

Ecological Awareness at the Age of Developed Technology in the Example of the Restructuring of a Medium-sized Enterprise “X”

Aleksandra Gąsior

Dr, Department of Microeconomics, Institute of Economics,
Faculty of Economic and Management, University of Szczecin

Introduction

Scientific and media reports on the constantly deteriorating state of natural human surroundings force contemporary society to search for more effective ways of caring for the environment that are currently available. Living in harmony with nature requires taking action in at least three areas (Majchrowska 2013):

1. Natural and technological sphere.
2. Political and social activities, legal and economic activities.
3. Popularization activities concerning individual and social awareness (Frątczak 1995).

The enterprise environment – both micro and macroeconomic – tries to respect the above-stipulated areas through active measures, aiming to achieve harmony. One might presume that human beings are fully aware of how big a role nature plays in the proper functioning of the life of man and nature, as well as in economic life. Unfortunately, constant reports from the economic world, which is controlled by humans, cast a doubt on that presumption.

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This chapter will discuss the problems faced by restructured enterprises in terms of ecological aspects and the pro-ecological measures they undertake for the improvement or prevention of any deterioration of an enterprise's nearest natural surroundings.

An attempt was made in the paper to analyse the activities of a purposefully chosen medium-sized enterprise, "X"¹, which within the scope of conducting permanent restructuring, focusing on its fixed assets, impacts the natural environment. The fundamental question that at this point needs to be posed is whether the employees, together with the management personnel, are aware of these activities. The following deliberations should answer that question.

Methodology

At present, the performance of restructuring activities is of permanent nature, as R. Borowiecki (2010) and R. Borowiecki and A. Jaki (2015) rightly observed. It is worth noting that permanent restructuring, constituting a thorough change, is an answer to the turbulent environment, which is increasingly less predictable, while every enterprise, be it small or large, must still be able to function in it.

However, it is hard not to notice that it is easier to pinpoint the exact dates set for the fulfilment of restructuring processes in large enterprises (which results from their structure and greater formality of works called for in that kind of enterprise, but also from their obligations to a large stakeholders' group), than in medium-sized enterprises. Significant differences occur in the approach to ecological aspects: large enterprises implement programmes especially dedicated to ecological issues, and they establish departments responsible for environmental protection. Medium-sized enterprises, even though they undertake activities for environmental protection, do not articulate it in their strategy or operations policy, but oftentimes they do it involuntarily. It is not due to their unwillingness or inaction, but rather because they lack the need to incorporate it in the strategy of enterprise operations, which is reflected in the case of an example company, "X", presented below. The described differences inspired the author to deliberations concerning the restructuring of fixed assets and the use of modern technology in the company's economic activity. Therefore, the fundamental objective of the paper is to evaluate the awareness, of both the employees and the management of company "X", of the impact of technology on the pro-ecological decisions taken in the restructured enterprise.

It corresponds to the above-listed areas: natural and technological activities as well as popularization activities in respect of individual and social awareness.

An attempt at answering the following, more detailed questions will be helpful in achieving the main objective of the paper, namely:

1. Do the employees as well as the management demonstrate ecological awareness?
2. Does the technology employed in the production process performed by company “X” have a positive impact on the natural environment?
3. Can the entire process of operations be considered as pro-ecological activity or only its individual stages?
4. Do the employees perceive the conducted restructuring process as pro-ecological activity in the company?

The results of a survey conducted on large enterprises in 2014, which will serve for the comparison of results of a survey conducted at company “X” in 2016, will be helpful in an attempt to answer the questions posed above.

It needs to be emphasised that the survey of 2014 concerned the evaluation of pro-ecological restructuring for employment. A research sample included large enterprises (defined as those employing more than 249 people), which underwent or were in the course of undergoing restructuring. Out of 1677 enterprises that constituted a research group, complete surveys were obtained in the research period from 120 companies. Mostly companies from the following four sectors took part in the survey: mining industry; industrial processing; generation and supply of electrical energy, gas, water; sewage and waste management as well as operations related to reclamation. The reason for the selection of companies from those sectors was a significant (undesirable) impact that business activities conducted by the enterprises from those sectors have on the natural environment.

It is believed that a comparison of the research results ought to be interesting because of the possibility of comparing the obtained average values from the replies of large enterprises with the results of a medium-sized enterprise, “X”. The choice of the entity was intentional, on account of it being part of the “industrial processing” sector as well as the activities undertaken by the entity.

The results of observations and in-depth interviews will be used for the purpose of deepening the comparative analysis, aiming at answering the questions posed.

Short History and Activities of Enterprise “X”

Enterprise “X” is a medium-sized company operating in the industrial processing sector for over fourteen years and with a fully Polish capital. The organisational and legal form of the entity is a limited liability company. Enterprise “X” is a manufacturing company, whose core business activity is manufacture of workwear according to the Polish Business Activity Classification. Additionally, company “X” provides laundry and repair services, and rents utility rooms and production machines. During the research period, over 90 people were

employed by the company. The idea for this type of operation was taken from western countries, where people started paying attention much earlier than in Poland to the quality of the clothes in which a labourer works, to the method of its cleaning and most importantly to transferring a part of the company's activity outside by way of commissioning the service (clothes outsourcing).

In order to ensure a better evaluation of the employees and management of enterprise "X", it is worth focusing on the scope of enterprise "X"'s activities (manufacture of workwear). First of all, a diagram of the process of the service rendered by the company will be presented, which was devised on the basis of the observations conducted in the company (Diagram 1).

It must be emphasised that the process of manufacture of workwear by company "X" requires suitably, individually selected fabrics, specialised for each customer, preceded by consultancy, in order to ensure the right choice of a proper cut and garments. Apart from a personalised cut, the clothes also feature a label identifying the customer's employee.

The provision of clothes rental and servicing requires the following activities, ensuring high quality and the improvement of the competitive position that company "X" holds in the market:

- 1) *Water cleaning.* Proper washing technologies ensure the cleanliness and aesthetics of the final effect of the service. It is important to maintain suitable properties of the washed assortment in terms of colour, fabric resistance or their technical parameters, to which the company pays special focus and which it guarantees. For the purpose of the service the company uses agents that are safe to humans, clothes and the environment, which is guaranteed by a permit held by the enterprise from the National Institute of Hygiene in Warsaw and the opinion of the Children's Memorial Health Centre Institute in Warsaw. The process is under constant supervision and control by qualified technologists. Water cleaning is completed

Contract signing → consultancy regarding individual customer needs → manufacture of clothes → delivery of lockers for storage of clean clothes and lockers for dirty clothes → constant care over contract fulfilment and systematic exchange of dirty clothes to clean clothes after its washing, maintenance and repair → generation of documentation evidencing the acceptance-delivery process → systematic reporting of servicing → settlement of the service rendered according to the terms agreed upon in the contract

Diagram 1: The process of clothes: production, rental and servicing at enterprise "X".

Source: Own work on the basis of active observation.

with a Tunel Finisher machine, which smoothes out, extracts dust from and disinfects washed garments. For the customers from pharmaceutical companies, on account of their requirements, apart from washing and drying, the company also offers the service of airtight packaging.

- 2) Footwear disinfection. Footwear is disinfected with the use of a bactericidal device.

Additional activities of the basic process (of clothes rental and servicing) include:

1. Storage of customer's unused clothes.
2. Handling of claim notices.

Apart from the composite services of clothes rental and servicing, another asset of company "X" concerns the sales offer of industrial safety articles.

It worth emphasising that company "X" is one of very few companies with Polish capital, and although it is categorised as a medium-sized enterprise, it is one of the major companies in its sector.

Research Results

Before the deliberations on the survey results and on company "X" operations are presented, it must be stressed that multiple definitions can be found in the literature (Borowiecki and Jaki 2015; Borowiecki and Wysłocka 2012; Myers 1977; Karpiński 1986; Sadzikowski 1989; Falińska in Rudek 1992, Jsiński 1992; Kowalczyk-Jakubowska and Malewicz 1992; Szulc in Kukliński 1993; Chomątowski 1994; Pełka 1994; Czapiewski and Kreft in Borowiecki 1994; Jagoda and Lichtarski 1994; Kamela-Sowińska and Mirecki 1995; Stabryła 1995; Sapijaska 1996; Nalepka 1997; Wanielista and Miłkowska 1998; Durlik 1998; Nalepka 1998; Malara 1998; Gabrusewicz 1999; Nogalski and Waśniewski 1999; Belka and Pietrewicz in Mączyńska 2001; Malara 2001; Romanowska 2004; Stabryła 2005; Lachiewicz and Zakrzewska-Bielawska 2005) for restructuring in Poland from the onset of transformations through the present day. Nevertheless, for the purpose of the research, the definition of S. C. Myers (1977) was adopted, which continues to reflect well what the process of restructuring is for an enterprise. In turn, the definition of ecological awareness was taken from J. Penc (2003), which was supplemented with the approach of, inter alia, K. Niziołek (2004), J. Frątczak (1995) or A. Papuziński (2006).

During passive observations, the knowledge of processes performed in the enterprise was deepened, particularly regarding the processes related to the functioning of labourers' work positions. In order to reply to the questions posed in this paper, active observation and interviews were employed. Three conversations were conducted with the company's management representatives and

with employees, which gives a total of over 47 interviews of a non-categorised, open and individual nature.

Before evaluating the ecological awareness of the employees and management of company “X”, first of all, the survey results will be presented concerning the decision taken by the examined enterprise regarding restructuring in a turbulent environment for technological reasons. This will enable a preliminary assessment as to which of the determinants played the most significant role in making that decision.

As previously mentioned, results of the survey conducted in company “X” will be compared with the survey results for all of Poland that was conducted in 2014.² (Chart 1).

The following determinants characterising technological aspects were chosen for the survey: state/enterprise expenditure on research and development; the speed of modern technologies transfer; level of transport development; frequency of new products appearing; new trends of changes in tackling business challenges, mobile technologies; degree of industry technical modernity; new inventions and scientific development; possibilities and cost of knowledge and technology transfer; life cycle of goods and the speed of technological changes.

After calculating a weighted average for large enterprises, the results of which are presented in Chart 1, it occurred that the most significant factor for them was the degree of transport development when deciding on the conduct of enterprise restructuring. In the case of the analysed enterprise “X”, the major factor that helped make the decision to restructure entailed the speed of modern technologies transfer. In the comparison of the obtained results, in the case of large enterprises the speed of modern technologies transfer ranked only in fourth place, with a weighted average of 8.78, to which an interviewed representative of company “X” assigned a weight of 6 and it was the highest weight for the factors in the area of technology. From the evaluation of enterprise “X”, it follows that the technological aspect of a turbulent environment was not too significant in the making of the decision to restructure. Contrary to large enterprises, the above-mentioned factors were not attributed with equally high significance, quite the reverse; they are typically smaller by more than a half. In the case of a medium-sized enterprise it may mean difficulties with investing in technology or in relatively high-quality equipment, so that it does not constitute the main driving force of restructuring.

In search for an answer to the basic question posed in the paper concerning the ecological awareness of both the employees and management of enterprise “X”, which undergoes permanent restructuring with a particular focus on fixed assets, the answers will be formulated on the grounds of the conducted observations and in-depth interviews.

In the interviews conducted with the company’s co-owner, the following areas shaping the ecological awareness of the analysed company were identified:

- 1) The knowledge of the processes taking place in the enterprise as well as their impact on the environment.

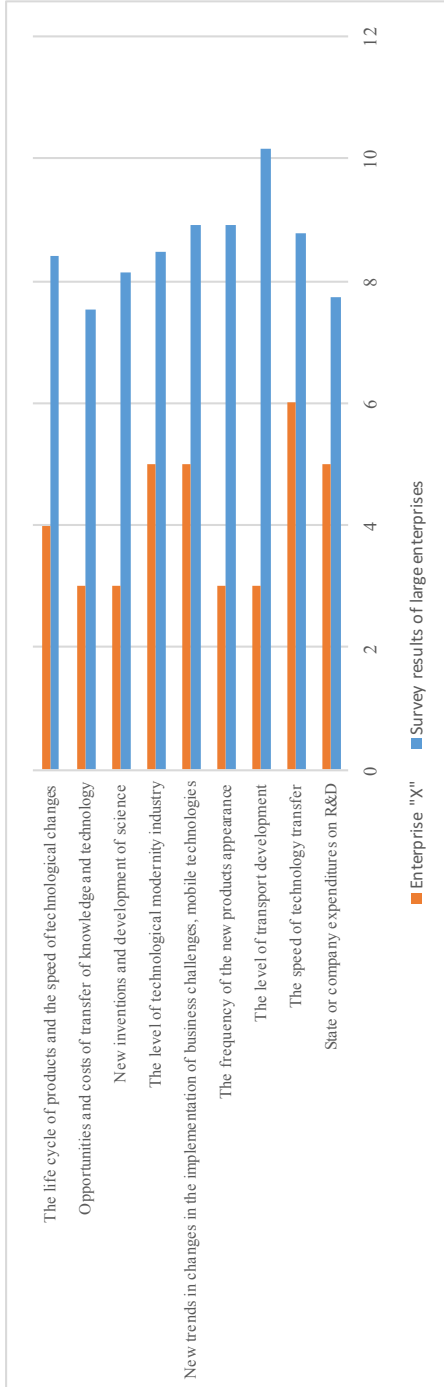


Chart 1: Weighted average of the significance of technological factors affecting the decision on restructuring used in the survey study.
 Source: Own work on the basis of survey studies for all of Poland conducted in 2014 and a purposefully selected enterprise "X" – survey of 2017.

- 2) Permanent restructuring, which is conducted for, inter alia, pro-ecological purposes reducing the negative effects of the conducted operations.
- 3) Planning of changes in the enterprise activities, contributing to environmental protection.

Regarding 1: The service provided by the analysed company “X” entails the performance of the first stage of clothes water cleaning. It requires the use of proper machines with suitably selected chemical agents. The company management and employees care about minimising threats to both employees and the environment, so that the quality of the service rendered is maintained or even raised.

The basic operation depending on the management’s knowledge involves frequent investments in washer-extractors. Newer and newer models improve the results in the sphere of washing efficiency, but also in terms of energy-saving and water-saving results.

The employees exercise special care and minute exactitude when dosing suitable chemical mixtures for clothes washing, which oftentimes, depending on the customer, requires proper treatment in order to maintain the parameters of the fabrics used in work clothes. In turn, the management keeps an eye on all the recommendations of chemical agents manufacturers provided on a regular basis being correctly implemented, particularly when a decreased dose is recommended with the same effect as the one achieved with a larger portion of a mixture. It forces the company to exercise constant care in terms of modernisation of the systems securing against any toxic substances penetrating into the environment.

Regarding 2: Pro-ecological activities undertaken by company “X” also involve the next stage of the main process, namely drying and ironing of washed clothes, for which a highly specialised device, a Tunel Finisher, is used. The purchase of the machine contributed to the restructuring of the entire drying and ironing process. Until 2014 the service was performed on a mass scale with the use of dryers – to dry clothes, and with human labour – to iron them. However, in order to reduce the costs related to the process, currently Tunel Finisher – a high-tech machine of improved efficiency and capacity – is used. Clothes are automatically put into the machine. They are treated with hot water, compressed steam, which on the one hand irons garments, while on the other dries them. Human labour has been limited only to putting given items of clothing into the machine on the one side and collecting them on the other side upon the conclusion of the entire process. To compare, a clothes dryer can dry (depending on the fabric thickness) up to 100 items of clothing in an hour. Such clothes still need ironing. A worker using a hand-held iron is able to iron 20–30 items of clothing in an hour. In turn, the above-mentioned machine can dry and iron 1600 garments in an hour with the involvement of only two workers. The use of Tunel Finisher has resulted in reorganisation of employment and of drying and ironing processes.

Regarding 3: Another pro-environmental measure the company intends to implement is a water reclamation system. It involves reclaiming water from a washer-extractor from the third programmed rinsing cycle and using that water for the first rinsing cycle in the subsequent washing load. What is more, during operation the Tunnel Finisher generates serious noise. Therefore, the company is currently restructuring the organisation of the work in the hall where Tunnel Finisher operates, with the aim of minimising the effects of the above-mentioned noise.

Conclusions

The region in which the company has its seat boasts many special bird protection areas or special habitat protection areas. There are over 90 nature reservations found in the area. The local community greatly appreciates having access to such attractive nature gifts as forests full of mushrooms, berries and game or rivers, in which community members unwaveringly enjoy angling. Unfortunately, the image does not translate to the immediate environment of the examined company X. The nearest surroundings of the company feature buildings and yards, which the company uses for the benefit of its employees, e.g. by creating a car park. Unfortunately, the entire area is covered in concrete and it does not correlate to what can be seen in more distant surroundings, i.e. forests, garden allotments and fields. Despite the unfavourable conditions, the owner is making efforts to add greenery around the company seat. Thus, it seems that the natural environment surrounding the company seat inspires to act for its benefit, which can be seen in the change of landscaping around the premises of company "X". Still, the company's interior is equally important. For that reason, the presented results of the conducted survey, the observations made and the conclusions drawn from interviews enable a subjective evaluation of the basic problem posed in the paper concerning the awareness of the employees and management of company "X" of the impact of the technologies on pro-ecological decisions taken in the restructured enterprise.

In order to fulfil the main goal, detailed questions had to be answered. The first one concerned a determination: Do employees as well as the management demonstrate ecological awareness? Both the employees and the company's management show ecological awareness, but the focus of their awareness has to be differentiated. From the interviews with the employees, it arises that they are not indifferent to ecological aspects in their closest surroundings, namely in their households. Regrettably, they are completely indifferent to what goes on at their work place. They shift the entire responsibility for the matter to the management, while adhering only and exclusively to the guidelines given to them.

Another issue regarded the use of technology in the provision of services by company "X" and its positive impact on the natural environment. Although the

management and the majority of employees are convinced that the technology implemented in the company's operations, and particularly the speed of modern technology transfer, enables them to reduce the harmful impact on the environment, still only few employees, after a moment of consideration, pessimistically declared that no technology, even the most modern one, serves the environment in any positive way. Nevertheless, they all agree that in such a technologically advanced world, only pro-ecological measures are acceptable, ones that aim to support and protect, not harm the environment.

The next question concerned the functioning of the entire process, whether all of it can be perceived as pro-ecological, or only its individual stages, and the answer can be found above. The basis of the service provided by company "X" – clothes rental and servicing – features aspects that stand in conflict with not harming the environment, since the service entailing washing demands the use of proper chemical agents that need to be neutralised in order to prevent their harmful effects. It means that the enterprise needs other high-technology machines and devices, i.e. it expects that companies specialising in such machinery will manufacture a product satisfying its demand. It is common knowledge that such production requires proper materials and energy. Thereby, discrepancy occurs in the network of needs, which at the same time harm the environment. It means that in the entire process of rental and servicing there are processes of more pro-ecological nature – washing, drying and ironing, and less pro-ecological ones, such as administrative issues that require better coordination (document circulation, their double printing etc.), and the ensuing expansion of activities, which, if being pro-ecological, will contribute to environment protection.

The last issue referred to the question: Do employees perceive the conducted restructuring process as pro-ecological activity in the company? Unfortunately, this area has been neglected by the management, which during restructuring focused most on the information of what the restructuring will entail, what its effects are going to be for the present personnel. The information concerning pro-ecological aspects was missing.

Summing up, if it is assumed that ecological awareness means knowledge and the way of thinking, which is constantly deepened and updated, in order to undertake activities for the protection of nature and the environment, one needs to conclude that:

- a) The management is highly knowledgeable about the impact of technology when making decisions on pro-ecological measures for the protection of the environment, as well as about the minimisation of damage resulting from the activities performed in the course of the enterprise restructuring. The respondents demonstrate an ethical attitude through their approach and convictions in relation to the principles of environment protection.
- b) Even though employees largely operate on a pro-ecological basis – in line with the guidelines and the rules represented by the management – they

do not entirely realise that they do so. It results from their lack of interest in such aspects of their work place.

In conclusion, the ecological awareness at the times of developed technology in restructuring of a medium-sized enterprise “X” is demonstrated through management decisions and actions. On the other hand, most employees need further information about the pro-ecological measures, which could be provided through individual talks, an informational campaign about pro-ecological steps, or through an equally effective, yet simple method of using posters concerning the basic economic operations of company “X”.

Notes

- ¹ The owners did not consent to the publication of the company’s business name.
- ² The results of large enterprises were more extensively presented in the following articles: Gąsior A 2015, Salaries as a Determinant of Restructuring Large Companies in Poland. *Transformations in Business & Economics*, 14(3C): 36C, p. 372–389. Gąsior A 2016, Poziom rozwoju transportu jako determinanta procesu restrukturyzacji dużych przedsiębiorstw, [in:] *Polityka ekonomiczna*, ed. Sokołowski J, Węgrzyn G, Research Papers of Wrocław University of Economics, Wrocław, nr 450, p. 150–160. Gąsior A 2017, Restrukturyzacja a poprawa aspektów ekologicznych w dużych przedsiębiorstwach [in:] *Zarządzanie restrukturyzacją: procesy i struktury w obliczu zmian*, ed. Jaki A, Rojek T, Fundacja Uniwersytetu Ekonomicznego w Krakowie, Kraków, p.173–182.

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