

**LOSCHIAVO dos SANTOS, Maria Cecília et FRANCO PEREIRA, Andréa. Packaging: Function, Re-function and Malfunction. From Consumer Society to the Homeless Material Culture. In : *EcoDesign '99 - First International Symposium on Environmentally Conscious Design and Inverse Manufacturing.* Tokyo, février 1999, Pages 492-496.**

## **Packaging: Function, Re-function and Malfunction. From Consumer Society to the Homeless Material Culture.**

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### **Abstract**

*This paper seeks to understand the meaning of packaging in contemporary society. It discusses some technical aspects of packaging as well its life-cycle, from the consumer society to the homeless material culture. It provides an opportunity to analyse the role of packaging in the material strategies of survival of the homeless. From the preservation of products to the protection of the human body, packaging is in transition at the end of this century, under the impact of globalisation and the increasing poverty of the First and Third Worlds.*

### **1. Introduction**

Today packaging has come to mean more than an industry or a technological design issue. Packaging is apparent everywhere we look, from the microcosm of a coffee shop to the supermarket, to the streets of global cities. Packaging is an important and often unacknowledged ingredient of our contemporary daily life, it reflects an uncommon and provocative perspective of who we are and what we want. Its presence and complicity can even be found in old archaeological records. These records describe baskets, fibre recipients and ceramics manufactured thousands of years b.c. From Greece to India, passing by Central America recipients were found depicting human and animal forms whose significance and use are complex, varied and frequently enigmatic. These features are also presented by contemporary packaging, for example 'super heroes' on cereal boxes or cleaning products that work because of their magic powers. The vast archaeological records of boxes, bottles and pitchers are a good source of data for researchers looking to obtain information on the way of life, the understanding of the world, religion, trade, etc. of a particular time. The recycling and the reuse of recipients is also observed in

these old records, demonstrating the naturalness and spontaneity of recycling behaviour observed in our daily life in both large and small cities. For example the amphora used in Ancient Egypt: considered as the best recipient of the ancient region of Mediterranean, the amphora were used universally, but once empty they were difficult to find as a result of the existence of a massive program of reuse. Leaders in the cities and villages were responsible for the collection of these pitchers that, once refilled with water, were transported to a post in the desert to avoid the travellers carrying excess weight. [1]

The constant growth of the production of packing in the industrial age is above all due to its capacity to adapt the ways in which the products were used as well as their capacity to simplify their consumption. Nowadays packaging is essential to the development of many industries, it allows goods and food to be widely distributed and it is well adapted to its purpose.

Industry is an important world negotiator. The packaging industry valued a total US\$400 billion in machines and materials in 1992, US\$150 billion in Europe, US\$1100 billion in North America, US\$1100 billion in Asia, US\$130 billion in Latin America and US\$120 billion in Africa. [2]

But beyond functionalist packaging design there is another approach we would like to consider: the reuse of packaging by vernacular Brazilian handicrafts and the reuse of packaging by the homeless material culture.

The spontaneous practice of packaging reuse by consumers is generally analysed as a reflex to poverty in the underdeveloped countries. Yet, we have observed that this reality is very present in the Brazilian context in times of great penury, and in poorer areas; this has become a habit still in practice in the developed centres of the country. Objects made from discarded packaging materials are products of domestic and spontaneous reuse. Either they are objects which comply with an ecological approach, or they are produced as pieces of art. Frequently

found in the whole of the country, they reveal the latent and eternal presence of packaging in our consumer society.

The continual search for material strategies of survival caused the homeless to reuse packaging products and materials, attributing them other definitions; thus establishing new relations and constructing a new materiality for them. Packaging can reappear in unexpected ways, forcing us to reorder our thinking. For example, cardboard packaging can be used as a basic source of protection. It is used as insulation between the body and the sidewalk or as a temporary refuge by the juxtaposition of a variety of boxes.

The purpose of this paper is to discuss the technical and cultural role of packaging in contemporary daily life. We will consider packaging not only from a technological and functional point of view, but present a critical examination of the reuse of packaging and recycling from the consumer society to the homeless material culture. We present a methodology based mostly on a life cycle model [3] to describe packaging *function*, *malfunction* and *re-function* processes focusing on case studies of São Paulo, Brazil and Los Angeles, California.

## 2. From production to post-consumption

To understand the reuse and recycling processes for packaging carried out by the consumer society and by the homeless, as well as its implications and the interactions involved, we will begin to examine the general system of production and the wastes it discards, before going on to consider the post-consumption of the packaging.

In the cycle of life of packaging we identified three fundamental stages (see graph):

1) *Conception/production*. For this stage we take into account the data concerning the contents to be packaged, their physical and chemical characteristics, their conservation and the packaging process, transport; the process of conception of the packaging, materials, production; the packaging production process and the act of packaging.

2) *Consumption*. For this stage the sale procedures of the product packaged, its transport and storage are considered; the consumption of the packaged product and the interface packaging/user (use of the packaging, conservation and information); the dumping of the packaging and its transformation into garbage.

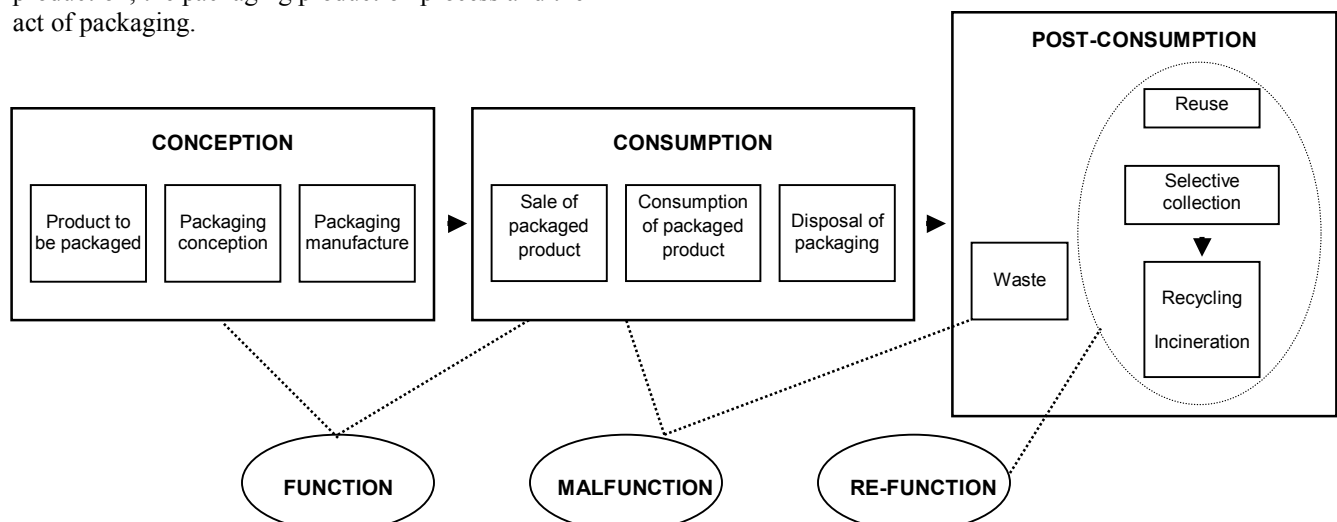
3) *Post-consumption*. For this phase we consider the reuse of packaging by the consumers and the homeless, the complex work of collection and screening, the recycling and revaluation of the packaging material.

The current discussion on the reuse and the recycling, in fact, tackles the subject of the function of the packing. We know that these practices only come at the end of the life cycle of the packaging giving to these products new uses, sometimes very different from those defined in the conception phase. Here, we note that these new use possibilities, these new objects created from the residue of the packaging, will present different forms and different contents, because they will be created from completely different needs.

For the life cycle of packaging we can identify three stages where the function concept can be analysed.

Firstly, the packaging fulfils what we could call primary functions. These functions are intimately linked to the characteristics of the packaged products, the packaging plays a secondary role. These functions, determined in the conception phase have as objective to coincide with the needs of the subsequent phase, that of the consumption of the packaged product. We will call this first use of the packaging simply, "FUNCTION".

Between the time that the packaging carries out its FUNCTIONS, and the time it finishes to fulfil its functions, we can identify some problems that we will call the MALFUNCTIONS of the packaging. We define as malfunction the non execution of the intended functions and its consequences. For example, the health problems



provoked by contamination, but also the damage caused by garbage production. Entirely ephemeral, the natural destination for the packaging after the consumption of the product is its disposal. In this case, we identified a fine distinction between the malfunction (the garbage production) and the possibility of a new use for the packaging residue: the possibility of a RE-FUNCTION.

We can conclude that in the life cycle of the packaging (see graph), the FUNCTIONS are defined in the conception phase and carried out in the consumption phase. The MALFUNCTIONS arise in the consumption and post-consumption phases (if they become garbage). The RE-FUNCTION arises in the post-consumption, when the discarded packaging assumes a new and unusual function.

Once we have identified these function phases we need to consider the role of new actors and the ways in which they will interact with the materials created from the discarded packaging.

## 2.1. Function

We propose a classification of the functions based on a chronological vision of the use of the packaging. [3]

If we start from the archaeological records of the first recipients, we notice that the basic function of the packaging was to contain the products, either conserving them and hence increasing their life time, or to facilitate their transport. Soon after, starting from texts written on the packaging, a second function of the transmission of information emerged, allowing the identification of the packaged contents and advice on their correct usage. Later on industries discovered the capacity of the packaging to stimulate the consumption of the manufactured products. Trade marks were used that could be memorised, making use of forms and colours to attract the consumers. We note the emergence of the marketing function. With the development of the packaging industry, another function appears, the utility function, facilitating the handling of the packaging, its identification in the supermarkets and its domestic transport. The functions of the packaging can therefore be described in four stages:

### 1) *Container function*

- To conserve: because the packaging seals and is inert; it protects mechanically against pressure, shocks, insects; against thermal transfers, light, microorganisms and vandalism.

- To transport and store: through the modulation of the packaging, facilitating the transport, storage and maintenance of the mechanical protection.

### 2) *Information function*

- To identify: through the advertising on the contained product, presenting clear and explicit information.

- To instruct: presenting information on the usage, life time, etc.

### 3) *Marketing function*

- To display: through the strategic display of the trade mark, the logo of the product. The product should be able to be memorised by the consumer, using subjective communication.

- To attract: through the use of colours that allow an "emotional" expression of the packaging.

### 4) *Utility function*

- To facilitate the use: through a design that offers systems of simpler opening, using ergonomic concepts in the conception and adaptation of the packaging to new life styles.

- To facilitate purchase: through a clear system of display on the sale shelves, using a design that facilitates domestic transport, and through the lowering of the price of the packaging.

## 2.2. Malfunction

The malfunctions of packaging are related to the problems that they can cause the users during the consumption of the packaged product and in its post-consumption. In each case, we consider these problems as being environmental, causing the degradation of the quality of life of the user, or effects on the natural atmosphere.

When observing the perception of the sensorial organs it is possible to identify the malfunctions of the packaging they can cause in terms of direct environmental dangers to man. The sensorial organs allow the human body to communicate with the external world. They carry out protection functions, and therefore, are capable to evaluate the quality of the products with which man establishes contact. [4]

In relation to vision, all the aspects of the visual programming of a packaging should be able to be understood. Besides the aesthetic aspects of the formal and chromatic balance, the visual programming of the packaging acts as a communication vehicle between the producer and the consumer, in particular in relationship to the legal demands (components of the product, validity date, etc.). Healthy colours are very important in the understanding of the texts and facilitate ease of identification. Clear compositions with typologies and appropriate positioning can decrease the occurrence of

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accidents caused by the inappropriate ingestion of products and also facilitate the choice of the product.

In the case of food packaging, taste is the sense for which more serious problems occur. Food contamination occurring due to the use of inadequate packaging can cause intoxication and flavour alterations, detected through the ingestion of the packaged products.

The aggressiveness of the packaging detected by the touch involves problems such as intoxication, cuts, wounds, burns, etc. of the skin. In the case of foods, dangers can occur by the ingestion of foods contaminated by chemical products (of their own packing or not) or from the deterioration of the food. Touch can be affected by flaws in the opening system, etc., that provoke intoxication of the skin by cleaning products, solvents, chemicals, insecticides and pesticides.

Flaws in the packaging of chemical products can also affect the sense of smell. Products can be absorbed by the organism, provoking serious health problems.

In the post-consumption phase, the malfunction of the packing concerns the production of garbage. The most evident and more serious environmental problem of garbage production provoked by packaging has seen an increase of considerable volume all over the world in recent years. Technical and economic solutions to the problem became a concern of several industries and countries that began introducing strict legislative regulations. To reduce the amount of material used by the reuse of returned recipients, by recycling of the materials, or by incineration to obtain energy, are some solutions proposed for packaging residues that can represent a 30 to 40% decrease in domestic garbage.

### **2.3. Re-function**

We consider here the spontaneous reuse or the recycling of the used material, the re-function of the packing.

We will define the re-function, a new and unforeseen use of the packaging in the conception phase, in agreement with two concepts gave by Kazazian [5]: recovery (*récupération*) and transformation (*détournement*). Reuse occurs at the moment the packaging is discarded and before it becomes definitively 'final' garbage in sanitary embankments.

In the recovery notion the objects are identified from the use of the packaging in the basic form in which they are introduced by the industry. These can be for example, wine in wooden boxes that can serve as modules for the construction of rustic furniture, as shelves, as dumb-waiters, etc.

However, in the transformation notion, we are concerned with the material of the packaging. Its original form is completely modified in agreement with the needs

of the new user. A plastic sack can be cut into fine ribbons to be woven, a cardboard box can be dissembled to be used as a sheet.

In the context of re-function, we will also consider the concept of recycling. Recycling is a key word in relation to the problem of production of packaging garbage, because it corresponds to a new industrial processing of the materials so that they can be used in another products. All the materials are technically recycled. However, a problem occurs because the economic factors found above, interact together in the complexity of the collection process and screening of the materials [6].

These three re-function concepts (recovery, transformation and recycling) are present in the material consumer society culture and that of the homeless, however these categories of the population interact with them for completely different needs.

We will take as our example the vernacular culture in the context of Brazil and the material culture of the homeless observed in São Paulo and Los Angeles.

The transformation of metal cans into mugs and glasses, pitchers or basins of domestic use are examples that in the 60's stimulated the creation of aid organisations specialising in handicrafts like ARTEME or MCP (Movement of Popular Culture) founded in the North-eastern area of Brazil [7]. Typical examples of penury of the population, these D.I.Y. products became commonly used in the Brazilian context, as is demonstrated by table mats made from plastic milk packaging that were found recently in São Paulo.

Another example of transformation of packaging residues by the consumer society is that of Agda Zanol and Daniela Aguiar's pieces, responsible for the project RECICLAR-T3/Escola Casa Aristides, the first school of recycling opened in Brazil in 1997 in Nova Lima/MG. Based on the concept of the 3Rs (to Reduce, to Reuse, to Recycle), the objects developed by this project present a much more artistic and academic character than those mentioned above. Objects serving as bags, backpacks, ties and clothes are made from plastic water bottles, metallic cans, inner tubes, old vinyl disks, etc. In spite of its alternative aspect, these objects result from conceptual design causing the appearance of another aspect linked to packaging residues. They force us to consider their indestructible presence.

Also in a penury context, the homeless wander the streets of the great cities exhuming products and materials giving them a new "materiality" which transforms the urban scenery. Cardboard and plastic packaging for appliances, are the materials chosen in the search of the construction of a dwelling. Cardboard buildings and plastics appear at the same time that residues of packaging and other products are reused creating another universe

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resulting from a lack of resources, being configured in an anti-design type [8].

In the recycling process, the packaging is collected and selected so that each material is reintegrated into the productive cycle, whether it be for the commercialisation of objects manufactured from recycled material, or for the commercialisation of the material as recycled raw material. However, the recycled material has a value attached if it is sold as a new object instead of raw material. This system is adopted in Brazil for most of the materials that are recycled. Glass already broken is sold from the direct screening centre, for glazing where it will be transformed into a new object. Cardboard is sold to factories that produce corrugated cardboard, covers for paper boxes, toilet tissue, etc. Plastic film is sold to manufacturers of garbage sacks. PVCs are sold to the factories that manufacture electric tubes and kitchen utensils. Flexible and rigid PE (polyethylene) is sold to the manufacturers of black tubes for irrigation. However, the problem facing recycling all over the world is the cost of collection and screening, a political problem to be articulated by community and governmental organisation that should be financed by the government. The complexity and difficulty of these operations generates impediments for the easy recycling, recovery and re-evaluation of some materials.

Brazil presents two types of selective collection issues which are closely related to their context in a country trying reduce some of its social problems. There are programs of garbage exchange for other products such toys, milk and other foods, carried out by the Town Halls of several cities. But collections of paper, aluminium cans, etc. are also carried by a certain sector of society called *catadores*. The homeless constitute the majority of these workers who collect and separate the packaging wastes of the city, selling them in order to earn a living.

### 3. Conclusion

In a framework of resistance, to provide their basic needs, a huge amount of homeless and poor people from the First and Third World have developed an alternative culture for packaging. It is no more simply a matter of wrapping products, but it is also a “wrapped around culture” that is providing some protection to fragile human bodies and souls, in one word protecting life. Abandoned on the streets of global cities, under flyovers, viaducts, on sidewalks, the poor population and the homeless have invented their survival strategies and tactics from the trash of our industrialised society. The packaging assumes the shape of their bodies thus creating urban volumes that gives us the opportunity to rethink the multiplicity of meanings for packaging in contemporary societies: they

are promoting life, or as Jeudy said, “it is the metamorphosis of nothing into eternal survival”[9].

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