterprises dealing with industrial processing and ITC (Zagraniczne inwestycje...2015).

Figure 2. FDI influx in new EU countries in 2014 (USD billion)



Source: (Polska w międzynarodowych...2015)

According to NBP data, in 2015, the value of FDIs in Poland exceeded 12 billion euros, which meant a 13% increase as compared to 2014. The most capital came from EU countries, and companies from the Netherlands, Great Britain, Germany and Spain were the biggest investors (Table 3). Investors from other countries were less active at the time. Enterprises from both



Americas and from African countries withdrew their resources. In the former case, the withdrawn resources were equivalent to more than 270 million euros. Thus, geographical location, the similarity of markets and consumer tastes and better knowledge of the institutional environment may facilitate collaboration in this regard. The most resources came to the sector of services (nearly 9 billion euros), including finance and insurance. The manufacture of vehicles and transport equipment, proved the most attractive for foreign capital. After the peak in 2007, the year 2015 proved to be second best in terms of FDIs in Poland (Ostrowska-Chałupa 2017).

Table 3. FDI inflow in Poland in 2015 (million euros)

Country	Net contributed capital	Net re-invested profits	Other net capitals	Total net capital inflow
Netherlands	1262.6	1530.9	77.6	2871.1
GB	1749.4	383	399.9	2532.4
Germany	811.9	1791.4	-253.2	2350.2
Spain	133.3	345.6	496.7	975.6
Austria	454.1	307.1	-5.0	756.2
Luxembourg	-748.9	925	503.4	679.5
Sweden	-6.4	563.3	92.5	649.4
Cyprus	646.5	-190.6	180.8	636.7
Belgium	41.4	204.1	248.9	494.5
Switzerland	78.7	211	119.6	409.2

Source: (M. Ostrowska-Chałupa 2017)

In 2016, the balance of transactions involving foreign direct investments in Poland was lower by 4.6% than in 2015. A 2% decrease in the global value of such transactions was also observed then. FDI inflows grew in new EU countries such as Bulgaria, Croatia, Lithuania, Latvia, the Czech Republic or Hungary. With a reduced inflow of these investments into Poland at the time, this meant that Poland's participation in the inflow of FDIs into those countries dropped from 52% in 2015 to 17% in 2016. As for the geographical structure, the greatest investors were still the Netherlands, Germany, and Luxembourg (Zagraniczne inwestycje...2017).

The comparison of the amount of FDI inflow in Poland in specific years should also include its structure. In the 1990s and by mid 2000s, FDIs were mostly equity investments, which was connected with the considerable number of large privatizations. Later, re-invested profits emerged as a significant category, which proved the good financial condition of foreign investors and the fact that foreign companies are interested in further investing in Poland and perceive our country as attractive for investment (Bezpośrednie inwestycje...2015).

DETERMINANTS OF FDI IN POLAND

There are a number of factors that motivate investors to invest abroad. The factors can be divided into three basic groups:

1. market (marketing) factors, including geographical location, the size of trade areas, possibility of increasing export, or the provision of professional services abroad,
2. cost factors connected with the costs of business activity abroad, such as easy access to manufacture facilities, proximity of sources of supply, lower costs of labor, manufacture and transport, workers' qualifications, and tax incentives,
3. factors connected with the investment climate in the recipient country, pertaining to political and economic stability, stable tax system and legal standards, laws referring

to ownership rights and environmental protection and the functioning of public administration (Przybylska 1998).

In terms of market factors, Poland is one of the most attractive countries in Central and Eastern Europe for foreign investors. The growing purchasing power of the society and the good location (being a kind of bridge between the East and the West) encourage them to invest in our country (Pilarska 2006). The trade area was predominantly decisive for foreign investments in Poland in the initial period of transformation, as confirmed by OECD's study in 1994 (Meyer 1995). In 2005, PAIiZ confirmed that according to foreign investors, trade area was still the most important factor determining the commencement of business activity in Poland (56.5% responses) (Opinie...2005). The costs of labor (53% responses) and the prospect of economic growth (50%) were also significant. Low taxes and Poland's membership in the European Union proved to be less important at the time (Pilarska 2006). In 2011, when PAIiZ again asked foreign investors for opinions on the conditions for activity in Poland, they found out that the availability of well qualified workforce received the highest rating. Costs of labor were also rated highly (Gromada, Janyst, Golik 2015).

For many foreign companies Poland is a source of well qualified and cheap workers. In 2014, the proportion of remunerations in GDP was 46%. In the years 2001-2012, the increase in productivity in Poland was not accompanied by the relevant increase in remunerations. The proportion of remunerations in Poland is lower by 10% than the EU average and displays a downward tendency. Since 1992, the EU average has been relatively unchanged, approximately 57%. In this period, the proportion of remunerations in GDP in Poland was gradually going down from 63% in 1992 to 46% in 2014. This means that economic growth is less perceivable by those who have income from labor, and more by those who have profits from capital (Gromada, Janyst, Golik 2015).

Poland is an attractive place for foreign investments due to workers' high qualifications, but also due to a number of investment incentives. It offers investors various forms of public aid, e.g., financial support for investment projects. The resources for this mostly come from the European Regional Development Fund, as well as from the state budget. Foreign investors who are carrying out large investment projects lasting many years can also obtain subsidies for creating new jobs. Special economic zones (SEZs) are another important incentive for foreign investments in Poland (Pilarska 2006).

The first step to introducing SEZs was the act of 1994 on special economic zones. 17 zones had been established by 1998, and after 2001, their number stabilized at 14 (Informacja o realizacji...2016). SEZs were open to any investments, regardless of the country of origin, but they were dominated by foreign capital. According to the Ministry of Economy, at the end of 2014, their joint value amounted to nearly PLN 102 billion. In 2013, the Council of Ministers decided to extend the operation of SEZs until 2026 (Gromada, Janyst, Golik 2015).

The results of the Economic Survey show that in 2013/4, Poland for the first time won the ranking of investment attractiveness of 16 countries of Central and Eastern Europe, getting ahead of the Czech Republic, which had been the leader since 2006. The highest ranking factors motivating investors to invest in this region include the country's membership in the EU and workers' qualifications. In Poland foreign investors particularly appreciated workers' productivity, motivation, and the quality of university education. Against the background of its competitors, Poland had the best availability of qualified workers. The evaluated countries of Central and Eastern Europe got the worst rates for poor conditions for research and development, the lack of political and social stability of the region, ineffective prevention of corruption, the lack of transparency of public tenders, and unpredictability of economic policies of the authorities in those countries.

46A study carried out by 16 bilateral German Chambers of Commerce and Industry among 1,623 enterprises with foreign capital which had invested in Central and Eastern Europe.



According to foreign investors, in Poland the tax system and tax institutions, as well as public administration, are the most problematic (Polska liderem...2013).

In 2014, Poland again became the leader among Central and Eastern European countries in terms of attracting foreign investments. Thanks to FDIs, more than 15 thousand new jobs were created in Poland (Table 4) (Raport EY...2015).

Table 4. Number of jobs created in Central and Eastern European countries thanks to FDIs

Country	2014	2013	Change (%)	Proportion (%; 2014)
Russia	18,248	13,621	34	10
Poland	15,485	13,862	12	8
Romania	10,892	6,257	77	6
Slovakia	7,978	3,493	128	4
Czech Republic	7,278	5,609	30	4

Source: (Raport EY...2015)

Another economic survey was carried out in 2015⁴⁷. 52% of the respondents assessed the current economic situation in Poland as satisfactory. The entrepreneurs again pointed to EU membership, workers' qualifications and the quality of university education as the most important investment-promoting factors (Ankieta koniunkturalna 2015). More than 30% of the respondents mentioned the need to improve the efficiency of state administration and control its expenses. The main recommendations regarding Polish economic policy for 2015 were: to improve the efficiency of state administration and control its expenses, to expand and modernize transport infrastructure, to reform public finance, and to stabilize the exchange rate of zloty (Kania 2015).

The survey carried out in 2016 demonstrated that Poland was no longer the leader in terms of attractiveness for foreign investors. According to investors, the economies of the Czech Republic and Lithuania had the most profitable conditions. Poland ranked third. It also meant that Poland would have to compete for foreign direct investments with Bosnia and Herzegovina, Bulgaria, Romania and Hungary, where foreign investors noticed the best perspectives for development. In comparison to the year 2015, Poland improved its investment attractiveness as regards transport and communications and IT infrastructure (20% growth), benefits from EU membership, workers' qualifications, as well as the quality and availability of local sub-suppliers. Yet, trust in the predictability of economic policy and political stability dropped by 30% (Balcerek-Kosiarz 2016).

These tendencies continued in 2017. Just like in 2016, EU membership and workers' qualifications were decisive for the high investment attractiveness of Poland. Public procurement law became more transparent, and combat against corruption and economic crime was more effective. The conditions for research and development also improved. On the other hand, the availability of well qualified workers and the level of occupational education were perceived as poorer than before. The availability of workers and the flexibility of labor law became a problem. More than half of the respondents are of the opinion that the condition of Polish economy is satisfactory, although they are cautious as regards the assessment of legal security or the predictability of economic policy (Ankieta AHK...2017).

⁴⁷A study carried out by Polish-German Chamber of Commerce and Industry in February 2015 among enterprises with foreign capital in Poland.

BENEFITS AND DANGERS RESULTING FROM FDIS

FDIs undoubtedly have a positive impact on the economy. New technologies, access to knowledge or better productivity are just some of the benefits associated with their inflow. They also have positive effects in the area of science and technology thanks to the development of R&D and the transfer of technologies. Thus, they make domestic production more competitive on the global market (Książkowski 2004).

Great concerns investing in Poland attract many cooperating companies, which also invest in our country. Thanks to new jobs created, not only in these enterprises, but also in companies of the suppliers of semi-finished products, feedstocks and materials, the inflow of FDI triggers higher employment. Besides, the recipient country may obtain new trade areas of its foreign investors. Another benefit is the acquisition of new resources worked out abroad and the increase in the gross value of domestic output thanks to growing production in enterprises with foreign capital (Górniewicz 2013).

Thanks to capital contributed by foreign investors it is possible to restructure non-competitive enterprises or industries. New technologies, methods of organization and management, distribution and marketing are emerging in Poland. This means that foreign investors break the internal competitiveness barriers of Polish companies, thus contributing to the increase of competitiveness of the whole economy. These positive changes do not only occur in enterprises with foreign capital, but also in domestic ones. Greater competition on the market enforces the modernization of production potential, introduction of new technologies, and changes in management. One advantage of Polish enterprises is that they are able to quickly acquire knowledge offered by companies with foreign capital. They quickly implement production novelties, such as new packages or new ways of sale (Pilarska, Wałęga 2007).

Providing modern technologies and skills, FDI requires higher qualifications of employees of all levels and new methods of management. This forces foreign companies to offer professional training, especially connected with innovative activity. As a result, new training, R&D and competence centers are established in Poland, whose aim is to improve workers' skills and to educate new specialists in IT or accounting, needed in companies (Chojna 2010).

Companies with foreign capital also play an important role in Polish export and import. This is the result of the high quality and competitiveness of products offered by the companies, the use of foreign sales channels, and of modern marketing methods. Budget revenues from tax are growing as well. The recipient country must also remember that one of the key determinants of the influx of foreign capital is good legislation compliant with international standards. The inflow of FDI in a country also proves that the economy in the country is stable and the economic situation is good (Górniewicz 2013).

Thus, FDI is a great opportunity for the Polish economy. They allow to reduce the developmental distance between Poland and highly developed countries. But whether or not these positive effects connected with FDI will translate into the improvement of the economic position of Poland depends on many factors. The country's economic policy plays an important role, because depending on how foreign investments are used, the results may be either positive or negative. In favorable conditions, these investments can help solve many economic problems, but they may also be detrimental to the economy, especially if certain rules are not observed (Mączyńska 1998).

The numerous dangers connected with FDI include foreign investors avoiding taxes, poorer balance of trade and payments, especially if there is a tendency to increase import (particularly supply) in companies with foreign capital, which takes place in Poland. It does not result from the need to extend the production potential but from increasing current production, which makes the change of the traditional economic structure difficult. FDI often lead to the elimination of domestic competitors. Companies with foreign capital apply lower prices, thus driving domestic



manufacturers out of the market. Another dangers are pollution of the environment and uneven distribution of foreign investments in Poland (Pilarska, Wałęga 2007).

Although FDI's have both benefits and dangers, they are undoubtedly necessary for the development of Polish economy. In the situation of insufficient domestic capital and R&D base, they are an opportunity for the acceleration of economic growth. Whether or not this opportunity will be seized depends on Polish economic policy.

CONCLUSION

FDI's have undoubtedly become an important element of Polish economy. Their scale and scope is growing year after year. In the 1990s, Polish economy was gradually joining the global financial system. Liberalizing capital flow and creating legal conditions for investment effectively motivated foreign investors to invest their capital in Poland. As a result, foreign investors' interest in investing capital in Poland was growing in the following years. Former and remaining investors were mostly those from Western Europe. In 2014, FDI inflow in Poland amounted to USD 13.9 billion, and according to the UNCTAD report, Poland was included in the TOP20 of greatest FDI recipients. It was also mentioned among the most attractive investment locations in the years 2014-2016 (World...2015). Sadly, in 2016, global FDI's dwindled, which affected Polish economy as well. The worsening exchange rates and disinvestments led to the lower inflow of foreign investments into Poland.

However, Poland is still open to receive new foreign investments. As we can see from the results of economic surveys, Poland is an attractive place for foreign investors. The factors that encourage investors to invest in Poland are EU membership, workers' qualifications, and the quality of university education. Although in 2016 and 2017 Poland was no longer the leader in terms of attractiveness, it still ranks high, occupying the second place. In comparison to the year 2015, it improved its investment attractiveness as regards transport and communications infrastructure as well as the quality and availability of local sub-suppliers. Public procurement law has become more transparent, and combat against corruption and economic crime was more effective. The conditions for research and development improved, but trust in the predictability of economic policy and political stability decreased. Currently, the availability of workers and the flexibility of labor law are a problem.

From the point of view of further development of Polish economy, FDI's are still very important. They made it possible to restructure uncompetitive enterprises, to create new jobs, and to introduce new technologies. Thus, FDI's are a great opportunity for the Polish economy. They allow to reduce the developmental distance between Poland and highly developed countries. Hence, it is essential to further enhance Poland's investment attractiveness, i.e., by improving the conditions for business activity.

However, FDI inflow is also connected with some undesirable effects. Foreign investors often avoid paying taxes, try to increase the import of intermediate goods (which contributes to worsening the balance of trade), and by means of pricing they squeeze domestic producers out of the market. Another dangers are pollution of the environment and uneven distribution of foreign investments in Poland. Therefore, the provision of support for such investments should be preceded by the analysis of its potential effects. Economic policy is significant in this regard: its objective when supporting foreign investors should be to ensure favorable conditions for the development of domestic enterprises.

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*Beata Sadowska*⁴⁸, *Piotr Szczypa*⁴⁹, *Marta Nowak*⁵⁰, *Krzysztof Adamowicz*⁵¹

FOREST EDUCATION AS THE MANIFESTATION OF ENTREPRENEURSHIP OF THE STATE FORESTS NATIONAL FOREST HOLDING

Abstract: State Forests⁵², having the resources of the State Treasury at their disposal, undertaking the actions of wildlife-forest education and developing the forest infrastructure, play an important role and have a crucial impact on environmental awareness of the society. These actions are a manifestation of entrepreneurship. The aim of the paper is to identify the role and importance of forest education in the field of entrepreneurship of the State Forests National Forests Holding⁵³. In the article the study of definition of term *entrepreneurship* in theory of economy and management is made. The research is based on literature review and interviews with the representatives of the SF and the local societies. Inductive research approach is applied.

Keywords: entrepreneurship, entrepreneur, stakeholders, forest education

INTRODUCTION

Entrepreneurship is a study field combining economy and management. It is understood very broadly, therefore its one widely-acknowledged definition does not exist. The thematic literature and different authors have different approaches to defining this term. According to them, entrepreneurship can be treated as a process or can refer to the person of an entrepreneur. Consequently the wide range of definitions of the term exists.

The aim of this paper is to identify the role and importance of forest education in the field of entrepreneurship of SFNFH. The hypotheses are as follows: a) The forest education is a key element of SFNFH entrepreneurship b) Forest education shapes the ecological attitudes of young generation and lead to better understanding of forest management of adults. In the article the study of definition of terms *entrepreneurship* and *entrepreneur* in theory of economy and management will be made. The role of SFNFH as a unit conducting sustaining development of forests in the modern economy will be shown. The activities of SFNFH in the field of forest education will be presented. The research will be based on literature review and interviews with the representatives of the SF and the local societies. Inductive research approach will be used.

ENTREPRENEURSHIP IN ECONOMIC AND MANAGERIAL THEORIES

Economy, from its beginnings, was connected with working, activity, entrepreneurship and entrepreneurs. The human beings from the dawn of history encountered the problems of survival, food-getting, warmth and shelter, not only as a unit but also as the member of the social group and family (Heilbroner 1993). Nevertheless, neither all the economies nor political systems provided conditions supporting the development of entrepreneurship.

The history of thought on the entrepreneurial man and entrepreneurship began when the first manufactures started to function. Those days the free entrepreneurial activities started. Then they founded the scientific base. In the times of classical economics (eg. Ricardo theory and Marxist theory) the importance of entrepreneurship remained unnoticed. During time and opinions of J. Schumpeter the entrepreneurship was perceived as the driving-force of economy, progress engine, accelerator of growth and economic development (Piecuch 2013). The representatives of classical

⁴⁸ Uniwersytet Szczeciński

⁴⁹ Państwowa Wyższa Szkoła Zawodowa w Koninie

⁵⁰ Uniwersytet Ekonomiczny we Wrocławiu

⁵¹ Katedra Ekonomiki Leśnictwa, Uniwersytet Przyrodniczy w Poznaniu, ul Wojska Polskiego 28, 60-637 Poznań, adamowicz@up.poznan.pl

⁵² In the text State Forests will be referred to as SF.

⁵³ In the text it will be referred to as SFNFH.

English economics presented a reluctant approach to entrepreneurship. They did not acknowledge the positive influence of the entrepreneurs on the economy. Such an approach was characteristic for the majority of English classical economists. They simply did not accept entrepreneurs. For example, D. Ricardo hardly ever used the term “entrepreneur”. The exception was made by A. Smith who used words “entrepreneurship” and “entrepreneur” (Piecuch 2013).

The economists regard J.B. Say to be the one who started serious scientific reflections on entrepreneurship. His publications on this subject are well-known. Moreover, he used the term “entrepreneur” in such a meaning as it has nowadays. He was also the first person to distinguish, apart from tangible capital, the intangible capital (talent, knowledge, competences, skills) and defined the entrepreneur as the hard-working, active, inventive manager who contributes towards creation of intangible capital (Piecuch 2013). A. Lincoln is acknowledged as the pioneer of the entrepreneurship in the American literature. He defined the goals of the society of his times by stating that each American should be the employed worker at the beginning of his work life, afterwards should work independently in his own company and finally should develop his company in order to be able to employ other people so they can work for him (after: Hirsch and Peters 1989).

In the management literature one of the first to present the essence of entrepreneurship was P. Drucker. He introduced the understanding of it as introduction of innovations which constitute the basis for the future business with the optimal usage of available resources (Kwiatkowski 2000).

The most commonly spread terms relating to the definitions of entrepreneurship are: starting up, establishing, creation of new enterprise, innovations, new markets, searching for opportunities, risk taking, searching for profit, new combinations of resources, management, gaining resources, value creation (Gaweł 2017). Entrepreneurship is also understood as a process of creating something different from the value point of view, with contribution of necessary time and effort, with assumption of accompanying financial, psychological and social risk and gaining the financial award and personal satisfaction as a result (Hirsch, Peters 2006).

According to Shane and Ventakaraman (2000) the entrepreneurship means all the activities of identification, assessment and exploration of opportunities to introduce the new goods and services to the market or the methods of organization of new markets (Shane 2003). Those authors assume the existence in the entrepreneurship of such elements as: existence of market opportunities is necessary condition; risk-taking is a immanent aspect of entrepreneurial process; entrepreneurial process needs organization understood as creation of new combinations of resources; entrepreneurial process needs the introduction of innovations, not necessarily of typically production-related character. as (Shane 2003)

Eckhardt and Shane (2013) notice that discovery and creation are both ways in which entrepreneurs formulate business ideas/conjectures. Those ideas/conjectures are formulated from the interaction between individual perceptions and technical and market constraints (opportunity). Koźmiński (2004) indicates the specific functions of entrepreneurship, depicted at the figure 1.

The functions of entrepreneurship are fulfilled by human capital through entrepreneurs. The word *entrepreneur* probably comes from French language and was for the first time used in the middle ages. The term was understood as a person who supervised and controlled the manufacturing of goods, products and services and in the XVII was perceived as the person undertaking the risk and gaining the profit (or the loss) from the state contracts. Veblen started the “management capitalism” in economy. He understood the entrepreneur as the manager, seeing his crucial role in the skillful organization management.

In the Polish law the definition of entrepreneur is included in the Economic Freedom Act from 2nd of July, 2004. According to it, entrepreneur denotes a natural person, a legal person, or a non-corporate organizational unit with legal capacity under provisions of a separate act, conducting economic activity on its own behalf. The term ‘entrepreneur’ also denotes partners in civil partnerships within the scope of their economic activities (Ustawa z dnia 2 lipca 2004 r. o

swobodzie działalności gospodarczej, art. 4). According to Polish Civil Code entrepreneur is a natural person, legal person or unit defined in the article 331 § 1 conducting the business or professional activity in its own behalf (Ustawa z dnia 23 kwietnia 1964 r. Kodeks cywilny, art. 43) Therefore in the legal terms the entrepreneur is understood as the owner. Nevertheless the economic literature stresses that the entrepreneur is also (Klonowska-Matynia and Palinkiewicz 2013): a manager or a supervisor, an innovator, a person employing the production factors, the coordinator of resources, a person who exhibits the leadership skills.

The entrepreneur is creative, ready to undertake the innovative tasks. He/she is not afraid of new challenges and consequently fulfills his goals. He/she has the strong motivation, usually connected with passion. Entrepreneurship needs creativity which determines the searching for opportunities and their creation. It also means the skill of going beyond the standard thinking frames, knowledge and experience (Karpacz 2011).

In 2000 Shane and Ventakaraman (2000) argued that entrepreneurship research lacked theoretical paradigm and was just a mixture examining settings arbitral have chosen. Therefore it had not distinctive area of intellectual inquiry. Shane and Ventakaraman (2000) postulated to make the entrepreneurship a legitimate scholarly field by giving the theoretical framework to explain or predict phenomena neither explained nor predicted by other fields. The paper was awarded in 2010 Academy of Management Review Decade Award and was cited by 2686 articles. Analysis of the quotations made by S. Shane identified four main dimensions appreciated by other authors: The idea of entrepreneurship as a distinctive scholarly domain; The definition of entrepreneurship as a process rather than an event or embodiment of a type of person; The nexus of opportunities and individuals; Means-ends relationships, innovation, and new combinations (Shane 2012).

The popularity of entrepreneurship research reflects in the number and differentiation of publications. The papers by Nicolau et al. (2008) prove that the tendency to be an entrepreneur is heritable and that commons genes influence both sensation seeking and entrepreneurial tendency and provide the evidence of an association between a genetic polymorphism and the tendency to be an entrepreneur (Nicolau et al. 2011). The research of Ahlin et al. (2014) suggests that entrepreneurial creativity affects directly the level of innovation outputs and this relationship is moderated by the strength of an entrepreneur's perceived self-efficacy beliefs.

The interesting fact about entrepreneurial research is that some of the leading authors on the subject are critical about unlimited enthusiasm of other authors and policy makers directed towards the entrepreneurship. For example, Shane (Shane 2009) ironically notices that the policy-makers treat the start-up companies like "magic bullets". As an example of such an exaggerate opinion he quotes Lazear (2005) who claims that "the entrepreneur is the single most important player in a modern economy".

THE POSITION OF STATE FOREST NATIONAL FOREST HOLDING IN THE MODERN ECONOMY

SFNFH manages the forests which belong to the Treasury of Poland. It is a state non-corporate organizational unit with legal capacity. The economic-forestry activity is conducted on the basis of the economic. The economic calculus however is difficult due to the multidimensional economic goals defined by the specific character of production.

In the organization of SFNFH following units function: General Directorate of SF, Regional Directorates of SF, Forrest Districts and other organizational units, called Forest Departments.

Forrest districts are the main units in the forest management system. Forest district manager, according to the Forest Act (Ustawa z dnia 28 września 1991 r. o lasach, art. 35, ust. 1) organizes in

the independent way forest economy in the forest department on the basis of the forest maintenance plan and is responsible for the forest condition⁵⁴.

The entire forest management, including tasks realization and goal fulfillment, is performed depending on the forest function: ecological, productive and the social one (SFNFH Strategy for Years 2014-2030). The performance of all of the forest management functions needs inter-sector cooperation, access to information and effective communication within the actions of SFNFH which will ensure the mutual profits for all the stakeholders. While realization of the goals which are imposed on SF⁵⁵ the requirements of different groups of stakeholders should be met (Szramka et al. 2016) They are presented at the figure 2.

SFNFH by ensuring the sustained balancing of all the functions meets the expectations of all the information users through the proper planning of the goals and tasks of forest management. The strategic goals of SFNFH defined in the SFNFH Strategy for Years 2014-2030 are following: to manage a common (shared) good which the forests are, to ensure sustainability of the forests, to ensure the access to the forests for society, to ensure the crucial contribution of the SF for the economy, to become a modern, properly-managed and efficient organization, to develop human resources and competences and motivate people towards realization of the strategy, to ensure the ability to self-financing.

It should be stressed, that non-productive functions of forest, such as forest education, were taken into account, even during the industrial revolution of the XIXth century introducing to the legal documents issues on social, societal, ecological and protective meaning of the forests. In Polish territories the first document which contained the information on the public functions of forests was the Russian legal act refereeing to the forests of the Kingdom of Poland. The forest as a public good was appreciated and protected (Zydroń, Kayzer 2015).

SFNFH and its environment penetrate and influence each other. Therefore the activities of SF are subject of direct and indirect interest of different stakeholders (Adamowicz, Noga 2014). Each of these groups has different needs and expectations. Their identification is a starting point for building of entrepreneurial attitudes. It is also an initial point for undertaking of actions and fulfilling the goals which are consistent with the expectations of stakeholders including social ones such as forest education.

FOREST EDUCATION AS THE MANIFESTATION OF STATE FORESTS ENTREPRENEURSHIP

Entrepreneurial means active, dynamic, involved, creative. Entrepreneurship means actions which are dynamic and creative, means involvement in accomplishment of a new task, means new initiatives and means creativity. One of the aspects of entrepreneurial activities of the SFNFH is a forest education. Its form of an obligatory task of Forest Service was decided when the Promotional Forest Complexes were established by regulation no. 57/2003 (which was the first formal regulation of Forest Service). From the 2004 the "Program of forest education" exists in each of the forest departments. The task of Forest Promotional Complexes are following: the identification of forest ecosystems sustainability and their changes (wildlife inventory); re-creation of forest values or sustaining them through ecology-based forest management; integration of economic goals with forest sustainability goals; conducting and promoting multidimensional, balanced and sustainable

⁵⁴ Due to this act and related ordinations which are based on it, the main goal SFNFH is conducting of forest management according to the basic rules such as: wide spread protection of forests, their sustainability, balances usage of different forest functions, increase of forest resources. The goal is being fulfilled by sustainable, balanced, multifunctional forest management, which is performed in the accordance with the plan of forest maintenance elaborated for each of the forest districts for the ten-years period.

⁵⁵ More detailed information on the functions, goals and operational tasks is can be provided by the study of Forests Act (Ustawa z dnia 28 września 1991 r. o lasach)

forest management; conducting research aimed to implement and spread sustainable forestry; building an ecological awareness in the society through the education and training of Forest Service (Fronczak 2007).

SFNFH in its strategy balances all the expectations of internal and external stakeholders securing realization of forests productive non-productive functions. State Forests, among their activities, promote forests, educate society, ensure the access to the forests for society. There are bases of the forest education units which secure the multitude and differentiation of the forest education and promotion. The increase of the number of school children included by the educational actions can be observed. The majority of those activities is financed by the SFNFH own financial sources.

SFNFH undertaking the activities related to environmental and forest education and developing the educative-forest infrastructure performs a crucial role in shaping of ecological knowledge of the society. The foresters are the source of the rich knowledge on the Polish forests, their history, environmental values etc. They are involved in the educative and promotional actions which make Polish people perceive forests as the important element of national heritage. SFNFH publishes books, journals and brochures. It also provides forest information at their website www.lasy.gov.pl. Additionally, it has the special internet portal for children and teachers "Las Rysia eRysia" (www2.lasy.gov.pl). Foresters keep supporting schools of different levels. In cooperation with non-governmental organizations they organize separate and periodic actions which are aimed to widen the knowledge on the forests, wildlife and ecology. The organizational units of SFNFH also cooperate with the research centers and support the research on forestry.

The forest education activity report (Chrzanowski 2016) states that in the SFNFH used in the 2014 above 6500 different units, such as education centers, forest chambers, educational shelters, educational paths in forest education. SF organize periodical open-air events, family picnics, field workshops in forest departments. In spite of many advantages of such entrepreneurship manifestation, it has also its weaknesses, which are following: lack of coherent programs of performing forest education and promotion; lack of measurement of efficiency and efficacy of educational and promotional actions; insufficient educational activities directed towards some age groups, including adults; insufficient usage of the electronic media in the forest education; lack of system of development of merit and didactic competences for forest educators.

SFNFH means to continue their educational and promotional actions with the usage of forest potential, highly-skilled personnel and existing infrastructure, simultaneously stressing the importance of quality and efficacy of conducted activities and rationality of incurred expenditures which relate to them. Particularly, SF plan to: elaborate consistent educational programs including goal definition, improve long-term plans of Forest Promotion Complexes usage for effective wildlife-forest education and promotion SFNFH activities; run the campaigns promoting Forest Promotion Complexes and other forest areas such as the places of leisure, tourism, sport and contact with nature; support the usage the forest areas by the society; to participate in formulating educational programs in the scope of forest and wildlife education; participate in conducting of wildlife and forest classes; cooperate with educational sector in the purpose of decreasing of forest and wildlife teachers competences; survey the efficiency of conducted educational actions.

The indicators of forest education are following: number of educative workshops participants and educational objects users, number of joint enterprises realized together with other organizations, number of employees of SF involved in the educational activities.

In the education for the sustained development and entrepreneurship, shaping of awareness and attitudes is crucial. Among them most important are: the understanding of interdependence between humans and the environment, making responsible choices by consumers, taking the responsibility of the world's future. It can be asked whether the entrepreneurship manifested by the forest education of the SFNFH makes sense. Apparently, it has the crucial meaning in the modern sustainable forest

management. Zuberthat (2016) states that *There is a lot to do concerning children and adults to avoid the situation described by doctor Toeplitz, that leafy, needle and birch trees are distinguished and a hedge is the best-known leafy park tree.*

SUMMARY

SF belong to all the nation. It was stressed by the Loret, first director of the SF, and the big role model of the foresters: The meaning of forests is not limited to the merely economic sphere in the life of nation. The forests possess numerous properties which are indispensable for country (...). Only the State, as the owner, is able (...) to punctuate all the economical, ecological and cultural benefits obtained by country from forests. The State, whose existence is not measured by the human life age, is constituted for the care of the present and future being of the nation (www1).

Summing up the considerations on the role and importance of forest education in the area of the entrepreneurship of SFNFH, the following conclusions emerge:

1. The definitions of *entrepreneurship* and *entrepreneur* are rooted in management and economy theory. Since 2000 some theoreticians treat entrepreneurship as the separate field of knowledge with its own assumptions and paradigms.
2. SFNFH is an organization which performs the sustainable forest management, including productive and non-productive functions of the forest. One of the non-productive functions of SFNFH is forest education. Goals, tasks and activities belonging to forest education fit in the entrepreneurship of the SFNFH.
3. The educational activities are conducted actively and dynamically with the involvement of many foresters. The foresters who conduct the forest education implement the creative programs of the field work, organize inventive workshops and introduce creative games, competitions and lessons. All those activities manifest entrepreneurial approach.
4. Forest education as the manifestation of entrepreneurship of SFNFH contributes to the building of awareness and attitudes of young generation and to better understanding of the sustainable forest management by the adults.

The following hypotheses of this paper a) The forest education is a key element of SFNFH entrepreneurship b) Forest education shapes the ecological attitudes of young generation and lead to better understanding of forest management of adults were proven to be true.

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Norbert Szalaty⁵⁶, Monika Wojcieszak⁵⁷

THE CHOSEN ASPECTS OF HAUSHOLD EXPENDITURES ON ORGANIC FOOD IN WIELKOPOLSKA

Abstract: The purpose of this article is to assess household expenditures on food with particular emphasis on organic food. This study included 102 people from the Wielkopolska province. The subject information of the analysis were obtained with the usage of a questionnaire and enriched with data from statistical publications of the Central Statistical Office of Poland. The article presents the level of earned income, its sources and structure of expenditure on different food groups. The results show that food expenditure represents a significant part of the costs that households have to bear. These results also affirm the Engel's law stating that the expenditure on food decreases while the income increases. Organic food still plays a minor role in the consumption habits of the population. This is caused mainly by its high price. The study also showed other barriers that constitute an obstacle to the acquisition of organic food, including in particular the unavailability of these products in places of making daily purchases.

Key words: household budgets, spending on food, conventional food, organic food

INTRODUCTION

The production, exchange and consumption are the three basic spheres of every properly functioning economy. Thanks to these elements which are mutually penetrating and influencing each other, economic growth and development becomes possible (Łuczka-Bakuła 2007). Therefore, it is extremely important that the production sphere, in which certain goods and services are produced, appropriately meets the needs of households, which in turn are the basis for the consumption sphere (Zalega 2012). This applies particularly to issues of food. According to the theory presented by American psychologist Abraham Maslow, it is the starting point for meeting the needs of a higher order. This is confirmed by data regarding household budgets, especially those relating to their expenses. On average, in Poland people spend approximately 24% of their income on food (Sytuacja gospodarstw domowych w 2014). Such high proportion of these expenditures in the total expenditure contributes to increasing competition among food producers (Witek 2014). This is because the factor taken into account by consumers when buying is not only the price but also the quality of the purchased food. As a result the organic food market in Poland has been developing for several years now (Grębowiec 2010). This is somewhat related to the changes that have taken place in the Polish economy after 1989, which in turn resulted in the transformation of population consumption habits. Particularly the imitation effect⁵⁸ has been highlighted here, however, other factors, such as fashion or advertising were also significant. The interest in the consumption of more expensive food started to grow among the Polish buyers (Kwasek 2013). Such food included: safe, comfortable, functional and organic food (Gałązka 2013). The organic food market is the rapidly growing food production sector both in Poland and in the world. It is estimated that it increases at about 20% per year (Polski rynek żywności ekologicznej 2017). This is related mainly to the enrichment of societies, increasing awareness about healthy lifestyle and the increased

⁵⁶ Poznań University of Life Sciences, Faculty of Economics and Social Sciences, Department of Economics and Economic Policies for the Agribusiness, Institute of Agricultural, Food, Consumption and Marketing Economics, ul. Wojska Polskiego 28, 60-637 Poznań, e-mail: norbert.szalaty@up.poznan.pl

⁵⁷ Poznań University of Life Sciences, Faculty of Economics and Social Sciences, Department of Economics and Economic Policies for the Agribusiness, Institute of Agricultural, Food, Consumption and Marketing Economics, ul. Wojska Polskiego 28, 60-637 Poznań, e-mail: mwoj@up.poznan.pl

⁵⁸ The imitation effect is described in the literature as a desire of consumers to catch up the people who are the reference group for consumer behaviour in terms of consumption level (6).

interest of the producers themselves in manufacturing of such products (Golinowski 2013). Currently, the organic food cultivation area is 37.5 million hectares and it is being developed in 160 countries (Smoluk-Sikorska, Bakula 2015).

MATERIAL AND METHOD

The development of organic food production in Poland is conditioned by an adequate change of demand, especially the domestic one. Research hypothesis sounds as the growth of income considering food purchase, quality of goods increases enormously. The main objective of the research is to determine the size of household expenditure on food, with particular emphasis on organic food. The primary materials designed to achieve the main objective were the basics. They were completed from consumers surveys gained from a questionnaire. Research conducted in Wielkopolskie voivodeship during fairs called 'Tastes of Regions' and weekly taken place market 'Green Market' in 2016. It was tested among random chosen 102 people. Among the respondents, the people aged 21-30 years (about 2/3 of the respondents) with higher education (67%) dominated. The questioned people were mainly working people (70% of all surveyed) but also students (24%) and non-employed persons (6%). The results came from towns (82%). Inhabitants of a countryside accounted for 18% of respondents. Holdings with 2 (29%) or 4 people (21%) dominated. The respondents were asked about their household finances (the amount of earned income, its sources and the expenditure on food) and about their preferences regarding food product, with particular emphasis on the organic food (food designations knowledge, motives and preferences of purchases). Data from the Central Statistical Office on the situation of households in 2014 was also used in the study.

RESULTS OF THE STUDY

One of the most important determinants of households spending is their financial situation measured by the level of disposable income achieved.

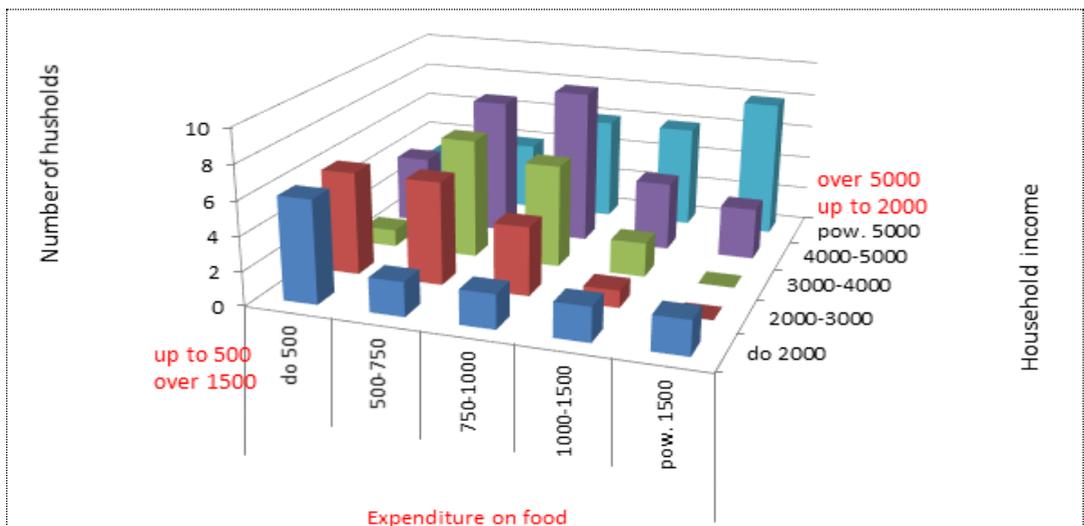


Figure 1. Household income (zł) and expenditure on food

Source: Self-study based on questionnaire surveys, N=102.

Linking income earned with the amount of spending on food is showing that households having higher incomes contribute less money to purchase food products than those which incomes



are relatively lower. This confirmed the Engel's law which says that when income rises, the expenditure on food falls (Figure 1), though in an increasingly slower pace and at the same time spending on food in total expenditure decreases. For the examined group of consumers, the correlation coefficient between estimated income (total and per one person on the household) and the proportion of food expenditure in income amounted to -0,50. Therefore, after exceeding a certain level of income, households spend a greater part of their income to buy the goods which enable to meet the needs of a higher order, and the absolute increase in spending on food products is slower than the increase in income (Tomaszewicz, Welfe 1978). In Table 1 the food groups on which households spend the income used to purchase food are presented. The structure and level of household consumption is one of the most important indicators thanks to which it is possible to assess the behaviour and attitudes of consumers. Expenses constitute an essential factor which indicates not only the quantity and quality of satisfying needs, but also differences in the level and scale of the income distribution (Zalega 2011).

Table 1. Structure of expenditure on food according to product groups (%)

Type of product groups	Share of total expenditure on food
Bakery and cereal products	20,0
Meat and meat products	30,0
Fish	5,0
Milk, cheese, eggs	15,0
Oil and other fats	5,0
Vegetables and fruit	15,0
Other food products	10,0

Source: Self-study based on questionnaire surveys, N=102.

The research has shown that the largest part of households expenditure devoted to food purchases is spent on buying meat and meat products (30%) and bakery or cereal products (20%). Of less importance are the following groups of products: milk, cheese and eggs (15%) and vegetables and fruit – also 15%. Households spend the least on the fish, and oils and other fats (5%).

Buying organic food is declared by 48% of survey people (49 people), 52% of respondents do not buy this type of food. The analysis shows that the main reason for conscious resignation from purchasing organic food are the prices. As many as three-quarters of respondents indicated that the main barrier to purchase organic food is that it is expensive (74% of them considered this factor as very important). Another factor is the unavailability of organic food in typical places of food purchasing. The lack of knowledge about points of sale or inability to distinguish organic from conventional food were less important aspects.

The importance of economic factors in choosing organic food is confirmed by the issue of income in decisions about purchasing organic food. It appears that only in the wealthiest groups (with household income above 4000 zł per month) there were more households buying organic products than in the groups indicating the contrary (table 2.). Although variance analysis showed no statistically significant differences (on the level $p < 0.05$) between the averages for groups of buyers and non-buyers of organic food, the average estimated income for one person in a group of people buying organic products was 16% higher (245 zł / person) than for non-buyers, and the estimated share of expenditure on food was 5 percentage points lower. These findings indicate that an increase in demand for organic food and the resulting from this market factor in development of organic products' market (independently of agricultural policy in this area) will be conditioned by the increase in household wealth.

Table 2. Dependence of decision of buying organic food on household income

The ranges of total monthly income	The number of households declaring the purchase of organic food		Total
	Do not buy	Buy	
Up to 1500 zł	3	1	4
from 1501 to 2000 zł	5	5	10
from 2001 to 2500 zł	7	4	11
from 2501 to 3000 zł	5	1	6
from 3001 to 4000 zł	11	4	15
from 4001 to 5000 zł	10	18	28
Over 5001 zł	12	16	28
Total	54	49	102

Source: Self-study based on questionnaire surveys, N=102.

The purchasers of organic food pay attention to the information and signs appearing on the products. Studies have also shown that people who do not buy that food are also familiar with organic food designations. Among the signs typical for organic farming the most recognizable characters (among surveyed individuals) are the "Euro-leaf" and "Ekoland" (Figure 2 and 3).



Figure 2. "Euro-leaf"



Figure 3. "Ekoland"

Source: <http://www.minrol.gov.pl/>

Consumers usually associate the organic food with high price and high quality. Recent research of the American market (March 2015) shows that on average, organic food is about 47 percent more expensive than the conventional⁵⁹. The analysis of the material indicates that respondents identify organic food with greater recognisability and exclusion of its mass production. In contrast, the least important element is the fact of a long tradition in manufacturing and applied recipe. Figure 4 shows the factors that determine the purchase of organic products.

The most important factors that influence the purchasing decisions of organic food, include those relating to health reasons. Of great importance is also good quality, lack of preservatives and nutritional value of such food. This is because a modern consumer more often attaches importance to a healthy lifestyle and wants to acquire and consume traditionally-made sausages and bread, naturally matured cheese or freshly squeezed juices which contain no preservatives (Waszkiewicz-

⁵⁹ The cost of organic food (2017), <http://www.consumerreports.org/cro/news/2015/03/cost-of-organic-food/index.htm> (sampling date: 27.08.2017)



Robak 2002). The surveyed people frequently search for information on ecological products in the Internet or consult friends who previously had any contact with this kind of food products. More and more often the source of knowledge of this subject is also television in which various types of advertisements, programs and campaigns promoting Polish organic food are introduced. The least individuals derives information about the discussed food from its producers and the press.

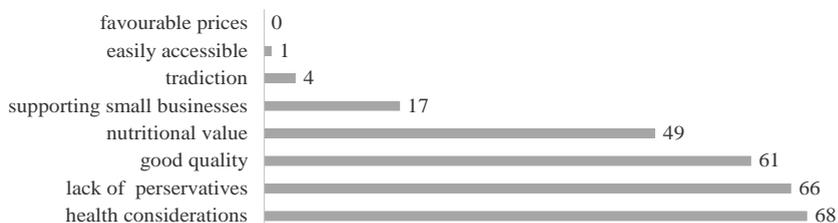


Figure 4. Factors determining organic food purchase (%)

Source: Self-study based on questionnaire surveys, N=102.

Respondents who were asked about the place of buying organic food indicated that such places were usually local markets - so called "Green Markets", malls (where one can find the island-points selling such food) and retail stores, specializing in organic food sales. A places where the surveyed individuals made purchases of organic products the least frequent were discount stores.

As previously indicated, organic food is characterized by high quality which is also connected with a high price. The respondents pointed out that they would be willing to pay 23% more for organic products in relation to the conventional with the exception that people already buying organic products would accept prices by 26% higher, and the group of non-buyers just 19%. The size of the expenditure they devote to buying this type of products fluctuates around 10% of the total budget devoted to food purchases.

SUMMARY

Research confirmed the hypothesis that along with the increase of income obtained by the Poles, their expenditure on food of good quality grows, however, the share of money they spend on food in general decreases in the total expenditure. The main goal was also implemented. „Organic Products are becoming more popular. It is predicted that in the next five years the market on which the organic products are offered may increase by 2-3 times, and manufacture of articles of high quality will represent more than 10% of Polish agri-food production”⁶⁰. There are favourable conditions in Poland - both environmental and economic - for production and organic farming development. The increase in the production of this type of food will positively affect the price which is currently the greatest obstacle preventing people from buying this kind of food. Another condition for market growth is an increase in consumers' incomes along with improving their food awareness.

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⁶⁰ The statement of the General Director of Polish Federation of Food Industry Andrzej Gantner.

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*Jarosław Świdynski*⁶¹

EFFECT OF UNCONTROLLED URBANISATION ON RURAL AREAS AROUND CITIES

Abstract: This study attempts to determine the effect of suburbanisation on rural areas around cities, with the Municipal Functional Area (MFA) used as an example, in regard to: demography, housing, land development, planning documents and local tax rates. The analyses were based on data from the Central Statistical Office, from the Official Journal of the Voivodship of Warmia and Mazury and from Geoportals. The findings of this study indicate that urbanisation of suburban areas is a diverse process and it is not linked with one specific factor. Urbanisation is largely determined by the natural value and infrastructural potential.

Key words: suburbanisation, spatial planning, suburban zone, rural area

INTRODUCTION

Rural areas in Poland are changing constantly. Modifications affect economic, social, spatial and landscape structures and they are associated with transformations in agriculture itself and with rapid suburbanisation.

The development of cities is part of their history. Expanding cities affect suburban areas. Local authorities must take into account that the process of suburbanisation is another – unavoidable – phase of a city's development. Suburban communes must cooperate with the municipal centre to follow the right spatial policy and define directions of spatial development (Feltynowski 2010). Negative effects of suburbanisation include: social conflicts, scattered housing sites, which upsets the spatial order, leads to deterioration of agricultural land and creates infrastructure-related issues (Pankuau et al. 2005).

Śleszyński (2015) points out a strong association of suburbanisation and liberal law, which allows for issuing land development decisions and for allocating too much land for residential buildings in local plans.

Urbanisation of suburban areas is a long-term process, which is why the issue does not get proper attention. Over time, issues appear which are related to overloading of insufficient infrastructural networks, transport routes and social infrastructure. Intensified urbanisation also entails privatisation of space and social divide. Developing common spatial policy by neighbouring communes and adopting good local plans, which do not regard construction of residential buildings as the only method of land development, will limit the negative effects of city expansion.

The results presented below are an analysis of statistical data, documents and maps. The aim of the analyses was to present an effect of spontaneous urbanisation on rural areas. The data used in the analysis concerned demography, quality of spatial planning, land development and rates of local taxes and charges and were taken from the Central Statistical Office, the Official Journal of the Voivodship of Warmia and Mazury and from Geoportals.

MATERIAL AND METHODS

The Municipal Functional Area of Olsztyn was taken as the study area. An analysis of the effect of uncontrolled urbanisation on rural areas in the vicinity of cities was conducted on data from the Central Office of Statistics for the years 2010-2016 (depending on what data were available) concerning: demography, housing, land development and planning documents. In

⁶¹ University of Warmia and Mazury in Olsztyn, The Faculty of Geodesy, Geospatial and Civil Engineering, Department of Real Estate Management and Regional Development, R. Prawochenskiego Str. 15, 10-720 Olsztyn, e-mail: jaroslaw.swidynski@uwm.edu.pl

addition, information supplied by local authorities on rates of local taxes and charges was used, as well as web geoportals of local governments.

The data were used to determine changes of the population and of the number of flats. Information on planning documents and information from geoportals was used to analyse the quality and scope of planning documents, which directly results in spontaneous urbanisation. It was verified in successive stages whether local governments of suburban communes do not promote uncontrolled suburbanisation by lowering their taxes and charges. The last part contains the summary of the results and conclusions.

All the analyses were conducted with Microsoft Office, Google Earth Pro and QGIS version 2.18.11.

STUDY RESULTS - THE MUNICIPAL FUNCTIONAL AREA IN OLSZTYN

The Municipal Functional Area in Olsztyn (Fig. 1) includes five rural communes: Purda, Stawiguda, Gietrzwałd, Jonkowo and Dywity, one municipal-rural commune: Barczewo and one municipal commune, which is the core of the area - Olsztyn. MFA Olsztyn occupies the total area of 1451.51 km², which accounts for 6% of the area of the Voivodship of Warmia and Mazury. The administrative borders of the communes did not change during the period covered by the analyses.



Fig. 1 The Municipal Functional Area in Olsztyn

Source: prepared by the author

The commune of Barczewo is the largest - it occupies 22% of the whole area; it is followed by Purda (21.9%) and Stawiguda (15.4%); Olsztyn (6.1%) is the smallest of the communes. A large portion of MFA Olsztyn is occupied by lakes and forests.

Over 50% of the MFA is protected under the Nature Conservation Act. The communes of Stawiguda and Purda have the largest nature conservation areas. Moreover, a large portion of the whole area is occupied by lakes and forests. Such natural and environmental conditions may limit the development of certain branches of the economy (Strategy for the Municipal Functional Area of Olsztyn 2016). Trends and methods of land use are shown in the following table.

The greatest portion of the area is occupied by forests and tree-covered land - 63,951 ha, which accounts for 44% of MFA Olsztyn - followed by farmland - 58,031 ha (40%), whereas built-up and urbanised land occupies 10,150 ha (7%), lakes and rivers occupy 6% of the area and the other land, which includes wasteland - 3%. During the period between 2012 and 2014, 1,478 ha of other land was developed; the largest portion (80%) was transformed into farmland and 13% was urbanised.



Table 1. Methods of land use in 2014 (ha) (with a change compared to 2012)

Specification	Land under waters		Forests and tree-covered land		Farmland		Built-up and urbanised area		Other land		Total
	2014	change	2014	change	2014	change	2014	change	2014	change	2014
Barczewo	1618	9	11497	44	16073	358	1684	32	1129	-443	32001
Dywity	342	0	4629	-2	9615	263	1006	20	524	-281	16116
Gietrzwałd	722	4	8961	-4	6314	99	828	21	408	-120	17233
Jonkowo	188	0	6690	19	8511	157	867	12	613	-188	16869
Purda	1865	-14	17348	34	10410	204	1113	19	1076	-243	31812
Stawiguda	3172	0	12722	10	5202	134	884	27	307	-171	22287
Olsztyn	850	4	2104	-6	1906	-32	3768	66	205	-32	8833
MFA	8757	3	63951	95	58031	1183	10150	197	4262	-1478	145151

Source: Prepared by the author based on: BDL GUS.

The structure and method of land use shows that not a large portion of the land is urbanised (obviously, ca. 1/3 of all the built-up area is within the city of Olsztyn).

According to statistical data, the MFA was inhabited by 232,855 people in 2016, which is more by 2893 than in 2010 (Table 2).

Table 2. Population of MFA in 2010-2016

Specification	Actual place of residence		Population density (people/km ²)		Percentage of population		Change of population (number of people)
	2010	2016	2010	2016	2010	2016	2016-2010
Barczewo	17063	17662	53	55	7.42	7.58	599
Dywity	10399	11374	65	71	4.52	4.88	975
Gietrzwałd	5980	6536	35	38	2.6	2.81	556
Jonkowo	6653	7229	39	43	2.89	3.10	576
Purda	8118	8612	26	27	3.53	3.70	494
Stawiguda	6361	8449	29	38	2.77	3.63	2088
Olsztyn	175388	172993	1986	1958	76.27	74.29	-2395
MFA	229962	232855	63	62			2893

Source: Prepared by the author based on: BDL GUS.

The communes with the smallest population include: Gietrzwałd and Jonkowo, whereas Olsztyn has the largest population – 172,993 (74.29% of the population of the entire functional area), followed by Barczewo. 2,395 people moved out of Olsztyn during the period between 2010 and 2016. During that time, the largest population increase was recorded in the commune of Stawiguda (Table 2), situated south of Olsztyn and in the commune of Dywity, situated to the north.

The demographic structure of MFA Olsztyn reveals an increase in the number of people at the post-working age in each commune of the area (Table 3). The largest portion of such people lived in Olsztyn in 2016. The overall percentage of people at the pre-working age in the years 2010-2016 remained at the same level – 17.7%, but the portion of this group in the whole population increased only in the communes of Olsztyn and Stawiguda. The percentage of people at the working age decreased in each commune in the period 2010-2016 (Table 3). The population of the MFA Olsztyn is growing despite such a disadvantageous demographic structure (Table 2). This may be a sign of certain attractiveness of the area.

Table 3. Economic age groups as % of the total population in the years 2010-2016

Specification	Pre-working age		Working age		Post-working age	
	2010	2016	2010	2016	2010	2016
Barczewo	21.0%	19.2%	66.5%	64.5%	12.5%	16.3%
Dywity	22.0%	20.2%	67.8%	65.1%	10.2%	14.7%
Gietrzwałd	21.5%	20.1%	66.9%	65.2%	11.6%	14.6%
Jonkowo	23.4%	20.6%	66.0%	65.9%	10.5%	13.6%
Purda	20.5%	18.8%	68.9%	66.9%	10.6%	14.2%
Stawiguda	20.3%	21.7%	69.4%	65.6%	10.3%	12.8%
Olsztyn	16.6%	17.0%	67.2%	61.9%	16.3%	21.2%
MFA	17.7%	17.7%	67.2%	62.7%	15.1%	19.5%

Source: Prepared by the author based on: BDL GUS

The constant increase in the population size requires investment in housing. The housing resources in the MFA increased by 3,153 between 2010 and 2016 (Table 4).

Table 4. Housing resources 2010-2016

Specification	Housing resources				
	2010		2016		2016-2010
Barczewo	2 608	13%	3 064	13%	456
Dywity	2 319	12%	2 826	12%	507
Gietrzwałd	1 211	6%	1 563	7%	352
Jonkowo	1 527	8%	1 867	8%	340
Purda	1 519	8%	1 920	8%	401
Stawiguda	1 475	7%	1 977	9%	502
Olsztyn	9 322	47%	9 917	43%	595
MFA	19 981	100%	23 134	100%	3 153

Source: Prepared by the author based on: BDL GUS.

The largest numbers of apartments were built in the communes of Olsztyn, Dywity and Stawiguda. The number of houses built during the past decade in the suburban communes increased, especially near the administrative borders with the city. The number of apartments built in Olsztyn was the largest, while the population size decreased, which may indicate an improvement in housing conditions. The smallest housing resources can be found in: Jonkowo and Gietrzwałd.

Housing investments require one of the two planning documents: a local plan or a land development decision. The largest areas covered by local plans in 2015 were found in the communes of Barczewo and Olsztyn, and the smallest were in the communes of Purda and Jonkowo (Table 5). The largest increases in the area covered by the plans in the years 2010 to 2015 were observed in Olsztyn and in the commune of Dywity.

Due to their features and their legal authority, local plans fully regulate the method of development of larger areas. However, if communes do not have local plans in place for their entire area, then land development decisions are issued, which are valid only for one plot. Such documents - prepared on individual basis - may upset the spatial order in an area. The largest number of decisions in MFA Olsztyn during the period of 2010-2015 was issued in Olsztyn and in the commune of Purda (Table 5). Moreover, the number of decisions for residential buildings was also the largest in the commune of Purda. This commune also has the smallest portion of the area covered by valid local plans.

Table 5. Planning status 2010-2015

Specification	Portion of area covered by local plans		Decisions on land development issued	Decisions on residential building construction issued
	2010	2015	2010-2015	2010-2015
	(%)	(%)		
Barczewo	60.2	60.7	898	523
Dywity	14.0	18.5	931	501
Gietrzwałd	8.1	9.4	597	334
Jonkowo	1.6	2.3	839	416
Purda	1.9	2.2	1488	949
Stawiguda	8.6	9.4	645	239
Olsztyn	44.1	55.8	1669	398

Source: Prepared by the author based on: BDL GUS.

Part of the communes are shown in geoportals layers concerning spatial planning - the scope of local plans and their contents. An analysis of the zoning status and available aerial photographs allow for identification of areas of development of suburban housing and the directions in which the city is spreading. The greatest pressure of building construction on rural areas bordering on the city is seen near the southern border between Olsztyn and the commune of Stawiguda (Fig. 2), near the northern border with the commune of Dywity (Fig. 3) and near the border with the commune of Jonkowo (Fig. 4).

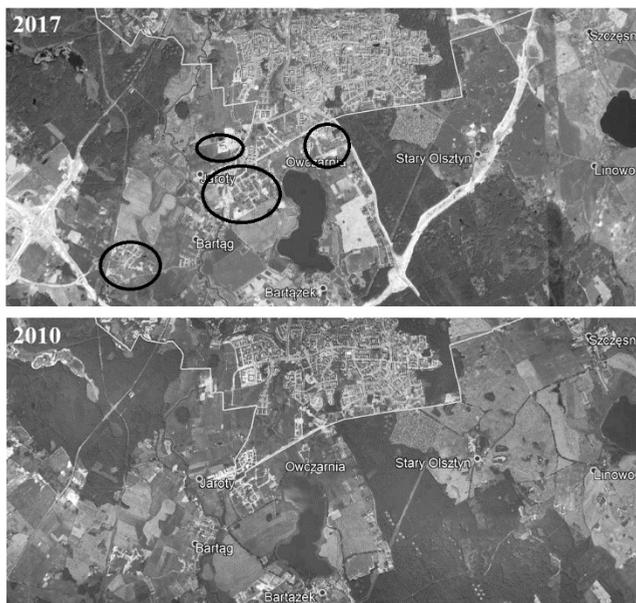


Fig. 2 Expansion of built-up areas in 2010-2017 (southern part)

Source: Prepared by the author based on Google Earth aerial photographs.

The new buildings (marked with black ellipses) comprise mainly residential buildings: single-family and multi-family ones with service establishments. The commune of Stawiguda started construction of a new school close to the residential quarters, which is an unexpected effect of excessive urbanisation. There are more people living in the new residential quarters close to the border with the city than in the village of Stawiguda, which is the administrative centre of the commune. A number of multi-family blocks of flats were constructed in the southern suburbs, which is not seen in the other areas of the city. There are valid local plans in place for the whole area close to the border between the city and the commune of Stawiguda, which makes it easier to maintain the right spatial and functional order. However, certain errors have been made in this regard - the distance between areas with single-family and multi-family buildings is not sufficiently large. In effect, five-storey and taller buildings are situated close to low single-family houses.

The vicinity of the northern border of the city is another area of intensive urbanisation. Construction of a large group of multi-family blocks of flats was started there, but its extent is smaller than near the southern border (Fig. 3).

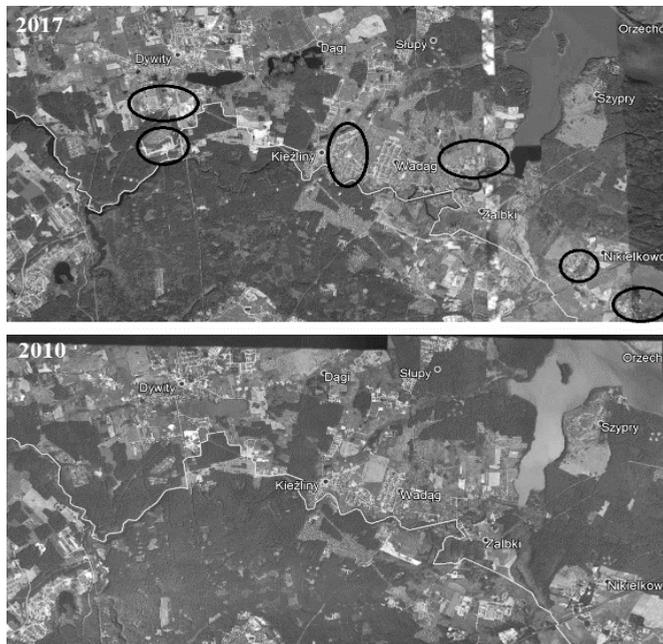


Fig. 3 Expansion of built-up areas in 2010-2017 (northern part)

Source: Prepared by the author based on Google Earth aerial photographs.

A majority of the suburban area in the commune of Dywity is occupied by land with single-family houses. Zones of intensive urbanisation stretch from the northern to the eastern side. In consequence, the border between the villages of Kieźliny, Wadaż and Żalbki has disappeared. This area is not wholly covered by local plans. Therefore, new houses are built in this area under individual land development decisions.

The western suburbs, situated mainly in the commune of Jonkowo, are the last area with a noticeably intensive increase in the number of houses (Fig. 4).



Fig. 4 Expansion of built-up areas in 2010-2017 (western part)

Source: Prepared by the author based on Google Earth aerial photographs.

Buildings in this area are mainly single-family ones and they are scattered. A small part of the area is covered by the local plan and buildings are constructed mainly under individual land development decisions. These three areas of new house construction in the suburban zone around Olsztyn are the three directions of the city development. This takes place mainly in the southern zone. The other areas around the city do not favour building construction because of the forests and wetlands present there.

Expansion of the suburbs may entail differences in costs incurred by the population in various communes. An analysis was conducted for the rates of real estate tax in the communes in the years 2011-2017. The analysis showed that the lowest tax rates were established in the city of Olsztyn, but it is in Olsztyn that the largest decrease in the population size was observed (Table 2).

The real estate tax rates were higher in the commune of Stawiguda, which recorded the largest number of people moving in. This shows that people do not move from cities to the suburbs because of the differences in local taxes and charges. They probably do not take this factor into consideration when deciding to move.

CONCLUSIONS

An effect of uncontrolled urbanisation on suburban rural areas was analysed on the Municipal Functional Area of Olsztyn. Being the capital and the best developed city in the Voivodship of Warmia and Mazury, Olsztyn is also a unique city, with a large forest complex and many lakes within its borders. Despite such natural and landscape value, the city still has many areas which can be used for its expansion. Progressive southward suburbanisation has been observed in recent years.

An analysis of the statistical data and comparing planning documents and the methods of land development in suburban areas indicates the following conclusions:

- The findings of this study indicate that urbanisation of suburban areas is a diverse process and it is not linked with one specific factor. Urbanisation is largely determined by the natural value and infrastructural potential - mainly the transport links with the city centre.
- The rural areas around the city lost their importance long ago; agricultural landscape turns into urban landscape, with a road sign being the only clear boundary between the city and its outskirts.
- Increasing population size forces local governments to make infrastructural investments (roads, water supply and sewerage, social infrastructure) with the aim of improving the quality of life of suburb residents. The number of residents of suburban areas is often larger than that of the main village in a commune.

- The majority of the suburban population work in the city, which makes it necessary to construct new roads and parking spaces in city centres.
- Apart from an obvious change of the method of land development and the loss of agricultural value of the area as a result of residential building construction, effects of suburbanisation include social changes. The local population no longer live off the land, but they look for jobs outside agriculture. This often requires acquiring new qualifications and time-consuming commuting.
- There are many areas within the borders of Olsztyn which can be used for new investments, including house building. However, residents and developers prefer to invest out of the city, despite the fact that real estate taxes are much lower and real estate prices are only slightly higher in Olsztyn.
- People may choose the suburbs as the place of residence because they want to escape from the hustle and bustle of city and because of the natural environment and its biodiversity. The southern suburban zone of Olsztyn, which is developing the most rapidly, lies close to areas of nature conservation.
- It is an advantage of Olsztyn suburbs that the majority of them have valid local plans. This makes the process of suburbanisation controlled in terms of the size and colour of buildings.
- Cities spreading into neighbouring communes is a negative phenomenon with a number of consequences. The major consequence appears to be the need to provide infrastructure of a sufficient quality - mainly roads for travelling to the city; another is commuting, which takes a long time.
- Due to liberal laws, too much land is allocated for house building.

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*Katarzyna Wierzbicka*⁶², *Agnieszka Piekutowska*⁶³

EXPENDITURES ON RESEARCH AND DEVELOPMENT ACTIVITIES AS A FACTOR IN THE DEVELOPMENT OF INNOVATION

Abstract: The development of research and development is a key process leading to the growth of innovation in the economy, and its conduct is important in the development and improvement of the level of competitiveness. Innovative activity consists in improving the quality of products and services, applying various concepts in business management as well as anticipating the possibilities of satisfying future needs of clients or even creating them. The size and structure of these activities are very diverse and depend on the level of economic development of a given country. Among the European Union countries can be distinguished those that allocate huge amounts for investments in R & D, that is, developed countries, and countries such as Poland, which are still spending too little on research and development activities. In addition, the subjective structure of investments is an important issue. The purpose of this publication is to analyze the size and structure of expenditures on research and development in the European Union, in particular, paying attention to the condition and general causes of insufficient R & D activity in the Polish economy.

Key words: research and development activity, innovations, innovation.

INTRODUCTION

The importance of knowledge and, consequently, of innovation, is still growing, while the importance of traditional material factors is decreasing (Kaspierkiewicz 2012). It is pointed out that the IT revolution gave impetus to the transformation of the structure of the capitalist economy. The changes that are taking place have wider access and also reach the potential recipient more efficiently. The changes taking place consist in the fact that capitalism has moved from the industrial phase to the knowledge-based phase (Piekut 2013). In literature (Thurow 1999, Drucker 1992), it is pointed out that currently the main source of values are knowledge and innovation. Recent experiences of highly developed economies show that achieving a competitive advantage based on knowledge and innovation is a guarantee of sustainable economic development and civilization progress (The Global...2015-2016). At the same time, it should be remembered that the emergence of innovations depends primarily on the behavior, attitudes and motivations of entrepreneurs (Newell et al., 2009), because these factors determine the choice of the future investment. Expenditures made in research and development activities are one of the factors that may contribute to the development of a company, affect its innovation (Piekut 2012). Works related to research and development concern both the development of industrial products as well as the modernization and automation of production processes. The regions of Europe, where the position and dominating role of industry have been established in the past, are leaders in terms of employment in the R & D sector, hence the significant differences in the share of spending on R & D in GDP between individual EU countries. The smallest share of expenditures concern regions with a small share of modern industry, which is accompanied by direct facilities of R & D units. Expenditure on R & D activity is related to production investments that produce innovative products or technologies. In Central and Eastern Europe, there are a few investments of this type, which is

⁶²University of Białystok, Faculty of Economics and Management, 15-062 Białystok, ul. Warszawska 63, katarzynawierzbicka.uwb@edu.pl

⁶³Białystok University of Technology, Faculty of Management Engineering, ul. Ojca Tarasiuka 2, 16-001 Kleosin, e-mail: a.piekutowska@pb.edu.pl

due to lower outlays on R & D. Changes in the structure of investments may lead to a reduction of the gap between the European Union countries, because increased cooperation in R & D usually leads to mergers of enterprises (clusters) which may result in greater intensity of research and development activities (Prystrom, Wierzbicka 2015).

In the modern global economy, very important is attributed to innovation. The aim of many enterprises, regions and economies is to increase its level, which allows you to strengthen your position, and is often a source of success, but it should be noted that it is not easy, because it depends on many different factors. On the one hand, it is shaped by people, the institutional environment, and financial resources, in particular the financing of research and development activities. Drucker claimed: "a company that does not innovate inevitably grows old" (Drucker 1992), that is why it is indispensable to constantly search for funds to develop works aimed at strengthening the innovative position.

As it was mentioned before, knowledge plays a very important role in the modern economy and in socio-economic development. The ability to create and transform it into new technologies, products and services affects the market success of enterprises and promotes the development of the entire economy. An important role in this area is played by the development of research and development activities. The importance of research and development activity is extremely important, therefore, the purpose of this publication is to analyze the size and structure of expenditure on research and development in the European Union, in particular with regard to the condition and general causes of low R & D activity in the Polish economy. The proposed analyzes are an attempt to identify problems that occur in the structure and volume of R & D outlays that can have a major impact on the development of innovation in Poland. In connection with the goal formulated in this way, the thesis was adopted that the increase in expenditure on research and development in Poland, compared to expenditures in economically developed countries, is not sufficient to compensate for the differences in the level of innovation between Poland and these countries. Apart from insufficient expenditure on research and development, Poland is also characterized by its inadequate structure.

RESEARCH AND DEVELOPMENT ACTIVITY, ESSENCE AND DEFINITIONE

The term research and development is understood as systematically carried out creative work, carried out in order to increase the knowledge base, including knowledge about man, culture and society, as well as - finding new ways of applying the discovered knowledge (Nauka i technika...2015). The systematics of scientific research distinguishes different concepts of divisions of research and development activities. In the research conducted by the R & D sphere, the following types can generally be distinguished:

1. income research (incremental), which consists of small B (basic research, theoretical research) and large R (development and implementation works),
2. radical research (radical), covering both large B and large R,
3. fundamental (fundamental) research - large B and small R (Roussel, Saad, Erickson 1991, Walas-Trębacz 2010).

Basic research is of a theoretical nature or may bear the characteristics of an experiment, and is undertaken mainly due to the desire to expand current knowledge on a given topic. Their goal is to explore certain areas of science not to use new truths in practice. Industrial research, in turn, is focused on using the results of basic research in order to create or introduce new products, processes and services or to improve existing ones, which may contribute to the emergence of innovations. In the process of conducting applied research, the developed effects are checked in the laboratories in terms of assessing the effectiveness of the achieved results, which is the starting point for development works. The development work combines the results of research work with the technical knowledge used for production planning and the creation and design of new, changed or

improved products, processes or services. They do not include routine activities, but by compiling the effects of research activities and practical experience, they form the basis for initiating new and significant improvements to already existing processes, systems and services (Ostraszewska, Tylec 2016).

The main source of the commonly adopted methodology for the use of data on research and development is the Frascati Manual, which states that "research and development activities, in short R & D, cover creative work undertaken in a systematic manner in order to increase knowledge resources, including knowledge about people, culture and society, and use these knowledge resources to create new applications" (OECD 2015). Innovation and R & D are to a certain extent synonymous terms. The research and development activity carried out by enterprises is almost always an innovative activity. In fact, the largest part of expenditure on innovation in many industries consists of research and development (Dachs 2009).

EXPENDITURE ON RESEARCH AND DEVELOPMENT ACTIVITIES

International research on expenditures earmarked for research and development activity is based on the classification of sources of funds for expenditure proposed in the Frascati Manual. The typology is as follows:

1. Budgetary resources designated by the government for R & D, ie the amount of expenditure allocated by the government for R & D works in the country, allocated from the budget in the form of all items related to research and development works, and then estimated in terms of financial resources,
2. Internal expenditure on R & D activities Expenditure incurred in the reporting year on R & D works performed in the reporting unit, regardless of the source of funds; they include current outlays as well as capital expenditures on fixed assets related to R & D, but do not include depreciation of these funds,
3. Scientific-research apparatus. Sets of research, measuring or laboratory devices with a low degree of universality and high technical parameters; the research equipment does not include computer equipment and other devices not used directly for the implementation of R & D works,
4. External expenditure on R & D. Expenditure on R & D works acquired from other contractors (subcontractors), domestic and foreign, including contributions and other funds - in the part concerning R & D activity - transferred to international scientific organizations and associations (Ostraszewska, Tylec 2016).

The basic measure allowing to assess and compare the size of R & D activity is the sum of internal expenditures on research and development activities carried out within a given country. It creates an indicator covering total gross national expenditure on research and development (GERD - Gross Expenditure on Research and Development). In publications concerning statistical analysis of R & D, the most frequently analyzed is the level of these expenditures in relation to the GDP of a given country (GERD / GDP), illustrating the ratio of total expenditure on research and development of four institutional sectors: enterprises, government and self-government, higher education and private non-commercial institutions to the country's GDP (Działalność badawcza... 2013). The value of this relationship is usually positively correlated with the value of GDP per capita (Dworak, Grzelak 2010). Data on external R & D expenditure in statistical units are not included in the GERD index, but they are a practical complement to information collected on internal inputs (GUS 2015a).

Domestic expenditure on research and development (GERD) in 2015 amounted to EUR 299 billion in the EU-28, an increase of 4.4% compared to the previous year by 47.8% and was higher than 10 years earlier (in 2005 r.). It is worth noting that rates of change are in current prices, and thus reflect changes in prices, as well as real changes in the level of expenditure. In 2013, the level

of spending on R & D in the EU-28 was equal to 80% of the United States, which is the best in the world.

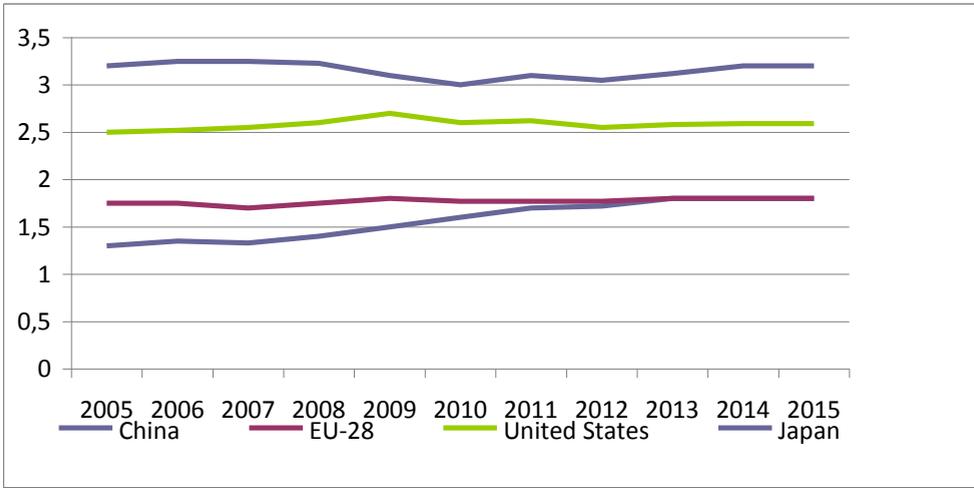


Figure 1. Gross domestic expenditure on R&D, 2005-2015 as % of GDP

Source: (Eurostat, R&D...2017)

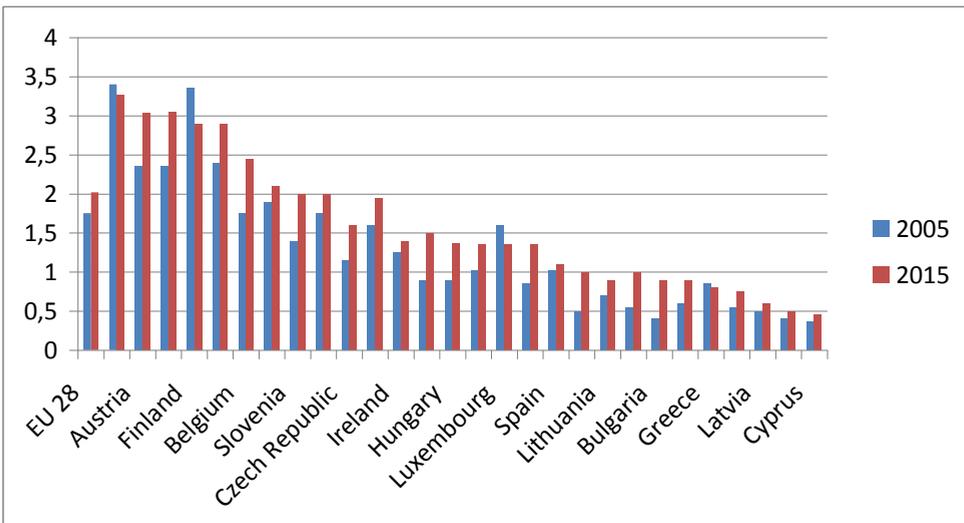


Figure 2. Gross domestic expenditure on R&D intensity, 2005-2015 as % GDP.

Source: (Eurostat, R&D...2017)

For the results to be more comparable, GERD is often expressed in relation to GDP (Figure 1) - or in relation to the population. The ratio of GERD to GDP, one of the five key indicators of the Europe 2020 strategy, is also referred to as research and development intensity. This index increased slightly in the EU-28 in the period 2005-2007, from 1.74% to 1.77%. In the period from

2007 to 2012, it increased faster, reaching the level of 2.01%, despite the period of stagnation in 2010. The intensity of research and development increased slightly to 2.03% in 2013 and remained almost unchanged in 2014 and 2015.

Figure 2 shows that among EU Member States the highest intensity of research and development in 2015 was recorded in Sweden (3.26%), Austria (3.07%) and Denmark (3.03%). These are the only Member States that reported R & D intensity exceeding 3,00% in 2015; it should be noted that this indicator fell from less than 3.00% in Finland in 2005-2015. In 2015, seven Member States reported R & D spending below 1.00% of GDP. Together with Greece, Member States with the lowest intensity of R & D are countries that joined the EU in 2004 or later, although it should be noted that Slovenia (2.21%) reported the intensity of R & D over EU-28 on average, while when the Czech Republic (1.95%), Estonia (1.50%), Hungary (1.38%), Slovakia (1.18%), Lithuania (1.04%) and Poland (1.00%) reported intensity at least 1.00%.

Almost all EU Member States reported greater intensity of R & D in 2015 than in 2005. The exceptions are two Member States with the highest intensity in 2005, Finland (-0.43 percentage points) and Sweden (-0.13 point), as well as Luxembourg (-0.28 points), while the intensity of research and development in Croatia hardly changed in the period under consideration. At the other end of the scope of the largest increase in research and development intensity (in percentage points) between 2005 and 2015 was recorded in Slovenia, the Czech Republic, Austria, Slovakia and Belgium.

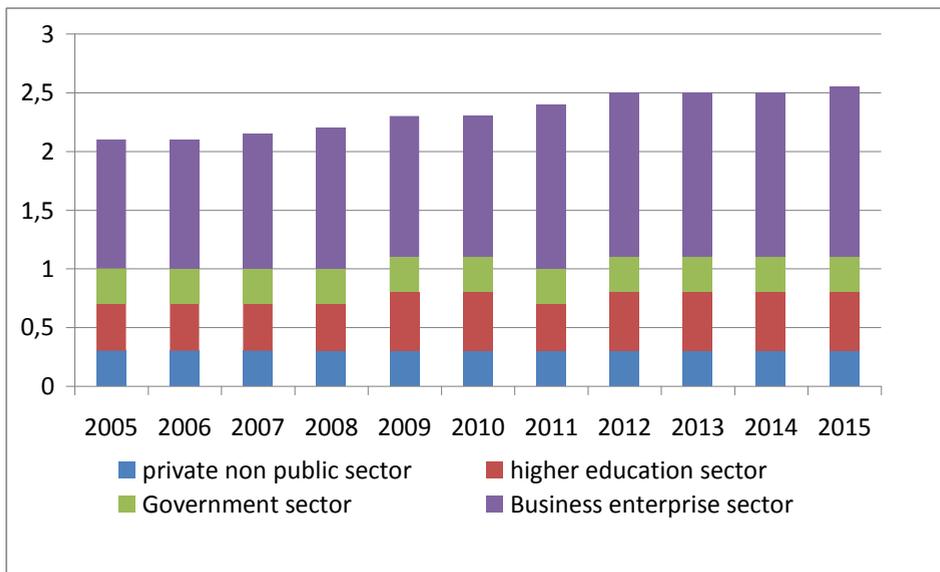


Figure 3. Gross domestic expenditure on R & D by sector, EU-28, 2005–2015 (% of GDP)

Source: (Eurostat, R&D...2017)

Figure 3 shows how the intensity of R & D in the EU-28 increased between 2005 and 2014 - the determination of the R & D share in each of the four sectors - followed by a slight decrease in intensity in 2015. Over the entire period taking into account (2005 -2015), most R & D expenditure related to the enterprise sector, and research and development intensity increased from 1.10% of GDP in 2005 to 1.30% in 2014 and 2015, an increase of 18, 2%. The second largest research and development sector was the higher education sector, whose research and development intensity

increased by 23.1% in 2005-2014 to reach 0.48% of GDP before falling slightly in 2015. Intensity Research and development in the other two sectors have changed little during the period considered, and in 2015 the intensity of research and development in the government sector was 0.24% of GDP, while the non-profit private sector value was 0.02%.

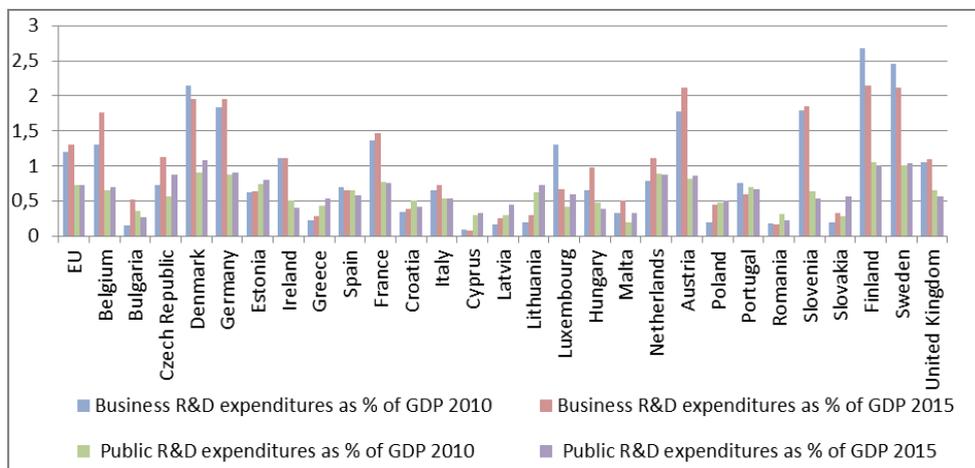


Figure 4. Business and public expenditures on R&D as % of GDP in UE-28, 2010-2015

Source: study based on (European Private Equity 2015)

Data evaluation for EU Member States also confirms that countries with relatively high R & D expenditure on enterprises in relation to GDP - namely Sweden (2.27%), Austria (2.18%), Germany (1.95%) Finland (1.94%) and Denmark (1.87%) also reported a relatively high overall level of research and development intensity (2.87% or more). Government spending on R & D in relation to GDP was highest in Germany, Luxembourg and the Czech Republic, while private sector non-profit sector expenditure in relation to GDP was very low in each Member State, reaching 0.07% in Cyprus.

Analysis of R & D expenditure by fund sources shows that more than half (55.3%) of total expenditure in 2014. Within the EU-28 it was financed by enterprises, while almost one-third (32.3%) was financed by government, and another 10.0% from abroad (foreign funds). Financing by higher education and private non-profit sectors was relatively small, 0.8% and 1.6% respectively. The main events in 2004-2014 were the reduction in the share of financing by the government sector, the lack of changes in participation in the private non-profit sector, and increases for three other sectors, in particular (in relative terms) for financing research and development from abroad (its share increased by 19.0% in total) (Eurostat, R&D 2017).

Among EU Member States in 2015. R & D-financed companies accounted for over three-fifths of total R & D spending in Slovenia (69.2%), Germany (65.8%, 2014 data) and Sweden (61, 0%). However, the majority of research and development expenditures made in Cyprus (56.5%, data from 2014) and Greece (52.7%) were financed by the government sector. There were also significant differences in the relative importance of research and development funding from abroad, with relatively high shares - exceeding 30.0% in 2015 - reported in Bulgaria (50.9%, data from 2014), In Latvia (45, 0%), Slovakia (39.4%), Lithuania (34.6%), the Czech Republic (32.5%) and Luxembourg (32.3%, data for 2013). The higher education sector played a relatively small role in financing R & D expenditure in most Member States, exceeding 4.0% only in the southern Member States of Cyprus (5.6%, data from 2014), Portugal (4.2%, data from 2014) and Spain (4.1%, data

from 2014). Similarly, the role of the private non-profit sector was also generally small, exceeding 3.0% of expenditure on research and development in the United Kingdom (4.8%), Denmark (4.5%) and Sweden (3.1%, data from 2013). (Eurostat, R&D 2017)

POLAND AGAINST THE EUROPEAN UNION COUNTRIES

It is worth emphasizing that the increase in innovativeness of economies depends mainly on the constant development of research and development activities. With this in mind, the European Union and national governments constantly emphasize research and development work, which was reflected in the Lisbon strategy implemented in the years 2000-2010 and in its continuation in the form of the Europe 2020 strategy. One of the objectives specified in the Strategy is the increase of investments for research and development (R & D) to 3% of GDP (Stankiewicz 2012, Activity Report... 2013). In addition, the new perspective included in the Europe 2020 strategy includes three priorities, including the increase in the level of R & D spending in the amount of 3% of GDP (Piersiala 2014). It should also be mentioned that the strategic objectives of the European Commission translate into national goals, updated on an ongoing basis in the National Reform Program Europe 2020, which specify that Poland has, among others, the challenge of achieving a total R & D investment of 1, 7% of GDP in 2020 (National Reform Program Europe 2020). At the same time, it should be noted that Poland belongs to the countries that belong to the group of moderate innovators, that is countries that implement innovations, but usually belong to the group of followers.

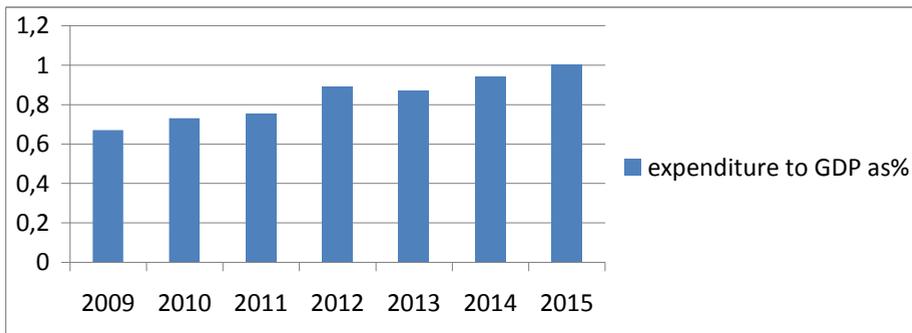


Figure 5. Relation of internal expenditures on R & D to GDP in Poland in 2009-2015

Source: study based on: (*Działalność badawcza... 2013,2015*)

The subjective structure of expenditure on research and development is also a very important issue. In the European Union countries, the financing of the business sphere and enterprises prevails, while in Poland the dominance of government financing prevails.

Comparing the situation in Poland to other developed countries of the European Union, where the main burden of financing R & D activities lies precisely on entrepreneurs, which should be assessed positively, in Poland the picture is shaped differently. The structure of R & D expenditures is considered desirable, in which the business sector plays a dominant role. A favorable situation is when the financial resources of enterprises for this purpose are twice as high as public expenditures, because entrepreneurs financially support mainly those studies whose effects in a short time can be used and earn on them. This, in turn, directly translates into an increase in the level of innovation. In the case of research financed from public funds, their commercialization is less frequent (Weresa 2006).

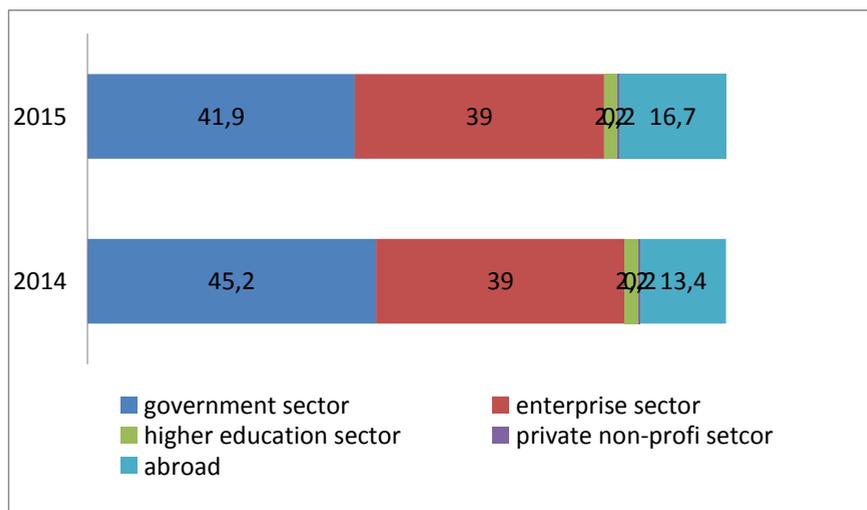


Figure 6. Structure of internal expenditure on R & D by sources of financing

Source: study based on: (*Działalność badawcza...2015*)

In Poland, the situation looks a bit different. According to a report prepared by Deloitte (2015), as much as 44 percent. companies declare that they have not yet implemented the research and development strategy, and all related activities are undertaken ad hoc, if such is the decision of the management board. And although it is possible to look at this result optimistically, because in this year's innovation policy, as many as 2/3 companies operating in Poland admitted in the last year's survey, the situation is still worrying - almost half of entrepreneurs do not see business benefits from research and development activities. The basic source of financing R & D works are own funds of enterprises, which are used by as many as 98% of companies running or commissioning research and development projects. Most medium-sized and large enterprises that run or outsource R & D spend between 1 and 5% of their revenues on this activity. The second most frequently used source of financing is state aid - it is used by 48% of companies engaging in R & D. Enterprises receive mainly subsidies for investments and for research and development activities. Relatively often loans and equipment leasing are also used to finance R & D works (investment part) (*Działalność badawcza... 2013*).

In the European Innovation Scoreboard 2015 report, Poland took 24th place (out of 28 EU countries). In the next positions were Croatia, Bulgaria and Romania. Poland has been qualified for the so-called moderate innovators. According to GUS (Research Report 2015), the value of gross national R & D expenditures in Poland in 2008-2015 increased from PLN 7 billion 706 million (0.6 percent of GDP) to 18 billion 61 million zlotys (1% of GDP). As for R & D enterprises' expenditure in Poland, in 2008 they amounted to PLN 2 billion 480 million, and in 2015 to PLN 8 billion 411 million (*Muszyński 2016*).

In Global Innovation Index 2015, Poland took 46th place among 141 countries. Poland was on the 24th position - fourth from the end on the In Innovation Union Scoreboard 2015. In the summary available on the OECD website, which compared incentives for R & D activities through tax systems, Poland in all categories achieved zero-level indicators.

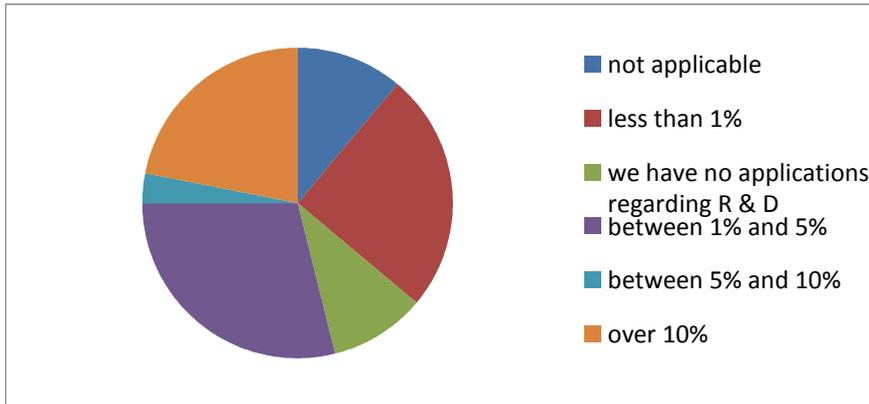


Figure 7. What percentage of your investment expenditures has been spent on research and development in 2015

Source: (Report 2016, Polska ... 2016)

CONCLUSIONS

Undoubtedly in Poland there is awareness of low innovativeness of the economy and threats resulting from such standing of things. In connection with the above, it is necessary to intensively increase expenditures on research and development activities, achieved mainly by intensifying work in this field.

Currently, the situation in financing research and development in Poland can be assessed as insufficiently good for the proper development of research on innovations, and it should be said that it is bad. At the same time, it should be admitted that the country improves both the level and the structure of financing, however, compared to the EU countries, progress in this respect shows little dynamism. In Poland, there is still too low level of expenditure on R & D, which puts Poland at a disadvantage in the international arena. Achieving the goals set by the European Commission (3% of GDP) requires a significant increase in funds. In connection with the above considerations, it is indispensable, above all, to change the subject structure of financing the funds for research and development activities. Currently, more funds are allocated by the state, with a smaller share of the enterprise sector, which is a different situation for economically developed countries. Companies avoid risk and more often than choosing their own solutions, they choose ready-made products. It is therefore necessary to increase the involvement of companies in our country in research and development. This may be favored by many factors, such as the improvement of cooperation between enterprises and the science sector, or an increase in the inflow of foreign direct investment, which will be possible thanks to the development of a new incentive system (a tax system that would guarantee reductions and exemptions)⁶⁴.

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*Monika Wojcieszak*⁶⁵, *Agnieszka Wojcieszak*⁶⁶

SOURCES OF HORTICULTURAL INVESTMENTS IN THE KALISZ DISTRICT AS A PART OF SELECTED MEASURES UNDER THE 2007-2013 RDP

Abstract: The implementation of Measures covered by the 2007-2013 RDP in rural areas resulted in a large boost of investments. In the Kalisz district, “Modernization of farms” (Measure 121) and “Setting up of young farmers” (Measure 112) were the Measures of major interest to the horticulture sector. The total operating costs of projects implemented under Measure 121 in the entire Kalisz district were PLN 117,633,543. The applicants used the support to purchase 355 mobile equipment items, including 4 agricultural tractors, 42 agricultural machines, farm tools, devices and means of transport for crop production. Also, several greenhouses were built, repaired and upgraded. As regards Measure 112, the funds in the form of premiums were used for the modernization of machinery, i.e. purchase of specialized horticultural machines or equipment.

Key words: Agency for Restructuring and Modernization of Agriculture, horticulture industry, setting up of young farmers, modernization of farms, 2007-2013 RDP

INTRODUCTION

Investment is a complex process aimed at increasing the value of an enterprise or farm. By making the right decisions, the operators upgrade their facilities while increasing the value of their assets with the use of various sources of financing. When selecting a source of financing, the acceptable risk level and the financial and economic standing should be taken into account (Nosecka, Gugala 2012). Today, farms and horticultural undertakings are forced to diversify and improve their products on a continuous basis. They provide the customers with value-added products, instilling benefits that go beyond the products’ basic attributes (functional benefits) (Stefko 2011, Wawrzyniak 1999). When fighting for potential customers, horticultural operators are capable of spending large sums of money on investments aimed, for instance, at improving the production quality (Stefko 2010 and Kierczyńska 2007). The investment process involves keeping up with market changes, improving the company’s competitiveness and making efforts to increase the company value. As emphasized by Grzywacz and Jabłońska (2013), by making the right decisions, the operators upgrade their facilities while increasing the values of their assets. To do so, horticultural undertakings and farms willingly access the Union funds (Kalinowski at all. 2013). Generally, the development of horticultural undertakings and farms is based on implementing efficient investment projects which affect both the quantitative and qualitative growth (Duliniec 2011, p. 109).

The Agency for Restructuring and Modernization of Agriculture (ARiMR) plays a major role in positive developments taking place in Polish rural areas. While helping to improve the quality of labor, the broad range of Measures implemented by ARiMR improve the efficiency of the horticultural business and ensure protection of the natural environment (Wojcieszak 2014). This paper attempts to analyze the use of Union funds in the Kalisz district as a part of two Measures: Modernization of farms (Measure 121) and Setting up of young farmers (Measure 112). Undoubtedly, the investments implemented by the horticulturists and horticultural undertakings as a part of these two Measures result in reducing the costs and improving the organization of production

⁶⁵ Poznań University of Life Sciences, Faculty of Economics and Social Sciences, Department of Economics and Economic Policies for the Agribusiness, Institute of Agricultural, Food, Consumption and Marketing Economics, ul. Wojska Polskiego 28, 60-637 Poznań, e-mail: mwoj@up.poznan.pl

⁶⁶ Adam Mickiewicz University in Poznań, Faculty of Law and Administration, Civil, Commercial and Insurance Law Department, ul. Św. Marcin 90, 61-809 Poznań, e-mail: aw83981@amu.edu.pl

processes. Also, the Union funds accessed contribute to the increase in farming incomes and enable better economies of scale (Ziętara, Sobierajewska 2012).

MATERIAL AND METHOD

The purpose of these considerations was to identify and analyze the implementation of selected Measures of the 2007-2013 Rural Development Program (RDP) as a source of horticultural investments in the Kalisz district. This paper is an analysis based on desk research, and intends to tackle the issue of European Union (EU) payments. The use of adequate data collection and analysis methods and of a specific research procedure was required to attain the defined objectives. This study is based on an analysis of materials collected. The selection of methods was determined by the availability of source materials, including secondary data (reports, public statistics document, literature related to the concept of innovation and to the financing for economic operators) and primary data (unpublished data delivered by the Agency for Restructuring and Modernization of Agriculture) on the two Measures (121 and 112). The figures collected were analyzed with the use of selected statistical methods. This study provides a basis for further analyses.

RESULTS OF THE STUDY

The Kalisz district is a typical agricultural region with both farms and horticultural undertakings who rely on various sources of financing, including Union grants. This paper presents and analyzes two Measures, i.e. Modernization of farms (Measure 121) and Setting up of young farmers (Measure 112), implemented under the 2007-2013 RDP. It should be noted that these were the two most popular Measures with the horticulturists, members of horticultural households and horticultural undertakings. As shown by the study, 109 horticulturists (including two legal persons) applied for aid under Measure 121. Over 26% of applicants were located in the Opatówek municipality, followed by beneficiaries from the following municipalities: Żelazków (24.30%), Blizanów (22.43%), Koźminek (12.15%), Szczytniki (10.5%), Stawiszyn (3.74%) and Godziesze (0.93%). In the Opatówek municipality, two legal persons applied for Union funds. No applications for aid were filed in the following municipalities: Ceków Kolonia, Brzeziny, Mycielin and Lisków. When analyzing the main goal, it may be concluded that as regards Measure 121, the aid applied for by the horticulturists from the Kalisz district was mainly intended for projects from the following areas: introducing new production technologies; adjusting the profile, scale and quality of production to match the market needs; improving production quality; improving hygiene conditions of production; improving the environmental protection conditions; upgrading the technical infrastructure of the production, including road infrastructures; and improving production safety, including safety at work (Table 1).

The applicants for payment provided detailed descriptions of main goals, including the intended ways of spending the funds and the investment effects of the project concerned. For instance, as a part of the goal defined as Adjusting the profile, scale and quality of production to match the market needs, applications were filed for the financing of multiple projects, including: building and equipping a greenhouse; modernization of machinery; modernization of production facilities; planting new fruit trees; extending the area under glass; hardening the maneuvering yard. Also, the beneficiaries declared that the allocated funds would enable increasing the value added by at least 10%, enhancing the efficiency and improving safety at work in their farms. Meanwhile, the use of state-of-the-art technologies will support environmental protection. Based on data collected, it was concluded that four beneficiaries (including three from the Żelazków municipality and one from the Stawiszyn municipality) cancelled their payment applications because of their failure to comply with formal requirements. When analyzing the legal persons applying for Union funds, it was noted that for the first one, the main goal was to improve production safety (including safety at work) while the specific goal was to improve production safety; improve the environmental

protection conditions; and increase the farm's value added by at least 10% with the purchase of machinery and equipment.

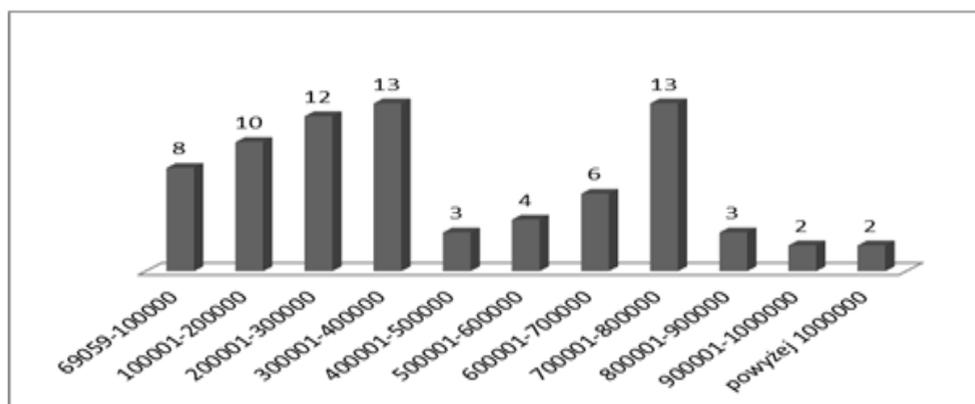
Table 1. Main goal of investments under 2007-2013 RDP (Measure 121)

Main goal	OPATÓWEK	KOŹMINEK	BLIZANÓW	SZCZYTNIKI	GODZIESZE	STAWISZYN	ŻELAZKÓW	TOTAL
Introducing new production technologies	8	4	7	0	0	1	3	23
Adjusting the profile, scale and quality of production to match the market needs	3	1	10	1	0	3	5	23
Improving production quality	12	8	4	5	0	2	11	42
Improving hygiene conditions of production	0	0	0	1	1	0	0	2
Improving the environmental protection conditions	1	0	1	0	0	0	1	3
Upgrading the technical infrastructure of the production, including road infrastructures	0	0	0	0	0	0	1	1
Improving production safety, including safety at work	0	0	1	0	0	0	0	1
Non-identified	4	0	1	2	0	0	5	12
TOTAL:	28	13	24	9	1	6	26	107

Source: own study based on unpublished ARiMR data of May 11, 2017

The second legal person from the Kalisz district applied for a Union subsidy to improve production quality, including without limitation to improve production safety and quality of vegetable crops and to enhance the farm's performance. In the case of the first operator, the investment value was PLN 1,113,591.00 while the second operator applied for an amount of PLN 911,180.00 (first stage, the assistance stage). As shown by the analyses, only the first of them completed the financing stage which allowed it to purchase 3 mobile equipment items, i.e. agricultural machines, farm tools, devices and means of transport (other than tractors) for crop production, including software. The analyses also demonstrated that natural persons mostly applied for an amount of financing ranging from PLN 700,000 to PLN 800,000 (first stage, the assistance stage). In the group of 22 persons, nine applied for financing an investment aimed at improved production quality. The lowest amount of financing set out in the application was PLN 716,676.00, and was allocated to the purchase of machines, equipment or farm tools, including software (PLN 582,911.00), and to the purchase or construction of other technical infrastructure components directly affecting the conditions of farming operations (PLN 133,767.00). In the group of 9 persons referred to above, the highest investment value was declared by a 48-year-old applicant based in Opatów who planned the following expenditure: PLN 456,299.00: construction or repair of a greenhouse (including modernization); PLN 184,500.00: purchase of machinery, equipment or production tools; PLN 132,343.00: purchase or construction of other technical infrastructure components directly affecting the conditions of farming operations; and PLN 12,300.00: other operating costs. As revealed by the analysis, 15% of applicants failed to qualify to the second stage (payment stage). It turned out that due to formal shortcomings, errors in the application and its attachments, the complicated documentation was an important barrier for many applicants. Inaccuracies in the documentation, lack of adequate certificates, or withdrawal of applications were the reasons for the reduced number of applicants at stage two (payment stage) (graph 1). Also, starting the investment prior to the day of submitting the financing application was a frequent

mistake. At stage two, i.e. the payment stage, the amounts applied for ranged from PLN 700,000 to PLN 800,000. Meanwhile, as regards legal persons, the investment amounts went beyond PLN 1 million. The operators covered by this analysis made investments aimed at improving production safety. In turn, natural persons who applied for financing used the grants to purchase machines, equipment or farming tools, including software. When analyzing their investment targets, it was noted that natural persons maintained their main goals declared at assistance stage, and applied for Union funds to: improve production quality; reduce production costs and improve the organization of production; increase the farming incomes; and achieve better economies of scale. As demonstrated by the analysis, the total operating costs of projects implemented in the entire Kalisz district were PLN 117,633,543. The applicants used the support to purchase 355 mobile equipment items, including 4 agricultural tractors, 42 agricultural machines, farm tools, devices and means of transport (other than tractors) for crop production. Also, several greenhouses (with a total area of 108,880.07 sq. m.) were built, repaired and upgraded.



Graph 1. Number of accepted applications filed by natural persons from the Kalisz district under Measure 121 “Modernization of farms” (investment amounts); payment stage

Source: own study based on unpublished data provided for in a communication from ARiMR of May 11, 2017 concerning reuse of public sector information

As mentioned earlier, the projects declared under this Measure may have different goals. One of them was to *improve production quality* (considered as a priority by the applicants). As shown by the analysis, the total operating costs of projects implemented in the Kalisz district were PLN 11,182,413.00 (Table 2). The horticulturists used most of the Union funds to purchase machinery, equipment or farming tools, including software. They used the support to purchase 355 mobile equipment items, including 4 agricultural tractors, 42 agricultural machines, farm tools, devices and means of transport (other than tractors) for crop production.

The next goal was to adjust the profile, scale and quality of production to match the market needs. In the period under consideration, as many as 28 natural persons engaged in horticultural activities from the Kalisz district accessed support to finalize their planned investments. These included eight residents of the Opatówek municipality, five residents of the Koźminek municipality, four residents of the Szczytniki municipality, eight residents of the Żelazków municipality and one resident of the Stawiszyn municipality. In accordance with the calculation presented by the beneficiaries, the total amount of investments aimed at improving production quality was PLN 11,382,700. As a part of these activities, farmers specializing in horticulture extended their farm assets with, for instance, 199 mobile equipment items. Only two residents of the Kalisz district

decided to invest in improvements of hygiene conditions of production. The first applicant was a 35-year-old woman from the Szczytniki municipality. Her investment, amounting to PLN 252,539.00, was to purchase greenhouse equipment in order to improve the environmental protection conditions. The amount of the other investment, made by a 34-year-old man from the Godziesze Wielkie municipality, was PLN 615,826.00. That amount was allocated to reconstructing the greenhouse and the boiler room, including the purchase of greenhouse equipment consisting of a controller, cultivation gutters and energy-saving curtains.

Table 2. Operating costs (investment goal): improvements in production quality)

Type of operating costs	Value (PLN)
Construction, repair and/or modernization of greenhouses with equipment	4,799,862.00
Construction, repair and/or modernization of other buildings used in agricultural operations	216,280.00
Purchase of machinery, equipment or farming tools, including software	4,867,214.00
Purchase of propagating or planting material	157,140.00
Costs of fencing and of purchasing essential technical and technological equipment	178,412.00
Purchase or construction of other technical infrastructure components directly affecting the conditions of farming operations	797,455.00
Purchase of computer hardware and software to support the farming operations	166,050.00
TOTAL:	11,182,413.00

Source: own study based on unpublished data provided for in a communication from ARiMR of May 11, 2017 concerning reuse of public sector information

When it comes to the goal defined as *improving the environmental protection conditions*, the investments, amounting to a total of PLN 904,508, involved the modernization of machinery, purchasing new equipment and constructing a maneuvering yard. Another highly important argument was the implementation of new production technologies. In the period covered by this analysis, funds were granted for that purpose under the 2007-2013 RDP to 17 beneficiaries from the Kalisz district who invested a total of PLN 8,437,037.00. This allowed to build or modernize greenhouses with a total area of 15,794.7 sq. m. What should be noted is that only one resident of the Kalisz district (a 54-year-old applicant from the Żelazków municipality) was granted Union funds for an investment aimed at upgrading the technical infrastructure of production, including road infrastructures. Worth PLN 494,706, this investment covered the modernization of vegetable storage facilities and the purchase of pallet boxes. In the 2007-2013 Rural Development Program, support provided under Measure “Modernization of farms” was of considerable importance to farms and horticultural undertakings. The financing helped them implement their planned investments. In the period under consideration, the investments completed by the applicants in the Kalisz district enabled the achievement of outcomes presented in Table 3.

When analyzing the data in Table 3, it may be noted that the key effect of Union subsidies was the implementation of projects involving the construction, repair and modernization of greenhouses. Also, new agricultural machinery, farming tools, devices and means of transport (other than tractors) for crop production, including software, were purchased. The value added reflects the operator’s economic situation, and is the basic criterion for assessing the efficiency of productive inputs. In the investments completed as a part of the 2007-2013 RDP, Axis 1 “Improving the competitiveness of the agricultural and forestry sector,” Measure 121 “Modernization of farms,” the value added was PLN 17,814,600.05 As shown by the analyses, only one project reported a negative value added (– PLN 9693.13). Implemented by an applicant from the Szczytniki municipality, the investment involved the purchase of greenhouse equipment and the modernization of machinery in order to improve the farm’s labor productivity. In turn, as regards investments in the rationalization

of production technologies and in the modernization of road infrastructures (which involved purchasing polytunnel equipment and hardening the maneuvering yard), the value added was PLN 10,215.00. The investment in a project for the construction of a greenhouse in order to adjust the profile, scale and quality of production to match the market needs resulted in a value added of PLN 1,507,308.00.

Table 3. Summary of investment outcomes achieved by farms and horticultural undertakings of the Kalisz district under Measure 121 “Modernization of farms”

Investment outcomes	Units	
	m ² /ha/item	PLN
Construction, repair and/or modernization of greenhouses with equipment (m ²)	176,672.86	11,601,152.04
Construction, repair and/or modernization of other buildings used in agricultural operations (m ²)	2,645.87	1,294,267.98
Purchase of mobile equipment (agricultural tractors)	20	3,855,107.83
Purchase of mobile equipment (agricultural machinery, farming tools, devices and means of transport (other than tractors) for crop production) (items)	201	9,686,878.85
Purchase of mobile equipment (agricultural machinery, farming tools, devices and means of transport (other than tractors) for livestock production) (items)	2	165,804.00
Purchase of mobile equipment (equipment, machine components, tools and accessories, including software) (items)	474	374,288.88
Purchase of computer hardware (items)	1	172,200.00
Construction/modernization of technical infrastructure components (maneuvering yards) (m ²)	14,432.85	2,961,665.89
Establishment/modernization of orchards or permanent plantations (ha)	9.61	373,570.80
Construction/modernization of production and direct sales facilities in farms (m ²)	1,344	72,635.19

Source: own study based on unpublished data provided for in a communication from ARiMR of May 11, 2017

Another Measure which enjoyed great popularity under the 2007-2013 Rural Development Program, with a large share of applicants from the Kalisz district, was Measure 112 “Setting up of young farmers.” Premiums granted to beneficiaries from the Kalisz district engaged in horticulture as a core production activity amounted to PLN 75,000 or PLN 100,000. As revealed by the analysis of the applicants’ activity, the group was composed of 11 students, 4 unemployed, 2 employees and 1 entrepreneur. In the entire group of applicants for Union payments, fourteen were members of a farming household. Based on the analyses, it was found that premiums were disbursed to 64% of the applicants. In the Kalisz district, throughout the term of the 2007-2013 RDP, 34 applications for aid were filed under the aforesaid Measure. However, Union funds were disbursed to 21 applicants (the success rate was 61.75%). The analysis of the beneficiaries’ activity reveals that most of them were based in the Opatówek municipality (29.41%), followed by Żelazków and Blizanów municipalities (17.65%), Koźminek municipality (14.61%), Szczytniki municipality (8.82%), Stawiszyn municipality (5.88%), and Godziesze and Mycielin municipalities (2.94%). No applications for aid were filed in the Lisków, Brzeziny and Ceków Kolonia municipalities. Because of the program’s purpose, in most cases, the funds were allocated to the purchase or modernization of machinery.

SUMMARY

Generally, the development of horticultural undertakings and farms is based on implementing investment projects which affect both the quantitative and qualitative growth. The Agency for Restructuring and Modernization of Agriculture is the Poland's largest paying agency and plays a major role in the positive developments taking place in Polish rural areas. While helping to improve the quality of labor, the broad range of Measures implemented by ARiMR improve the efficiency of the horticultural business and ensure protection of the natural environment. Both farms and horticultural undertakings operate in the Kalisz district, and rely on various sources of financing, including Union grants. It has to be recognized that Modernization of farms (121) and Setting up of young farmers (112) were the two most popular Measures with farmers from the Kalisz district, especially as regards the 2007-2013 RDP. The total operating costs of projects implemented under Measure 121 in the entire Kalisz district were PLN 117,633,543. The applicants used the support to purchase mobile equipment, tractors, agricultural machines, tools, devices and means of transport for crop production. Also, many greenhouses were built, repaired and upgraded. As regards Measure 112, the funds in the form of premiums were used for the modernization of machinery, i.e. purchase of specialized horticultural machines or equipment. The analysis of selected Measures implemented in the Kalisz district under the 2007-2013 RDP allows concluding that European Union funds helped considerably improve the situation of the local horticulture sector.

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*Weronika Wyduba, Sławomir Kalinowski*⁶⁷

UKRAINIAN NATIONALS IN THE LABOR MARKET OF WIELKOPOLSKA

Abstract: Since the Poland's accession to the European Union, Ukrainian nationals have shown growing interest in the Polish labor market. They are employed as seasonal workers, including in the agriculture sector, or as blue-collar workers offered jobs where no qualifications are required. They substitute the Polish workers who migrated to the UK, Western Europe countries or Scandinavia. The increased interest in Poland may be explained by their commitment to improve their own economic situation, and by the condition of the Polish labor market which is getting better and better. The main purpose of this paper is to characterize the labor market of Wielkopolska while addressing the economic migration of Ukrainian nationals. The topic discussed herein is only an outline and a starting point for further in-depth studies on migration processes towards Poland. During the research, Ukrainian nationals were found to be the largest group of employees migrating to the Wielkopolskie voivodship. The intensified migration of foreign workers to the labor market of Wielkopolska is related to low unemployment rates and increased availability of new jobs. As noted in this paper, skilled Ukrainian workers dominated in the labor inflow until 2015 whereas from 2016, the Ukrainian economic migrants are mostly blue-collar workers offered jobs where no extensive skills are required.

Keywords: labor market, immigrants, economic immigration, Ukraine

INTRODUCTION

Recent years have witnessed a discussion on the economic migration of Poles to the UK, Netherlands, Germany, Norway and Sweden (cf. Kaczmarczyk, Tyrowicz 2007, Kozak 2010, Kozielska 2014, Kwiatkowska, Jurkiewicz 2015, Pujer 2017). For many, wealthy Western European and Scandinavian countries became an opportunity to improve their economic situation. The migrations of the Polish population have become a part of the Polish history (cf. Szyszka 2016). In 2016, over 2.3 million Poles lived abroad. However, Poland is not only a country that people leave to improve their economic position and earn more; it has also become the destination for a large population originating from both Eastern Europe and conflict zones (cf. Duszczyk 2011, Duszczyk 2012, Brunarska et al. 2012, Szpakowska et al. 2016, Klimek 2015). The purpose of this paper is to characterize the labor market of Wielkopolska while addressing the economic migration of Ukrainian nationals. When discussing economic migrations, two effects need to be considered: the transfer of funds and the effective entry to the labor market. Though not described in this paper, these issues are the key reason for changing one's place of residence; in that context, the information on the number and structure of work permits may provide a picture of the present situation of foreign nationals. Obviously, this paper does not address these topics on a comprehensive basis. Instead, it is only an outline and a starting point for further in-depth studies on migration processes towards Poland.

MATERIALS AND METHODOLOGY OF STUDIES

The data on employment and unemployment figures and remunerations in the Wielkopolskie voivodeship originated from the documents of the Central Statistical Office and from the Voivodeship Labor Office in Poznań. Published by the Central Statistical Office, the "Situation on the labor market in the Wielkopolskie voivodeship in 2011-2014" (*Sytuacja na rynku pracy w województwie wielkopolskim w latach 2011-2014*), the "Labor market in the Wielkopolskie voivodeship in 2015" (*Rynek pracy w województwie wielkopolskim w 2015 r.*) and the "Labor

⁶⁷ Department of Economics, Poznań University of Life Sciences, ul. Wojska Polskiego 28, 60-637 Poznań
kalinowski@up.poznan.pl, weronika.wyduba@up.poznan.pl

market in the Wielkopolskie voivodeship in 2016” (*Rynek pracy w województwie wielkopolskim w 2016 roku*) are documents that provide basic information on the employment level, labor flows, average remunerations and the unemployment structure and figures. Empirical data on migration processes originated from the analyses and reports of the Ministry of Family, Labor and Social Policy and of the Central Statistical Office. Also used was a paper on the Eurostat database with respect to migration and international protection statistics.

EMPLOYMENT AND UNEMPLOYMENT IN THE LABOR MARKET IN WIELKOPOLSKA

While contributing to social objectives, the proper functioning of the labor market is an important condition of economic development (Marcysiak, Prus, 2017; Prus, Sadowski, 2012). As provided for in Article 23 of the Universal Declaration of Human Rights adopted by the UN in 1948, and in ILO Convention No. 122 of 1964, all human beings have the right to freely choose the place and type of work, performed in safe conditions that promote productivity, against remuneration that ensures a decent existence. The labor market is considered to be a “location” where labor purchasing and selling transactions take place. The demand is developed by employers (“buyers”) willing to hire employees (“sellers”) (Kuryło 2005). The subject matter of the purchasing and selling process extends to qualifications, skills, experience, education and knowledge (Dolny et al., 1998). Globally, the labor market is considered as the international labor market. Because of general national policies, domestic labor markets are identified. At a macro-region scale (in Poland, voivodeship), regional labor markets are considered. Also, municipal or district labor markets (referred to as local labor markets) may be discussed. Labor may be defined as a purposeful activity of humans who use work tools to adjust the objects of work to their (social, spiritual, material and other) needs (Sadowski, Wach, 2003). Employment is a specific form of work (labor) for another party in return for remuneration (Berten, 2002). According to Central Statistical Office data, in the Wielkopolskie voivodeship, the number of jobs created exceeded that of jobs lost over the 2012-2016 period. In 2016, the difference was 37,900 jobs (Table 1).

Table 6. Jobs created and lost in the Wielkopolskie voivodeship over the 2012-2016 period (thousand).

Specification	2012	2013	2014	2015	2016
Number of jobs created	48.8	60.9	71.8	65.5	66.2
Number of jobs lost	33.5	33.7	35.1	30.9	28.3
Balance	15.3	27.2	36.7	34.6	37.9

Source: own study based on the Local Data Bank

In Poland, the number of employees increased from one year to another. In 2013, there were nearly 13.85 million employees, rising to around 14.96 million in 2016 (an 8% increase). The same situation takes place in the Wielkopolskie voivodeship: from 2013 to 2016, the number of employees increased by more than 142,000. This indicates a growth trend on the local labor market (Table 2).

Table 2. Employees in the Wielkopolskie voivodeship in 2012-2016.

Specification	2012	2013	2014	2015	2016
Poland	13,850,506	13,919,826	14,237,452	14,504,269	14,964,411
Wielkopolskie voivodeship	1,357,954	1,367,192	1,412,670	1,448,408	1,500,101

Source: own study based on the Local Data Bank

When analyzing the Wielkopolskie voivodeship labor market, the decreasing number of unemployed also needs to be noted (Table 3). In the Wielkopolskie voivodeship, the unemployment

figures decreased by one half over the period concerned. According to Central Statistical Office data, in 2016, the official unemployment rate reached the lowest level (4.9%) in the Wielkopolskie voivodeship.

Table 3. Unemployment in the Wielkopolskie voivodeship in 2012-2016.

Specification	2012	2013	2014	2015	2016	
Unemployed (thousand)	Poland	2,136.8	2,157.8	1,825.2	1,563.3	1,335.2
	Wielkopolskie voivodeship	147.9	144.8	116.4	93.3	77.7
Official unemployment rate (%)	Poland	13.4	13.4	11.4	9.7	8.2
	Wielkopolskie voivodeship	9.8	9.6	7.6	6.1	4.9

Source: own study based on the Local Data Bank

Changes to the Wielkopolskie voivodeship labor market are caused by multiple factors. The advantageous situation is supported by commercial and industrial traditions, favorable geographic location and transport infrastructure, all of which contribute to a continuous economic growth which sets this region apart from the rest of the country. The labor market is also affected by the negative demographic trend which reveals an ageing society and the outflow of the working-age population to other countries (Voivodeship Labor Office in Poznań, 2017). The low unemployment rate in the Wielkopolskie voivodeship is what makes the employers look for foreign labor. According to data from the Ministry of Family, Labor and Social Policy, 2016 witnessed an important increase in the number of registered declarations of intent to employ a foreign national, especially as regards people from countries east of Poland.

UKRAINIAN NATIONALS IN THE LABOR MARKET OF THE WIELKOPOLSKIE VOIVODESHIP

Ukrainian nationals have been active in the Polish labor market for many years. The rapidly growing interest in working in Poland was caused by the outbreak of armed conflict in the eastern part of Ukraine in 2014, and by the deteriorating condition of the Ukrainian economy. The main economic motives are unemployment (20%) and unsatisfactory remunerations (60%) (Fig. 1). Political situation (12%) is a non-economic motive behind the decisions to leave Ukraine (National Bank of Poland, 2015).

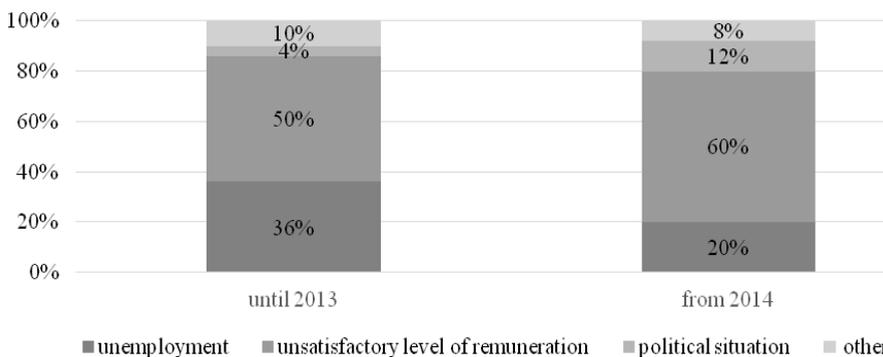


Figure 1. Main reasons behind the migration of Ukrainian nationals to Poland (%)

Source: own study based on "Ukrainian nationals employed in Poland" a 2015 report by the National Bank of Poland

For the Ukrainians, the simplest and most common basis for employment is the declaration of intent to employ a foreign national, filed by Polish employers. The simplified procedure for employing foreigners based on a declaration is governed by the Regulation of the Minister of Labor and Social Policy of June 27, 2007, as amended (Journal of Laws (Dz.U.) No. 120, item 824), and is applicable to citizens of 6 countries: Armenia, Belarus, Georgia, Moldavia, Russia and Ukraine. They may be employed in Poland for 6 months during 12 consecutive months without the need to obtain a work permit. The number of declarations of intent to employ a foreign national varied across the period under consideration (Table 1). The number of people employed based on the aforesaid declaration has been increasing since 2014. In 2015, around 782,000 declarations were filed, which is twice as much as in the previous year. In 2016, the number of declarations filed by the employers continued to grow. By the end of 2016, it increased by around 68% compared to previous year. Actually, the number of foreign nationals employed in Poland based on the declarations may be lower, due to such reasons as: canceling their plans to move to Poland; the consul's refusal to deliver a visa; or the foreigner's failure to show up at work (Labor Market Department, 2017). In the Wielkopolskie voivodeship, the number of declarations filed grew each year. In 2012, around 11,500 employers declared their intent to employ a foreign national, whereas in 2016, that number went beyond 126,000. The declarations of intent to employ a foreigner were mostly issued for Ukrainian nationals. In 2012, they accounted for 93% of all declarations. In 2016, that share increased to reach 97%.

Table 4. Employers' declarations of intent to employ a foreign national in 2012-2016.

Employers' declarations	2012	2013	2014	2015	2016	total
total in Poland	243736	89363	387398	782222	1314127	2816846
including Ukrainian nationals	223671	80243	372946	762700	1262845	2702405
in the Wielkopolskie voivodeship	12285	5246	21987	58628	126972	225118
including Ukrainian nationals	11465	4708	21028	57665	123197	218063

Source: own study based on data from the Central Statistical Office and the Ministry of Family, Labor and Social Policy.

The work permit is a document that makes foreign nationals eligible for legal employment in Poland. For the foreigner, the condition is to hold a visa or a short-term residence permit. Work permits are delivered by the competent voivode for the employer's place of residence/seat. In Poland, several dozen thousand work permits are delivered to foreign nationals each year (Table 2). In 2012, 39,144 work permits were delivered; the next year, that number decreased to 39,078. After 2014, there was a significant increase in the number of foreign nationals employed in Poland based on work permits. In 2016, the number of work permits doubled compared to previous year (Table 3). In the Wielkopolskie voivodeship alone, 10,231 work permits were delivered in 2016, including 89% to Ukrainian nationals.

Table 5. Work permits delivered to foreign nationals in 2012-2016

Work permits	2012	2013	2014	2015	2016	total
total in Poland	39144	39078	43663	65786	127394	315065
including to Ukrainian nationals	20295	20416	26315	50465	106223	223714
in the Wielkopolskie voivodeship	2182	2432	2705	3608	10231	21158
including to Ukrainian nationals	1291	1504	1810	2870	9118	16593

Source: own study based on data from the Central Statistical Office and the Ministry of Family, Labor and Social Policy.

The number of work permits delivered in the Wielkopolskie voivodeship increased over the 2012-2018 period. In 2013, the number of Ukrainian nationals employed based on a work permit grew by 16.5%. Since 2014, more and more Ukrainians have been employed in the Wielkopolskie voivodeship because of the outbreak of armed conflict. Compared to previous year, the number of work permits delivered to Ukrainian nationals in 2016 was several hundred percent higher (Table 3).

Table 6. Growth of the number of work permits delivered to foreign nationals over the 2012-2016 period (%)

Work permits	2013/2012	2014/2013	2015/2014	2016/2015
total in Poland	99.83	111.73	150.67	193.65
including to Ukrainian nationals	100.60	128.89	191.77	210.49
in the Wielkopolskie voivodeship	111.46	111.23	133.38	283.56
including to Ukrainian nationals	116.50	120.35	158.56	317.70

Source: own study based on data from the Central Statistical Office and the Ministry of Family, Labor and Social Policy.

According to the Employment Promotion Act (Journal of Laws (Dz.U.) of 2008, No. 69, item 415, as amended), foreign nationals may be granted a work permit in Poland for a maximum (yet extendable) period of three years, applicable to five types of employment (A, B, C, D, E). Type A is intended for foreign nationals employed under a contract with an employer established in Poland. The work permit is delivered if no people look for employment in the profession concerned in the territory concerned, provided that the remuneration to be paid to the foreign national is no lower than that paid to a Polish national occupying the same job. Other work permit types (B-E) apply to managers, counselors and experts working for foreign employers. Considering the work permits delivered to Ukrainian nationals, it may be noted that in the Wielkopolskie voivodeship, the largest group was employed under type A of work permit. The largest and the smallest number of B-type permits were issued in 2012 and 2015, respectively. However, they had a negligible share in the total volume of permits (0.07 to 0.93%). No D-type permits were delivered to foreign nationals in the period under examination.

Table 7. Work permits delivered in the Wielkopolskie voivodeship to Ukrainian nationals by type

Years	Total work permits delivered	A-type	B-type	C-type	D-type	E-type
2012	1291	1267	12	12	0	0
2013	1504	1483	5	11	0	5
2014	1810	1801	7	2	0	0
2015	2870	2862	2	5	0	1
2016	9118	9108	6	4	0	0

Source: own study based on data from the Central Statistical Office and the Ministry of Family, Labor and Social Policy.

When analyzing the sectors where immigrants are employed, the concentration of Ukrainian nationals in specific industries is clearly noticeable (Table 5). The structure of industries where Ukrainian nationals were employed evolved over the period under examination. In 2012, the largest group of Ukrainians were employed in the agriculture, forestry and hunting (21%) and in the building industry (14%). 2013 witnessed an increased interest in scientific and technical activity. In 2015-2016, the largest number of work permits for Ukrainian nationals were delivered in the transport and warehouse management sectors (19% and 23%, respectively).

Table 8. Work permits delivered in the Wielkopolskie voivodeship to Ukrainian nationals by selected sections of the Polish Classification of Economic Activity in 2012-2016

Years	Total work permits delivered	agriculture, forestry, hunting and fisheries	industrial processing	construction	wholesale and retail trade	transport and warehouse management	accommodation and catering activity	information and communication	financial and insurance activity	professional, scientific and technical activity	education	healthcare and social assistance	households with employed persons
2012	1291	272	109	178	103	99	29	0	1	150	2	22	12
2013	1504	216	66	185	124	122	22	4	1	204	2	13	28
2014	1810	252	75	139	147	162	38	16	0	233	2	32	28
2015	2870	298	182	303	150	553	17	12	0	323	8	21	16
2016	9118	524	648	1234	539	2057	103	14	0	959	3	46	31

Source: own study based on data from the Central Statistical Office and the Ministry of Family, Labor and Social Policy.

In 2012-2015, the population migrating to the Wielkopolskie voivodeship labor market was mostly composed of skilled Ukrainian workers (the largest number of work permits was delivered for that employee group) (Table 6). In 2016, the above structure changed; the largest number of work permits was delivered to people to be employed as blue-collar workers. Compared to 2012, the number of work permits delivered to managers more than doubled in 2016. However, their share in the total pool of work permits declined.

Table 9. Work permits delivered in the Wielkopolskie voivodeship to Ukrainian nationals by selected employee groups in 2012-2016

Years	Total work permits delivered	by employee groups			
		managers, counselors, experts		skilled workers	blue-collar workers
		Total	including: positions held in management boards of legal persons		
2012	1291	16	8	473	294
2013	1504	22	0	395	47
2014	1810	34	7	527	115
2015	2870	33	1	1106	667
2016	9118	35	1	3489	4547

Source: own study based on data from the Central Statistical Office and the Ministry of Family, Labor and Social Policy.

As shown by studies, the majority of Ukrainian economic migrants were employed as blue-collar workers. On one hand, this could suggest they work below their education level (brain waste). But on the other hand, this means the migrating population is mostly composed of previously unemployed, poorly skilled people.

SUMMARY

Over the recent years, the migration flows have changed their nature, intensity and geographic directions. While posing a major problem, they also affect the situation of both the country of origin and the destination country. They determine the labor market conditions and impact the processes taking place within. Stopping these flows would be pointless because they are usually underpinned by economic factors. Under these conditions, it is difficult to affect the individuals' decision to stay

in their country of origin and not to pursue their plans to improve their situation. In the context of migration challenges, the analysis of the labor market allows to make the following conclusions:

1. in the Wielkopolskie voivodeship, the number of jobs created increases and exceeds that of jobs lost;
2. the local labor market grows because of the increased number of employees and declining unemployment figures;
3. the low unemployment level in the Wielkopolskie voivodeship makes it necessary to rely on foreign labor;
4. Ukrainian nationals show a growing interest in the labor market of the Wielkopolskie voivodeship;
5. there was a shift in the skills of employees originating from countries east of Poland; skilled Ukrainian workers dominated in the labor inflow until 2015 whereas from 2016, the Ukrainian economic migrants are mostly workers offered with jobs where no extensive skills are required.

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Karina Zawieja-Żurowska, Piotr Szczypa⁶⁸, Krzysztof Adamowicz⁶⁹

REALIZATION OF PRINCIPLES OF SOCIAL ECONOMY IN FOREST MANAGEMENT

Abstract: Sustainable management of forests is essential nowadays. It assures permanent capability of a forest to complete, currently and in the future, all crucial functions such as protective, economic and social without any harm to other ecosystems, both at local (municipality, county, voivodship) and also national levels, and consequently the global one. Forest management is above all conducted by the State Forests (National Forest Holding), and by owners of private forests. Neither the State Forests, nor private enterprises implement social economy activity as their main objectives. Nevertheless, the forest historically and currently, fosters the implementation of social economy assumptions including social entrepreneurship. The aim of the article is to identify the actions and functions of forest management fostering the development of social economy. While writing the article the authors used the inductive and deductive approaches on the basis of available literature on the subject of economics and forestry. Moreover, the information was gathered through face-to-face interviews and on the basis of case study analyses. The obtained results made it possible to identify and describe the common areas of forest management and social economy.

Keywords: Social economy, social entrepreneurship, forest.

INTRODUCTION

Sustainable management of forests is essential nowadays. It assures permanent capability of a forest to fulfil, currently and in the future, all crucial functions such as protective, economic and social without any harm to other ecosystems, both at local (municipality, county, voivodship) and also national levels, and consequently the global one (Szramka et. al 2016). Forest management is above all, conducted by the State Forests (National Forest Holding), and by owners of private forests (Adamowicz et. al 2014, 2016). Neither the State Forests nor private enterprises realize social economy activity in their main objectives. Nevertheless, the forest historically and currently, fosters the implementation of social economy assumptions including social entrepreneurship.

The phenomenon of marginalization and social exclusion is one of the most crucial social issues in the 21st century, both in Poland and in the whole European Union (Koczur 2013). The phenomenon in the context of forest management has been spotted and recognized before. E. Kowal referring to the meaning of the forest management pointed out: „Setting clear and explicit goals of global forest policy and the basis of sustainable multifunctional forest management has become a matter of interest of governments in many states and of non-governmental organizations. This concern is extremely important given the increasing demographic and food crisis, but also more and more threats appearing to natural environment. Many international conferences have been devoted to this problem. The United Nations Conference on Environment and Development (Earth Summit 1992) held in Rio de Janeiro in 1992 can be considered a world breakthrough. During this Summit it was stated that an important element of sustainable development is sustainable forest management, and the forest lands should be managed in such a way to be able to fulfill productive functions, but also meet social, ecological, cultural and spiritual needs of present and future generations (Kowal et. al 2013).

The aim of the article is to identify the actions and functions of forest management fostering social economy development, which will make it possible to identify and describe the common

⁶⁸ Państwowa Wyższa Szkoła Zawodowa w Koninie

⁶⁹ Katedra Ekonomiki Leśnictwa, Wydział Leśny, Uniwersytet Przyrodniczy w Poznaniu, ul Wojska Polskiego 28, 60-637 Poznań, adamowicz@up.poznan.pl



areas of forest management and social economy. The authors set the following research hypothesis: “the forest has always been and is a place fostering realization of social economy”. While writing the article the authors used the inductive and deductive approaches on the basis of available literature on the subject of economics and forestry and the real data provided by the media. Moreover, the information was gathered through face-to-face interviews with 15 employees of forestry management and teachers during meetings, which took place in 2017 while completing post-graduate studies “The Basics of Forestry Management” and on the basis of case study analyses. Due to the limited volume of the elaboration, the reflections on the topic have been mostly focused on the forest management conditions in Poland.

THEORETICAL BASIS OF SOCIAL ECONOMY INCLUDING ENVIRONMENTAL ISSUES

DEFINITION OF SOCIAL ECONOMY

In the literature on the subject there are a lot of different definitions of social economy provided. Most of them put stress on similar issues, particularly taking into account allocation of profit for realization of social aim, using the financial resources for the good of the community, and not in order to increase the owner’s personal income. Therefore, social economy is described as activity aimed mainly at achieving social goals, in which profits are assumed to be reinvested in such objectives or in the community, and not at maximizing profits or increasing the income of shareholders or owners (Defourny 2012). In a more general perspective social economy is perceived as a sector of economy, in which organizations are oriented on public utility and surplus made serves social purpose (Babis 2013). A particular attention should be paid to a publication which consists of elaborations by different authors who, with reference to development of economic thought, described a wide range of issues connected with social economy, such as: intellectual roots of social economy, models of social economy, relations between social economy and business and the third sector, instruments of social economy and management of social enterprises (Frączka et al 2012).

It should be emphasized here that the primary objective of social economy is to help people who are socially excluded and it is important not to identify social entrepreneurship with corporate social responsibility, in which natural resources and taking care of them (e.g. forest) is one of the social objectives, but not the primary one (Janowski 2013).

SOCIAL ECONOMY AND NATURE CONSERVATION

In the literature on the subject one can come across a reasonable opinion that the concept of sustainable development (for which the natural environment issues are as crucial as society and economy) and social economy „meet” acknowledging that combating poverty and social exclusion, demographic problems, issues of ethnic minorities and immigrants integration have become current priorities (Rosiek 2012). Focusing only on the relationship between social economy and nature conservation one can observe the examples of social enterprises that promote and popularize pro-environment initiatives and others, whose basic economic activities are connected with environmental protection. In the first case educational activity and pro-environment activities are prevailing with a limited aspect of business activity. In the other case activities carried out to protect the environment are the tools leading to achieving an objective such as e. g. providing support for people excluded from the labour market by the means of revenues generated from business activities of that type.

The social enterprises in Poland whose economic activities concern environment and nature conservation can be divided into (Rosiek 2012):

- enterprises mostly involved in collection and transport of waste, recycling, ecological food production, looking after urban green areas and gardens;

- enterprises whose economic activities concentrate on education and promotion of ecological behavior.

Taking into consideration the topic of this elaboration the question arises whether forest as a part of the environment can be put down in the depicted relationship social economy and nature conservation? In the authors' opinion the answer is yes. It goes even beyond the presented frames and it is possible to point out common areas between social economy and forest, namely forest management.

FOREST AND ITS FUNCTIONS

THE DEFINITION OF FOREST

From a legal perspective forest is an area (The Act on Forests: art. 3):

1. of at least 0.10 ha covered by forest vegetation (forest crops) – trees, shrubs and forest floor – or temporarily without it:
 - a) designed for forest production,
 - b) a nature reserve or a part of a national park,
 - c) registered as a monument;
2. connected with forest management, i. e. under buildings and constructions, water drainage facilities, lines of forest divisions, forest roads, power lines, forest nurseries, landings, used for car parks and tourist facilities.

The definition quoted here is compared with the international regulations and definitions provided by different authors (Jabłoński 2015). However, as regards the topic, which is elaborated in this work, it is worth pointing out that the forest is:

- where trees, shrubs and forest floor grow;
- work, leisure activities, nature conservation.

In general forest can be defined as a natural or man-shaped vegetation, where there are mainly trees (Encyclopedia 1999).

FOREST FUNCTIONS

In the literature on the subject usually three basic functions of forests are mentioned, namely: ecological (protective), social and production (Kusiak and Jaszczak 2015), (Ważyński 2014). From the perspective of social economy the most crucial functions seem to be production and social ones. However, the ecological function implicitly plays its role in realization of social economy, what has been proved in the further part of this elaboration.

The productive function is connected with production of raw material, therefore providing timber, being accompanied by minor forest produce, which are very important in social economy (forest fruit, mushrooms, medical herbs, animal products). The forest is a place of work for people, and thanks to products coming from it, has an impact on creating many jobs outside forestry.

Within the social function forest is a place of relaxation and leisure, moreover, educational, spiritual, esthetic, cultural experiences and historical events. All of these things can serve as a basis for realization of social economy.

FOREST MANAGEMENT

THE DEFINITION OF FOREST MANAGEMENT

The Polish law defines both the concept of forest management, and the sustainable forest management (The Act on Forests: art. 6.1.). "Forest management" means activity in a forest in respect of the utilization, protection and management thereof; the maintenance and augmentation of forest resources and plantations; game management; the acquisition – other than by purchase – of wood, resin, Christmas trees, stump wood, bark, needles, game animals and products of the forest floor vegetation; as well as the sale of these products and the securing of the non-productive functions of forest.



On the other hand, “sustainable forest management” SFM means activity seeking to shape the structure of forests and make use of them in a manner and at a rate ensuring the permanent protection of their biological diversity, a high level of productivity and regeneration potential, vitality and a capacity to serve – now and in the future – all the important protective, economic and social functions at local, national and global levels, without harm being done to other ecosystems.

DEFINITION DILEMMAS OF FOREST MANAGEMENT AS REGARDS REALIZATION OF SOCIAL ECONOMY

According to Polish legislation the definition of forest management excludes from this type of activity purchase of timber, resin, Christmas trees, stump wood, bark, needles, game and also forest floor fruit, but not selling those products as well as the fulfilment of other than productive forest functions. A question arises if without taking into consideration produce of forest floor vegetation e. g. mushrooms and non-productive forest function, including tourism, we can still talk about realization of social economy. In the authors’ opinion the answer is yes because regulations concerning forests do not apply to the issue of social economy. Moreover, apart from this law, the side effect of forest management is nearly always something, which is in the mentioned definition excluded.

The definition of the sustainable forest management is formulated in a different way in relation to social economy what proves the authors’ correctness of views.

THE EXAMPLES OF SOCIAL ECONOMY IN FOREST MANAGEMENT THE RETROSPECTIVE PERSPECTIVE

When we look back at people living a few thousand years ago we can openly say that the forest was both – home and a place of work and a shop for them as well. During the Stone Age the forest played a lot of numerous functions and was (Jaszczak 2015): The source of food (wild game meat, mushrooms, fruit, herbs); The source of clothing (especially leather); The source of tools (made of bones and wood); The source of firewood; The shelter where people could hide when the weather was bad or enemies appeared.

In the world one thousand years before and later the wood was available in abundance in most places, nevertheless there was shortage of food (poverty was a common phenomenon). The forest provided valuable resources such as (Jaszczak. 2015): Acorns and beechnut used as food for pigs; Cones for starting a fire; Honey used for sweetening and making mead; Wax used for making candles, and also tanning and woodworking purposes; Huge amounts of wood used as the source of thermal energy needed in metallurgy, especially in iron burning; Charcoal needed for lime burning, making gunpowder, iron burning; Resin used for making colophony (colophony needed for production of candles, soap, varnish and paints) and turpentine; Tar (dry distillation - residue of partially burned pine wood) used for roof insulation and sealing of ships, barrels and harbor constructions; Wood tar used for similar purposes as tar, but also for wheel flange lubrication of wagons and stage-coaches; Ash wood used for making tools and parts of wagons: Sycamore wood for making musical instruments; Linden wood for making cradles; Larch wood for building mansion houses and churches; Alder wood for making troughs/channels; Oak wood used for cemetery crosses; Birch and aspen wood for making pales and pan grain.

The presented examples concerning the use of forest resources by people prove that forest perfectly fitted in the current range of social economy because it prevented and hindered poverty providing food and resources needed to produce goods, which could be later sold, exchanged for other indispensable products or services (forest as a place of social entrepreneurship).

THE CURRENT PERSPECTIVE

Forest and forest management in the authors’ opinion fit in the concept of social economy, both directly and indirectly. Directly, because it still provides, as it was in the past, different types of products described as minor forest produce. In the contemporary world minor forest products are

classified according to the origin/extraction of these products and raw materials, namely (Głowacki 2014): Forest products of plant origin: forest fruit, edible mushrooms, medical and industrial herbs, resins, leaves, bark, tree sap, Christmas trees, charcoal, stumps, wicker; Forest products of animal origin: game, products of hunting and fishing, snails, forest beekeeping and sericulture products; Extracted forest products: peat, gravel, sand, clay.

Social enterprises can specialize in acquiring and selling or acquiring, processing and selling of minor forest produce. Forest products of a particular importance are: Forest fruit (barberries, lowbush blueberries, elderberries, hawthorn, juniper berries, rowanberries, blackberries, hazel, raspberries, wild strawberries, sea buckthorn, dog rose, blackthorn, cranberries), which can be used for products processed from fruit (dried fruits, frozen fruits, fruit pulps, jams, marmalades, juices, soups, to accompany meat, alcohols) (Głowacki 2000); Edible mushrooms and medical herbs; Forest beekeeping (traditional apiculture is reviving in Poland).

The indirect role of forest management in social economy demonstrates, first and foremost, in unorganized social entrepreneurship (situations described above as regards a household, and not organized business activity). Minor forest products frequently become an important source of income for households whose members have been socially excluded, what can be observed at car park areas and roadsides, where these products – blueberries, mushrooms, etc. (picked in forests) are sold by such people. Moreover, forest fruits are free of charge groceries (food products) used for preparing everyday meals and processed products (deep frozen, dried, pasteurized), which can be used later on. Therefore, it can be pointed out that forest may have an influence on reducing poverty.

Forest management is preventive in its nature in relation to social economy (indirect role). It is also demonstrated in preventing poverty or its increase thanks to forest impact on water balance and climate. The most striking example of forest influence on the occurrence of flood could be observed in China in 1998 in the Yangtze River Basin. „The water forced around 120 million people from their homes. As it was announced the death toll reached 3656 people; damages were estimated for 30 billion dollars. This huge flood happened during the year with above average rainfall, but not highest rainfall on record. The thing that made a difference and was meaningful for the year 1998 concerned the decrease in forest cover with comparable amounts of rainfalls. By 1998 the Yangtze River Basin had lost 85% of original forest cover, and the remaining one did not manage to prevent monsoon rains, which were above average” (Brown 2003, 181). In the water balance of catchment area forest plays the following functions, which are relevant for life and work of people (Kowalczak 2002): Increases outflow during the period of low water status (drought prevention) and decreases it during the period of high water statues in watercourses (flooding and flood prevention); Decreases surface water runoff in spring (runoff being a result of the snow melting); Extends surface water runoff in spring and changes it into underground outflow (it prevents decline of groundwater, drying up wells, therefore availability of drinking water); Prevents rapid water increase in watercourses and reduces elevation of flood waves (an important role in prevention of flooding and floods, especially in situations when there are more and more frequent torrential rains); Prevents excessive water level decrease in the rivers during droughts; Forest plays a role of a filter and has a crucial impact on biological and chemical composition of groundwater, which constitutes a drinking water reservoir.

It is worth pointing out here the recreation functions of forest that are used, and even emphasized in case of social enterprises involved in agritourism. Forest plays plenty of crucial functions that foster and support the realization of social economy. For that reason it is possible to establish common area of social economy and forest management.

COMMON AREAS OF SOCIAL ECONOMY AND FOREST MANAGEMENT

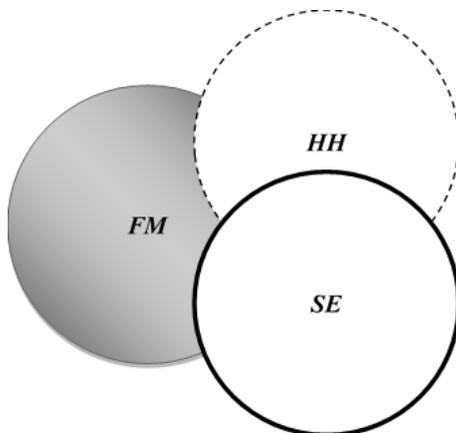
In the light of presented reflections we are able to distinguish two types of social entrepreneurship directly or indirectly connected with forest management, namely:

1. Unorganized social entrepreneurship (households).
2. Organized social entrepreneurship (social enterprises).

Unorganized social entrepreneurship corresponding to a household in this case can be described as involvement of members of the household in gaining forest products for their own use or in order to sell it away. The families that are meant here are poor, cannot cope with and adjust to market economy, who are excluded from the labour market because of place of living, lack of professional competences, having problems with alcohol or domestic violence, etc. in such households minor forest products are a crucial source of food or additional income. Moreover, twigs and cones can be used in the process of making decorations, wreaths, etc. and then sold.

Organized social entrepreneurship are identified in this case with cooperatives, associations, foundations, but also micro-businesses, often family businesses whose activities are connected with forest resources. Health and tourist benefits of forest are of a particular importance what in case of quest houses, agritourism become their advantage and strengths. These types of businesses often employ local people who would have a problem to find a job otherwise. Moreover, they take advantage of residents' services buying mushrooms, berries and fruit products from them, etc.

Both types of entrepreneurship (HH – households; SE – social enterprises) have a common part and both to some extent base their activities on forest management (FM), which was presented in picture 1.



Picture. 1: The common area of social economy and forest management.

Source: own elaboration.

According to picture 1 the following common areas can be distinguished: FM with HH – households for whom the forest becomes the additional source of income and helps to feed family; FM with SE – social enterprise, for which forest functions, especially non-productive ones, give an opportunity to run a business; FM simultaneously with FM and SE – it is the highest indicator of social economy realization in the forest management, which is equal to employing people socially excluded in the social enterprises, which use in their business activities forest functions or buying forest products from people. Moreover, this part encompasses preventive forest functions (flooding and flood prevention, maintenance of groundwater), which can be considered as activities carried out to prevent poverty of socially excluded people.

The identified common areas of social economy and forest management and chosen examples of social economy connected with forest management prove that the set hypothesis can be positively verified. The forest has always been and is a place fostering realization of social economy. For people it is one of the basic sources of satisfying their numerous and various needs. In the

contemporary world particularly for poor people, socially excluded because of different reasons. In the past for most of the society, which today we can considered as excluded.

CONCLUSIONS

While summing up the deliberations concerning the topic of realization of principles of social economy in forest management some conclusions may be drawn:

1. Forest shaped and still has an impact on people's habitat and living environment.
2. Historically forest production and non-production functions were the key within the realization of the principles of social economy.
3. In the contemporary world due to the forest management, the role of forest within social economy is perceived explicitly through the lens of non-production forest functions, thus tourism and recreation.
4. Minor forest products are a basis for realization of social economy activities in connection with forest management.
5. In the context of social economy the role of forest in shaping the climate, including hydrologic conditions, are of a particular importance.

The authors have spotted the need to carry out more detailed and broadened research on the edge of social economy and forest management. The examples of the subjects of such research could be: (1) The impact of forest management on decreasing poverty in Poland; (2) Factors facilitating and hindering the activities of social enterprises using forest resources - Polish and foreign conditionings; (3) The value of potential benefits of non-production forest functions in realization of principles of social economy in forest management in Poland.

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