

APPENDIX 3

A Survey of Nordic Packaging Data Collection Methods

Ole Kaysen, Econet A/S

Jan Jakobsen, LOGISYS A/S

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Econet AS: Responsible for the production of statistics regarding collected and recycled packaging materials

LOGISYS A/S: Responsible for making the statistics on the total Danish packaging marketed

Presently, the contract between the Danish Environmental Protection Agency and the consulting firms runs for 3 years. Each of the consulting firms prepares their own reports, which are sent to the Danish Environmental Protection Agency. To some extent the two consulting firms co-operate in this matter. However, Econet is making use of the results from the packaging statistics to calculate the quota of collection and recycling.

The Danish Environmental Protection Agency makes the final report to the EU Commission based on the input from the consultants' reports. In some areas the agency supplements the reports with information from other sources, e.g. information about the quantities going to incineration plants.

1.3 The production of the statistics

The preparation of the statistics is always one year behind – meaning that the packaging statistics covering year 2000 is finalised at the end of year 2001. The statistics work cannot start until the final basic statistics are available from Statistics Denmark. These figures are normally ready in the beginning of the summer. The practical work with the statistics is accomplished during the autumn the following year.

As Denmark has no Green Dot System or corresponding system, there is no organisation that has the task of registering the use of packaging and e.g. collecting a fee from the packaging placed on the market. Therefore, another method has to be used in Denmark than in other countries.

The description of the preparation of the statistics is divided into the following 2 sections:

- The quantity of the packaging placed on the market
- The quantity of collected packaging for recycling

The report designed for the EU Commission is finalised by the Danish Environmental Protection Agency. The Agency calculates the achieved ratios for collection and recycling for each packaging material.

1.4 Packaging placed on the market

1.4.1 Definitions

The definition used for packaging complies in general with the definition laid down in a minute from the EU Commission which gives some examples of whether a certain item is a packaging or not.

The packaging marketed is divided into sales and transport packaging.

Both the quantities of sales and transport packaging are subdivided into a number of different materials. Presently the following materials are included in the packaging statistics:

Paper and board	Corrugated cardboard
	Cardboard
	Laminated cardboard
	Casting board
	Paper
Glass	
Plastics	PVC
	PP
	PS
	EPS
	Plastic laminate
	PET
	HDPE
	LDPE
	Other plastic materials
Metal	Iron etc.
	Aluminium
	Tinplate
Textile	
Wood	

Totally, the packaging marketed is subdivided into 19 materials. Most materials are used both as sales and as transport packaging.

Over the years the packaging statistics have been changed in the division of materials. These changes concern mostly laminate packaging materials.

When a new returnable packaging enters the market it is registered in the marketed packaging amount only once.

It is assumed that produced empty packaging is consumed the same year as it is produced – e.g. there is no stock of empty packaging.

As previously mentioned, the definition of packaging complies with a minute from the EU Commission - "Common understanding on the interpretation of the definition of packaging as agreed at the meeting of the Committee on 11. March 1999". However this minute primarily deals with sales packaging and not transport packaging. The minute also distinguishes between sales packaging and disposable plates and cups, etc.

In the statistics, production, import and export figures of certain products are kept secret because one or two companies totally dominate the statistical nomenclature code. An example of this is the company "Lego", which dominates the production and export nomenclature code covering "Toys made of plastic". In general, the number of these "keep secret" nomenclature codes is very small. These are handled in a way that the data are estimated from company figures of the total turn-over and an approx. sales

price per unit. Of course, this gives some uncertainty to the statistics, but for this purpose it is sufficient.

For packaging production there is only one significant product nomenclature code where the production and export figures are kept secret. This packaging nomenclature code includes eggs packaging made of recycled cardboard. The company "Brdr. Hartmann" dominates the world market for this type of packaging and has production plants around the world. The packaging amount placed on the Danish market of this packaging type is estimated from the consumption and sales of eggs in Denmark. Data for crown corks for beer bottles is also kept secret. However, these figures are calculated from the sales and especially from the information from the customs, because there is a duty on beers in Denmark.

1.4.2 Structure

As Denmark is a huge exporter of foodstuffs there is an extensive requirement for packaging. Therefore, the Danish packaging production is relatively large compared to the size of the country. Many packaging producers are specialised in food packaging. A large share of the Danish produced packaging ends in foreign countries. The import amount of filled packaging is nearly equal to the export of filled packaging.

1.4.3 Data collection

The basic data for the calculation of the packaging marketed is made available from Statistics Denmark. The data covers production, import and export figures in quantity and value. Data regarding collection and recycling is provided through questionnaires, direct contacts and interviews with companies that undertake the physical collection and recycling.

1.4.4 Calculations methods

The calculation of the amount collected and recycled is just the sum of the questionnaires and interviews.

The packaging marketed is estimated as the sum of the following 2 groups of packaging:

- The empty packaging put on the market
- The filled packaging from foreign trade put on the market

The calculation of both groups is making use of statistics from Statistics Denmark regarding local production and foreign trade. The statistics are divided into approx. 10.300 different product groups. This division into product groups is an international standard used by most countries.

Most product groups include statistical information about total production, import and export figures calculated in value and tons. For some product groups another calculation unit than tons is used e.g. litre, m³, number.

1.4.4.1 *The empty packaging put on the market*

From the total number of product groups or nomenclature codes the product groups that exclusively or partly include empty packaging are identified. Totally, about 110 product groups contain empty packaging. For some product groups only a part of the amount is regarded as packaging. This relates particularly to the group of plastic packaging. In

case only a ratio of the quantity in a product group is packaging, an assessment of the size of this share is made. The estimated ratio is presented to the trade organisations for verification.

The total amount of empty packaging is the sum of the local production plus imports and minus exports of the same types of packaging. The amount of empty packaging includes new produced or imported returnable packaging.

The amount of empty packaging constitutes the major part of the total packaging marketed. The quantity of empty packaging is used to pack products in Denmark. Products to be packed or re-packed can be produced both in Denmark or abroad. The packed products can then be sold and consumed in Denmark or they can be exported in a packed condition. If the latter is the case, the packaging is deducted through the second part of the survey – the supply of filled packaging through foreign trade.

The total calculated amount of empty packaging of each main packaging material is also presented to the trade organisation for verification. Most trade organisations have their internal statistics from reporting by the member companies. The calculated amount is then compared with their internal figures.

1.4.4.2 The filled packaging from foreign trade put on the market

The second part of the survey is the calculation of the amount of filled packaging from foreign trade placed on the market. The packaging amount that is exported as part of packed products is deducted from the domestic packaging marketed figure and products that are imported with packaging will be added to the quantity put on the market.

This part of the survey is the most resource demanding.

It is assumed that the product inside each product group is packed in the same way irrespective of whether the product is imported or exported. For the major part of the product groups in the statistics, the export quantity is quite small due to the fact that there is no production of the product group in Denmark. For the products that are produced in Denmark, the export figures are typically much larger than the imports for the same product groups.

The calculation of the packaging use for each nomenclature code is calculated based on assumptions regarding the following elements:

- The average weight of each packed unit
- The ratio of the product quantity not using a sales packaging (the part which arrives or leave the country as bulk)
- Which packaging material or materials that are used for the sales packaging
- The ratio that this packaging material constitutes of the total sales packaging quantity
- The weight of the sales packaging
- The number of packed units inside each sales packaging (normally 1)
- The ratio of the product quantity not using a transport packaging (the part which arrives or leave the country as bulk or make use of a returnable packaging)
- Which packaging material or materials that are used for the transport packaging

- The ratio that the relevant packaging material constitutes of the total transport packaging quantity
- The weight of the transport packaging
- The number of sales packaging inside each transport packaging

By using these key elements the packaging net amount of filled packaging placed on the market is calculated for each of the 10.300 nomenclature codes.

As mentioned previously returnable packaging is only included once in the survey when the new unit of a returnable packaging enters the market. As an appendix to the survey, an assessment of the use and the stock of returnable packaging is made. The use of returnable packaging is defined as the number of times per year a returnable packaging circulates. Due to the missing statistics, this part of the survey is subject to a relatively high uncertainty.

The applied method gives no direct information about the split of the total packaging marketed into product groups. There is only information about the packaging in relation to imported and exported pre-packed products. To cope with this problem, an extra calculation of the packaging consumption is worked out, in which the total packaging marketed quantity is split into the product groups. Hereby it is possible to get information about the total use of packaging material per specified product group.

1.4.5 Comments

There is a number of factors which influence the uncertainties of the statistics. Of course, when all the statistics are based on assumptions regarding the use, the weight and types of packaging, there are some uncertainties. But for all nomenclature codes containing large packaging quantities some additional quality checks are undertaken.

Packaging imported through private purchases of products abroad is not included in the statistics. Similarly, border trade from foreign citizens is not included in the packaging statistics. In other words, in the packaging marketed statistics it is assumed that the private imports of filled packaging are equivalent to the exports of filled packaging.

1.5 Material flows

1.5.1 Paper and cardboard

This sector deals with all packaging made of vegetable fibre materials like paper, paper bags, cardboard, corrugated cardboard, moulded or pressed paper pulp and other packaging based on vegetable fibres.

1.5.1.1 Definitions

In general, most items made of different kinds of cardboard are defined as packaging. Only a smaller part of the total supply of paper materials can be and is classified as packaging. Packaging of paper includes paper bags like carry bags, paper bags for vegetables and bakery products, wrapping paper for meat, fish, other foodstuffs and for gift wrapping, etc.

One-way plates and drinking cups of paper or cardboard are not defined as a packaging in Denmark.