

**Izabela Wielewska**

*University of Technology and Life Science, Poland*

## **ECOLOGICAL INVESTMENT PROJECTS IN THE SCOPE OF ACTIVITY OF AGRIBUSINESS ENTERPRISES – SELECTED ISSUES**

### *EKOLOGICZNE PROJEKTY INWESTYCYJNE W DZIAŁALNOŚCI PRZEDSIĘBIORSTW AGROBIZNESU – WYBRANE ZAGADNIENIA*

**Key words:** ecological investment, agribusiness, innovation, environmental protection, capital expenditure

*Słowa kluczowe:* inwestycje ekologiczne, agrobiznes, innowacje, ochrona środowiska, nakłady inwestycyjne

**Abstract.** The present paper presents selected issues concerning the realization of ecological investment projects in agribusiness enterprises. The study was conducted in January 2013 among 75 agribusiness companies in Pomorskie (Pomeranian) and Kujawsko-Pomorskie (Kuyavian-Pomeranian) provinces. A survey was used as a research tool. The research showed that companies often implemented a comprehensive investment, not only on one ecological aspect. The survey includes 75 agribusiness enterprises based in Pomorskie (Pomeranian) and Kujawsko-pomorskie (Kuyavian-Pomeranian) Provinces. Investments concerning the realization of innovative projects in the field of ecology serve environmental protection. Such investments ought to be carried out frequently since toxins emitted into the environment, water and soil cause environmental degradation. This applies particularly to industry, municipal services, agriculture, forestry, water management, energetics, transport and households.

### **Introduction**

There is an increasing interest in company responsibility for the state of the natural environment, agribusiness enterprises included. Gajdzik [2006] notes that in order to enforce responsibility, many laws, standards and norms, organizational procedures, environmental programmes and environmental policies have been enforced. In addition, many committees have been set up and there is access to information about environmental protection. Therefore, modern companies focus on certain issues of sustainable development – the pursuit of a manner of business activity that encompasses dynamic growth of quality production processes or management systems, while preserving high standards of living [Leszczyńska 2007]. In practice, this means a balance of profits and losses with reference to three areas: the economy, society and environment. The concept of sustainable development aims at preventing negative processes from taking place in the environment, and requires social acceptance of the functioning of businesses. Ventures undertaken within businesses may be corrective or preventive. In many companies, investment projects have been launched in order to gather, reduce, dispose of, prevent or eliminate pollution or other environmental loss resulting from the activity of the company [Lusawa 2012m Takács-György, Sinka 2011]. In this study, information concerning the investment activity of companies within the scope of environmental protection was collected and compared.

### **Material and methods**

Research analysis was carried out on the basis of a survey conducted in January 2013. The subject of the research was to present the extent to which agribusiness companies have undertaken ecological investment projects. The focus group included 75 agribusiness companies from Pomeranian and Kuyavian-Pomeranian Provinces. The target companies (having undertaken eco-investments) were emailed survey questionnaires, comprising mostly of open or half-open questions. The survey was aimed at small, medium and large businesses that have undertaken

ecological investments. There were 27 small companies (10-49 employees), accounting for 36% of the total, 32 medium-sized companies (50-249 employees), accounting for 42.7% of the total and 16 large companies (over 250 employees), accounting for 21.3% of the total. The survey excluded micro-businesses (up to 9 employees). Out of the total number of surveyed companies, 52 (69.3%) were established after 1989, comprising mostly of small and medium-sized businesses. Another 30.7% of the companies, in operation before 1989, were mostly large businesses.

## Results

Generally, eco-investments aim at: soil protection, rational water management in terms of economy, water pollution protection, reduction of gases and pollution into the atmosphere, sorting out issues of the municipal's economy and land-use planning [Kozłowski 1997]. These protective actions bring about an improvement in the natural environment as well as social and economic effects [Mazur-Wierzbicka 2006]. The social results of environmental protection include: improving or maintaining the existing quality of life by ensuring an undisturbed functioning of the environment [Burchard-Dziubińska 1998]. In turn, the economic effects of undertaking protective action in agribusiness companies by implementing eco-investments are: the elimination or reduction of financial loss due to damage prevention of environmental components, reduction of the cost of goods' production as well as an increase in economic availability of environmental resources. [Kicińska 1997].

Company undertakings should focus on the following areas:

- implementing an eco-friendly manner of production which allows for the reduction of energy and material usage as well as fees and environmental taxes where possible,
- introducing a method of distribution which ensures the use of the same channels to recycle waste [Famielec 2005],
- the product itself – a product encompassing environmentally-friendly features such as the minimization of global warming, the effective use of natural resources and the proper management of chemicals [Adamczyk, Nitkiewicz 2007].

Eco-investments may be divided into substantial eco-investments (ecological technologies, e.g. high-tech) and investments aimed at economizing resources as well as the protection of the environment [Dziawgo 1998].

Table 1. Motives for undertaking ecological investments in surveyed companies

*Tabela 1. Motywy realizowania inwestycji ekologicznych w badanych firmach*

Motives/ <i>Motywy</i>	Number of answers/ <i>Liczba odpowiedzi</i>	Share <i>Udział [%]</i>
Meeting the needs of the local environment/ <i>Zaspokojenie potrzeb otoczenia</i>	21	28.0
Obligation of paying fines and fees for environmental pollution/ <i>Konieczność płacenia kar i opłat za zanieczyszczanie środowiska</i>	46	61.3
Increase in company competitiveness by producing goods in line with respect for the natural environment/ <i>Zwiększenie konkurencyjności przedsiębiorstwa poprzez wytwarzanie produktów z poszanowaniem środowiska naturalnego</i>	40	53.3
Meeting the needs of those consumers who seek products less harmful for the environment/ <i>Zaspokajanie potrzeb konsumentów, którzy poszukują produktów mniej uciążliwych dla środowiska</i>	17	22.7
Necessity to comply with EU directives/ <i>Konieczność dostosowania do wymogów narzuconych przez UE</i>	63	84.0
Will to protect the environment/ <i>Chęć ochrony środowiska</i>	15	20.0

Source: own study

*Źródło: opracowanie własne*

The ecological effects of pro-environment investments in agribusiness companies should include: improvement in the quality of the environment, re-use of waste, minimization of the amount of waste being stored at landfills, attainment of an appropriate level of water cleanliness, elimination of excess concentrations of dust pollution in the atmosphere, elimination of excess concentrations of gas pollution in the atmosphere, reduction of the penetration of sewage containing raw fats and salts into the soil and ground waters as well as improvement of the quality of life of the local population [Wielewska 2005].

The first essential issue of the study was to specify the motives that led agribusiness companies to take the step of undertaking eco-investments.

The motives for undertaking eco-investments in the company varied (Tab. 1). The study showed that the environmental aspect, conducive to the realization of innovations in agribusiness companies, was not an enterprises' main motive, since only 20% of the surveyed companies took it into consideration. The highest number of companies (84%) highlighted EU-imposed directives and laws as a motive. Another 61.3% of surveyed companies decided to introduce ecological investments due to fear of paying fines and fees for pollution. Fewer companies pointed out the will to increase the company competitiveness by producing its goods in line with respect for the natural environment – 53.3%. Meeting the needs of the local environment was a motive for 28% of companies. Satisfaction of consumers who seek products less harmful to the environment was one of the motives for 22.7% of companies.

The size of the ecological investments undertaken by the surveyed companies varied (Table 2) from small modernization processes (20%), to medium-sized (50.6%) and large investments and improvements (26.7%). Ecological improvements introduced in the companies concerned both products and processes in terms of resource economization, recycling and the use of substitute materials.

The data in table 3 show that the companies often introduced complex investments concerning more than one ecological aspect. In the field of water protection, there were investments in progress in 54 companies (72%). They included building or improving sewage processing plants and sub-plants, sewage networks, cooling and condensation installations for boilers as well as devices for processing and recycling sewage matter.

Research shows that investments in the field of air protection were introduced in 36 companies (48%). These improvements include: filters and electro-filters, gravitational devices for separation and devices for the neutralization of gaseous pollution, such as: ventilation gas condensers, absorption filters and systems for collecting and condensing steam.

Table 2. Size of the eco-investments undertaken, as estimated by the surveyed companies

Tabela 2. Rozmiar przeprowadzonych inwestycji ekologicznych w ocenie badanych

Size of investment/ <i>Rozmiar inwestycji</i>	Number of answers/ <i>Liczba odpowiedzi</i>	Share <i>Udział [%]</i>
Extra Large/ <i>Bardzo duża</i>	12	16.0
Large/ <i>Duża</i>	8	10.7
Medium/ <i>Średnia</i>	38	50.6
Small/ <i>Mala</i>	15	20.0
Difficult to say/ <i>Trudno powiedzieć</i>	2	2.7
Total/ <i>Ogółem</i>	75	100.0

Source: own study

Źródło: opracowanie własne

Table 3. Areas in which eco-investments were undertaken

Tabela 3. Obszary, w których prowadzono ekoinwestycje

Areas/ <i>Obszary</i>	Number of answers/ <i>Liczba odpowiedzi</i>	Share <i>Udział [%]</i>
Sewage management/ <i>Gospodarka ściekami</i>	54	72.0
Air protection/ <i>Ochrona powietrza</i>	36	48.0
Lithosphere protection/ <i>Ochrona litosfery</i>	48	64.0
Noise and vibration protection/ <i>Ochrona przed hałasem i wibracjami</i>	14	18.7

Source: own study

Źródło: opracowanie własne

Table 4. Problems with the introduction of investments  
*Tabela 4. Problemy przy wdrażaniu inwestycji*

Problems/ <i>Problemy</i>	Number of answers/ <i>Liczba odpowiedzi</i>	Share/ <i>Udział [%]</i>
Acquisition of funds for the investment/ <i>Pozyskanie środków finansowych na nakłady inwestycyjne</i>	62	82.7
Choice of energy-efficient, material-saving and waste-free technologies of production/ <i>Wybór energo- i materiałoszczędnych oraz bezodpadowych technik i technologii wytwarzania</i>	12	16.0
Change of staff attitude to the matter of environmental protection/ <i>Zmiana mentalności załogi w aspekcie ochrony środowiska</i>	10	13.3
Length of the investment process/ <i>Długość procesu inwestycyjnego</i>	18	24.0

Source: own study

*Źródło: opracowanie własne*

Investments concerning soil protection introduced by the surveyed companies concerned the installation of devices for waste sorting, neutralization and thermal sterilization as well as building a waste incinerator and appointing landfills for industrial waste. These investments were introduced in 48 companies (64%).

As far as noise and vibration protection is concerned, investments were introduced by 14 companies (18.7%). Among others, buildings were installed with acoustic screens alongside cushioning devices as well as sound-proof windows and silencing constructions.

The biggest problem (Tab. 4) for the surveyed companies was the acquisition of funds for investment expenditures. According to the statistical definition, investment expenditure is a financial or substantial expenditure, which aims at the production of new fixed assets or improvement (reconstruction, expansion, modernization) of existing objects of fixed assets as well as expenditure for so-called first furnishing of the investment [Kusz 2011]. The problem of financing the investment project concerned 62 companies (82.7%).

Another problem was the duration of the introduction of eco-investments. This was an issue for 18 companies (24%). For another 12 companies (16%), the problem was the choice of energy-efficient, material-saving and waste-free technologies of production. Also, the change in staff attitude caused a problem for 13.3% of the companies and primarily concerned the economic management of raw materials.

## Conclusions

According to modern economy, natural resources are economic goods and maintaining natural capital through environmental protection is a condition of stable and sustainable development [Rzeńca 2009]. This also applies to companies. Pro-ecological investments counteract or prevent the harmful impact of various factors which cause environmental pollution and changes to its physical features or the character of the environment's elements. This means that such investments have to be introduced. The presented research on the implementation of eco-investments in 75 companies agribusiness conducted in Pomorskie (Pomeranian) and Kujawsko-Pomorskie (Kuyavian-Pomeranian) provinces in January 2013 using a questionnaire as a research tool. The study showed that companies often introduced complex investments focusing on more than one ecological aspect. These investments related to water management (54 plants), air protection (36 companies), waste management (48 firms) and protection from noise and vibration (14 companies).

The main barriers that the surveyed firms encountered in the implementation of eco-investment were the acquisition of financial resources (62 companies), and time-consuming implementation process (18 companies). The investments contribute to elimination of pollution from technological processes as well as interception and neutralization of pollution and risk. Agribusiness companies should undertake preventive actions to eliminate pollution sources, thus neutralizing the harm inflicted to the environment.

## Bibliography

- Adamczyk J., Nitkiewicz T. 2007: *Programowanie zrównoważonego rozwoju przedsiębiorstw*, PWE, Warszawa, s. 94.
- Burchard-Dziubińska M. 1998: *Ekologiczne i ekonomiczne aspekty restrukturyzacji przemysłu*, WSiE, Białystok, s. 130-131.
- Dziawgo L. 1998: *Pozyskiwanie kapitałów osób fizycznych na rynku finansowym w celu ochrony środowiska naturalnego*, Uniwersytet Mikołaja Kopernika w Toruniu, Toruń, s. 38.
- Famielec J. 2005: *Zrównoważony rozwój w zarządzaniu strategicznym przedsiębiorstwa*, [W:] *Integracja problemów środowiskowych i teorii zrównoważonego rozwoju w systemie zarządzania przedsiębiorstwem*, Materiały II Międzynarodowej Konferencji Naukowej, Białystok, s. 86-95.
- Gajdzik B. 2006: *Zarządzanie przedsiębiorstwem a ochrona środowiska*, *Ekonomika i Organizacja Przedsiębiorstwa*, nr 10, s. 49-55.
- Kacińska B. 1997: *Atlas zagrożeń i ochrony środowiska geograficznego Polski*, Wyd. Kram, Warszawa, s. 10.
- Kozłowski S. 1997: *W drodze do ekorozwoju*, PWN, Warszawa, s. 186.
- Kusz D. 2011: *Regionalne zróżnicowanie nakładów inwestycyjnych oraz poziom wsparcia publicznego inwestycji w rolnictwie polskim*, *Zesz. Nauk. SERiA*, t. XIII, z. 3, s. 163-167.
- Leszczyńska A. 2007: *O generacjach zarządzania środowiskowego*, *Ekonomika i Organizacja Przedsiębiorstwa*, nr 11, s. 29-33.
- Lusawa R. 2012: *Influence of investments of communes on the state of local economies, the living standard and the level of inhabitants' satisfaction, and budgets of communes of Mazowieckie Province*, *SERiA Annals*, vol. XIV, no. 6, pp. 158-163.
- Mazur-Wierzbicka E. 2006: *Wdrażanie systemu zarządzania środowiskowego*, *Ekonomika i Organizacja Przedsiębiorstwa*, nr 3, s. 55-60.
- Rzeńca A. 2009: *Ochrona przyrody warunkiem trwałego i zrównoważonego rozwoju*, [W:] A. Jewtuchowicz, A. Rzeńca (red.), *Współczesne wyzwania miast i regionów*, Wyd. Uniwersytetu Łódzkiego, Łódź, s. 103-116.
- Takács-György K., Sinka A. 2011: *Role of agricultural innovation in reducing the environmental burden*, *SERiA Annals*, vol. XIII, no. 6, s. 222-227.
- Wielewska I. 2005: *Efekty stosowania polityki środowiskowej w przedsiębiorstwach na przykładzie branży przetwórstwa żywności*, [W:] *Integracja problemów środowiskowych i teorii zrównoważonego rozwoju w systemie zarządzania przedsiębiorstwem*, Materiały II Międzynarodowej Konferencji Naukowej, Białystok, s. 328-334.

## Streszczenie

Przedstawiono wybrane zagadnienia dotyczące realizacji ekologicznych projektów inwestycyjnych w przedsiębiorstwach agrobiznesu. Badania przeprowadzono w styczniu 2013 r. wśród 75 przedsiębiorstw agrobiznesu z województwa pomorskiego i kujawsko-pomorskiego. Zastosowanym narzędziem badawczym był kwestionariusz ankiety. Z badań wynika, że przedsiębiorstwa często wdrażały inwestycje kompleksowe, dotyczące nie tylko jednego aspektu ekologicznego. Inwestycje dotyczące realizacji projektów innowacyjnych z zakresu ekologii służą ochronie środowiska. Muszą być one często przeprowadzane, gdyż w wyniku emisji szkodliwych składników do atmosfery, wody i gleby powodują pogarszanie się stanu środowiska. Dotyczy to przemysłu, gospodarki komunalnej, rolnictwa, leśnictwa, gospodarki wodnej, energetyki, transportu oraz gospodarstw domowych.

Correspondence address  
dr Izabela Wielewska  
University of Technology and Life Science  
Department of Agrotechnology  
Institute of Economics and Counselling in Agribusiness  
Kaliskiego 7/3.1 St.  
85-789 Bydgoszcz, Poland  
phone: +48 600 822 486  
e-mail: izabel2000@wp.pl