
Sustainability Issues of Packaging

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There is no universally agreed definition between packaging sustainability experts on what sustainable packaging means. Opinions vary widely from “There’s no such thing as sustainable packaging” (Johnson 2006) to “Sustainable packaging = circular packaging” (Netherlands Institute 2018). The first is compatible with the definition of sustainable development presented in Report (1992), which characterise it as ‘not a fixed state of harmony, but rather a process of change’. In such case sustainable packaging is rather a kind of ideal, unattainable by definition. However, by persistently and dynamically approaching it, the process could result in a sustainable system. The other view suggests that sustainability criteria can be met if packaging is produced by using only renewable and recyclable resources and the amount of materials and energy used for its production is minimized. Definition of sustainable development must cover all its domains (social, economic and environmental) as inseparable parts of the whole, where only harmony and balance between them lead to sustainable solution.

An objective quantitative evaluation of packaging sustainability is a challenging task with the output, which can always be debated. Nevertheless, a number of tools, mainly based on life-cycle-assessment (LCA) have been developed for this purpose. LCA, also known as life-cycle analysis, eco-balance, or cradle-to-grave

analysis, is a technique used to assess environmental impacts while seeking packaging sustainability. It is associated with all the stages of a product’s life from raw material extraction till disposal or recycling and helps making the right decisions first of all related to environmental part of sustainable development. The tools usually allow for evaluation of environmental impact of packaging, but not necessarily cover social and economic domains and their indicators.

Packaging waste is a growing and important waste stream, which accounts for between 15% and 20% of total municipal solid waste in different countries. Environmental impact of the packaging is often measured by material weight used in the package. Waste stream is considered to be a negative environmental factor by itself, therefore various measures are used to reduce it. Good packaging should only use as much of the right material as necessary to fulfil the requirements.

Currently two main principles of packaging sustainability regulation are applied around the world: voluntary and mandatory. Voluntary regulations are usually developed by pro-ecology oriented industrial and/or trade associations (e.g. The Consumer Goods Forum; Sustainable Packaging Coalition, USA; Sustainable Packaging Alliance, Australia and other) or even by separate companies themselves, e.g. Walmart, Dell,

UPS, EMC and other. A valuable input into global communication for packaging and sustainability was made by Consumer Goods Forum by developing a system of sustainability indicators and metrics.

Mandatory requirements vary greatly around the world, however many developed economies have well established legislative requirements for meeting packaging sustainability targets. The European Packaging Directive with its amendments is considered to be a world leading benchmark for packaging sustainability. The Directive establishes mandatory recycling targets for EU member states, as well as 'Essential Requirements' for packaging that include:

- _ To keep packaging weight and volume to the minimum amount needed for safety, hygiene and consumer acceptance of the packed product;
- _ To keep noxious or hazardous constituents to a minimum;
- _ To ensure that packaging can be reused or recovered once it has been used.

Together with harmonised CEN standards EN 13427-EN 13432, the Directive presents a complete package

of documents, which set requirements for packaging and methods on how to meet them.

Similar laws have been introduced or are under development in many emerging markets, for example China's Excessive Packaging Law of 2009. Initially covering beverage packaging, cosmetic packaging and selected food and bakery products packaging, these regulations limit the number of packaging layers permitted to three, restrict the permitted headspace (void-space) volume and specify a maximum ratio between the cost of packaging and the retail product price. In 2015 the Brazilian Government introduced an extended producer responsibility (EPR) law for packaging waste.

A number of alternate methodologies and design tools are currently used to support sustainable packaging design, including various guidelines, like: Opti-pack developed by the joint project implemented by 5 North European countries, Design Guidelines for Sustainable Packaging developed by Sustainable Packaging Coalition, Sustainable packaging guidelines by Sustainable Packaging Covenant, the EUROPEN guide, Guide by French Packaging Council and other.