


## Chapter 2

# Brazilian Solid Waste Policy (PNRS): Some Aspects of Business Recycling in Reverse Logistics (RL)

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### **ABSTRACT**

*Brazil's national solid waste policy (PNRS) took nearly two decades to pass through legislative houses until it was approved as a law protecting the environment. During this period and after its approval, pro-environmental factors led to the right to transform and create protocols, agreements, and new companies in the sense of a reverse logistics or of a reversibility in the environmental effects of the supply chain. This chapter has aimed to present aspects of the Brazilian business reality in the process of implementation of the PNRS as a reflection on the perspective of product recycling and solid waste control and reverse logistics. The PNRS is in the phase of corporate expansion, taking stock of eight years since the creation of the law (2010). As some branches of Brazilian business activity have not yet had reverse logistics regulated, in the coming years there should be a much higher demand for this type of reverse business.*

### **INTRODUCTION**

Government pressures, stemming from stricter environmental laws, society's growing concern about the environment, scarcity of natural resources, increased pollution, and strengthening non-governmental environmental advocacy organizations (Gonçalves-Dias & Teodosio, 2011, Sellito et al., 2013) have forced companies to generate sustainable products and services (Macagno, 2013).

Several organizations already consider sustainability as one of the main factors to be discussed in their business strategies (Przychodzen & Przychodzen, 2013) and seek to implement environmental management tools, such as reverse logistics, defined as a service innovation that complements the chain

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of distribution. With this logistics it is possible to efficiently control and operationalize the return to the productive cycle of the products that have lost their usefulness, which guarantees a lower impact of the disposal of products in the environment and a production model that uses, on a smaller scale, raw materials from nature (Miller & Sarder, 2012; Tenorio, Silva & Dacorso, 2014).

Brazil's national solid waste policy (PNRS) took nearly two decades to pass through legislative houses until it was approved as a law protecting the environment. During this period and after its approval, several pro-environmental movements led to the right to transform and create new companies in the sense of a reverse logistics or a reversibility in the environmental effects of the supply chain. Reverse logistics is a concept of sustainability that has reformed the supply chain in several solid examples in Brazil (Andrade Júnior, 2018) and it is perceived that the National Solid Waste Policy of Brazil encourages environmental education for the non-generation of waste and to reduce consumption, which is the basis for improving solid waste management (PNRS, 2010).

Logistics has positioned itself as a tool for business management for its contribution to obtaining economic benefits without disregarding environmental aspects (Rogers & Tibben-Lembke, 1998). Because the legislation that attributes greater responsibility to the producer becomes increasingly popular around the world, it tends to pass on to the manufacturer responsibility for the product from its manufacture to the end of its useful life. Although the final destination of these products is a major problem for the environment, it presents opportunities for recycling or reuse that can encourage several other operations that can bring positive results.

As alternative logistics and with a clearly environmental purpose, reverse logistics is linked at the same time to legal, environmental and economic issues, which makes it stand out and makes it indispensable in the organizational context, since it is the process through from which companies can become more environmentally efficient by recycling, reusing and reducing the amount of materials used (Carter & Ellram, 1998).

In addition, the factors of business cost reduction and good organizational image obtained through the use of secondary raw materials and the fight against waste tend to affirm the company as an environmental friend to the clients and stakeholders (Hu, Sheu & Haung, 2002). This can provide competitive advantages that, according to a survey of 93% of global CEOs, are essential conditions for company success (Przychodzen & Przychodzen, 2013, Tenorio, Silva & Dacorso, 2014). Therefore, the valuation and appropriate management of these solid wastes can promote a series of economic, environmental and even social benefits.

In this chapter, aspects of the Brazilian business reality in the process of implementation of the PNRS will be presented as a reflection on the perspective of product recycling and solid waste control and reverse logistics in Brazil.

## **SOLID WASTE AND REVERSE LOGISTICS (RL)**

Solid waste is all material, substance, object, or well disposed resulting from human activities in society, whose final destination is carried, it is proposed to proceed or is obliged to carry, in solid or semi-solid and gases in containers and liquids whose peculiarities make it infeasible to be placed in the public sewage system or water bodies, or require technical or economically unviable solutions in view of the best available technology (Article 3 of Law 12,305/10).

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