Environmental Management as Part of a Socially Responsible Behavior in the Volkswagen Group

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Abstract. In industrialized countries in the Nineties a fundamental change occurred in a way how companies approach environmental protection. In practice are promoted new tools, associated with creation and protection of the environment, with a significantly preventive character. Awareness of corporate social responsibility for their actions and knowledge of the basic principles of the progressive management system for businesses is becoming a matter of prestige opportunity. One of the advanced business management tools for the protection of the environment is an environmental management system which contributes significantly to improving the environmental performance of the company. Article is devoted to environmental policy and the impact of the application of ISO 14001 according to Environmental Management System within the automotive company Volkswagen Slovakia.

Keywords: Corporate social responsibility · Environmental protection · Automotive industry

1 Introduction

The current situation in the business environment brings a number of risks, which mainly have recently noticed a significant increase, with negative consequences for society as a whole. Climate change, environmental pollution, unfamiliarity of laws, ignoring the social responsibility of organizations towards employees and the community - all this represents only a small part of ethical problems that occur in the global economic environment.

With the question about how to make company's business activities successful for as many people as possible deals the concept of social responsibility.

Corporate Social Responsibility is still the subject of extensive discussions and its concept is still interpreted differently. For now, there is no single known definition. The most famous interpretation is mentioned in the Green Book (European Union): "CSR is the voluntary integration of social and ecological aspects into everyday corporate

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operations and interactions with corporate" stakeholders "that can be divided into primary, which includes owners, employees, customers, business partners, local communities and environmental NGOs, and secondary, which includes competitors, the public, media, civic and business associations and government institutions.

According Boatrighta [1] CSR is a voluntary transfer of responsibilities that exceeds purely economic (economic) and legal responsibility. World Business Council for Sustainable development defines CSR as "continuous commitment of businesses to behave ethically, contributing to sustainable economic development, while contributing to improving the quality of life of employees and their families, as well as local communities and society as a whole".

According to Kuldova [2] implementation of CSR into corporate activities brings the opportunity to differentiate from the competition. These activities include mainly minimizing the negative impacts on the environment, employee care and support for the region where a given company operates. According to Kunz [3], the social responsibility has purely voluntary nature, therefore has no clearly defined border and thus is linked across a whole range of different disciplines. This is, according to Kunz, also the reason of terminological disunity.

Based on a synthesis of existing knowledge, Archie Caroll contributed in 1979 to development of the concept of social responsibility with his definition: "Social corporate responsibility includes economic, legal, ethical and discretionary (philanthropic) expectations that company against other company has at a particular time" [4]. These expectations reflect responsibility of company in the generally displayed form of pyramid (Fig. 1).

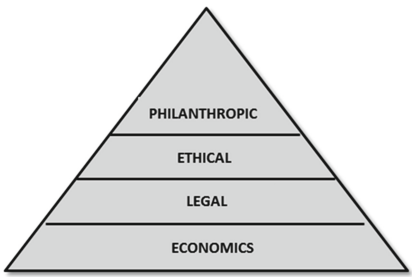

Fig. 1. Structure of Corporate Social Responsibility [4]

The basic responsibility of business takes place in the economic sphere, in the form of production and distribution of goods and services based on knowledge of consumer needs, providing work and fair wages to employees, and at the same time making a profit [5]. From every company is within the legal liability expected to comply with all laws and standards relevant to the country where the enterprise carries on its business activity. This latter kind of responsibility is an ethical responsibility, which represents the company's commitment to behave in line with expectations, which are not regulated by legislation, i.e. so-called activities beyond the law. Within philanthropic

responsibilities are contained activities entirely voluntary that enterprise can perform at its own decision and thus support the well-being of the whole society [5].

From the above definitions, we can deduce common ideas that can be considered as the basic principles of CSR. These include: voluntary, the initiative beyond the required legislation, improvement of the quality of life, sustainable development, communication with stakeholders, integration of social and environmental values into everyday business practices. It can thus be said that although there is no single, generally accepted definition of CSR activities can be generally divided into three areas: economic, social and environmental.

2 Materials and Methods

We analyzed a number of standards which help to fill CSR strategy, while we focus on the standards that are used in the automotive industry. The methodology of environmental management is completely covered by ISO 14000, which is a series of environmental management standards developed and published by the International Organization for Standardization (ISO) for organizations. The ISO 14000 standards provide a guideline or framework for organizations that need to systematize and improve their environmental management efforts.

The ISO 14001 standard is the most important standard within the ISO 14000 series. ISO 14001 specifies the requirements of an environmental management system (EMS) for small to large organizations. An EMS is a systemic approach to handling environmental issues within an organization. The ISO 14001 standard is based on the Plan-Check-Do-Review-Improve cycle.

When we processed this paper, we had used statistical data of the central environmental reports from Volkswagen Group as well as annual and environmental reports from Volkswagen Slovakia. For investigating the issue of Corporate Social Responsibility and environmental management system, we used a combination of several scientific methods, approaches (particularly analysis, abstraction, synthesis, induction, deduction, comparison), which allowed mutually coherent knowledge of the facts and investigation processes in all their complexity.

3 Management Systems in the Automotive Industry

For very powerful global industry it is currently considered the automotive industry, which is affected by the challenges and opportunities such as: climate change and the reduction of natural resources, energy security, demographic changes and employment, innovation and new green technologies, development of new economies and markets, etc. All of the above can be also connected with the concept of Corporate Social Responsibility (CSR), which is in the case of the automotive industry closely linked to sustainable development.

There are many norms and standards that help accomplish the strategy of CSR which was created by both government and NGOs. In the automotive industry, current management systems are most frequently certified under ISO 9001, ISO 14001 and

ISO/TS 16949. I Implementation of ISO 9001 is focused on the system quality, respectively to achieve competitive advantage through quality control. ISO 9001 certification demonstrates company commitment to quality. Using of benchmarking - continuous comparison - it is possible to measure the progress of continuous improvement and development of business activities. The standard is not intended purely for the automotive industry, but it can be used in all sectors of production and services. In the case of the automotive industry, this standard is often accompanied by so-called industry standards, such as QS 9000, VDA or (standard which is focused on management system quality of suppliers who ensure serial production for the automotive industry. At the present time it is accepted only to a limited extent, by the suppliers of German automotive industry).

ISO/TS 16949: 2009 is a new departmental standard intended purely for the system of quality management in the automotive industry. Standard replaces ISO/TS 16949 from October 2002 and unifies the requirements for system of quality management in the industry. Standard contains the full text of ISO 9001: 2008 and is supplemented by further specific requirements of the automotive industry. The difference between ISO 9001 and ISO 16949 is mainly in the specific requirements of organizations providing mass production and production of spare parts in the automotive industry which are added to the standard ISO16949. ISO/TS 16949 were developed in cooperation of IATF (International Automotive Task Force) and ISO and its first version was published in 1999.

The latest, most often voluntary used in the automotive industry is the standard ISO 14001, which will be in this part of article described more. Currently, demands of involved parties - stakeholders are constantly increasing, especially on the environmental protection system. The principle of ISO 14001 is therefore to promote environmental protection and pollution prevention. Standard was approved by the European Committee for Standardization (in English CES, in French CEN), which is a non-profit organization dealing mainly with the support of the European economy in global trade, prosperity of the European population and environment.

Interest in this certification increases world widely, which is also confirmed by Figs. 2 and 3. In companies of all kinds nowadays it is more than necessary to achieve and demonstrate their socially responsible behavior especially in the field of environmental management, which companies declare with the legal implementation of those standards.

ISO 14001 [16, 17] is based on the methodology of Plan-Do-Check-Act (PDCA), which can be characterized as follows:

- *Plan*: establish the objectives and processes necessary to deliver results in line with the organization's environmental policy
- *Do*: apply processes
- *Check*: monitor and measure processes in relation to environmental policy, objectives, the targets, legal requirements and other requirements and show results
- *Act*: take actions to continually improve performance of the environmental management system

The standard does not set any specific requirements for the environmental performance of certified companies, but it insists on the need to respect the legislative

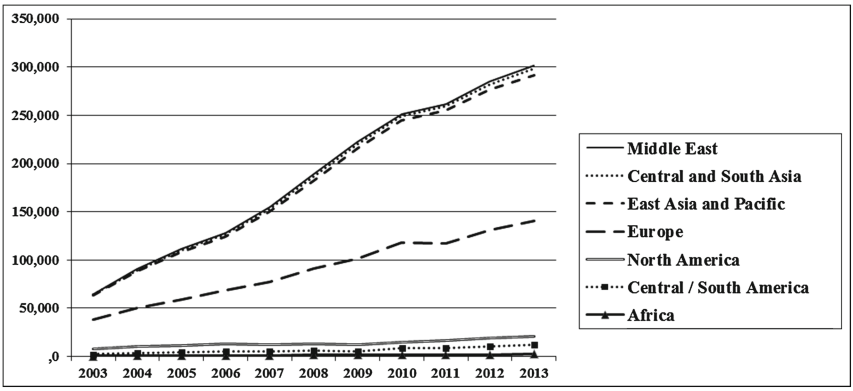

Fig. 2. ISO 14001- Worldwide total in years 2003-2013 [6]

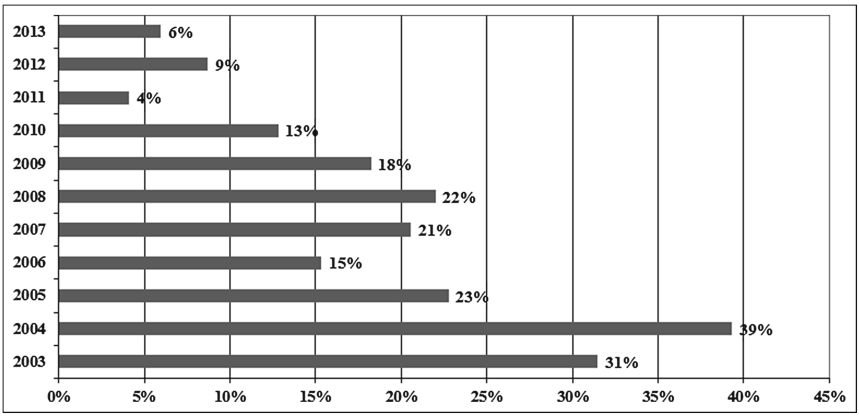

Fig. 3. ISO 14001- World annual growth in years 2003-2013 (in %) [6]

requirements in individual environmental components, which include water, air, soil, waste, etc. The principle is to identify all the factors that may affect the environment and which may be affected by a certified company with its operation. ISO 14001 [16] is therefore possible to implement in all organizations whose goal is to establish, implement, maintain and improve system efficiency and its environmental management system, to make sure of compliance with environmental policy which was announced and last but not least to demonstrate conformity with this International standard. Therefore, if a company is interested in certification according to ISO 14001, it is necessary to meet the following:

- Establishment of environmental policy of the company and consequently acquaint this policy to employees and the public, which is also included into groups of stakeholders;

- Identification of factors that result from company's activities that may have a significant impact on the environment;
- Monitoring the constantly changing conditions related to legal and other environmental requirements in connection with the identified aspects of the company and the reflection of these requirements to the environmental management system;
- In its environmental policy, to establish environmental objectives and values for individual functions and levels of company management;
- To determine the methodology and ways of their implementation to achieve the objectives and targets in connection with the environmental management system;
- Ensure appropriate staff training and corporate communications, both internal as well as external;
- Finally, the company has to monitor and measure the key features of its operation with a focus on the features that can have significant effects on the environment. In case of any disagreement with the legal requirements applicable in the field of environment, it is necessary for the company to make preventive and corrective measures in case of any identified deficiencies, deviations and damages.

According to that environmental protection becomes currently a growing priority, respecting the procedure should be a matter of course for any company thinking of sustainable development.

3.1 Benefits and Barriers of Implementation of Standard ISO 14001

Benefits of implementation of ISO 14001 [7–9] are reported by almost all the authors dealing with environmental management identical, but some authors are dividing it also into internal and external. Internal majority of author's states especially the clarity of environmental costs, early detection of problems related to the environment, the elimination of fees and fines for environmental pollution, prevention of environmental pollution, improve the quality management system, environmental management, etc. The external benefits of implementation are mainly the benefits of competition, the benefits of strengthening good public relations and the confidence of current and future customers. We cannot forget the increasing business credibility, not only for partners and customers, but also for potential investors, banks and public authorities.

For cons (barriers) at the enterprise level, combined with the introduction of Environmental Management System Remtova (2006) considers mainly costs associated with the implementation. It is not only the cost associated with the change of the control system (while in the case of a large operation is the implementation of ISO 14001 more expensive than e.g. ISO 9001) but the costs associated with the payment to an independent certification audit companies. Price for the implementation and subsequent repeating audits, which are done once every three years, is dependent on the size of the company and also on its activities, and it is not low. Some studies also indicate that barriers or constraints at the company level in the implementation of ISO 14001 may be the lack of involvement of the different levels of management, or unfamiliarity of environmental policy among employees. They should be of course very well trained, which implies additional costs associated with implementation. The barrier may also appear as a lack of knowledge of legislation relating to environmental protection which

is associated with another additional financial cost in the form of either expansion of staffing, or hiring a specialized company, which deals with this topic.

4 Results and Discussion

Effective tool for environmental protection within Volkswagen Slovakia is Environmental Management System (EMS), which aim is, according to the international standard ISO 14001, to support environmental protection and prevention of pollution in balance with social and economic needs. The introduction and certification of EMS began in in 2002. The synergy between the requirements of environmental protection and sustainable technologies, as well as the instruments of a functioning environmental management system allows to continuously influence the effects of production processes and products for environmental sustainability at the planning stage of products and technologies until the evaluation of the car at the end of its life [10]. As reported by the National Council for Advanced Manufacturing [11], "the sustainable production is defined as production of products that use processes without environment pollution, saving energy and natural resources and is economically stable and safe for employees, society and consumers. Sustainable production includes sustainable products and production processes. This includes production of renewable energy, energy efficiency and related environmental aspects. "Langewalter [12] defines green (environmentally friendly) and sustainable production as a method to create technologies that transforms materials without emission of greenhouse gases, do not use non-renewable and toxic materials and eliminates waste.

The consistent application of ISO 140001 in the analyzed company has an effect on energy saving, sustainable use of water, waste management, prevent the emergence of emissions, reducing the amount and recovery of waste, the use of BAT technologies (Best Available Technologies) which are environmentally friendly, using recycled textile material insulating the noise in the passenger compartment, soundproofing against the noise from junkyard operation, In particular, technical textiles are an important part of a vehicle and are specially developed for the demanding needs of the automotive industry, which is the largest consumer and constitutes 22 % share of all industry sectors in total.

Such sustainable operation building seeks to minimize the negative impact on human health and the environment and thereby contribute to increase productivity of its employees. These buildings not only reflect a reduction of operational costs but also the requirements for sustainable development, promoting legislative and normative changes in regulation (particularly as a result of the directive Performance/Energy EU from 2010/31), in the European Union [13].

In 2013, Volkswagen Slovakia joined to the strategy called Think Blue to achieve with production even greater environmental benefits. The strategy was defined by five indicators:

- fuel consumption
- waste generation
- air emissions
- consumption of water and CO_2.

The seriousness how Volkswagen approaches this strategy has the real results that are for example annual savings of 1 million kWh electricity, 77,000 m^3 of natural gas and 595.8 tons of CO_2 in 2013 [14].

Air quality protection. This is particularly the reduction of emissions (Fig. 4) which are discharged into the atmosphere because of prioritization of paints and materials with low content of pollutants using active separation equipment.

	2009	2010	2011
CO_2 (direct emissions from the combustion of natural gas)	42,403.50	53,193.60	54,396.36
SO_2	0.20	0.25	0.26
NOx	63.79	91.53	121.00
Solid polluting substancess	12.19	21.99	33.27
Volatile organic compounds emitted on bodywork, sollid polluting substances (g/m^2)	27.68	34.07	31.15

Fig. 4. Emissions to air in Volkswagen Slovakia in years 2009-2011 [14]

Waste waters (Fig. 5) from plants are treated before being discharged into the watercourse at neutralization stations and central treatment plant, which has a significant environmental impact on the cities in which these water streams are. The emphasis is put on compliance with the permitted levels of pollution discharged with waste waters as well as air emissions. To ensure preventive groundwater protection have been implemented nondestructive tightness testing's of retaining systems and pipelines and all monitored groundwater wells were restored.

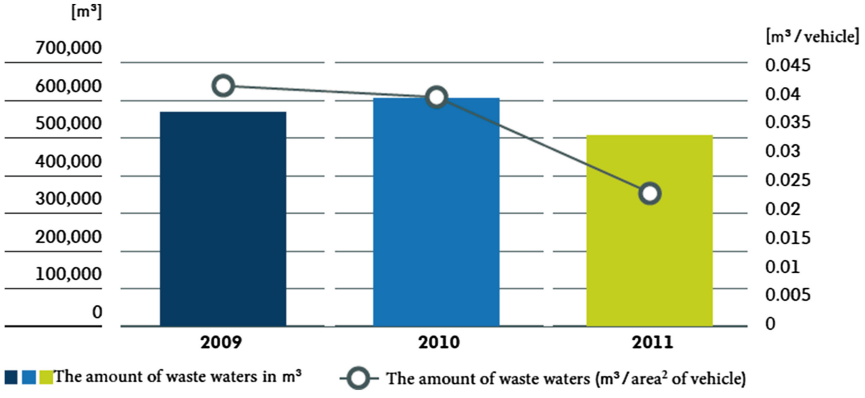

Fig. 5. The amount of waste waters (volume of waste waters depends on the production of vehicles, material consumption and the type of technology. In 2011 it managed to significantly reduce the amount of waste waters due to the reconstruction of wastewater treatment technologies and deployment of best available technologies in the paint shop) [14]

Waste management. The priority is the recovery (recycling) of waste before creating landfills and also separation by types in all operation stations.

Energy efficiency. Energy savings in the amount of 25 % is achieved through external lighting, which is controlled by dusk sensors. Scrap management. Recycled ecological material STERED from the vehicle's interior is of VW is used for soundproofing from the noise of the operation of scrap management. That means the material which previously isolated the noise inside the vehicle, now isolates the noise of the operation.

Further it is the implementation of environmentally friendly production technology directly into the individual plant sectors:

- *Paint shop* - as an example we can give the dry particle separator for cars of New Small Family, which reduces emissions up to 90 % and up to 80 % reduces energy consumption. Volkswagen Slovakia in Bratislava was the first place where was this technology implemented into the serial production for the first time (2011).
- *Body shop* - several machines in the manufacturing process is powered hydraulically. The relevant units are equipped with sump, which protect the subsoil in the event of malfunction against leaking hydraulic fluid. Welding smoke is suctioned and before being discharged into the environment is filtered through appropriate filtering equipment which removes polluting particles. Metals residues that remain from the production of car body are transported for recycling.
- *Assembly line.* During vehicle assembly there arises waste from packaging in which parts were packed. This waste is as a priority used again, respectively it is recovered as secondary material. By separation, adhesive residues and cleaning cloths containing solvents are separated from recyclables.
- *Logistics.* Aspect, which is environment affected by is the production of emissions from transport. This fact is taken into account at the planning and selection of suppliers of each transport session with the consideration of the transport distance from the plant, on which basis positive effects on reducing emissions from production can be achieved. For selected material transport sessions were from mid-2011 deployed gigaliners, which saved 40 % of transport kilometers [14].

For the most important infrastructure project for the western part of Bratislava, in terms of environmental impact on the Devinska Nova Ves (localization VW plant) must be considered the construction and commissioning of the fourth gateway of VW plant. The new gateway is directly connected to highway entrance to Stupava South, which is part of the future of zero bypass of Bratislava. The gateway is designed for entrance and exit only for Just-in-Time deliveries of components of industrial parks in Lozorno, Malacky and Vrable. Direct connection to the highway is not only reducing the number of trucks (about 500) in the urban part of the city, but also increase flow of deliveries to the plant. Construction and commissioning of the new gate will save 446 tons of CO_2 emissions per year and will reduce noise in the streets near the plant by 2.1 decibels.

Creating a new gateway, with its unique frame design, together with other necessary construction works (construction of interchange intersections, road treatment, landscaping, planting of greenery etc.) required the investment of nearly 6 million EUR.

5 Conclusion

The paper emphasizes the importance of introducing an environmental management system and the benefits of its introduction in Volkswagen Slovakia. Benefits from the introduction of an environmental management system contribute to reduce or avoid negative impacts on the environment and the reduction of operation costs (water, electricity, gas, etc.). The priority is compliance with the legal requirements which also affects the reduction of corporate costs by meeting the limits set by the legislation. After the introduction of environmental management systems is generally improved the company's image in the global market, as systems are characterized by a systematic approach to environmental protection at all levels of business. Through this systematic approach the company integrates environmental protection not only to their business strategy, but also into normal operation. This approach can be declared just by ISO 14001 certification, which has been treated and released to support the environment and prevention of its pollution. The benefits from the acquisition of the requirements of ISO 14001, despite the high costs that are associated with implementing this standard, allow the reduction of operating expenses, keeping track of the positive and negative aspects of business on the environment and know how to (in case of negative effects) minimize the such situation. For additional benefits, particularly in relation to raising awareness of the positive activities related to the environment, can be also regarded the reinforcement of good public relations and increased business confidence.

Nowadays, due to continuity of increase and aggressiveness of competition and constantly increasing demands of interested parties - stakeholders, in particular in the system of environmental protection, the certification according to ISO 14001, sooner or later it will be a necessity in almost every large enterprise in all sectors. This fact is evidenced by the fact that enterprises in the European Union with over 500 employees are required to publish reports on what they are doing in the field of sustainable development and Corporate Social Responsibility (CSR).

In conclusion we can say that Volkswagen with its activities in the field of environmental management contributes to a policy of sustainable production of their products, which have a direct impact on reducing pollution, saving energy and natural resources which are economically stable and safe both for the company and for VW consumers. We consider this as a major benefit for VW and also for strategic objectives of Slovak Republic which already since 1990 reduced total emissions by 41 % and with continuation of this trend (based on data from Eurostat) reached in 2014 the best results among all EU member states [18]. The above is documenting the fact that after completing the necessary 14 internal and one external audit of the VW company in 2011, the audit has an internal target of 97 % and was satisfied with the result of 98.22 %.

References

1. Boatright, J.R.: Ethics and the Conduct of Business.6.vyd. New Jersey, Pearson, 463s. (2009)
2. Kuldova, L.: Společenská odpovědnost firem: etické podnikání a sociální odpovědnost v praxi. OPS, Plzeň (2010)

3. Kunz, V.: Společenská odpovědnost firem. Grada, Praha (2012)
4. Carroll, A.B., Buchholty, A.K.: Business and Society: Ethics and Stakeholder Management. South-Western Cengage Learning, Ohio (2008)
5. Gasparikova, V.: Corporate social responsibility. Dissertation thesis. Slovak University of Technology in Bratislava, Slovakia (2014)
6. The ISO Survey of Management System Standard Certifications (1999–2013)
7. Veber, J.: Environmentální management. Praha: Oeconomica, 94 s. (2002)
8. Remtova, K.: Planeta – odborný časopis pro životní prostředí. Dobrovolné environmentální aktivity – orientální příručka pro podniky (2006)
9. Madlova, L.: Nový pohled na společenskou odpovědnost firem: strategická CSR. Nava, Plzeň (2012)
10. Kovacova, L.: Integration Management Tools – Lean Manufacturing and sustainability. In: The 16th International Scientific Conference Trends and Innovative Approaches in Business Processes, Slovakia (2013)
11. National Council for Advanced Manufacturing, http://www.nacfam.org/
12. Langewalter, G. Life is Our Ultimate Customer: From Lean to Sustainability, http://www.zerowaste.org/
13. Adamuščin, A., Morena, M., Truppi, T.: The importance of sustainable construction of office buildings and its development in Italy and in the Visegrad countries (Mainlyin Slovakia). Swiat Nieruchomości. World of real estate Journal. Vol. 90, No. 4 51–57 (2014)
14. Správa o životnom prostredí 2013. Volkswagen Slovakia (2013)
15. Bureau Veritas Czech Republic, http://www.bureauveritas.cz/
16. Česká technická norma. Systémy environmentálního managementu – Požadavky s návodem pro použití. ČSN EN ISO 14001
17. International Organization for Standartization, http://www.iso.org
18. Golej, J., Pánik, M.: Social issues of housing and its environmental-economic aspects in Slovak Republic. In: SGEM 2014. Energy and Clean Technology : Conference Proceedings of the 14th International Multidisciplinary Scientific GeoConferences SGEM. Albena, Bulgaria, 357–377 (2014)