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Regional Development Based on Environmental Competitive Advantages – A Comparative Analysis of Polish Voivodships

Abstract

This article presents an assessment of the environmental competitiveness of Polish regions in the years 2004 and 2012. For the purposes of analysis, 26 indices of the condition and protection of the environment and also pressures placed on the environment were selected. With respect to each index, between 1 and 16 points were attributed to each region (16 units on the NUTS 2 level are distinguished in Poland) depending on the degree of environmental impact. Then, the points allocated to the voivodships for each index were totalled and a ranking of voivodships reflecting the level of environmental competitiveness was elaborated.

1. Introduction

Thus far, in discussions of the problems of regional development, including the widely understood regional competitiveness, decidedly less attention has been focused on the significance of environmental factors. Natural capital is a source of significant functions for both the economic system and human life, and its loss may considerably decrease future development opportunities. According to current research, the resources and values of the environment have become a key resource in developmental processes. This way

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of interpreting natural capital has also gained increasing acceptance in the field of economics (Malovics 2007).

2. Competitiveness on the micro-, meso- and macroeconomic levels

Over recent years, the concept of competitiveness has come to be used not only with respect to particular enterprises or sectors of the economy, but also applied to various spatial arrangements. Depending on the scale of activity being undertaken, competitiveness may be defined on a micro-, meso- or macroeconomic level. According to M. Porter, competitiveness on a mesoeconomic level is concerned with an analysis of particular segments of the economy, its branches, sectors and also regions.

The problem of regional competitiveness is much more difficult to define unequivocally and much more complex than in the case of enterprises or macroeconomies. Regions are considerably more complicated units in terms of their functionality, territory and organization (Pietrzyk 2000, p. 23). A competitive region possesses both absolute and comparative advantages over other regions, both socially and economically. These advantages generate profits for the whole region and especially for economic entities functioning there (Prusek 2001, p.12).

Due to the specificity of the problem, the competitiveness of regions may be analysed on numerous levels. Direct and indirect competitiveness are distinguished from the point of view of expected benefits and assumed aims.

Direct competition is reflected in the competition for the best access to external benefits. This is reflected mainly in the attraction of external private investment, both domestic and foreign, the aspiration to retain capital in a region, successful access to subsidies and other forms of government and international aid, as well as the creation of attractive conditions for the relocation of economic entities and organizations, government departments and institutions.

Concurrently, in addition to direct competition, indirect competition is also observed, i.e. making use of existing environmental conditions or forming new ones for units acting in a given area. This allows a competitive advantage to be gained with respect to other enterprises localized outside given regions. This also includes the activities of regional and national authorities directed towards the assurance of favorable conditions for economic entities carrying out activities in a given region. While the aim of these activities is an increase in the

competitiveness of the economic entities themselves, indirectly they also contribute to that of the region as a whole (Markowski 1997, pp. 23-24).

It may be concluded that specific relationships occur between the competitiveness of regions and economic entities situated in a specified area. Competition between enterprises is to a high degree conditioned by the development of a competitive environment and certainly their own internal strength, i.e. the manner of organization and entrepreneurship.

A regional economy which effectively uses the potential of those resources occurring on a given territory creates a business support environment favoring entrepreneurship, generating additional benefits for economic entities located in the region. Profitable conditions for firms' development and their improving competitiveness are formed thanks to actions such as the provision of a well-developed infrastructure, support of scientific research, and accessibility to various kinds of service institutions. It should however be remembered that the presence of competitive economic entities in a region also affects its general competitiveness level. Thus, a contemporary characteristic feature of competiveness is concurrent competitiveness of manufacturers and the surroundings in which they conduct their activities (Gorzelak, Jałowiecki 2000, pp.17-24).

Competitiveness on a macroeconomic level is connected to the national economy. Macro-competitiveness concerns the results of a given country in international exchange, and especially the increase in its share of export markets. The competitiveness of a national economy means the ability to maintain constant, high growth rates as a result of stable economic policy, institutions and other economic determinants (WEF 1997).

It needs to be understood that none of levels of competitiveness discussed so far should be observed separately. Competitiveness of enterprises determines the competitiveness of the region the given entity functions in, and conversely - factors at a regional level may significantly shape the level of enterprise competitiveness in this region, with repercussions in the national economy as well. Thus the competitiveness of enterprises and regions concurrently affects macroeconomic competitiveness.

3. Environmental quality as a factor of regional competitiveness

B. Winiarski, a leading Polish economist, lists seven basic determinants of regional competitiveness:

- a developed and differentiated economic structure,

- a satisfying level of spatial development, i.e. well equiped with technical, economic and social infrastructure instruments,
- functioning scientific-research institutions and plants which provide support for innovative processes,
- the presence of higher education units in a region,
- a business support environment, i.e. presence of institutions and banking, insurance, and consulting companies etc.,
- reserves of areas suitable for investment localization, capable of producing positive changes in the manner of development, price of land and rents,
- appropriately protected and managed natural environment (water, air and soil) and landscape differentiation (Winiarski 1999, p.50).

The state of the environment influences the competitiveness of a region, since the socio-economic development of a region is connected to a specified territory abundant in natural production factors, i.e. the geographical space of given climatic conditions, hydrographic conditions etc. (Małachowski 2009, p. 9).

The natural environment plays a significant role both in human life and in management processes, fulfilling three basic functions:

- creates conditions for and supports the course of life processes;
- is a source of resources and energy derived from renewable natural resources which are used in production processes and in direct consumption;
- absorbs side effects of human economic activity. The natural environment certainly has some ability for absorption and neutralization of pollutions emitted by humans; however, only to a certain degree; exceeding this level leads to a limitation of the assimilation function or even its complete loss (Czaja, Becla 2007, p.58).

The current approach to issues of regional economics promotes the implementation of 'rules' connected with so-called sustainable development. This is a process based on searching, verifying, and implementation of innovative forms of economic growth with concurrent respect for the rights of nature (Wysokińska 2011, pp. 26-28; Rydz-Żbikowska 2012, pp. 102-105). This change in policy has led, also in the direction towards sustainable development, to a situation whereby local and regional authorities have had to undertake numerous actions concerning:

- assessment of the natural, economic, cultural and social environment,
- determination of development directions,
- determination of the conditions and limitations being the result of natural environmental capacity,
- constant monitoring of the environment (Lorek 2002, p.137).

According to A.P. Wiatrak, regional policy should treat natural factors and their influence on given region's competitiveness in a particular manner.

It is worth considering here the issues connected to the reasonable exploitation of the natural resources used in the production process, and the adaptation of the production system to the resources present in a given region and to the environment's potential (Wiatrak 1998, p.88).

The value and resources of the landscape affect the economic multi-functionality of intra- and supra- economic processes, in the spheres of both production and consumption. An increase in the significance of the natural value of the region, such as landscape beauty, enables the search for other forms of regional development which would be connected to the fulfillment of social unit requirements of a psychological, esthetic, scientific or leisure character. Development directed toward the fulfillment of these needs should allow for the maintenance or improvement of the economic conditions of the region, as well as of its competitive position (Panfiluk 2005, pp. 344-345).

According to M.E. Porter, classical production factors have become more available as a result of globalization processes. Predominant importance in the formation of local and regional competitive advantages is attributed by Porter to the factors of geographical concentration and the quality of the local environment (Porter 1998).

4. Significance and determinants of environmental competitiveness of regions

The thesis that a clean environment (environmental quality) is a significant element in the formation of competitive advantage at the meso-economic level may be put forth based on the following considerations. Regions with a relatively clean environment should aspire to direct development strategies with respect to those sectors of economic activity which to a greater or lesser degree utilize the resources and virtues of the environment.

Achieving, a competitive advantage over other regions based on existing environmental potential, the ability to use it the socio-economic growth and development processes, and a low level of anthropopression may be defined as the **environmental competitiveness of the region** (Kasztelan 2011, pp. 258-268).

This competitiveness should be considered in two-directions. Firstly, it may be related to the environmental conditions occurring in a given region, while on the other hand it concerns their skillful use in socio-economic processes, which will impact upon any increase in the region's competitiveness.

Here it seems to be justified to demonstrate factors determining the environmental competitiveness of regions. These factors may be enumerated as follows:

1. Natural conditions - landscape differentiation (land relief, lakes, rivers), air temperature, precipitation and other aspects connected to microclimate, as well as presence of energy resources and fossil fuels.
2. Geodetic-soil conditions of the region - structure of land management, e.g. contribution of agricultural/forest areas in the general area of the region.
3. State of water resources and extent of their pollution - amount and quality of underground and ground water resources, amount of generated industrial and municipal wastes discharged into the water and soil.
4. Quality of atmospheric air - amount and structure of pollution emitted into the atmosphere, intensity of UV-B radiation, frequency of so-called acid rain occurrences; number of plants especially burdensome for the environment, level of pollution neutralized and retained by reducing devices.
5. Amount of waste produced, as well as its structure.
6. Naturally valuable areas, forestation rate, and land afforestation.
7. Intensity of road and industrial noise.
8. System of environmental protection and water management - number of waste water treatment plants in urban and rural areas; sewage networks; devices reducing levels of pollution emitted into the atmosphere (Kasztelan 2010, pp. 77-86).

While natural environmental resources are not created by humans, their ability to provide specific goods and services, and thus their value as production factors, depends on human activity. In many cases, achieving measurable effects from production activity (e.g. agricultural cultivation) is conditioned by a suitable linkage of natural elements (soil, water) and anthropogenic ones (irrigation, transportation infrastructure). Despite this, the conceptual differentiation of natural capital and capital created by humans is still a useful approach (OECD 2008).

Taking into account the above factors, different research and analytical methods may be applied for an assessment of the environmental competitiveness of particular regions. These would allow identification of those regions which are characterized by relatively high environmental potential, and thus may direct their development strategies towards processes making use of environmental resources and values. Conducting this kind of analysis should also create the basis for processes of regional specialization taking into account environmental factors.

5. Assessment of environmental competitiveness of Polish regions in 2004 and 2010

5.1. Characteristics of the research method

Analysis was conducted using indices of the condition and protection of the environment and also pressures placed on the environment in particular regions, in order to arrive at an assessment of the environmental competitiveness of Polish voivodships, using a rating method for this purpose (point one).

Points, ranging from 1 to 16, were attributed to the voivodships within particular indices (division on 16 NUTS 2 regions is applicable in Poland), depending on the position occupied on a national level with respect to a given factor. Then, the points attributed within particular indices were totalled, producing a total result for each voivodship.

The following indices of environmental conditions, pressures and protection published in CSO statistical yearbooks were used for the purposes of the present elaboration: *Environmental Protection 2011* (data for 2010) and *Environmental Protection 2005* (data for 2004). Due to the limited availability of data from the year 2004, the following factors were chosen for the analysis:

1. The frequency of organic farms within the overall area of the voivodship (as a %)
2. The proportion of forested land within the overall area of the voivodship (as a %) (forestation rate)
3. The proportion of lands under surface waters within the overall area of the voivodship (as a %)
4. The proportion of devastated and degraded lands requiring reclamation and management within the overall area of the voivodship (as a %)
5. The proportion of agricultural lands threatened by wind erosion within the overall area of the voivodship (as a %)
6. The proportion of agricultural and forested lands threatened by water erosion within the overall area of the voivodship (as a %)
7. The proportion of agricultural and forested lands threatened by gully erosion within overall area of the voivodship (as a %)
8. Consumption of artificial fertilizers in the economic year 2003/2004 and 2008/2009 (in kg/1 ha of agricultural land)
9. Exploitable underground water resources in Poland (in cubic hectometers per year)
10. Water withdrawal for the needs of the national economy and population (in dam^3 / 1 km^2)

11. Consumption of water for production purposes in closed cycles (as a % of total consumption)
12. Water consumption in households (in m^3 per capita in cities)
13. Amount of industrial and municipal wastewater discharged into waters or into the ground (in m^3 per 1 km^2 of voivodship area)
14. The proportion of treated wastewater with respect to that requiring treatment (as a %)
15. Population in cities connected to wastewater treatment plants (as a % of the total population of cities)
16. Population in villages connected to wastewater treatment plants (as a % of the total population of villages)
17. Degree of reduction in generated particulate pollutants in especially noxious plants (as a %)
18. Degree of reduction in generated gaseous pollutants in especially noxious plants (as a %)
19. Area of special natural value protected by law (as a % of each voivodship area)
20. Area of parks, lawns and estate green belts (in m^2 per capita)
21. Industrial waste generated during a year (in t/1km^2)
22. Recovered waste (as a % of generated wastes)
23. Waste accumulated so far in own landfill areas (in t/1 km^2)
24. The proportion of municipal waste collected selectively in relation to the total amount of collected municipal waste (as a %)
25. Levels of recycling of packaging waste (as a %)
26. The proportion of plants exceeding permissible noise levels in relation to the overall number of entities of this type controlled (as a %)

Points from 1 to 16 were attributed to the voivodships within particular indices, depending on the position occupied at the national level, while:

- for indices from 1 to 3, 9, 11, from 14 to 20, 22 as well as 24 and 35 – the maximum number of points were attributed to voivodships with highest levels of the examined index;
- for indices from 4 to 8, 10, 12, 13, 21, 22, 23 and 26 – the maximum number of points were attributed to voivodships with the lowest levels of the examined index;

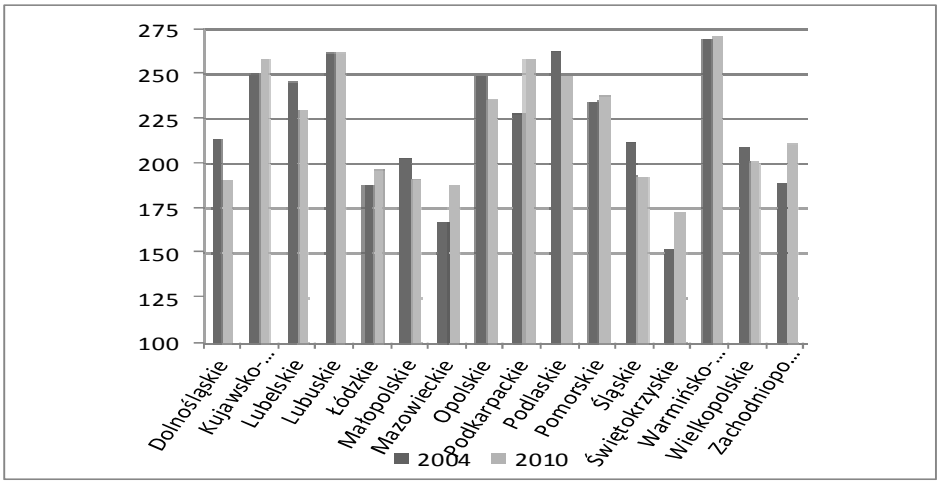
Tables 1 and 2 contain a cumulative presentation of the results obtained with respect to particular voivodships in 2004 and 2010.

5.2. Results of the research

It may be concluded from the analysis conducted that the highest level of environmental competitiveness, both in 2004 and 2012, was characteristic for Warminsko-Mazurskie Voivodship. Despite the considerable time span, an almost identical result was obtained in both the examined years, i.e. 269 and 271 points, respectively. In turn, the Swietokrzyskie Voivodship obtained the worst assessment, with a total score of 153 pts in 2004 and 173 pts in 2010.

When compared to the base period, in 2010 seven voivodships improved their position in relation to the country as a whole, the position of six deteriorated, while in the case of three the situation was unchanged. The highest increase in this range was noted in the case of the Podkarpackie Voivodship – an advance of five places, from 8th to 3rd position in the ranking. In turn, the highest decrease, also of five places, was noted for the Dolnoslaskie Voivodship - from 9th to 14th (Figure 1).

Figure 1. Environmental competitiveness of Polish regions (NUTS 2) – total scores



Source: Table 1 and 2.

Taking into consideration the compilation of point scores, an increase was noted with respect to eight voivodships, a decrease in seven voivodships, while one voivodship obtained the same score in both examined years.

Thus the question arises how to interpret the results obtained with respect to specified voivodships? Which factors decided upon the high position of the mentioned regions?

Table 1. Assessment of environmental conditions for the regions development (NUTS 2) by scoring method, 2004

		Regions															
		Dolnośląskie	Kujawsko-pomorskie	Lubelskie	Lubuskie	Łódzkie	Małopolskie	Mazowieckie	Opolskie	Podkarpackie	Podlaskie	Pomorskie	Śląskie	Świętokrzyskie	Warmińsko-mazurskie	Wielkopolskie	Zachodnio-pomorskie
Indices	**1**	**12**	**16**	**13**	**14**	**4**	**9**	**6**	**2**	**1**	**7**	**8**	**3**	**5**	**11**	**10**	**15**
	2	9	4	3	16	1	8	2	6	15	10	14	12	7	11	5	13
	3	3	13	2	12	1	10	5	7	6	8	14	11	4	16	9	15
	4	1	6	14	16	7	8	15	4	10	11	12	2	5	9	3	13
	5	10	6	4	16	1	11	7	8	15	2	14	5	3	13	10	12
	6	9	10	7	12	13	1	15	16	5	11	3	4	2	8	14	6
	7	4	10	8	11	14	1	16	12	5	15	3	9	6	2	13	7
	8	10	2	8	4	5	13	14	1	16	12	3	9	15	11	5	7
	9	6	11	10	7	12	4	16	1	2	5	13	8	3	9	15	14
	10	7	13	11	14	8	5	2	12	10	16	9	6	1	15	4	3
	11	13	12	9	8	16	7	4	15	6	10	5	14	2	11	3	1
	12	6	11	14	13	4	5	2	8	15	16	7	12	1	9	10	3
	13	8	12	13	15	11	5	2	10	9	16	7	6	1	14	4	3
	14	9	12	13	5	6	15	1	11	7	16	8	4	3	10	14	2

		Regions															
		Dolnośląskie	Kujawsko-pomorskie	Lubelskie	Lubuskie	Łódzkie	Małopolskie	Mazowieckie	Opolskie	Podkarpackie	Podlaskie	Pomorskie	Śląskie	Świętokrzyskie	Warmińsko-mazurskie	Wielkopolskie	Zachodnio-pomorskie
Indexes	15	14	5	12	9	11	8	1	10	4	13	16	3	6	15	7	2
	16	12	10	4	7	1	6	2	8	14	5	15	9	3	13	11	16
	17	15	4	6	2	16	9	10	15	7	3	6	12	13	1	11	8
	18	16	6	15	1	13	10	7	14	5	4	11	9	8	2	3	12
	19	2	10	5	12	1	15	7	6	14	9	11	4	16	13	8	3
	20	12	14	13	11	10	9	6	15	3	1	2	16	7	4	8	6
	21	2	11	8	14	4	3	7	6	13	15	12	1	9	16	10	5
	22	10	8	15	9	4	7	2	13	12	11	5	16	7	14	3	1
	23	2	10	12	13	6	3	9	5	16	14	11	1	7	15	7	4
	24	12	10	4	1	5	13	7	15	8	2	16	14	6	3	11	10
	25	6	12	9	13	8	3	1	16	5	15	2	11	10	14	4	7
	26	4	12	14	7	6	15	2	13	5	16	8	11	3	10	8	1
Total points		214	250	246	262	188	203	168	249	228	263	235	212	153	269	210	189
Position		9	4	6	3	14	12	15	5	8	2	7	10	16	1	11	13

Source: national statistics.

Table 2. Assessment of environmental conditions for the regions development (NUTS 2) by scoring method, 2010

		Regions															
		Dolnośląskie	Kujawsko-pomorskie	Lubelskie	Lubuskie	Łódzkie	Małopolskie	Mazowieckie	Opolskie	Podkarpackie	Podlaskie	Pomorskie	Śląskie	Świętokrzyskie	Warmińsko-mazurskie	Wielkopolskie	Zachodnio-pomorskie
Indices	1	14	16	12	15	6	3	5	4	9	8	10	2	1	11	7	13
	2	9	4	3	16	1	8	2	6	15	10	14	12	7	11	5	13
	3	4	13	3	12	1	8	6	7	5	9	15	11	2	16	10	14
	4	4	7	12	15	6	13	14	1	16	10	9	2	5	8	3	11
	5	10	6	4	16	1	11	7	8	15	2	14	5	3	13	10	12
	6	9	10	7	12	13	1	15	16	5	11	3	4	2	8	14	6
	7	4	10	8	11	14	1	16	12	5	15	3	9	6	2	13	7
	8	3	2	11	8	9	15	13	1	16	12	5	10	14	7	4	6
	9	6	11	10	7	12	4	16	1	2	5	13	8	3	9	15	14
	10	7	11	10	14	8	6	2	12	8	16	13	5	1	15	4	3
	11	16	12	9	11	13	7	5	15	4	10	6	14	2	8	3	1
	12	6	9	13	11	7	2	1	10	15	16	5	12	14	8	4	3
	13	7	12	13	15	11	5	2	9	8	16	10	6	1	14	4	3
	14	5	6	10	8	12	7	2	3	9	16	14	4	1	11	15	13

		Regions															
		Dolnośląskie	Kujawsko-pomorskie	Lubelskie	Lubuskie	Łódzkie	Małopolskie	Mazowieckie	Opolskie	Podkarpackie	Podlaskie	Pomorskie	Śląskie	Świętokrzyskie	Warmińsko-mazurskie	Wielkopolskie	Zachodnio-pomorskie
Indexes	**15**	14	13	8	6	10	5	1	11	9	7	15	2	4	16	3	12
	16	9	11	4	7	1	6	5	12	14	2	16	8	3	13	10	15
	17	14	6	2	4	16	9	12	16	7	4	6	12	14	1	12	9
	18	16	6	15	1	12	8	7	14	5	3	13	4	9	2	11	10
	19	1	9	5	12	2	15	7	6	13	10	11	4	16	14	9	3
	20	11	15	12	10	10	8	4	16	4	1	4	14	5	13	7	6
	21	2	10	6	13	4	3	9	12	14	16	11	1	8	15	7	5
	22	5	6	8	7	1	14	3	9	10	12	11	15	16	13	4	2
	23	2	11	12	13	5	3	10	6	16	14	9	1	8	15	7	4
	24	7	13	12	4	9	16	11	5	15	1	4	10	6	2	14	8
	25	2	14	9	12	6	3	4	10	7	15	1	13	16	11	5	8
	26	4	16	12	2	7	11	9	14	13	8	3	5	6	15	1	10
Total points		191	259	230	262	197	192	188	236	259	249	238	193	173	271	201	211
Position		14	3	8	2	11	13	15	7	3	5	6	12	16	1	10	9

Source: national statistics.

The leading regions in Poland in terms of high scores in environmental competitiveness currently include the following voivodships: Warminsko-Mazurskie, Lubuskie, Kujawsko-Pomorskie and Podkarpackie. The first in the ranking is the Warminsko-Mazurskie Voivodship. It is characterized by the highest proportion of lands under surface waters (over 5% of the overall area of the voivodship), with the national average being approximately 1.8%. This undoubtedly predisposes this region towards the development of various forms of tourism, recreation and leisure. An additional advantage in this area is also the high concentration of areas of special natural value and parks, lawns and estate green belts.

The Warminsko-Mazurskie Voivodship is also distinguished by effective waste management. The level of industrial wastes it produces is one of the lowest in Poland, similarly the amount of land-filled wastes. A considerable percentage of wastes are subject to recovery and recycling processes.

Wastewater management constitutes a substantial advantage, especially in terms of realized recreational-leisure functions. The Warminsko-Mazurski region belongs to a limited group of voivodships with the lowest index of waste water emission and is concurrently relatively better equipped in terms of basic municipal infrastructure.

Second in the ranking, the Lubuskie voivodship finds its environmental potential first of all on the highest forestation rate in the country. Over half of the land is covered with forests, while the national average is 31%. The Lubuskie voivodship, apart from forestry, should look for its development possibilities in the area of organic agriculture and processing. Currently, the contribution of ecological sites in the overall area of the voivodship is 0.2%, with a national average of 0.11%. The factor favoring the development of this form of activity form is the low degree of the threat to agricultural and forest land from wind, water and gully erosion.

The Lubuski region is characterized by reasonable water management, which is demonstrated in the indices of water collection and consumption for the needs of national economy and population. This is in turn reflected in it being second nationally in terms of its low level of emitted waste water. It is also worth mentioning that that the Lublin Voivodship leads the regions in terms of having the highest level of package waste recycling.

Third position in the ranking of voivodships in 2010 was shared by the Kujawsko-Pomorskie and Podkarpackie voivodships. The Kujawsko-Pomorskie Voivodship is characterized by the highest proportion of ecological sites (nearly 0.3%). This undoubtedly predisposes this region towards development of organic food processing. This should be aided by the relatively high level of underground water resources, with a concurrently low index of voivodship

economy water consumption obtained, *inter alia*, via the application of a considerable degree of closed water systems. It is also worth emphasizing that water resources in the voivodship are characterized by high quality parameters, which is on the one hand a result of the low level of waste water discharged into waters and soils, and on the other hand the highest index of purified waste water.

The Podkarpackie Voivodship is second, after Lubuskie Voivodship, in terms of the highest forestation rate (38%). Moreover, it is characterized by the lowest proportion of damaged and degraded lands requiring reclamation. Taking into account the low index of artificial fertilizer consumption, it may be concluded that a predisposition towards the development of organic food exists in the Podkarpackie Voivodship.

It is also worth mentioning the indices describing waste management in the analyzed region. The Podkarpackie Voivodship is in 1st place in the country in terms of the lowest amount of wastes accumulated in its own landfills. In turn, as regards the proportion of municipal wastes collected selectively it is exceeded only by Malopolskie Voivodship. Moreover, industry in the Podkarpackie region generates relatively low amounts of wastes per 1 km^2 of the voivodship area (3rd position in the country).

As mentioned in the previous part of the article, particular voivodships differ as regards their possessed environmental potential. The fact that some voivodships are characterized by low levels of environmental competitiveness does not mean that they lack pro-environmental development factors.

For example, the Swiętokrzyskie voivodship – assessed as the lowest - is characterized by the best index of wastes subject to recovery and recycling processes. This proves that the system of waste management operates especially effectively in this region, which may constitute one of the possible ways for its further development. Moreover, attention should also be paid to the fact that the highest percentage of areas of special natural value is observed precisely in the Swietokrzyskie Voivodship.

6. Conclusions

Resources and values of the environment and undertakings aimed at its protection are more often treated as a factor of economic development, which is usually in the hands of less developed regions. Considering a region as a space in which human activity is situated, it may be unabashedly concluded that the social and economic attractiveness of a given region depends on its quality (cleanness).

The environmental competitiveness of a region is a concept which perfectly fits within the basic assumptions underlying sustainable development of the poorer developed regions. Proper use of environmental potential shoud firstly allow for the generation of additional economic effects, and secondly should contribute to further improvement of environmental conditions and thus generate synergy effects, and thirdly it should favor realization of social goals by decreasing in unemployment and generally improving the quality of life.

The aim of the study conducted was to identify those regions in Poland which are characterized by relatively higher possibilities of benefiting from pro-environmental development pathways. It appears that no significant changes in voivodship ranking were noted in the examined years, which may prove the stable level of environmental competitiveness of particular regions. The results of the study point to the fact that the highest environmental potential is characteristic for the following voivodships: Warminsko-Mazurskie, Lubuskie, Kujawsko-Pomorskie, Podlaskie and Podkarpackie, while the lowest lies with Swietokrzyskie, Mazowieckie, Malopolskie, Dolnoslaskie and Lodzkie.

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Streszczenie

ROZWÓJ REGIONALNY OPARTY NA ŚRODOWISKOWYCH PRZEWAGACH KONKURENCYJNYCH – ANALIZA PORÓWNAWCZA POLSKICH WOJEWÓDZTW

W artykule przedstawiono istotę, metodę badań i wyniki oceny środowiskowej konkurencyjności regionów w Polsce w 2004 i 2010 r. Dla potrzeb analizy wyselekcjonowano 26 wskaźników stanu, presji i ochrony środowiska charakteryzujących poszczególne województwa. W odniesieniu do każdego wskaźnika, regionom przypisano punkty od 1 do 16 (w Polsce wyróżniamy 16 jednostek na poziomie NUTS 2) w zależności od stopnia oddziaływania na środowisko. Następnie, sumując punkty uzyskane przez województwa w odniesieniu do poszczególnych wskaźników, otrzymano oceny końcowe, w oparciu o które opracowano ranking województw odzwierciedlający poziom środowiskowej konkurencyjności.