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THE LEVEL OF ENVIRONMENTAL AWARENESS AS A DETERMINANT OF ATTITUDES AND BEHAVIORS DEVELOPED BY INHABITANTS OF TOWNS AND VILLAGES – A COMPARATIVE CASE STUDY

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Abstract

Today, the more and more intensive use of natural resources and consequent environmental degradation have made the issue of sustainable development a central place in many discussions going on in scientific circles. In this light, ecological awareness, as well as pro-ecological attitudes and behaviors of people seem to be only too significant. The aim of this article is to present the results of research conducted among the inhabitants of the Municipality of Zawadzkie, Opole Voivodeship. The study examined the relation between the level of environmental awareness and manifestations of environmental attitudes and behaviors. The obtained results were also subjected to a comparative analysis of two groups of respondents: inhabitants of towns and villages. The study did not show any significant differences between residents of towns and villages in terms of their ecological awareness and environmental attitudes and behaviors. It can therefore be concluded that changes in the sphere of awareness and specific environmental actions that are being taken in the surveyed community are not related to the place of residence. Residents of towns and villages have a similar access to knowledge and cultural changes concern both groups. It is worth pointing out that awareness as such and knowledge of the environment does not guarantee developing proper attitudes and pro-ecological behaviors, and changes in the area of specific environmen-

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tal activities are of a long-term nature and do not occur overnight. Research has also shown that although knowledge about ecology is not always reflected in everyday attitudes and behaviors of the respondents, changes in environmental direction can be observed in both urban and rural areas.

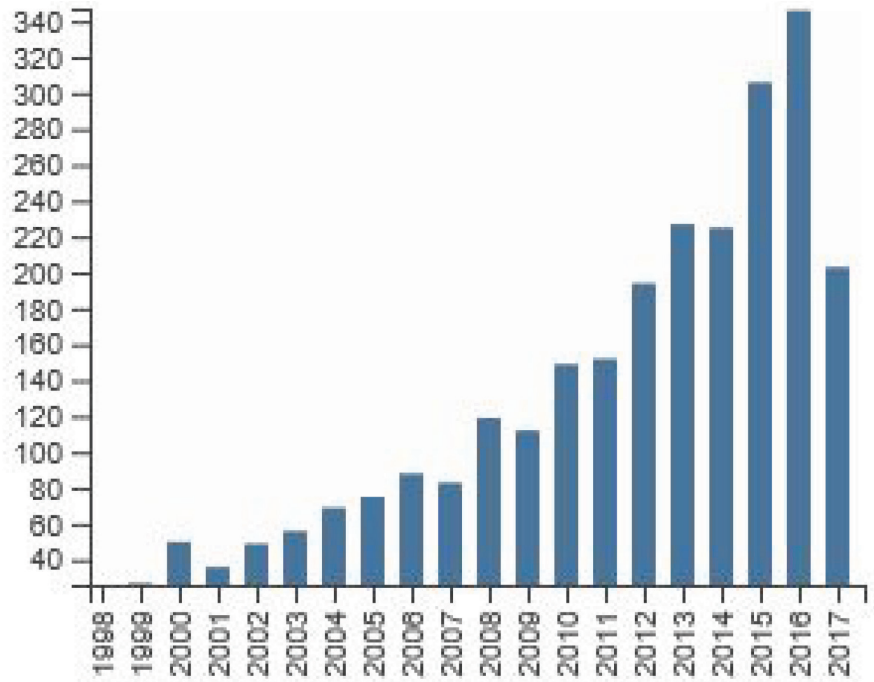
Key words: sustainable development, environmental awareness, pro-ecological attitudes and behavior

INTRODUCTION

The increasing use of natural resources associated with the current production and consumption model has had many negative effects on the environment. Technological development, mass production and global growth contribute to the ever-increasing use of natural resources and, consequently, to the degradation of the natural environment. This problem has become a subject of interest to the scientific community as well as the governments of highly industrialized countries. As Luiza Mańkowska-Wróbel (2014) noted, the development of the world economy and the growing number of people, which, with the current rate of growth, may reach 9 billion people in 2050 (an increase by 30% compared to the present one) mean an enormous pressure on the Earth's natural resources. The argument of overcrowding and excessive consumption was cited by G. S. Howard (1997), indicating that the ecological problems „are human produced". Currently, in the European Union, each person consumes 16 tons of resources annually, of which 6 tones are wasted, with half going to landfill. Europe's environmental footprint is one of the biggest on the planet. If the rest of the world lived in the same way as the Europeans, meeting its needs would require resources corresponding to more than two Planets Earth.

Achieving the sustainable development is conditioned by changes in the behavior of both producers and consumers. The high level of ecological awareness of society contributes to reducing the negative environmental impact of over-consumption, even if the underlying factors are variable between countries and social groups (Bogner, Wiseman 2002; Iwata 2004) and their identification is still „in work" (Moreno, Corraliza, Ruiz 2005; Miguens, Gonzalez, Vazquez, Rodriguez 2015).

Therefore the importance of growing ecological awareness and the pro-ecological attitudes and behaviors of individuals, households as well as entire societies is crucial (Chua, Quoquab, Mohammad, Basiruddin 2016). We can see it by the growing number of scientific works referring to the notion of ecological awareness (Figure 1).



Source: http://apps.webofknowledge.com.wos.han.uni.opole.pl

Figure 1. The total number of publications on environmental awareness by year

It seems that the significant threshold of the fifty articles was attained in 2002 and since then it gets higher. A significant role of ecological awareness in the process of shaping social attitudes towards natural resources makes it an important research category in the field of human-environmental relations. Data on the level and elements of ecological awareness and its socio-demographic determinants can be applied both in the design of educational activities and in the implementation of specific environmental projects (Majchrowska 2013).

In the eighties, the first comprehensive ecological awareness survey that was conducted in Poland, highlighted the fact that people are mobilized to act more directly through human threats (drinking water pollution in a particular location) than „distant" threats (forest threats by cuttings or pests, which in turn can cause climate change). The research results have shown that society treats the environment as a value, but does not feel the need for action to protect it. Since 2000, cyclical research has raised questions about the level of the ecological awareness of society, and in 2008 the INE Report „Poles in the mirror of ecology" was created. Since then, environmental awareness has become a phenomenon of interest to many researchers (Tuszyńska 2014). Since then, Poland

has achieved relatively high ecological awareness as measured by EAI index (Kokkinen 2013) and as measured by the EPI – Environmental Performance Index (Shirley 2016).

The purpose of the study was to test a hierarchical model of the effects of general values, environmental values, problem awareness, and personal norms on general pro-environmental behavior. The model starts with the effects of the relatively stable structures of general values and moves toward effects of more specific environmental values, environmental problem awareness, and personal norms. A personal norm was expected to mediate the effects of values and problem awareness on pro-environmental behavior. Survey data from a Swedish sample of 1,400 individuals were used in a path analysis to test the model, which was supported, and the results showed that the personal norm could be seen as derived from self-transcendent and eco-centric values and activated by problem awareness. The personal norm mediated the effects from general values, environmental values, and problem awareness on pro-environmental behavior ((Nordlund, Garvill 2002).

The results of research considering the problem of the level of Polish societies' environmental awareness show, on the one hand, a positive image of pro-environmental attitudes is being formed, and on the other hand, it turns out that activities which protect natural environment are not intended by the respondents. For Polish people, the priority is to save money and if it coexists with pro-environmental behavior, they do this „on the way" (Tuszyńska 2014).

The sense of individual impact on the state of the environment is relatively high. Individuals who undertake their own eco-activities are more convinced of their own well-being and are more optimistic about the state of the environment in the future. However, these surveys also indicated a lack of consistency. Despite the increase in the group of people who recognize the impact of individual actions on the environment, the popularity of consumer behavior that promotes environmental protection has decreased. In everyday life, ecological behavior is often taken „by chance" and the priority is saving money, and if environmental protection is concerned, it is an additional, secondary benefit (e.g. in water and energy savings). This thesis is supported by the fact that the respondents rarely make additional investments to protect the environment (Tuszyńska 2014) and among the most common activities about environmental protection measures in Poland is waste segregation (Eurobarometer 2016).

The aim of this article is to present the results of research conducted among the inhabitants of the Municipality of Zawadzkie, located in Opole Voivodship. The study examined the relation between the level of environmental awareness and manifestations of environmental attitudes and behaviors.

MATERIAL AND METHODS

Ecological awareness is understood as an inner, deep understanding of the relationship between human being and the surrounding nature (Majchrowska 2013). It depends on the information and beliefs one has about the environment, the impact of the individual on the environment, and the relationship between the state and the quality of human life. Environmental awareness is shaped both in the process of formal education as part of the educational process, as well as through the observation and analysis of phenomena and events, or the environmental impact of the environment (local governments, NGOs, ecological education centers and people in the immediate vicinity).

Table 1. Survey questionnaire on ecological awareness of inhabitants of the Zawadzkie Commune

No.	Question	Answers	
1.	Place of residence:	O	Zawadzkie
		O	Kielcza
		O	Żędowice
2.	Age:	O	14 – 16 years old
		O	17-20 years old
		O	21 – 30 years old
		O	31 – 40 years old
		O	41 – 50 years old
		O	51 – 60 years old
		O	more than 60 years old
3.	Education:	O	primary
		O	lower secondary
		O	basic vocational
		O	upper secondary
		O	higher
4.	Socio-professional group	O	white-collar workers
		O	manual workers
		O	farmers
		O	entrepreneurs
		O	pupil/student
		O	other (what?)…….....
5.	Sex:	O	woman
		O	man
6.	What is your concern for the environment?	O	It is important and responsible matter
		O	It gives me satisfaction
		O	It is a daily duty
		O	it is difficult to implement

No.	Question	Answers	
7.	What motivates you to take measures to protect the environment?	O	Which „green" devices are installed in your home?
		O	energy saving light bulbs
		O	water consumption limiters
		O	heat drawers
		O	twilight light sensors
		O	none
8.	How often do you voluntarily resign from car use to public transport/bike/hiking trips?	O	every day
		O	often
		O	occasionally
		O	never
		O	I do not have that possibility
		O	this issue does not concern me
9.	Which „green" devices are installed in your home?	O	energy saving light bulbs
		O	water consumption limiters
		O	heat drawers
		O	twilight light sensors
		O	none
10.	What do you do with the medicines with expired date?	O	I throw them into the garbage
		O	I donate them to the special containers in the pharmacy
		O	I burn them in the furnace, fireplace
		O	I leave them in a prominent place in the trash
11.	How often do you use reusable bags when shopping?	O	every day
		O	often
		O	occasionally
		O	never
12.	When you buy different products, do you pay attention to their packaging?	O	Yes, I buy products only in reusable packaging
		O	Yes, I buy products only packed in recyclable package
		O	I do not pay attention to the packaging
		O	I buy products only in paper packaging
13.	Where do you get knowledge about the state and the protection of environment from?	O	media (press, radio, television)
		O	books
		O	school
		O	work
		O	internet
		O	office of the city / municipality
		O	environmental inspection
		O	Ministry of the Environment
		O	ecological organizations / associations
		O	actions and campaigns of environmental education
		O	other (what?) …….

No.	Question	Answers
14.	Do you think that the current education system provides students with sufficient information on environmental issues?	O yes O no O hard to say
15.	Are you involved in local environmental education, for example:	O „Clean Up the World” O picnics, ecological fests O competitions, olympics O collection of problematic waste (batteries, medicines, tires, used electrical and electronic equipment, etc.) O other (what?) …….
16.	Have you participated in outdoor activities/events/training/ workshops/meetings related to environmental protection during the last two years?	O yes O no O I don’t remember
17.	Would you devote your free time for actions to protect the environment?	O definitely yes O yes O rather not O definitely not O hard to say

Source: Own study.

The research method that was used was a questionnaire survey consisting of 17 closed questions (table 1) with a possibility in some of them to answer open question “Other (specify)” – which, however, was rarely used by the respondents. As regards ecological awareness, the following issues were verified: understanding the idea of caring for the environment, motives for taking pro-ecological actions, voluntary abandonment of car use for public transport, bicycle or hiking, installing pro-ecological devices at home, the use of reusable shopping bags during shopping, paying attention to product packaging, sources of knowledge about the state and ways of protecting the environment, activities of the current education system in this regard and last but not least the respondents were asked about their willingness to sacrifice their free time to undertake activities to protect the environment.

The research results presented in the article are based on surveys conducted among inhabitants of towns and villages of Zawadzkie Commune. The research took place in June 2017 and the research sample was selected at random. The research was conducted among 61 respondents, 32 of whom were inhabitants of the specified town, whereas the remaining 29% were rural residents. 56% of the respondents were women, and 44% were men. The study included all age groups; in terms of the structure of education, the study group was equally

diverse. Such multi-criteria variation of the research sample is conducive to obtaining a picture of reality.

RESULTS AND DISCUSSION

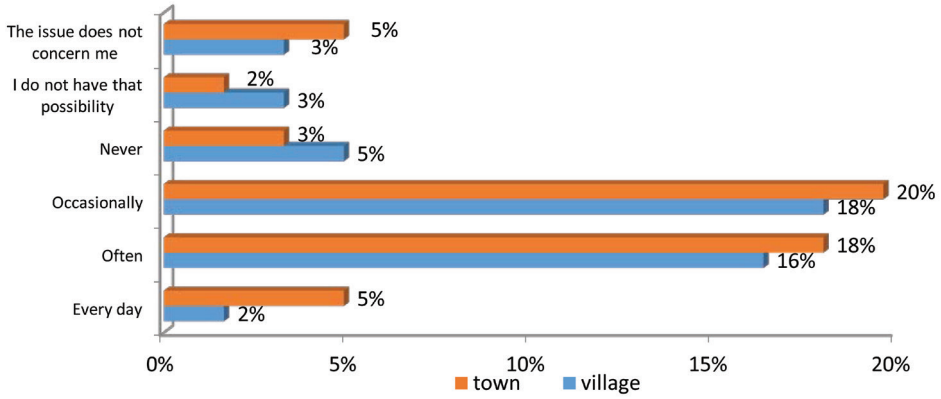
The inhabitants of the Commune were asked what commitment to the natural environment meant for them. Almost half (46%) of the respondents said that this was an important and significant issue. The satisfaction of the commitment to the natural environment and the awareness that this was an everyday duty of every person (28% in respect of each answer) were determined as reasons why the environment protection was perceived as important. None of the respondents considered this to be a difficult task. The responses lead to the reflection that taking care of the environment is not something unknown or irrelevant to the responders.

Next, the inhabitants of Zawadzkie municipality were asked about motives which motivate them to take measures to protect the environment. The results show the dominant role of economic motives (more than 42% of the indications), but it must be noted that also the social need was recognized (36% of the indications) as an equally important reason for taking care of the environment. Another 28% of the respondents declared that respect for nature was a cause in itself of taking measures to protect it. Eco-friendly consumers' attitudes are becoming increasingly frequent, recent research indicating that pro-environmental purchase behavior not only lowers costs in the long term, but also enhances business stakeholders' and consumers' confidence in high added value products and services (Kane, Chiru, Ciuchette 2012).

Based on the above-presented declarations, it may be assumed that this should translate into everyday environmentally friendly attitudes and behaviors, but is it in fact the case?

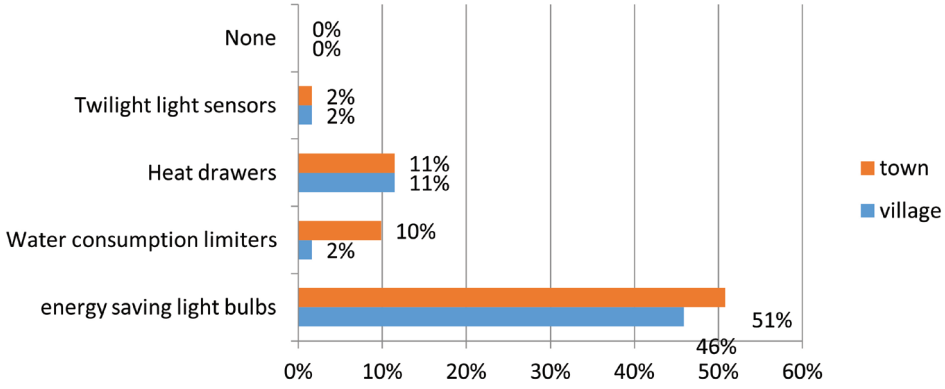
The respondents were asked about daily decisions and actions that are relevant to the environment, including the question about how often they voluntarily resign from using a car for public transport/bicycle/hiking? The obtained answers show that on a daily basis only a few respondents are willing to give up driving (7% of the indications), 5% of whom are town residents and only 2% are the inhabitants of the country (Figure 2). This is probably caused by the fact that there is usually offered a wider range of public transport options in towns, while in villages the possibility of using public transport is considerably less high because of fewer buses running and longer distances, especially when the villagers are increasingly commuting to work in town. It is harder for them to give up their own means of transport, which guarantees independence and flexibility in movement. The largest group of respondents (38% of the respondents in total, 20% from town and 18% of the villages) use eco-friendly transport solutions

sporadically, another 8% never do that, 5% do not have such a possibility and 8% of the respondents think that such a problem does not concern them. Therefore, there is a certain divergence between the declaration of environmental care and the daily pursuit of eco-friendly mobility solutions. It is also worth mentioning that the structure of the answers provided by the inhabitants of the town and the rural area does not differ significantly.



Source: Own study

Figure 2. Willingness to voluntarily resign from using a car for public transport/bicycle/hiking



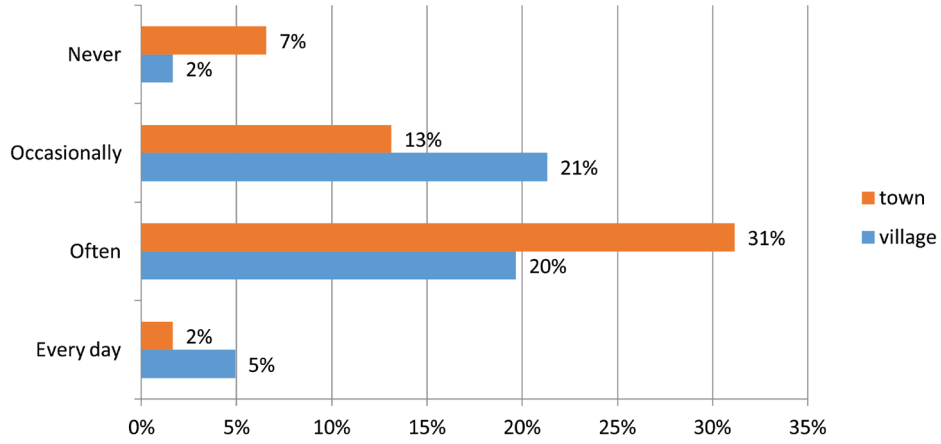
Source: Own study

Figure 3. "Pro-ecological" devices installed in the respondents' homes

When asked about "pro-ecological" devices installed in the respondents' homes, the most indications were energy saving light bulbs and heat drawers. It can therefore be presumed that the choice of these devices is primarily economical as the respondents were asked about energy saving light bulbs, etc. There was no significant difference between the town and country dwellers in this case, either (Figure 3).

Kane et al. conducted an interdisciplinary research on how social media (i.e. Facebook) can influence users' perceptions and buying behavior related to five categories of ecological products and services (eco-food, eco-tourism, eco-housing, eco-textiles and eco-beauty & cosmetics). This research investigates how ecological products and services could gain popularity and overcome the identified purchasing barriers, e.g. high prices, low awareness, low availability (Kane, Chiru, Ciuchette 2012). In the context of the obtained results, it is likely that the popularity of energy saving light bulbs and heat drawers will be linked to their availability on the market and a decrease in their prices.

Similarly, preference is given to questions asked when using reusable bags when shopping (Figure 4). Only 5% of the respondents from the country and 2% from town use them daily. Most respondents living in the town said "often" (31%), while only 20% of villagers act pro-ecologically on this issue. At the same time, however, many of them use reusable bags only "occasionally" or never (20% in the town and 23% in the country).

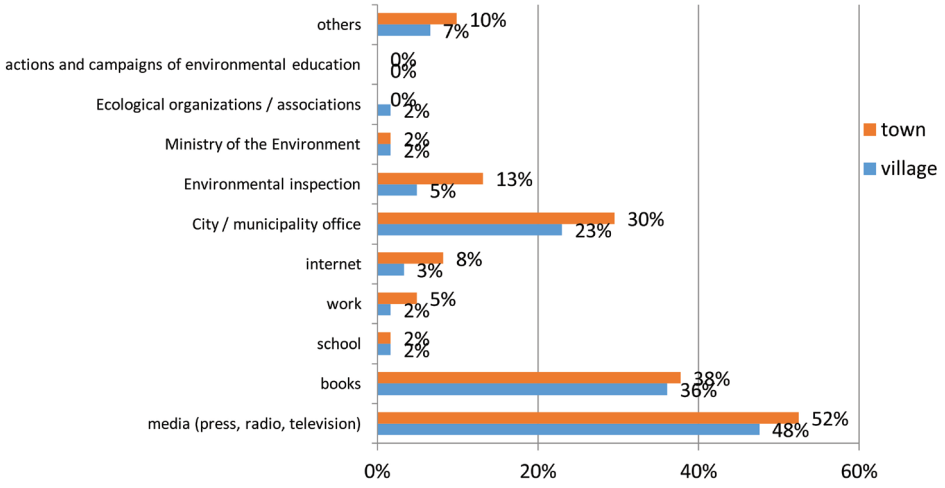


Source: Own study

Figure 4. The frequency of the use of reusable bags when shopping

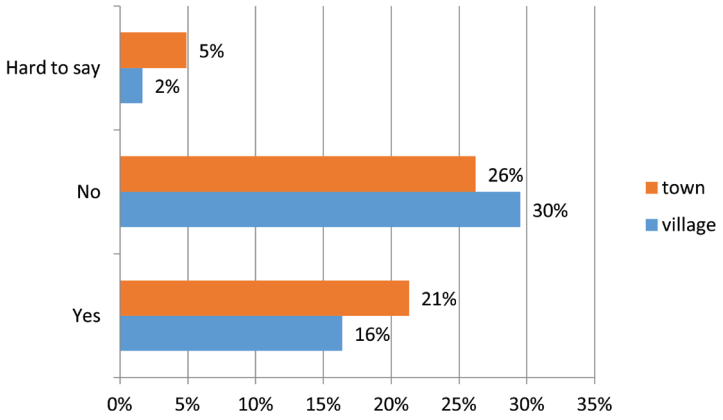
The media (press, radio, television) and the Internet have been the leading source of information on the state and protection of the environment. Such a result is not particularly surprising, as the media, and especially the Internet

have become the main medium of information in general. However, it is worth pointing out a small, marginal number of the indications for school as a source of information about ecology. Only 2% of the villagers indicated ecological organizations (Figure 5). The respondents were asked to comment on the current education system and whether they believed that students were sufficiently informed about environmental issues (Figure 6).



Source: Own study

Figure 5. Sources of knowledge on the state and protection of the environment



Source: Own study

Figure 6. The respondents' opinions on the current education system, whether it provides students with sufficient information on environmental issues

In the case of the education system, it is not advisable to draw too hasty conclusions, as opinions on the question of whether the current education system provides students with sufficient information about environmental protection are divided: more than half of the respondents answered negatively, but 37% said otherwise. Such a response structure may be due to the fact that most respondents are working people and although they may not be using the education system themselves, they also believe that schools have a role to play in communicating knowledge about ecology. It is worth underlining that the difference between the declared awareness and the pro-environmental actions which are undertaken appears in the majority of relevant research all over the world, both with reference to companies (Michniewska, Siwiec 2015) and individual inhabitants (Claudy, Peterson., O'Driscoll 2013; Terlau, Hirsch 2015). It is also of the situational character (McDonald, Oates, Alevizou, Young, Hwang 2012).

The results obtained in the course of the research are consistent with those published by the research company Partner in Business Strategies, which conducted research on the environmental awareness and behavior of Polish residents, which was ordered by the Ministry of the Environment. The results of these studies (TNS Poland Report for Ministry of the Environment 2014) indicate that among the various areas of activity of the state, the issues of health and safety are considered the most problematic by the majority of Polish society. There are no environmental issues included in this list. In comparison with previous years, Polish society considerably better assess the present state of the environment both all over the country and in their neighborhoods, but it depends primarily on the activity of everybody. As for the environment – almost "traditionally" – wastes, air and water pollution, as well as climate change are the most important issues. During the research, the Act on maintaining cleanliness in municipalities, which affected the opinions and behavior of Polish society, entered into force of the amendment. As a result, the people not only segregate waste more willingly and on a mass scale, but also better assess the current state of waste management. Among members of society the need to reduce greenhouse gas emissions is unquestionable and the majority think effective schemes must be implemented as soon as possible or in the near future. The respondents were convinced of individuals' responsibility for the state of the environment, although – regrettably – the popularity of consumer behavior supporting environmental protection was still limited. In Poland, environmental concern in most cases loses against the economic account and the society's trust in the Ministry of the Environment as well as a positive assessment of its actions systematically grows – this is undoubtedly related to the overall improvement of social moods.

CONCLUSIONS

The research results show that the environmental awareness of the respondents varies in the pool, but most of them declare that they are aware of their responsibility for the environment in which they live. The examined obtain the information about the state and protection of the environment from the media and the Internet. Their declarations of environmental awareness contradict the fact that care for ecology is most often manifested in non-systematic activities. It is in particular country-people who have the biggest difficulty giving up their private cars as a means of transport on a daily basis, because of the poor network of public transport. The most common home appliances used in the environment are connected with savings or lowering the cost of their use. The study did not show any major differences between the townspeople and the inhabitants of villages. The results obtained in the course of the research are consistent with both Polish and worldwide conclusions of numerous research on the environmental awareness and behavior in many countries.

Environmental awareness and knowledge alone do not guarantee proper attitudes and behavior, changes in this area are long-term and do not happen "overnight". Research has shown that while knowledge about ecology is not always reflected in the everyday attitudes and behaviors of the respondents, there has already been a big shift in the direction of ecology.

REFERENCES

Badanie świadomości i zachowań ekologicznych mieszkańców Polski. Badanie trackingowe – pomiar: październik 2014. Raport TNS Polska dla Ministerstwa Środowiska [in:] https://www.mos.gov.pl/fileadmin/user_upload/Badanie_swiadomosci_i_zachowan_ekologicznych_mieszkancow_Polski__badanie_trackingowe_2014_.pdf (date of access: 12.05.2017)

Bogner F.X., Wiseman M. (2002). *Environmental perception: Factor profiles of extreme groups*. [in:] EUROPEAN PSYCHOLOGIST, Volume 7, Issue 3, pp. 225-237.

Chua K.B., Quoquab F., Mohammad J., Basiruddin R. (2016). *The mediating role of new ecological paradigm between value orientations and pro-environmental personal norm in the agricultural context.* [in:] Asia Pacific Journal Of Marketing And Logistics, Volume 28, Issue 2, pp. 323-349.

Claudy M.C., Peterson M., O'Driscoll A. (2013). *Understanding the Attitude-Behavior Gap for Renewable Energy Systems Using Behavioral Reasoning Theory.* [in:] Journal Of Macromarketing, Volume, 33, Issue 4, pp. 273-287.

Climat Change, Special Eurobarometer 459 (2017). *Survey conducted by TNS political & social at the request of the European Commission, Directorate – General for Climate Action (DG CLIMA) Survey co-ordinated by the European Commission, Directorate – General for Communication* (DG COMM "Media monitoring and analysis" Unit), p.16.

Howard G.S. (1997). *Adapting human lifestyles for the 21st century* [in:] Ecological Psychology, pp. 55-56.

http://apps.webofknowledge.com.wos.han.uni.opole.pl/CitationReport.do?product=WOS&search_mode=CitationReport&SID=T1nWdvXVXdu7xs8dGJc&page=1&cr_pqid=1&viewType=summary&colName=WOS (date of access: 25.09.2017)

Iwata O. (2004). *Some psychological correlates of environmentally responsible behawior* [in:] Social Behavior And Personality, Volume 32, Issue 8, pp. 703-713.

Kane K., Chiru C., Ciuchette S.G. (2012). *Exploring the eco-attitudes and buying behavior of Facebook users.* The Amfiteatru Economic Journal, Vol. 14, Issue 31, pp. 157-171.

Kokkinen E. (2013). *Measuring environmental awareness in the world.* Lokakuu, University of Oulu, p. 53.

Majchrowska A. (2014). Świadomość ekologiczna i postawy wobec środowiska naturalnego wśród mieszkańców Lubelszczyzny. Kapitał Intelektualny Lubelszczyzny 2010-2013 [in:] http://www.kil.lubelskie.pl/wp-content/uploads/2013/08/%C5%9Awiadomo%C5%9B%C4%87-ekologiczna-i-postawy-wobec-%C5%9Brodowiska-naturalnego.pdf (date of access: 12.05.2017)

Mańkowska-Wróbel L. (2014). *Ekologiczne uwarunkowania zachowań konsumenckich*. Handel wewnętrzny 2014; 1(354), pp. 141-150.

McDonald S., Oates C. J., Alevizou P. J., Young C. W., Hwang K. (2012). *Individual strategies for sustainable consumption*, Journal of Marketing Management, vol. 28 (3-4), pp. 445-468.

Michniewska K., Siwiec P. (2015). *Analiza luki intencjonalno-behawioralnej w zakresie przestrzegania zasady zrównoważonego rozwoju przez firmy sektora MŚP, w szczególności w zakresie odpowiedzialności środowiskowej i przestrzegania ustawowych obowiązków w tym zakresie*, [in:] Logistyka Odzysku, październik – grudzień 2015, pp. 20-25.

Miguens M.J.L., Gonzalez P.A., Vazquez E.G., Rodriguez M.J.G. (2015). *Measures of Ecological Behavior and its Antecedents: Scales Conceptualization and Empirical Validation.* [in:] Universitas Psychologica, Volume 14, Issue 1, pp. 189-204 .

Moreno M., Corraliza J.A., Ruiz J.P., (2005). *Scale of environmental attitudes towards specific problem.* [in:] Psicothema, Volume 17, Issue 3, pp.502-508.

Nordlund A.M., Garvill J. (2002). *Value structures behind pro-environmental behavior.* (in:) Environment And Behavior, Vol. 34, Issue 6, pp. 740-756.

Terlau W., Hirsch D. (2015). *Sustainable consumption and the attitude-behavior-gap phenomenon – Causes and measurments towards a sustainable development*, International Journal of Food System dynamics 6 (3), 2015, pp. 159-174.

Tuszyńska L. (2014). *Edukacja i świadomość ekologiczna polskiego społeczeństwa* [in:] Edukacja Ustawiczna Dorosłych, Polish Journal of Continuing Education 3(86)/2014, pp. 54-64.

Shirley A. (2016). *Which are the worlds most environmental friendly countries.* [in:] https://www.weforum.org/agenda/2016/05/which-are-the-worlds-most-environmentally-friendly-countries [access: 25.09.2017]

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