



Waste and loss prevention of mass-market products:

The key role of packaging

Summary

Packaging, as an essential element of the product-package couple, fulfils different functions for numerous mass-marketed products (food, hygiene, cosmetic...) such as preservation, protection, shipping, etc. It is part of the available solutions to reduce loss, particularly food, considering different aspects:

- A better design
- A better retailing
- A better consumption

This publication aims at analysing the waste and loss causes of mass-marketed products and at determining the actors of these phenomena. It also explains how a better packaging could help reduce these losses and waste.

The packaging industry mainly concerns the food market but not only (hygiene, beauty, luxury, electronics, etc.).

This document is more particularly focused on the food market, which presents high figures in terms of lost or wasted products and also because the world food security issues represent ethical and societal questions.

Within the framework of its prevention mission, the CNE has listed below the ideas, actions and good practices which deserve the attention of partners in order to plan a possible development, according to the level of difficulty and the necessary means.

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1. Context

The loss and waste of mass-marketed products, particularly food, is an established fact, be it in poor and developing countries or in developed countries. The problems of these two categories of countries are different and set an important societal question, at a time when billions of people suffer from food insecurity and malnutrition.

One of the objectives of the United Nations millennium is to halve the proportion of starving people between 1990 and 2015.

In France, the questions concerning packaging, loss and waste are part of the action plan of the Programme National pour l'Alimentation 2010 (National Program for Food 2010)¹ of the concerned ministries.

a) Facts and figures

The diversity of the bibliographic data, of the studied fields and countries make any figure comparison impossible. However, some macroscopic data can give an idea of the importance of the subject.

1.3 billion tons² of food products are allegedly lost every year, worldwide, between the agricultural production and the final consumption. The losses are estimated to vary from 200 to 300 kilograms a year and per capita in developed countries, among which 95 to 115 kg concern the final consumer whereas they reach 120 a year and per capita in developing countries, among which 6 to 11 kg are due to consumers. The main cause of these losses depends on the studied region:

- More than 40% of the losses in developed countries are generated during the sales and consumer phases.
- More than 40% of the losses in the developing countries are generated before these phases.

For example: Kenya loses up to 95 million litres of milk a year, which represents an economic loss of about US \$22.4m (FAO, 2004). The use of 2850 tons of packaging³ would allow, on a macroscopic scale, a decrease of these losses. However, the packaging itself cannot solve all the problems this country faces (infrastructures, transport, etc.).

According to studies on waste, carried out in France by Ademe⁴, 20 kg (15 to 20 kg in Belgium⁵) of food products a year and per capita are allegedly thrown away, among which 7 kg are still packaged. In the United Kingdom⁶, about one third of the food products are said to be thrown away.

This represents a social and environmental absurdity, reinforced by the extra pressure this waste puts on already limited resources.

¹ <http://alimentation.gouv.fr/IMG/pdf/PNA-09022011.pdf>

² Global food losses and food waste, FAO, Interpack 2011.

³ If the package of one liter of milk weighs 30 grams

⁴ French campaign of household waste characterisation 2007-2008, Ademe.

⁵ <http://www.copidec.be/Gaspillage-Alimentaire.pdf>

⁶ WRAP, 2009, Household Food and Drink Waste in the UK. Report prepared by WRAP. Banbury.

b) Impacts

Manufacturing mass-marketed products or goods involves the use of resources and raw materials and generates different impacts. Therefore, when a product, packaged or not, is lost or wasted, it means that all the resources used to make this product have also been lost or wasted.

The impacts resulting from waste and loss present different dimensions:

Environmental:

- ✓ Pressure on resources: water, raw materials (exhaustion of non renewable natural resources, usable agricultural areas),
- ✓ Climate change and greenhouse gas emission,
- ✓ Waste production and management,
- ✓ Energy consumption.

Social:

- ✓ Confrontation between loss and waste and hunger in the world,
- ✓ Food accessibility.

Economic:

- ✓ Loss and waste costs (€430 per year and per capita in France⁷, £420 per year and per household in the United Kingdom⁸),
- ✓ Indirect cost (water, raw materials, packaging, workforce, waste treatment, etc.),
- ✓ Food accessibility (costs). The proportion of a household's budget which goes into food is greater in the lowest-income families (about 21% to 50%) than in the most well-off ones (14%)⁹.

The United Nations¹⁰ (UN) and the Food and Agriculture Organization (FAO)¹¹ predict a world population increase of more than 2.3 billion people before 2050. Several other studies¹² show that to feed this population, food productions¹³ will have to be increased.

With a loss and waste rate of about one third of food production, solutions to optimize the current supply-chain model need to be found.

Consequently, it is not only about increasing production but also about finding a better yield for the whole value chain of the produced item (from production to use) and some restraint so that use corresponds to the consumer's needs.

Therefore, the main prevention mission of the CNE corresponds with the sustainable development steps taken by companies, by the state (objectives set by the Grenelle environment law) or by some consumers.

The CNE aims at highlighting the potential solutions packaging presents concerning food loss and waste.

⁷ Study realized by TheConsumerView for Albal, March 2011.

⁸ WRAP, 2009, Household Food and Drink Waste in the UK. Report prepared by WRAP. Banbury.

⁹ http://www.insee.fr/fr/themes/document.asp?reg_id=24&ref_id=14167#partie2

¹⁰ <http://www.un.org/esa/population/publications/wpp2006/French.pdf>

¹¹ <http://www.fao.org/news/story/fr/item/35571/icode/>

¹² B. Dorin, S. Paillard, S. Treyer. Agrimonde, scénarios et défis pour nourrir le monde en 2050.

¹³ Analysis carried out by the center of studies and prospective, issue n°27, February 2011. MAAPRAT.

2. Definitions

- Date of minimum durability of packaged products¹⁴:

Date which signifies the end of the period under any stated storage conditions during which the foodstuff, will remain fully marketable and will retain any specific qualities for which tacit or express claims have been made. It also has to specify the storage conditions of the foodstuff (more precisely the storage temperature).

- Use-by date:

It is usually expressed by "Use by... (month, day)".

The use-by date is compulsory for highly perishable food in microbiological terms (fish, eggs, peeled vegetables packets, dairy products, cooked pork meats, fresh meat...) for which consumption after use-by date presents microbial risks that can jeopardize human health¹⁵.

The use-by date also gives indications about the required storage temperature and is valid only if this temperature is respected. After this date, the food should not be regarded as marketable.

- Optimal consumption date:

This mention must appear on foodstuff that present a relative microbial stability (appertizer cans, frozen products, breakfast cereals, biscuits, pasta...). It is presented this way: "Best before... (month/day/year)" or "best before end... (month, year) or (year)"¹⁶.

It indicates the date after which the gustative or nutritional qualities of the product can be affected without however jeopardizing health. Are indicated:

- The year, for products which durability exceeds 18 months.
- The month and the year for those which durability is situated between 3 and 18 months.
- The day and the month for an estimated durability of less than three months.

Some products are exempted from this optimal consumption date (some confectionery, wines and spirits, etc.).

The consumption code doesn't forbid selling foodstuff for which the optimal consumption date has passed, but in this case, the shopkeeper has to make sure his product is still "faithful and marketable" as required by legal precedents for every kind of product. For instance, the integrity of the product-package couple: there must be no doubt about possible food deterioration.

- Waste¹⁷:

"Wastes are materials that are not prime products (that is products produced for the market) for which the generator has no further use for the purpose of production, transformation or consumption, and wants to dispose of."

- Packaging¹⁸:

"All products made of any materials or of any nature which are to be used for the containment, protection, handling, delivery and preservation of goods from the producer to the user or consumer, and that ensures its presentation. All the disposable items used for the same purpose must also be considered packaging".

¹⁴ Article R112-22, 1st paragraph of the consumption code.

¹⁵ Article R112-22, 2nd paragraph of the consumption code.

¹⁶ Article R112-22, 3rd paragraph of the consumption code.

¹⁷ Article L541-1-1 of the environmental code (Transposition of the Directive 2008/98/CE).

¹⁸ Article R543-43 of the Environmental code.

Packaging can have different aspects:

1° **'Primary' or 'Sales' packaging (I)** is the packaging conceived so as to constitute a sales unit to the final user or consumer at the point of purchase.

2° **'Secondary' or 'Grouped' packaging (II)** is the packaging conceived so as to constitute at the point of purchase a grouping or a certain number of sales units whether the latter is sold as such to the final user or whether it serves only as a means to replenish the selves at the point of sale. It can be removed from the product without affecting its characteristics.

3° **'Transport or tertiary packaging' (III)** is the packaging conceived so as to facilitate the handling and transport of a number of sales unit or grouped packaging in order to prevent physical handling and transport damage. Transport packaging does not include road, rail or air containers.

- Wasting :
Deliberately not using a product which can still be used: paint in a paint can, cream in a tube, the rest of a plaster bag, etc. Wasting arises at the end of the logistics chain: in industries, with wholesalers, distributors and consumers.
- Food wasting¹⁹ :
This generally refers to the rejection and deliberate neglect of food which can still be used and is absolutely healthy²⁰.
- Losses²¹:
This notion generally refers to a reduction of the quantitative and qualitative value of food:
 - Loss of a part of the crops because of rodents, of pests or of diseases
 - Faulty transport, infrastructures or storage
 - Etc.
- Rate of refund:
It is the ratio, in percentage, between the quantity of the product the consumer will use in normal use conditions (without using tools to open the package in order to get the residual product) and the commercial quantity labeled on the Consumer Sales Unit.

^{19 21} Lundqvist, J., C. de Fraiture and D. Molden. Saving Water: From Field to Fork – Curbing Losses and Wastage in the Food Chain. SIWI Policy Brief. SIWI, 2008.

²⁰ For a complete definition, the reader is invited to consult the intermediate report of the study dealing with food waste (version of June 2011) of the ecology ministry.

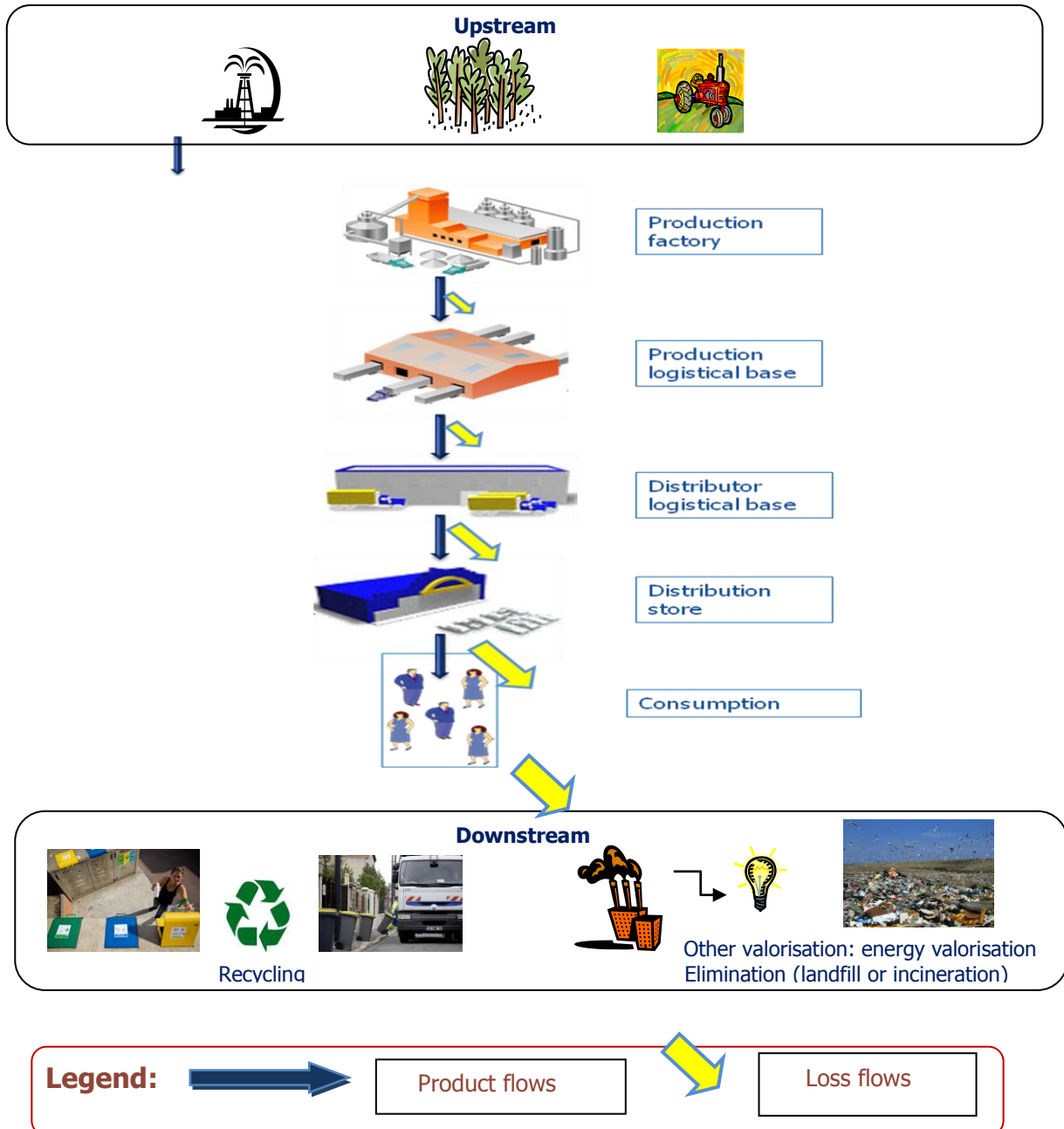
3. Data

a) Scope of the study

The document aims at determining the wastes and losses during the entire logistics chain. The study is limited to the role of packaging inflows of mass-marketed products (whether food or not), from the production of an item packaged in the packager factory to the consumer, and from the way the latter uses the product to all the distribution stages (see below).

Other studies on wasting exist (see bibliography) and examine the chain from upstream raw materials to the very end of products.

Waste and losses throughout the logistics chain



Since every stage mobilizes resources, the later the losses occur in the chain, the more important they are, since they combine all the environmental impacts of the previous stages. Some of these losses are upgraded in another economic loop (animal feeding, etc.) so as to reduce the environmental impacts.

b) Loss quantification and causes

In industrialized countries, losses mainly come from consumers who waste more or less consciously²². Studies (see bibliography) show that, in Europe, (food and liquid) wasting and losses are due to:

- Consumers: 42% to 64%,
- Industrial production (all products): 27% to 39%,
- Distribution and selling (all stores and restaurants): 9 to 19%.

The French federation of food banks (FFBA)²³ estimates that hypermarkets and supermarkets in France throw away 600 000 tons of products a year (mostly fruit, vegetables, ultra fresh products at the end of their use-by date) and thinks that about a third of it could be retrieved.

Companies (producers and distributors) usually list and upgrade product losses in their trading account, depending on a financial indicator or, quite rarely, on the physical quantity indicators (weight and volume). Therefore the data produced by the CNE partners are very fragmented.

However we managed to gather the data and obtain an estimation of the losses in the centrals of large scale-distributors: about 2% of the value²⁴.

Some professional, personal, social or cultural practices can account for wasting, disuse or scrapping. They can be split up according to the three levels of the supply-chain: production, distribution and consumption.

Production:

- Discrepancy between production and sales expectations,
- Health crisis,
- Losses/off cuts and dysfunction due to the machines (for transformation, conditioning...),
- Bad handling,
- Administrative and computer errors (during the placement or the execution of orders...),
- Surplus because of a recipe, packaging or sideline change,
- Packaging that does not empty out everything it contains (Rate of refund). Examples: spreads, yogurts, honey, sauces, as well as beauty creams, shower gels, toothpaste, no matter what packaging they are in (pots, tubes, bottles, etc.).

Some products cannot be totally emptied out, for instance:

- o In a 125g²⁵ yogurt pot, up to 4% is lost because of lack of "spoonability"²⁶,
- o Up to 5% of beauty creams is generally lost²⁷,
- o Up to 4% of liquids depending on its packaging²⁸.

These figures can seem somehow anecdotal for a consumption unit, but they represent substantial lost volumes considering the quantity of sold products.

For example: for 2 billion 125g²⁹ yogurt pots, there is an estimated loss of 10 000 tons, i.e. the milk of about 1100 cows³⁰.

²² Eurobarometer: Attitudes of Europeans towards resource efficiency, analytical report, March 2011.

²³http://www.banquealimentaire.org/sites/default/files/etude_ffba_impact_ges_du_gaspillage_alimentaire_vf_avril_2011.pdf

²⁴ CNE Source: information from distributors.

²⁵ Expansión Spain, issue of May, 5th of 2011.

²⁶ Possibility of emptying the yogurt out of its container with a spoon.

²⁷ CNE Source.

²⁸ http://www.innventia.com/upload/Gamla_PF-sidor/204%20Produktspill.PDF

²⁹ According to the annual sales of an important actor of the Spanish market of yogurt.

³⁰ With 8997 kilos of milk per Prim'Holstein cow.

Distribution

- Losses due to transport, damage due to handling and to consumers,
- Unsold products in store because of their quality, the regulation (passed Use-by date), inefficient offers, meteorological conditions,
- Discrepancy between the quantity of the sold Consumer Sales Unit, the product life expectancy and the consumer's need (particularly for perishable products).

Consumption

Sociological causes

- Security and disposability culture,
- Lack of "respect" of the produced item and of "citizen" responsibility. Living in an affluent society (shortage years have been forgotten) makes the population more indifferent to wasting,
- Perceived value of the product,
- Consumer's awareness of how much is thrown away: in the United-Kingdom, 84% of households think they do not waste. In Europe, according to the later Eurobarometer³¹, 11% of Europeans say they do not throw any food away, and 71% say they throw away less than 15% of their food.

Purchase related causes

- Incomprehension of the use-by date and the optimal consumption date by the consumer,
- Reading/visibility difficulties of the use-by date/the optimal consumption date/date of manufacture/packing date/sell-by date,
- Discrepancy between the available quantities and the size of households/families,
- Discrepancy between the portions and the way they are used (between the three available volumes³², the person will generally chose the medium one),
- Lack of shopping planning considering the real needs of the household,
- Refusal to buy nonstandard products (bad aspect of the fruit and vegetables, for instance),
- Purchase of an amount of products superior to the household's needs (offers).

Storage and consumption related causes

- Non structured management of the fridge contents,
- Product damage due to disregard for the cold chain after the purchase or due to an inappropriate fridge temperature,
- Indivisible consumption (package that does not close correctly, and does not preserve well),
- Bad preparation of the product (user's guide, application of excessive doses),
- Suspicion/doubts about the quality of the product (because of the way it looks, smells, tastes, sounds...),
- Non-consumption of a certain part of the product by all consumers (bread crust, some peelings, cheese rind, etc.).

³¹ Eurobarometer: Attitudes of Europeans towards resource efficiency, analytical report, March 2011.

³² P. Etiévant, F. Bellisle, J. Dallongeville, F. Etilé, E. Guichard, M. Padilla, M. Romon-Rousseaux (éditeurs), 2010. *Les comportements alimentaires. Quels en sont les déterminants ? Quelles actions, pour quels effets ?* Expertise scientifique collective, rapport, INRA (France).

4. Product-packaging couple

a) Packaging functions

Below, you will find a presentation of the packaging functions, according to the waste and loss problems for the production-packaging couple (non-exhaustive list):

- **Preserving/protecting**
 - It essentially involves protecting the contents from the environment (limiting damage by mechanical impacts, preserving from air or oxygen spoiling, protecting from the infiltration of germs, insects, or undesirable products, increasing the life expectancy of perishable goods...).
- **Informing**
 - Giving general and legal information (use-by date, storage temperature, user's guide, dosage/unit dose, composition, presence of allergens, price, quantity, weight, etc.),
 - Diffusing information related to the characteristics of the product in its market environment (brand, allegations about nutrition and/or health, recipes, cooking mode, product history...).
- **Grouping**
 - Grouping several consumption units together so as to get an adequacy between product consumption and purchase frequency (yogurts and beer pack),
 - Gathering products in units which can easily be handled (biscuits packets) in order to ensure different types of consumption (eating on the move...),
 - Enabling grasping and transport for the consumer,
 - Making shelf stacking easier as well as any other handling action for transport operators (use of cases, cling film for pallets in order to avoid the fall and loss of products).
- **Transporting and storing**
 - Delivering the goods from the production site to the sales area without damage (preservation of the product-package couple from mechanical accidents) with wood pallets, corrugated board protections, corner protections, metallic and plastic strings, cling film and shrink-wrapping, etc.),
 - Ensuring that the consumer can transport the products home,
 - Enabling stowage for the consumer.
- **Making the product easier to use**

The use of the product and its package go together, since they are often inseparable:

 - A reclosing mechanism so the product can be re-used subsequently,
 - Several small portions for interrupted, "on the go" consumption,
 - Appropriate doses to limit the losses,
 - Restitution of the product: emptying the contents out of the package as much as possible,
 - Using the product-package couple for any kind of preservation (freezing) or preparation (oven, microwave oven, double boiler, etc.).

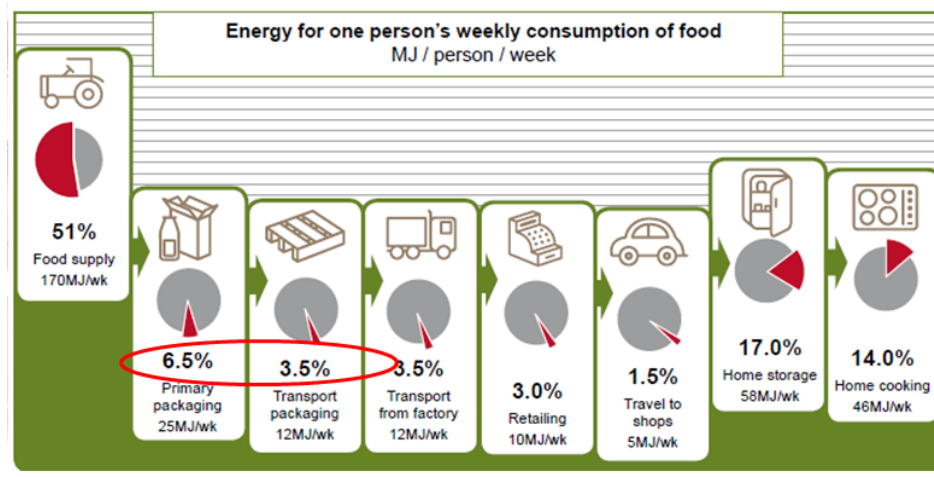
- **Industrializing the conditioning of the product**

- Resistance to the conditioning units (impacts, heat, output, vibrations, closing, hygiene, aseptic canning...),
- Limiting losses on packaging lines thanks to appropriate packaging.

b) Packaging impact on the environment

Various available studies of Life-Cycle Assessment (LCA) managed to quantify the environmental impacts of packaging by an analysis of the product-package couple. It has been decided that only the strongest and the most documented environmental impacts will be taken into account.

- **Primary energy consumption³³**



About 10% of a person living in the United Kingdom's primary energy consumption is due to packaging, during his/her average weekly consumption of food.

The heaviest parts of primary energy consumption are related to the agricultural upstream, to food storage by the consumer (refrigeration, freezing) and to the preparation and cooking of products.

- **Greenhouse gas**

Agri-foodstuff market

According to the nature of the food product and from a macroscopic point of view, the weight of packaging in this impact represents 10 to 20% (when not in utilization stage³⁴).

Personal hygiene market

The weight of packaging varies from 0.2 to 17%, depending on whether the utilization stage by the consumer for products such as shampoo³⁵ is taken into account or not.

³³ A table for one, July 2009, INCPEN.

³⁴ Pilot project on environmental display. ANIA/FCD/ADEME.

³⁵ LCA study realized by Price Waterhouse Coopers for FEBEA (Beauty Companies Federation).

c) Packaging as an impulse for the conservation of resources

The main function of packaging is to protect and preserve what it contains: it is a container that durably protects its contents³⁶. Consequently, packaging is a way to avoid waste and losses.

It is important to remember that when a packaged product is thrown away, waste is not limited to the product and its packaging. Indeed, the different resources (workforce, water, energy, agricultural input...) involved in obtaining the final product must also so be considered wasted.

Designing a package that takes the essential requirements³⁷ into account and thus, providing a package that suits the needs of the contents, enables avoiding product loss³⁸.

Example: 20 million paper bags of a carrying capacity of 50 kg each, i.e. 3000 tons of renewable resources are sufficient to condition and protect one million tons of food products (powder form or dry products³⁹).

Finally, the financial impact is also inevitable. In the United Kingdom for instance, the food that is thrown away although it could have been eaten represents a quarter of a household's spending⁴⁰.

d) Packaging and good prevention practices

How can we limit losses and wasting? Everyone can take part in the improvement of this situation since losses and waste happen throughout the food chain and implicate various factors.

Within the framework of its prevention mission, the CNE has listed below the ideas, actions and good practices which deserve the attention of partners in order to plan a possible development, according to the level of difficulty and the necessary means.

The following list is based on the will to take action and to design retail and consume better.

³⁶ http://www.prodimarques.com/rubriques/contenu-payant.php?doc_name=emballage-dechet.php

³⁷ CNE Application guide for "the taking into account of the requirements related to the environment in the packaging designing and manufacturing".

³⁸ Helen Williams, Fredrik Wikström Department of Energy, Environmental and Building Technology, Faculty for Technology and Sciences, Karlstad University, SE-651 88 Karlstad, Sweden. Environmental impact of packaging and food losses in a life cycle perspective: a comparative analysis of five food items.

³⁹ Average weight of a paper bag of 150 grams (source: Eurosac).

⁴⁰ The water and carbon footprint of household food and drink waste in the UK, Dr. Ashok Chapagain (WWF-UK) and Keith James (WRAP).

For a better design⁴¹:

When designing a package, companies take the waste and loss problem into account through different aspects such as:

- Making sure the volume of contents is adapted to the consumer's need

Big volumes or individual packaging.

- Deferred consumption

Reclosable or portionable package.

- Packaging surplus

Wasting does not only affect the contained product, but also the packaging that can, sometimes, be overdesigned (nonconformity with the directive 94/62/CE for instance). It is important to remember that the CNE has already carried out research about "overpacking"; the reader is invited to consult these publications (see bibliography).

- Refund rate

Beyond the quantities of lost products (see page 8), the consumers ask for the optimization of product emptying.

The CNE encourages its partners to take this standard into account for any kind of eco-designing of the product-package couple. It is an aspect that will be reminded in the new version of its referential as an essential parameter (to be published by the end of 2011).

- Exact doses

The packaging can guide the consumer: it can help him use the exact dose of product he needs.
Example:

- Designing dosing pumps to provide the appropriate dose.
- Measuring the exact dose thanks to the packing (indicators on the cardboard packing to dose pasta, liquid detergent bottle, measuring containers...).

The CNE advises its partners to integrate any kind of means that may help the consumer understand what the appropriate dose is (information) and guide the consumer to apply this dose (with clever and entertaining shapes for example). This avoids any packaging design that could interfere with waste sorting.

⁴¹ Document on the eco-design of the product-packaging couple, to be published by the end of 2011. CNE.

For better retailing:

- Making sure there is the right amount of conditioned sales units (CSU) per delivering unit for sales

The choice of the delivering conditioning (that contains the CSU) should be adjusted to the store sales (more precisely the short use-by date products). This choice should be as wide as possible to enable to order quantities that fit the rotation constraint. This choice must be made at a reasonable economic cost for all payees, evaluating the technical feasibility of the conditioner.

- Virtual lots

In the same field, the notion of virtual lots (ex: a combination of 12 yogurts by buying 3 sets of 4 yogurts versus a 12 yogurt-pack (imposed flavors) can certainly limit wasting since it provides an individualized choice during the purchase.

- Deferred offers

This new kind of offer has been available in the United-kingdom since Gordon Brown (Prime Minister in 2008) banned "2 for 1" offers⁴². Even if the packaging does not have a specific role against the prevention of losses, this offer principle with a free deferred product (BOGOF Later⁴³) allows an adjustment of the purchase according to how much product is really needed.

- Redistributing to charity (food banks, etc...)

This practice, more than just being socially responsible, enables the store to get fiscal gains thanks to donation. Moreover, since gleaning⁴⁴ is both an ethical and technical issue, it can constitute a strong incentive to give edible products that cannot be marketed to charitable organizations rather than throwing them away⁴⁵. These donations are also practiced by the producers themselves.

⁴² Food Matters : toward a Strategy for the 21st century, the Strategy unit, Cabinet Office UK 2008.

⁴³ "Buy One, Get One Free... Later": a purchased item amounts to a free item that the consumer can have later.

⁴⁴ <http://www.rsa.gouv.fr/Martin-Hirsch-rend-publics-les.html>

⁴⁵ Guide of best practices of food aid, ANIA-FCD, July 2009.

For better consuming:

As well as the industrials and distributors, the consumer also has a role to play in the prevention of losses and waste, more precisely:

- Purchase planning

To date, it is not sure that consumers know how to put their purchase volumetry perspective with their consumption "need" and how this is related to the life expectancy of the products.

- "QR code"/gencode/smartcode

The use of IT (Information Technology) enables the access to real-time information that can be deported to a website or to an exchange platform, if the codes readable by smartphones (or their associated applications) are printed on the packing.

- Use-by date and Optimal consumption date
- DLC et DLUO

It is reminded by the CNE that packaging is also information backup and that this medium could be used to explain these dates in a simple way.

The CNE informs its partners that regulatory measures⁴⁶ have recently been taken about the consumer's information on the legal notice of food products

- Fridge management

The basic rules of managing the contents of a fridge have to be reminded, at least it is necessary to respect the "first in – first out" practice (FIFO⁴⁷). The package can also have an informative role by suggesting to the consumer to put the oldest products on the front of the fridge.

- Deferred consumption

Possibility of having reclosable packages or of transferring the contents of a product into reusable hermetic boxes.

- Using up the leftovers and preservation

Same kind of information on the package which suggest how to use leftovers and gives good advice as to how to preserve food.

- Freezing

Subject to the regulatory, health and organoleptic possibilities, it is possible to freeze perishable food for subsequent consumption. The package can give information on this practice and inform about necessary precautions.

⁴⁶ Legislative resolution of the European Parliament concerning the information provided to the consumers about food products (<http://www.europarl.europa.eu/sides/getDoc.do?type=REPORT&reference=A7-2011-0177&language=FR>).

⁴⁷ FIFO : First in - first out.

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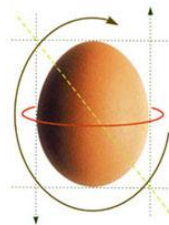
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