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ECOLOGICAL AWARENESS AS A CONDITION OF INTRODUCING A BALANCED DEVELOPMENT ON A LOCAL SCALE

1. Introduction

An interest in balanced agriculture in the countries with highly developed economy is a consequence of critical assessment of intensive agriculture which is characterised by high specialization, mechanization and marked production concentration [Kuś 2005, s. 101]. In addition to high quality food production, the European society expects from modern agriculture to protect natural environment and landscape, thus to both produce goods and respect the environment. As a result, one can talk about multifunctional character of agriculture to include the diversity of economic, social and environmental roles which, as the society expects, the agriculture is to fulfil. The propagation of balanced and permanent development is postulated, the development being understood as a permanent improvement of the quality of life of present and future generations by means of proper shaping of the proportions between individual types of capital: economic, human and natural [Piątek 2001, s. 22]. The permanency means neither of vector elements should decrease during the development process in the ecological, economic, economic and social context [Borys 1999, s. 66]. In ecological, economic and social sense the development equilibrium can be interpreted as a process of adjusting economic, ecological and social structures, which aims at protecting nature and the human environment for the use of present and future generations, and accepting the value of nature as such [Środowisko... 1999]. Development shows signs of equilibrium and stability when it satisfies current needs without eliminating chances of satisfying them in the future [Brundtland 1987, s. 66].

According to Fotyma [2000, s. 3], balanced agriculture development occupies a very special place in an overall concept of society balanced development because agriculture is widely perceived as one of the main natural environment users. By contrast, Smagacz [2000, s. 41] believes that balanced or permanent agriculture is

oriented at the utilization of land resources which does not destroy their natural sources but, on the contrary, enables one to provide for basic needs of consecutive generations of producers and consumers. In the opinion of Michna [2000, s. 317], balanced agriculture simultaneously and harmoniously accomplishes production, economic, ecological and social goals. Without social and economic balance it is not possible to attain ecological balance in the long run.

In the case of farms it means that it is necessary to properly adjust both the directions and intensity of production to weather conditions. The following requirements ought to be met by balanced agriculture [Mizgalski 1998, s. 7; Fotyma, Kuś 2000, s. 120; Baum 2006, s. 33]:

- production of food raw material of high quality and in the adequate amount,
- application of environmentally-friendly production technologies,
- guaranty of the appropriate standard of life for the inhabitants of rural areas,
- maintenance and development of aesthetic and recreation values of rural areas,
- assurance of human and animal health and comfort.

All the functions complement one another rather than exclude, so they have to be accomplished in the atmosphere of mutual integration [Adamowicz 2000, s. 7]. Research carried out in the Institute of Cultivation, Fertilization and Soil Science in Pulawy has shown that, at the farm level, the main characteristics of balanced agriculture include: assuring permanent soil fertility; adjustment of production branches and directions, plant varieties, and animal breeds to natural as well as economic and organizational conditions; proper balance of organic matter and nutrients (fertilizer elements); integrated plant protection; complying to the standards contained within the Code of Good Farming Practice.

In order to accomplish the balanced development, it is important to prepare people for a new way of thinking, and develop their economic awareness and culture. A special role is ascribed to farmers as, due to the activity they are involved in, the farmers are directly connected with nature.

2. Ecological awareness

Ecological awareness is a part of social awareness which shapes human attitude towards the natural environment. It takes forms of convictions and is also manifested in the system of values which people employ in their relations with the environment [Albańska 2005; Wolański, Winiarska 2001]. Ecological awareness is a part of social awareness which is geared towards human-environment relations, develops in stages, and crystallizes at a speed typical for evolutionary maturing and adaptation [Kielczykowski 1999].

Other definition defines ecological awareness as a deep automatic-like understanding of an inseparable bond between man and nature, the dependence of human welfare on overall and relative unchangeability of human natural environment [Nowikov 1989, s. 17]. Burger [Burger 2001] points to one more significant ele-

ment – an attitude towards the environment – most generally defined as practical manifestation, and not only declaration, of one's ecological awareness. In turn, Mirosławski [1999 s. 34] thinks that ecological awareness is a set of appraisals, opinions, views and attitudes of man towards nature, typical of different categories of people and different social groups.

Ecological awareness fulfils many functions. Its contents are translated into practical rules applied in everyday life, and social life organization, and into shaping visions of the future.

The aim of the pilot studies undertaken was an attempt to determine ecological awareness of the inhabitants of two villages situated in the highly natural area.

3. Material and methods

The core of stable and balanced development paradigm requires full understanding of the environment as it is the place of farming and it fundamentally conditions this development. The main focus of the study was to recognise attitudes and opinions of farmers towards threats and problems of natural environment protection, and farming methods. The research was based on a standardized interview questionnaire prepared for 80 randomly chosen farmers – the owners of family farms. The sample is not representative for the whole of farmers in the gmina and the studies were pivotal in character. The core of the problem indicates the need of carrying out further studies on balanced agriculture at the level of the agricultural farm. Questions were grouped into the following thematic blocks: knowledge of the natural environment, farming methods, personal involvement in pro-environmental activity, and opinions on and assessment of the environment. Empirical studies were carried out in April and May of 2006. An in-person interview with the voits (a voit is the leader of gmina – the smallest unit of Polish administrative division) of the investigated gminas supplemented the material collected.

4. Research results

Forest complexes, constituting 27% of the area of Wodynie gmina, influence the environmental cleanliness. The diversified terrain, numerous historical buildings and many natural monuments create favourable conditions of the quality of the inhabitants' life and beneficial tourism and recreation conditions. In 1983 the "Kulak" floristic and landscape reserve was set up in the region on an area of 47 ha. A small peat bog found there is the only place in Central Poland where a rare species of great sundew can be found. The "Dąbrowy Seroczyńskie" forest reservoir, established in 1987 so as to preserve a unique forest complex whose area is 550 ha and which is dominated by sessile oak, is one of bigger reservoirs in Poland.

In the voit's opinion the unpolluted natural environment is the biggest asset of his typically agricultural gmina. Thus, protection of the natural environment's val-

ues and spatial development are the priorities of the region. At its disposal the gmina has got the environment protection fund. It also undertakes action oriented at encouraging the local society to formalize any activities on behalf of ecological development. Each household is obliged to sign a contract for waste disposal. Answering the question concerning "assessment of the natural environment on a one-to-five rating scale", the vojt's grade was "very good". He also mentioned the improvement of the natural environment's quality which had been taking place for the last five years. The gmina carries out projects pertaining to the protection and conservation of the natural environment's resources.

On the basis of the vojt's answers, especially those describing the activities aiming at protecting the natural environment, it can be inferred that both non-government ecological organisations and teachers working in primary and low-secondary schools actively participate in those activities.

There are seven villages where water is supplied by a water supply system. The solid waste disposal is also offered and the waste is disposed of at a newly opened gmina waste site.

The problem of wastewater was in part sorted out after a new wastewater treatment plant was built. Despite this a marked amount of untreated sewage contaminates local drainage ditches. To cope with it documentation has been prepared to build a pressure-gravity sanitary sewage system. The vojt believes that the following investments, important for the gmina inhabitants, will be carried out in the years to come: construction of two wastewater treatment plants, as well as a sewage disposal system and a water supply system in three localities.

A system of selective rubbish collection has been introduced to protect the environment. Moreover, natural monuments have been taken care of recently. The interviews carried out allow concluding that the gmina authorities plan many investments aiming at improving the state of natural environment.

Small farms oriented at production of raw material dominate in the gmina. There are 17 large farms, including 15 dairy farms and 2 pig-rearing ones. Also there are 3 agritourism farms.

The second gmina investigated – Skórzec – is well known in that it takes care of the natural environment. The problem of wastewater and rubbish disposal has been solved there. The infrastructure existing is environment protection-minded. The gmina has got a wastewater treatment plant and a sewage disposal system in Skórzec and Dąbrówka Ług. Household owners from the remaining localities use their own means of transport to take their sewage to the plant. There is also a gmina rubbish site for the use of inhabitants only. Within the gmina there exists an animal carcass disposal facility. 70% of gmina's households have got an access to a water supply system. In the vojt's opinion the initiatives undertaken have made it possible to obtain a satisfactory state of the natural environment in respect of water, soil and air protection. What is more, within the last 5 years the natural environment quality has improved.

Each household is obliged to sign a waste disposal contract. Initiatives undertaken to protect and conserve the natural and cultural environment that is an essential value of the studied gmina require a lot of determination on the local government side as the inhabitants are not active enough as far as such actions are concerned. Their ecological awareness is more related to their common knowledge. Thus, the need exists to organise training courses on the environment protection. Moreover, the education shaping ecological awareness should be initiated as early as in primary school.

Skórzec is a typically farming gmina in which small farms whose average area is about 7 ha predominate. Some farmers have set up specialized farms. The majority of them produce hen eggs, mushrooms, cereals, pig meat and milk.

5. Ecological knowledge

Ecological education gains more and more importance as threats increase. At present nobody can deny the statement that the education aiming at increasing ecological awareness is one of the fundamental conditions of the environment's status.

Men, who constituted 66%, dominated the group of surveyed farmers. The share of respondents with primary, vocational, secondary, and tertiary education amounted to: 2%, 35%, 55% and 8%, respectively.

In the research, the largest was the group of young farmers of up to 40 years of age (77%). It can be interfered from this that their farms will be lasting and developing enterprises.

The farmers surveyed who own up to 7 and over 7 hectares constitute, respectively, 45% and 55%. Among the examined family farms, the mixed specialization farms constitute 65%. Only animal or plant production farms constituted 25% and 10%, respectively.

The first set of questions pertained to the natural environment and the knowledge of technologies applied in balanced agriculture.

Answering the question "What factors constitute a threat to the environment within the gmina area?", over half the respondents mentioned illegal rubbish dumps and fertilizing cultivated fields with household sewage. The following threats were mentioned: private boiler rooms and spring grass burning. Among the factors degrading the environment, 58% of surveyed farmers, who were secondary or university educated people, enumerated mineral fertilization and plant protection agents.

The question "Is Poland rich in water?" produced the following answers: yes (45% respondents), yes but moderately (40%) and no (15% – people who notice water shortages). The majority of respondents (65%) notice the need for economical use of water. In the villages with a water supply system mainly economic reasons were mentioned by those in favour of water saving. Despite having an access to the water supply system, for economical reasons, some respondents keep using

water from farm wells. In such households only every third surveyed person notices the need to save water.

The respondents assessed their actions in respect of the natural environment. 75% of them believed they did their best to live and work so as not to harm the environment. Only a small number of farmers admitted not paying attention to whether their activities harm the environment they live in or not.

The research showed that, in the examined gmina, the natural environment status was assessed “very good” by as much as 85% respondents, and “good” by only 15%. No “acceptable” score was obtained.

The responses to the question of “Involvement in pro-environmental activity” were not very satisfactory, as only every fifth respondent would like to join social activities aiming at improving the environmental status in the place where they live.

The question “What does farm production by ecological methods mean?” could be answered by choosing four characteristics describing this method. Only one respondent mentioned all the four characteristics pertaining to ecological farming. 45% of the farmers associated it with an application of crop rotation and other natural cultivation methods, 80% mentioned organic fertilization, plant protection agents and animal feeding stuffs obtained by means of chemical synthesis, and 5% chose the selection of animal breeds and species, which takes into account their natural resistance. The remaining 5% mentioned the use of sowing material obtained from plants which were cultivated under the conditions of ecological production for one, or two growing seasons, in the case of multi-year plants.

The farmers surveyed are acquainted with the standards of Good Farming Practice, however, 55% respondents are less familiar with the issue of balanced development of agriculture.

The second set of questions pertained to farming methods. All the farmers know the soil quality class of their fields but none of them has its chemical composition determined.

The farmers surveyed have stated that they try to fertilize the soil by applying an adequate crop rotation which often includes papilionaceous plants and after-crops cultivated for green manure (85%). 55% of the respondents have declared they comply with the standards of correct cultivation.

In order to increase yields the farmers usually apply: organic fertilization (65% respondents), and mineral fertilization and pesticides (45%). Yet the average NPK rate per one hectare of arable land does not exceed 135 kg.

25% of respondents positively answered the question pertaining to “adjusting the selection of animal breeds and species to farming conditions”. All the farmers who described their farms as focused on animal production stated that they took care of the animals’ welfare, applied prophylactics and rarely called a vet.

Farm-made feeds are a base of feeding animals for 90% surveyed farmers. The milk producers (25% respondents) apply pasture feeding over the summer period.

Due to permanent bonds between agricultural production and the natural environment, the focus of the work has been to seek an answer to the question: "Do farmers perceive agriculture as one of the sources of environmental pollution?"

Almost 80% surveyed farmers have stated that agricultural production does not contribute to environmental pollution because, in the opinion of the respondents, production on their farms and in the region is not very much intensive. Moreover, they apply small amounts of chemical production agents. The farmers surveyed have mentioned an application of the standards of Good Farming Practice as an important issue, which may indicate the growth of their ecological awareness.

In turn, farmers noticing possible sources of threat to the environment have mentioned the following: small ecological awareness of farmers, and unskilled and incorrect utilization of chemical plant protection agents and mineral fertilizers.

6. Summary

The activity of local government is focused on improving and protecting the natural environment. The majority of farmers base their knowledge about the natural environment on common beliefs. Many farmers do not know enough about possible agriculture-derived sources of environmental pollution. As a result, there exists a need to carry out large scale training on balanced agriculture. Despite not being able to define balanced agriculture development, farmers apply some elements of this concept in both animal and plant production. Most farms surveyed carry out multi-directional production which means they comply to one of the standards of agriculture balanced development.

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ŚWIADOMOŚĆ EKOLOGICZNA JAKO WARUNEK WDRAŻANIA ZRÓWNOWAŻONEGO ROZWOJU W SKALI LOKALNEJ

Streszczenie

Działalność samorządu terytorialnego ukierunkowana jest na poprawę i ochronę środowiska naturalnego. Wiedza o środowisku przyrodniczym u znacznej części rolników była oparta na potocznych sądach i informacjach. Wielu rolników nie ma dostatecznej wiedzy o możliwych źródłach zanieczyszczenia środowiska pochodzących z produkcji rolniczej. Istnieje zatem potrzeba szeroko zakrojonych szkoleń z zakresu rolnictwa zrównoważonego. Rolnicy, pomimo nieznajomości definicji zrównoważonego rozwoju rolnictwa, stosują pewne elementy tej koncepcji w odniesieniu do produkcji zarówno zwierzęcej, jak i roślinnej. W większości ankietowanych gospodarstw prowadzona jest wielokierunkowa produkcja, a więc zasada zrównoważonego rozwoju rolnictwa jest przestrzegana.