

REVERSE LOGISTICS IN GLOBALIZATION ASPECTS

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ABSTRACT: *This paper presents issues connected with adaptation of modern solutions of reverse logistics management in enterprise to the concept of sustainable development promoted by the European Union. Nowadays more and more businesses are looking to grow their reverse logistics capabilities in global market.*

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JEL Codes: M10.

Sustainable Development

The concept of sustainable development derives from various domains of the science. It became another stage in search for complex solutions which brings the most of benefits to the growth of human civilization and an attempt of global grasp of this issue.

Sustainable development should satisfy the needs which result from the following areas of human activity: economic, social and ecological.

Economic human needs which result from the abovementioned areas, in the aspect of sustainable development, include:

- services
- development in agriculture and industry
- efficient work management and needs which result from household management.

These elements impact directly economic domains of human activity and give opportunities of improvement in everyday human functioning, supporting their life.

From the standpoint of social conditions which involve sustainable development, human needs encompass equality and mobility, codecision and empowering and preservation of cultural heritage. However, natural resources, biologically diversified, or integrity of the ecosystem are characteristic for satisfying of human needs in ecologic area¹.

Thus, sustainable development consists in maximization of net profits from economic development, simultaneously protecting and ensuring repeatability of usefulness and quality of natural resources in a long run. Economic development must then mean not only rise in *per capita* incomes, but also improvement in other elements of social well-being. It must also encompass necessary structural transitions in economy and in the whole society².

Sustainable development is therefore defined as a 'realization of a particular 'bunch' of socially desired goals, which include e.g.:

- ✓ rise in real income *per capita*,
- ✓ improvement in state of the health of the society,

¹ Adamczyk J., Nitkiewicz T., „Programowanie zrównoważonego rozwoju przedsiębiorstw” (*Programming of Sustainable Development in Companies*), PWE, Warsaw 2007

² Skowrońska A., „Technologie logistyczne jako przykład technologii środowiskowych na drodze do zrównoważenia rozwoju” (*Logistics Technologies as an Example of Environmental Technologies Toward Sustainable Development*), Logistyka 1/2008

- ✓ fair access to natural resources,
- ✓ improvement in education level³.

Sustainable logistics chains are based on the concept of logistics ecologic imperative, which treats logistics chains as an arrangement of several or more mutually interrelated links in supply and sale chains which enable realization of the chain needs captured as a whole or as individual links. According to this initiative, realization of the needs is connected with a necessity to remove negative impact on the environment, while in relation to sustainable logistics chains, the realization is based on the following principles:

1. Selecting – searches for methods of satisfying alternative needs, which also reduces strenuous impact on the environment and social surrounding,
2. Minimization – concerns the use of space, matter, energy and time at the possibly lowest level,
3. Maximization – tends to increase efficiency of time, matter, energy and space use.
4. Segregation – minimizes and removes side effects of logistics processes realization in a segregated way.

The idea of close location of chain participants from each other is crucial from the standpoint of a necessity of technological combination of production plants which use side products – in terms of waste – as initial material used during a process in another plant.

One of the features of sustainable development is their accordance with ecosystems, which results from care for:

- ✓ Product designed in a way which enables its future processing
- ✓ Developing of new manufacturing processes which eliminate waste generation
- ✓ Stopping the production of disposable goods
- ✓ Use of material-saving technologies
- ✓ Elimination of redundant flow within a supply chain⁴.

One of the very important subsystem of traditional logistics, especially nowadays, is reverse logistics. For many decades technical and technological innovations were the reasons of successive rising the natural environment destruction and also of conflict between the economic growth and ecology. Preventing of such a situation is a necessity⁵. For this purpose arisen the concept of reverse logistics. It has to reproduce and restore the economic and environmental relative balance.

Reverse logistics in global market

Applied to literature research from the range of reverse logistics various terms and approaches to processes are using. Since reverse logistics is relatively new branch of logistic knowledge other terms often occur in foreign language literature like for example logistics of returns, backward logistics or the reverse distribution, but they all refer to the same kind of action. The variety of the definition is the effect of misunderstandings coming from the novelty of the subject both in the theory and the practice⁶. So the unimpeachable authority as Council of Logistics Management standardized the term and introduced the name of reverse logistics.

³ Grabara J., Nowakowska-Grunt J.: Rozdz.2.1.Strategiczny wpływ nowych dyrektyw Unii Europejskiej w zakresie ekologii na logistykę odwrotną i zamknięte pętle łańcuchów dostaw (*Strategic Impact of New EU Ecology Directives on Reverse Logistics and Closed Supply Chain Loops*) . W: Zintegrowane zarządzanie marketingowe i logistyczne w Zjednoczonej Europie. Red. nauk. Lidia Sobolak Wyd.WZPCz Częstochowa 2005

⁴ Nowak Z., „Czystsza produkcja - strategia ochrony środowiska XXI w.” (*Cleaner Production – Strategy of Environmental Protection in 21st Century*), „Problemy Ekologii” 1997, No. 2

⁵ Hricová R., Warehousing System – Key Element of Company Processes. In: *Zborník referátov zo 2nd Conference with international participation Management of Manufacturing Systems focused on Manufacturing Logistics and Supply Chain Management*. FVT TU Košice so sídlom v Prešove, Prešov, 2006

⁶ Melissen F. W. and A.J. de Ron. Defining recovery practices - definitions and terminology. *International Journal on Environmentally Conscious Manufacturing and Design*, 8(2):1–18, 1999.

Among the literature examinations often is functioning the opinion that the most important tasks of reverse logistics are: waste collection and segregation, their transport and storage, and reprocessing, utilization and landfill⁷. Lately, systems of reverse logistics gained the dignity in companies activity strategies with regard to bigger and bigger pressure from the government, legal adjustments and society on aspects of natural environment protection. Because of that these modern logistic systems are more and more functional, diversify and wide.

The first known and published definition of reverse logistics emerged in early ninetieth and is presenting in the following way: reverse logistics is the term often used in regard to the role of logistics in recycling, waste disposition and hazardous waste management; the broader perspective contains all actions connected with logistics in the relationship of materials reduction, recycling, substitution or reuse and also material disposition⁸.

The other definition determining reverse logistics as the dislocation of goods from the customer back to the manufacturer through distribution channels⁹. The authors of this conclusion took under remark market rules and later analyzed them.

The definition in context of the reverse flow direction compared to the traditional one treats reverse logistics as the broad referring term of logistic management and hazardous or non-hazardous wastes management, where wastes are coming from packing or production.

Here reverse distribution is included, which causes goods and information flows in reverse direction than in traditional logistics¹⁰.

At the end of ninetieth reverse logistics was characterized with emphasis on the main logistics objective and processes as the process of planning, implementing and efficiency control, costs and raw materials flows, storing process in production and final products storage, as well as information connected with them from the point of consumption to the point of the origin in order to value recovery or correct disposal^{11,12}. This definition is also the newest one.

To have a reverse logistics system functioning efficient it is worth to support it with some information system. This can be very useful step for the company and gives effectiveness of reverse logistics. There are many such systems implemented in Poland and they all are module build. For good example of logistics support at the company it might be use the 21 System¹³. Its main modules are:

- Logistics and Customer Service subsystem modules such as: Material Management, Purchase Service, Purchase Demand, Localization Service, Demand Forecasting, Transportation Planning, Purchase Scheduling, Sale Service, Fast Order Processing, Sale Scheduling, Electronic Data Interchange, Integrated Fax.
- Production subsystem modules such as: Production Data Base Management, Product Configuration, General Planning, Material Needs Planning, Production and Costs Control.

On the Figure 1 are presented global operations in areas: Sales, Field Service, Customer Support. Enterprises must looking ability to systematically reduce costs and be able to elevate certain elements of logistics operations to a more efficient global model.

⁷ Štefko R., *Akademické marketingové inštrumentárium v marketingu vysokej školy*, Bratislava, R.S. Royal Service 2003

⁸ Stock J. R., *Reverse Logistics*. Council of Logistics Management, Oak Brook, IL, 1992.

⁹ Pohlen T. L., T. Farris *Reverse logistics in plastics recycling*, *International Journal of Physical Distribution & Logistics Management*, 22(7):35–47, 1992.

¹⁰ Kopicky R. J., M. J. Berg, L. Legg, V. Dasappa, C. Maggioni *Reuse and recycling: reverse logistics opportunities* Council of Logistics Management, Oak Brook, IL, 1993.

¹¹ Rogers D. S., R. S. Tibben-Lembke *Going Backwards: reverse logistics trends and practices*, Reverse Logistics Executive Council, Pittsburgh, PA, 1999

¹² Dekker R., K. Inderfurth, L. van Wassenhove, M. Fleischmann, *Quantitative Approaches for reverse logistics*. Springer-Verlag, Berlin, 2003

¹³ Dyczkowski M., *Komputerowe wspomaganie zarządzania logistyką firmy za pomocą pakietu Systemu 21*, Prace naukowe AE, Wrocław, 1997

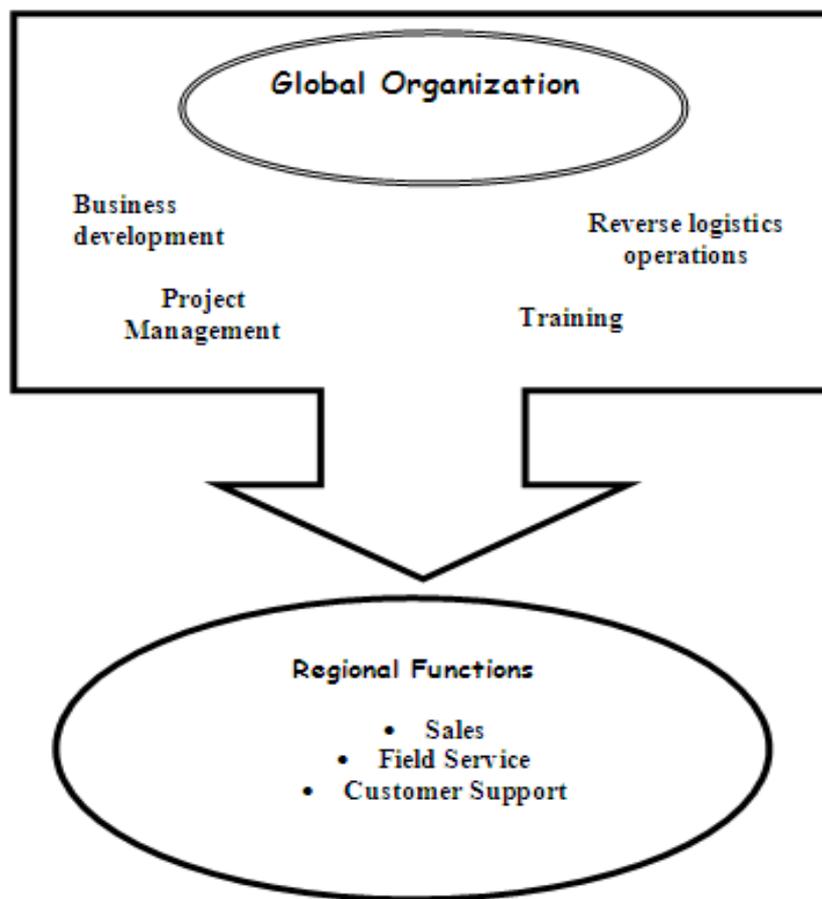


Fig. no. 1 - Global organization with geographically decentralized functions.

Source: own study on the basis of W.K. Pollock, *The globalization of reverse logistics operations*, [in:] *Reverse Logistics Magazine* May/June 2008

To sum up globalization is already norm for reverse logistics because it has become a way of life for businesses of all types.

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