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INFLUENCE OF GREEN LOGISTICS STRATEGIES ON REDUCING SUPPLY CHAIN MANAGEMENT COSTS IN CROATIA

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ABSTRACT

The trend and globalization imposed the implementation of different environmentally conscious activities into existing logistics systems. These activities are the result of the need for a perfectly closed supply chain. When implementing reverse logistics activities into existing logistics system, one will expect to improve customer satisfaction (to have bonded and returned loyal consumers), to raise level of environmental conscience (as a matter of thinking and a marketing strategy on competitive global market), to keep profit inside company (by reducing costs) and to keep up with new law regulations. Besides reverse logistics, when observing from higher perspective, one can define reducing logistics costs by organising a better and upgradable green logistics. A quality system asks a producer of the product to take care of it during whole its life cycle and that is the place where standards for environmental management play an important role.

Keywords: reverse logistics, green logistics, supply chain management, quality system and environmental management

1 INTRODUCTION

Area of green logistics encompasses many segments that can be used to manage environmental impact. According to the fact that pollution is partly consequence of economic activities, cooperation with the economy is necessary because of the need to assess levels of environmental impacts by each and every businesses related to transport logistics and try to minimize it. Minimization of these impacts can be provided by using the knowledge and understanding the necessity of every company for individual organization of green logistics programs. The whole concept of green logistics includes strategies and activities of logistics operations that are designed in such way as to have less negative impact on the environment. The benefits of applying this concept to individual companies can be numerous: energy savings, lower operating costs and the possibility of positioning in the markets where the business is in compliance with environmental standards as element of competitiveness.

In a broader sense the logistics activities include manufacturing, distribution, storage, transportation and inventory management. While assuring that each of these logistics operations is designed in a way that has as little impact on the environment, at the same time companies that operate in this way, besides they have environmental benefits, even create profit. Research has shown that legislation and monitoring the standards of logistics enterprises is not enough and that the companies within the supply chain need a tool that will guide them through the identification of environmentally sensitive points and will propose their way to implement green concepts into existing logistics systems. Also, studies have

shown that freight transport worldwide, along with storage and handling accounts for 10% of the total pollution CO_2 , and 2050. their influence will do even 15 - 30%.¹

2 REVERSE OR GREEN LOGISTICS

2.1 Green logistics strategies

First concern about the damaging effects of the freight transport was recorded in 1950s, but most of substantive research dates from mid 1960s. According to that, green logistics is relatively young research area. As original focus of logistics has developed from the original movement of finished products to transport, handling systems, storage and supply chain management, same happened in the green logistics, which now encompasses greening of the production, warehouses, transport, manipulation, packaging, marketing, and in the end the customer. Results of the research has shown that „going green“ can bring profit by as much as 10% when compared to a traditional supply chain in logistics industries.²

Designing a green logistics can not be specified on one of the points in supply chains, it is an collection of organised activities (as shown in Figure 1.) made to result as a sustainable and upgradable green network that consist of planning the green production, green transport, waste reduction, energy savings, space savings, resource savings, planning a green supply chain management and having a green consumer.



Figure 1: Collection of some supply chain activities that need to be strategically planned
Source: Authors

2.2 Reverse logistics as a part of green supply chain

Very easily replaced for each other by mistake, terms of green and reverse logistics are different. Reverse logistics is a part of green logistics and always concerns some kind of return, as a product or material.

Reverse logistics is also relatively new part of logistics and emerging area, separation of logistics on forward and backward one has begun and is making a bigger distance.³ Tendency to handle returns quickly and efficiently requires solutions that will handle those extremely important tasks in processes of returned goods. All the products in the reverse chain have to be specifically manipulated because each of those products has specific reasons why it was

¹ Kahn Ribeiro, Kobayashi, 2007.

² Emmett S., Sood V. „, Green Supply Chains - An Action Manifesto“; Wiley, 2009.

³ Dale S. Rogers, Ronald S. Tibben – Lembke (1998). Going Backwards: Reverse Logistics Trends and Practices, Reverse Logistics Executive Council, ISBN 0967461901, Pittsburg

returned and how it needs to be dispositioned. Disposition of product can vary on its status. After returning a product in a company, the firm has many disposal options. Some of those activities are return to supplier, sell through outlet store, resell, remanufacture, refurbish, landfill, etc. Recapture value or proper disposal are two main channels in reverse logistics. Managers in companies often mistakenly believe that outbound operations can also handle returns simply by running everything in reverse. Reverse logistics operations must manage a number of unique functions that are not included in outbound operations: collection of outdated, unwanted or damaged products as well as packaging. Except perfectly organized activities, a good and effective reverse logistics must provide information system that will follow program to reduce unnecessary costs and be a part of green supply chain management. In planning a green supply chain management, company should also pay attention at the reverse processes inside green logistics. Some of the strategic actions are uniformed procedures, educated employees, creating a collection point, which is in ideal circumstances, for managing all products that entered reverse logistics chain a centralized return centre. Creating a return center that provides special handling and educated personnel would grant more free locations in already overstocked warehouses. Physical separation and focused control on the flow of returned goods and employees can improve management information, decrease amounts of goods that are directed for landfills, reduce store level costs, form upgraded returns inventory control, simplify store procedures etc.

Research conducted implicated that creating awarness and environmental consciens among consumers can affect planning a green supply chain management. Consumers in Croatia are not well informed about reverse logistics activities and liberalization of return is on low level. Croatian companies based their reverse logistics strategies on keeping companies profit primer issue. In Croatia, as in many other countries, environmental conscience is starting to be a part of consumer criteria when purchasing a product. Consumers are trying to make an impact to be sure that environment will be safe and healthy. This may be small steps of everyday consumer, but they will make a difference when in a future 90% of purchasing are made with ecological thinking. Results of the questionnaire conducted on one hundred random examines implied that even 35 % of examinees would rather buy ecologically acceptable product than the cheaper one.⁴

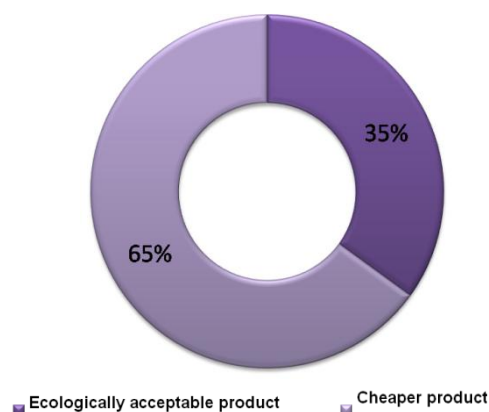


Figure 2: Results of the research regarding consuming environmentally sensitive products

Source: Rogić K., Bajor I., Rožić T.: Consumer as a Part of Reverse Logistics Chain, Proceedings of 21st International DAAAM Symposium Vienna: DAAAM International, 2010.

⁴ Rogić K., Bajor I., Rožić T.: Consumer as a Part of Reverse Logistics Chain, Proceedings of 21st International DAAAM Symposium Vienna: DAAAM International, 2010.

3 SIGNIFICANCE OF ISO 14000 IN GREEN LOGISTICS

Generic standard ISO 14000 which defines a voluntary environmental management system is one of the most significant international initiatives for sustainable development. Used in conjunction with appropriate goals, and with management commitment, the standards will help improve corporate performance. They will provide an objective basis for verifying a company's claims about its performance. This is particularly important in relation to international trade, where at present almost anyone can make assertions about environmental performance - and there are only limited means to address veracity.

Consumers, governments and companies up and down the supply chain are all seeking ways to reduce their environmental impact and increase their long-run sustainability. For companies, the key goals are to become more efficient - to get more output per unit of input - while earning profits and maintaining the trust of their stakeholder. Despite the fact that the ISO 14000 standards do not themselves specify environmental performance goals implementation of it can help. These must be set by the company itself, taking into account the effects it has on the environment, and the views of its stakeholders. Implementation of a management system based approach will help companies focus attention on environmental issues, and bring them into the main stream of corporate decision-making. ISO 14000 is designed to provide customers with a reasonable assurance that the performance claims of a company are accurate. In fact, ISO 14000 will help integrate the environmental management systems of companies that trade with each other in all corners of the world. The ISO process has not fully involved all countries or levels of business. Some consumer and environmental organizations may well be skeptical of voluntary standards. And there is a large measure of capacity building needed throughout the world in order for this system to work well. Finally, sustainable development requires that issues of human well-being be added to environmental and economic policies. While sustainable development is introduced within ISO 14000 standards, the detailed documents deal almost exclusively with environmental issues. Philosophy of ISO 14000 is based on the Plan-Do-Check-Act methodology which has been expanded to include 17 elements, grouped into five phases that relate to Plan-Do-Check-Act; Environmental Policy, Planning, Implementation & Operation, Checking & Corrective Action and lastly Management Review. So, with implementation of this philosophy it is suspected that the company will promote green culture in all aspects of its performance. Arguments of this thesis can be found in many results of research. Facilities with environmental management systems certified to ISO 14001 are 40% more likely to assess their suppliers' environmental performance and 50% more likely to require that their suppliers undertake specific environmental practices.⁵

In Croatia at this moment there is a 595 companies that have ISO 14000 certificate. On the figure 3 it is shown the share of ISO 14000 certificates at companies in Croatia based on the statistical nomenclature for economic activities (EAC or NACA).

⁵ Arimura H. T., Darnall N., Katayama H. „Is ISO 14001 a gateway to more advanced voluntary action? The case of green supply chain management“

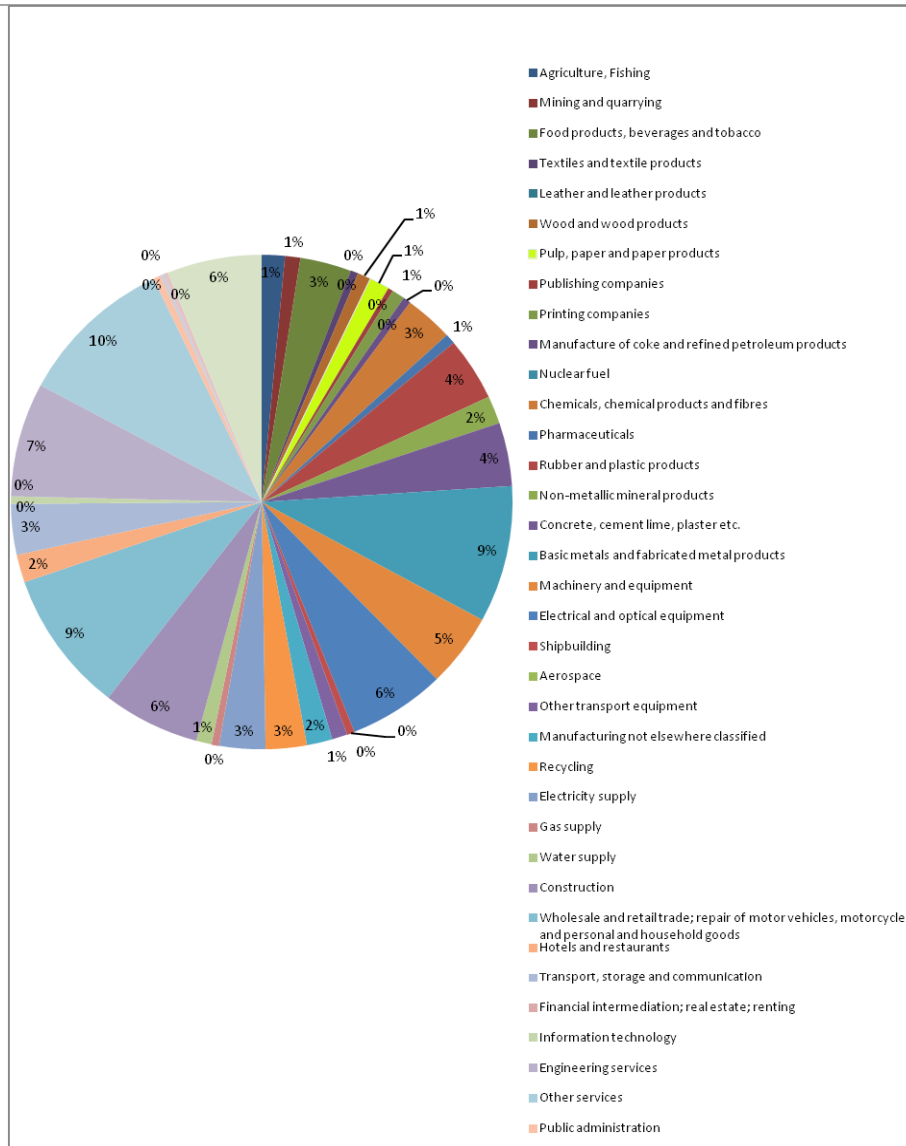


Figure 3: Share of ISO 14000 certificates at companies in Croatia based on the statistical nomenclature for economic activities

Source: Research made by authors

4 IMPLEMENTING GREEN LOGISTICS STRATEGIES TO REDUCE SUPPLY CHAIN MANAGEMENT COSTS

Green supply chain management is defined as the alignment and integration of environmental management within supply chain management.⁶ Companies that pay attention on greening when focusing on green supply chain management are trying to avoid inheriting environmental risks from less environmentally conscious suppliers. Reducing these risks, logistic system may improve their environmental reputation with regulators and other stakeholders.

Green supply chain management while implemented often demands two practices. Green company assess the environmental performance of all of their suppliers but also requires suppliers to undertake measures that ensure the environmental quality of their products and processes. While profit by implementing green strategies can be found on each level of green logistics, providing a secure and specifically designed green supply

⁶ Klassen, Johnson, 2004.

management into the logistic company can reduce costs, but also make a difference for environment. With these two processes greening the supply chain management can start from the foundations and close the supply chain with a demand of all roles to be played in an environmentally friendly way. To expect from all the network the environmental behavior will result in sustainable logistics and all the economy benefits that are needed.

5 CONCLUSION

Organisation of green processes can result with benefits but with continuous improvements during the implementation because collection of a small movements will create and lead to major advantages providing safety of the environment and sustainable upgradable logistics.

From the implementation of ISO 14000 logistics organizations can benefit from many different aspects, such as seen as a green company from a marketing point of view, having a analyzed structure of their influence on the environment, etc.

Results of ISO 14000 certified companies in Croatia implicated that the trends are changing and that there are even more companies willing to implement the same. It is positive to believe that this trend will continue to grow, especially regarding process industry (pharmaceutical, chemicals, food, etc.) because of the delicacy of returned products from this part of production.

Besides of the specificity of returned products when organizing everything in return, it is not possible to implement the same processes as in forward logistics but reverse. To have an efficient reverse logistics chain, activities must provide solving all possible situations with each and every product in return.

Croatian logistics companies tend to be a part of a competitive global market where one of the main trends is to be an environmentally sensitive company. Providing activities of green logistics, in mode of reverse and forward logistics and by continuous analyses of their business by implementing ISO 14000 can be a good pointer for recognition on the global market.

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