

These pages aim at updating: "The management of WEEE, a guide for Local and Regional authorities"

Description of Initiatives undertaken by (selected) European Countries in the field of WEEE management

Before the entry into force of the WEEE Directive, several European countries defined national regulations and organised management schemes for WEEE. These systems respond to sometimes very different national situations and philosophies. Some have now to be adapted as European Member States must now implement the WEEE Directive into national laws.

Though, in line with the subsidiarity principle, the European Directive leaves the specific design of the WEEE management schemes to the discretion of Member States, and the national experiences under review illustrate a range of possibilities (regarding notably the sharing of responsibilities within the logistical organisation and the financing of WEEE).

The following provides short descriptions of the systems in place and aims at highlighting similarities and differences as regards regulations, and the distribution of responsibilities in the organisation and financing of management schemes.

Please find here below :

- [a comparative overview](#)

- [a general description of selected national WEEE management schemes](#)

- news in the field of WEEE management

1. Comparative overview

1.1. Setting of targets

As regards **quantitative targets**, national regulations do not set collection targets. Only in Norway, a collection target of 80% of WEEE has been set for the 1st July 2004, through a sector agreement with the Ministry of Environment.

In Belgium, recycling rates are set by the regulation for ferrous metals, non-ferrous metals and plastics, and for four categories of appliances. In the Netherlands recycling targets have been defined by a common agreement between the Environment Ministry, local authorities and manufacturers / importers.

It must be emphasised that "**recycling**" has not the same meaning in the different countries. For instance, in Norway, recycling includes reuse and both material recycling and energy recovery. In the Netherlands, recycling rates are defined as the proportion of materials not going to landfill or incineration.

Various **qualitative provisions** are set for the management of WEEE. These include :

- "environmentally sound treatment" (Denmark)
- "proper treatment in accordance with the regulation" (Norway)

- “no landfill without previous treatment” (Sweden, Switzerland)
- the prohibition of the incineration of products which have been taken back separately (the Netherlands)
- minimum standards for treatment like separated elimination of pollutants, recovery of metal and incineration of chemicals that cannot be recovered (Switzerland)
- the separation between re-usable and non-usable equipment (Belgium)

1.2. Status of reuse within regulations or as result of the established system

Belgium	First stage after collection is to separate reusable and non-reusable appliances, through social economy enterprises or other companies.
Denmark	N/A
The Netherlands	Reuse is ruled out for refrigerating and freezing equipment containing CFCs of HCFCs.
Norway	EEE reused in its original form and for its original purpose is not to be considered as scrap, and is not embraced by the regulation.
Sweden	NA
Switzerland	The regulation defines a central role for retailers networks, which offer strong reuse possibilities.

1.3. The management of WEEE : Roles of actors

Most countries under review have developed mixed WEEE management systems based on the existing municipal management schemes in which municipalities organise collection of WEEE from households as well as the management of container parks and other collection points, while producers recycle and treat them.

The role of retailers and of distributors can vary largely between countries. The trade chain is for example the main channel for taking back WEEE in Switzerland, where retailers are recognised as specialists to assess returned equipments regarding their reparability or recyclability. In Norway, retailers and distributors are assigned an important collection role by the regulation. Consequently EI-Retur (like NVMP in the Netherlands) uses payments as an incentive for retailers but also to cover their handling costs from the taking back of WEEE.

	Municipal recycling points	Retailers - Trade
Belgium	x	
Denmark	x	
The Netherlands	x	
Norway		x
Sweden	x	

Switzerland		x
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Preferred channels for collection

In Belgium, 80% of collection points are points of sale, but they only capture 25% of the volume of waste collected, while municipal collection points (20%) capture 75% of WEEE. In the Netherlands, distribution channels (retailers and distribution centres) collect about 13% all the WEEE collected. In both countries, retailers have an access to recycling parks and RTS for small quantities of WEEE.

1.4. Financing methods and costs of the systems

Except in Switzerland, these systems are financed by :

- citizens' local taxes for municipal collection infrastructures
- consumers as far as further sorting, recycling and disposal costs are concerned.

1.4.1. What do municipalities finance in the different countries ?

Countries under review	Collection and sorting up to "collection points"		Recycling	
	Management	Financing	Management	Financing
Denmark	Municipalities	Municipalities	Municipalities	Municipalities
Belgium / The Netherlands /Sweden	Municipalities	Producers / Municipalities.	Producers	Producers
Norway	Municipalities Distribut./retailers[1]	Municipalities Distribut./retailers	Producers	Producers
Switzerland	Producers /retailers	Producers /retailers	Producers	Producers

Sharing of responsibilities between producers and public bodies in the European Countries under review

In Belgium, Sweden and in the Netherlands, collection costs are covered to diverse extents by producers through negotiated agreements with LRAs. Producers finance part of municipal WEEE facilities (e.g. by providing specific containers), or a part of costs for transportation of WEEE from municipal collection points to RTS (e.g. in the Netherlands).

1.4.2. Recycling fees

If one considers recycling fees established by different producers' schemes, the part borne by final consumers appears to be higher in Switzerland (where producers set up their own management schemes), than in the Netherlands, where LRAs (compelled by the regulation) have put their collection facilities and RTS network at the disposal of manufacturers.

Product type	<u>Belgium</u>	<u>The Netherlands</u>	<u>Sweden</u>	<u>Switzerland</u>
	(RECUPEL) Fee VAT included	(NVMP)	(EI-KRETSEN) Fee VAT not included	SWICO/SENS Advanced Recycling Fee (TVA included)
Washing machine	10,00 €	5,-€	4,89 €	17,06 €
Coffee maker	1,00 €	3	0,4 €	0,68 €
Television	11,00 €	8,-€	0,87 – 6,52 €	10,24 €
Refrigeration appliances	20,00 €	17,-€		27,30 €

Comparison between the recycling fees of 4 EEE categories in different national producers schemes (2004)

1.4.3. Visibility of recycling fees

Internalisation of the entire management costs into the price of products calls for an invisible recycling fee, but Sweden is the only country where the fee is completely invisible due to the regulation. In Norway where the choice is left to actors for making the fee visible or not, about 70% have adopted a visible fee. In the other management schemes under review the fee is made visible to consumers when buying a new appliance.

1.4.4. Financing of future waste

All the producers' organisations under review operate collective WEEE management schemes, which up to now have essentially found solutions in order to manage historical WEEE within the scope of a collective responsibility. ICT Milieu in the Netherlands, which opted for the complete "internalisation" of WEEE management costs, and thus for the invisible fee has, adopted in 2003 a collective system where WEEE treatment costs are shared between producers in accordance with their market share. So that nothing is planned until now for a collective management of individual producers responsibilities.

1.5. Achievements of the systems

The table below presents the achievements of the selective collection schemes in five European countries in accordance with the origin of the WEEE collected. The management systems in Denmark, Norway, Sweden and Switzerland are common to all WEEE, whether they originate from private households or not.

	Belgium	The Netherlands	Norway	Sweden	Switzerland
Collection rate (in weight)	3,5 kg (2002)	4,13 kg	7,9 kg	7 kg (2001)	8 kg

/inhab.)	4,5 kg (2003)	(2000)	(El-retur 2001 / Euro Vironment 2002)	9 kg (2003)[2]	(2002)
Origin of WEEE collected	HH	HH	HH	HH/NH	HH/NH

Some results of the systems under review

These data are generally communicated by the existing national schemes, and are not easy to compare as they are linked to :

- the age of the systems
- the kind of electric and electronic appliances covered : except in Norway where the data are these of consumers goods, systems which collect both households and non households WEEE like Sweden and Switzerland easily double the rates achieved
- the logistic in place
- the geographic area covered
- the socio-economic characteristics within these areas (essentially the number of appliances put on the market)
- ...

[1] Important role of retailers within the regulation :in other systems, distributors are only obliged to take-back WEEE on a 1/1 basis.

[2] To these 9 kg shall be added about 2,5 kg/ inhab. of refrigerating appliances collected by municipalities.

[1] <http://www.recupel.be>

[2] RECUPEL Asbl, Rapport 2002, p.10

2. General description of selected national WEEE management schemes

Belgium

Denmark

Germany

The Netherlands

Norway

Sweden

Switzerland

2.1. Belgium

REGULATION	The 3 regional regulations for the management of WEEE, were implemented through one Environmental Policy Agreement, come into force in February 2001 within whole Belgium.				
<u>Scope</u>	<u>8 categories of appliances (covering categories 1-6 of WEEE directive):</u>				
	<input type="checkbox"/> freezing and refrigerating equipment <input type="checkbox"/> Large white goods <input type="checkbox"/> Small white goods <input type="checkbox"/> Brown goods <input type="checkbox"/> IT- and communication equipment <input type="checkbox"/> Gardening tools <input type="checkbox"/> Small household appliances <input type="checkbox"/> Lighting equipment (since 1/07/04)				
<u>Responsibilities</u>					
Producers	Producers bear an individual take-back duty for their own products or for similar products tendered to them.				
Trade	Retailers/distributors must take-back WEEE free of charge when selling a similar product.				
<u>Management principles</u>	Promotion of reuse : the first stage after collection is to separate reusable appliances from non reusable ones, <i>through social enterprises or through other companies.</i>				
<u>Recycling targets</u>		Recycling rates	Ferrous metals	Non ferrous metals	Plastics
	Large white goods	90%	95%	95%	20% recycling (100% recovery)
	Refrigerating and freezing appliances	70%			
	TV and PC screens	70%			

Others	70%			
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MANAGEMENT

Producers' management scheme

Recupel Asbl ^[1] is an executive management scheme gathering currently 6 sector associations, covering respectively large household appliances, consumer electronics, small household appliances, IT - Telecommunication and office equipment, electric tools and lighting equipment.

Collection infrastructure

Recupel collection scheme is organised through 50 social economy enterprises, 550 municipalities' containers parks and 1800 registered retailers. It will be further organised around about 30 Regional Transfer Stations (RTS) covering large collection areas, and where WEEE collected from municipal recycling facilities will be gathered and sorted.

In 2002, container parks captured 75 % of the WEEE collected, while the share of Social enterprises was 10% and retailers and distributors gathered 15 % of the total amount collected ^[2]

In 2003, container parks captured 63% of the WEEE collected, while the share of the Social enterprises was 16% and retailers and distributors gathered 21% of the total amount collected[2bis]

Role of LRA

They leave their recycling parks and RTS at the disposal of Recupel, which provides these with collection bins. They remain the only responsible for the financial and logistic management of the collection facilities.

Role of retailers

Thanks to agreements with between RECUPEL and the municipalities' associations, retailers have got a free access to containers parks and RTS for small quantities of WEEE. Purchasers of EEE may register as collection point on RECUPEL website and have their appliances directly collected by RECUPEL.

FINANCING

Financing is borne by the consumers through a visible fee which is levied on the products, worked out by sampling at recycling plants, and managed per sector to cover the take back and treatment costs of appliances : transport from the container parks, sorting, and recycling.

Retailers receive no kick backs for their work.

Intervention of RECUPEL regarding the collection of WEEE in Belgium

1) Distributors / Retailers

When a distributor chain sets up its own Regional Transfer Centre, RECUPEL offers :

a. 0,127 €/ collected kg

b. and maximum 1.000,- € / participating retailer

2) Civic Amenity Sites: In order to limit the logistic costs at a minimum, RECUPEL drives the creation of Regional Transfer Stations, with a priority given to the associations of municipalities for offering their infrastructure.

These subsidises cover the handling of equipment upstream excepted the personal costs incurred for the Civic Amenity Sites and Regional Transfer Stations. Discussions are led with municipalities currently for financing them on the basis of an average figure per tonne, varying with :

o the covered geographic area

o and the population.

Municipalities can also participate within public call for tenders regarding : the transport of WEEE from RTS to treatment centres and the treatment itself (as some associations of municipalities have developed their own dismantling centres for instance).

ACHIEVEMENTS

In 2002, RECUPEL collected 35 875 tons of WEEE (= 3,5 kg per inhabitant) and achieved a global 80% recycling rate.

In 2003, RECUPEL collected 45.037 tons of WEEE (= 4,5 kg per inhabitant) and achieved a global 83% recycling rate and 87% recovery rate. From these total quantities, 69% were collected in Flanders, 28% in the Walloon Region and 3% in the Brussels area.

The reuse of electric appliances will become easier in Flanders (17/05/2004)

Thanks to a cooperation agreement between the Flanders Region and the kringloopcentra ("closed loop centers" run by the social economy in Flanders) a structured network of dismantling and repair centres for reusable white and brown goods shall be set up within the next four years in Flanders.

Currently, most of the appliances are picked up or collected by the kringloopwinkels (so-called "closed loop shops"). At certain places agreements with the container parks are also made. The electric and electronic appliances brought to container parks, must be taken back and processed by the producers. But in that "waste" one can frequently still find perfectly useful goods.

Thanks to fruitful discussions between OVAM and the kringloop sector, these appliances can be easily taken off the mountain of waste and sold after repair by the kringloop shops.

The system will have as additional advantage that low-qualified people which are trained for the overhauling and repairing of white and brown goods in these reuse centres can be reintegrated on the work field.

It is estimated that 10% of the bulky waste is made of reusable goods, of which 5% are white and brown goods. It means 1500 tons brown - and wit goed that, after selective collection and revision, can be sold by the closed loop shops.

The decision is still presented for recommendation to the Council of State.

1.2. Denmark

GENERALITIES

The Danish waste management system is :

- a global waste management model covering the prevention, collection and treatment of all types of waste (industrial, commercial and household)
- under the responsibility of local councils
- making use of energy recovery more than other European countries.

About 130.000 tonnes de WEEE are generated each year in Denmark; this is equivalent to 20kg/inhab./year, or to 1% of the total quantity of generated waste.

REGULATION

	<p>Order from the Ministry of Environment and Energy, n°1067 of December 22, 1998 on Management of waste from electrical and electronic products</p> <p>Following the Danish Environmental Protection Act ^[3] local councils are in charge of the management of waste generated in their municipality. They can choose either to assume the task itself, or confer it to an intermunicipal waste company, or to contract operations to private companies ^[4] (which is normally the case for industrial and commercial waste).</p> <p>Recycling activities are also generally taken in charge by private companies but incineration (with energy recovery) is usually managed by local authorities themselves. For hazardous waste a network of intermunicipal transfer stations has been set up ^[5], which are scattered on all the Danish territory. They are managed by KommuneKemi A/S (a group held by the Danish municipalities). But KommuneKemi A/S does not handle WEEE.</p>
<u>Scope</u>	The regulation essentially covers white goods, radio and television sets, IT
<u>Responsibilities</u>	products, office equipment and instruments of monitoring and control.
LRAs	Local councils were given until 1st June 1999 for providing regulations laying
<u>Recycling ambitions</u>	down detailed rules on the handling, assignment and collection of WEEE.
	The regulation <i>should</i> lead to the diversion of 25 000 tonnes of WEEE from incineration and landfilling to recycling and so allow to recover for instance 40% of the landfilled copper (<i>Source</i> : Waste 21).
MANAGEMENT	
<u>Role of LRAs</u>	Local authorities ensure that waste electrical and electronic equipment is
	collected and assigned to separate treatment and approved companies. About
	30 SME have so developed an expertise and specialised in the processing of
	WEEE.
<u>Producers</u>	Upon request, they may be granted permits by local council to take back free of
	charge their own or similar products.
<u>Retailers</u>	Since 1999, distributors and retailers may offer a take back service in the scope
	of municipal waste management schemes.
FINANCING	<p>Costs for implementing the WEEE legislation until now have been met by local governments. Total costs of treatment of WEEE are estimated between 100 and 200 million DKK per year (13,5 – 27 millions €). The regulation should also induce a rise in the annual fee paid by households of about 5,4 €.</p>

CFC-containing appliances management in Denmark

The collection and management of refrigerating equipments containing CFC are ensured by an agreement between the Danish Minister of Environment and Energy, and relevant associations on the disposal of CFC-containing equipment.

The aim of the agreement is to collect a minimum of 90% of the total amount of discarded refrigerators for environmentally sound treatment, in compliance with the requirements laid down in a circular on municipal regulations on disposal of CFC-containing refrigeration equipment. Local councils must establish assignment or collection schemes and ensure that CFC-12 is extracted at 95%, and that CFC-11 is extracted at a rate of 80%.

It is estimated that about 250000 pieces of equipment (12500 tons) are treated each year, and that 100 tons of CFC are extracted thereof^[6].

1.3. Germany

REGULATION New legislation for the management of Germany's waste electrical and electronic equipment (WEEE) is to come into force by the middle of next year.

The bill, which transposes two EU directives on WEEE, was finalised on September 1 by the Cabinet, and places greater emphasis on producer responsibility as well as reuse and recycling of used electrical equipment.

From August 2005 consumers can hand in their waste free of charge at communal collection points: thereafter, manufacturers must assume responsibility for the waste.

Manufacturers must provide a guarantee that they will finance the management of WEEE for equipment brought on to the market after August 2005.

Key points of transposition

Transposition should only entail a minimum of additional bureaucracy.

For management of waste equipment in the future, suitable elements of current usual practice should be taken into consideration. This includes in particular separate collection of waste equipment from private households (shared product responsibility) which is already practiced in many local authorities, but also good practice within a purely professional sphere (business to business).

Separate collection by public waste management companies

Proven local authority collection structures are taken into account, local authorities retain financial responsibility for the collection of all waste equipment from private households. The future ordinance stipulates that the public waste management companies must place the different categories of waste electronic and electrical equipment in a specified number of collection containers ready for the producers to collect.

In addition it is possible for **distributors** to voluntarily take back waste equipment. A distributor can pass on waste equipment he has voluntarily taken back to the public companies free of charge.

In accordance with the principle of shared product responsibility, the **manufacturer** assumes responsibility from the local authority collection points onwards.

Coordination of collection from the local authority collection points

In order to ensure that producers throughout the country meet their obligation to collect WEEE without distortions of competition and under the same conditions, the ordinance commits them to organise collection consistently with competition in a central contact office for the local authorities which the producers organise on a private law basis and finance (coordination office). This office takes all information on containers ready for collection and requests the manufacturers or their commissioned waste management companies to collect each of the reported WEEE containers, according to a rota specified by this office. It thus ensures that WEEE does not remain in any of the local authorities, and prevents "selective collection" (collection only at attractive points with a high level of specific waste equipment types).

Financing

As a countermove to the local authorities' assuming responsibility for collection from households, from the local authority collection point onwards the producers finance waste management (recovery/recycling/environmentally sound disposal) for all waste equipment from private households.

Producers' Registration System

To prove that a producer's guarantee pursuant to the Waste Equipment Directive ensures the management of its "new" waste, each producer must register when placing equipment on the market.

Distributors must only distribute only products from producers on the register. Distributors wishing to distribute equipment from non-registered producers must register themselves.

The prerequisite for registration is the proof that waste management of equipment placed on the market is guaranteed. This includes information on the quantity of equipment placed on the market and indication of the waste management partner, the insurer or similar. With regard to the required success monitoring (Article 12 Directive 2002/96/EC), this information must be compared with the proofs of waste management to be furnished later.

Registration will be in the industry's own responsibility and undertaken by a private law clearing house financed by the industry. The absolute neutrality of the clearing house is one of the basic prerequisites of competition law. State authorisation will be needed, which should be concerned only with authorising a central office for the above described registration of the producers; beyond this, the authorised office should not have any form of official function.

The body granting this state authorisation would have to be one of the central authorities set up by the Länder responsible for the enforcement of the Ordinance. In a practical light, however, it would be appropriate for a Federal Government authority

to be empowered with this task. This authority would be responsible for the technical and legal supervision of the clearing house.

All costs arising from the extensive work in connection with identifying the registration conditions and the registration will be borne by the producers via the self administration of the clearing house. The Länder responsible for enforcement and where applicable the Government as authorising corporation are relieved of these costs. The Länder only incur the administration costs in the enforcement cases in which the producers do not fulfill their duties.

In Germany, the quantity of WEEE, including domestic appliances and consumer electronics, has grown from 1,188,000 tonnes in 1992 to 2,099,000 in 2000.

Further information on the bill can be found in a briefing note (0.1 MB) on the Government's website at: http://www.bmu.de/files/altgeraete_eckpunkte_uk.pdf

1.4. The Netherlands

REGULATION

<u>Scope</u>	Decree of 21 April 1998, entered into force partly on 1 st June 1998 and completely on 1 st January 1999 14 categories of Electrical and Electronic equipment, including CFC products, which were regulated in two steps (large goods from 1 st January 1999, and the remaining categories one year later).
<u>Responsibilities</u>	
Producers	Producers/importers have to take back and recycle : <ul style="list-style-type: none">- WEEE of their own brand from Local Authorities' collection points- WEEE of their own brand tendered to them by a repair company- WEEE tendered to them by a retailer when supplying a new "similar" product. (From January 1, 2005, this "old for new" duty will become a "brand-related" one).
LRAs	Manufacturers and importers can be exempted from their individual duties by the signature of a Covenant with the Ministry of Environment and by joining a collective scheme. Since July 1999, Local Authorities must provide for household WEEE separate collection (either kerbside collection, or collection on sites), and for the creation and maintenance of a site within the municipality or the municipalities' association they are part of, where suppliers can leave a product taken back from a private household. As a corollary of the producers' obligations, municipalities are responsible for orphan products, and have to sort WEEE by brand to leave them at manufacturers' disposal.
Trade	Retailers have to take back WEEE coming from consumers on the "old for one" basis. It is prohibited to retain for commercial purposes freezers or refrigerators discarded after use.
<u>Recycling targets</u>	The decree prohibits to incinerate products that have been taken back or collected separately. Recycling rates were defined on the basis of a pilot's outcomes conducted in 1996 by the Ministry, local authorities and

manufacturers/importers.

	Recycling rates
TV sets	69%
Large white goods appliances	73%
Refrigerating and freezing equipment	75%
“Small” appliances	53%

Recycling rates are measured as weight % of material not going to landfill or incineration (or weight % of material processed).

MANAGEMENT

Producers’
management scheme

For white goods, 5 main producers’ sector organisations have joined within NVMP^[7] (Netherlands Association for Disposal of “Metalelectro” Products) while V-ICT^[8] (or ICT-Milieu) has been set up for the management of grey goods (IT equipment, Paper printing equipment and telecommunication goods).

Both take, through official carriers, goods discarded by consumers from RTS, retailers and repair companies, to their recycling partners.

Role of LRA

Associated within the NVRD (Nederlands Vereniging vor Afval en Reinigingsmanagement) since 1996, local authorities ensure the collection and the transport of WEEE to one of the 69 Regional Transfer Stations where WEEE are sorted out and put to the disposition of manufacturers and importers of EEE. Since they provide manufacturers/importers with such a logistical structure, these have agreed that Local Authorities are neither obliged to sort WEEE by brand (unless they are paid for this service), nor to take care of orphan products.

Role of Retailers

Like repair companies, retailers have access to the municipal facilities. Regional Transfer Stations accept also waste tendered to them directly by retailers, but may charge them for the service.

Collection infrastructure

In 2001, 87% of the products collected by NVMP originated from Regional Transfer Stations. The role of the Distribution Centres has stabilised at 3-4% of the total collection, while the Retail Sector collected directly 10% of the total amount. This channel seemed to display particular growth.

FINANCING

Local authorities only bear the costs for the collection and transport of WEEE until the “municipality limit”; other transport and sorting costs are financed by the manufacturers’ organisations.

LRA finance WEEE separate collection by levying local taxes. Following the kind of service agreed with the Regional Transfer Station, this amounts to 0,16 € on average per inhabitant.

When buying an electrical or electronic equipment, consumers pay a removal contribution in addition to the purchase price.

With the removal fees, **NVMP** pays :

- the Regional Transfer Station : manufacturers/importers pay a fee per item that is transferred to them; this fee varies from 1,80 € to 3,40 €.
- the logistic and recycling partners.

Retailers receive also a proportional compensation for their take-back service (one-off 10% on the payment of removal fees).

ICT Milieu : ICT manufacturers and importers had opted for an individual producer responsibility and been paying for the real costs of treated grey goods of their own brand and of their share of orphans (individual responsibility, worked out by the recycling partners). But because of too many sorting constraints, and significant amounts of orphan products, a new financing scheme was introduced from 2003 based on collective producer responsibility : producers will pay for the treatment of the effective items collected and processed in proportion of their current market share. .

It has been estimated by the Ministry of Environmental Protection that altogether, the recovery of WEEE in the Netherlands costs about 1,- € per inhabitant.

ACHIEVEMENTS

According to NVMP the collection results in 2001 corresponded to an amount of 4,13 kg WEEE/ capita^[9].

CFC-containing appliances management in The Netherlands

The decree contains a prohibition on the further sale of CFC and HCFC products. This means that product reuse is ruled out for refrigerating and freezing equipments.

1.5. Norway

With a population of about 4,554,000 inhabitants and an area of 385 155 km² (where 16% are islands and fjords) the population density in Norway is about 14 inhab. per km² . The country is quite narrow, has a length of about 2000 km and counts 434 municipalities.

REGULATION

<p><u>Scope</u></p>	<p>The Regulation regarding scrapped electrical and electronic products promulgated on 16 March 1998 entered into force on 1st July 1999. No categories have been determined and all products containing electrical or electronic components are in principle embraced by the regulation with the exceptions of products permanently installed in means of transport or large devices (ex : lifts, escalators...) where only the components should be regarded as EE products.</p> <p>The re-use of the EE product in its original form for its original purpose means that the product has not to be regarded as scrapped and is not covered by the regulation requirements.</p>
<p><u>Responsibilities</u></p>	<p>Producers Manufacturers/importers are obliged to ensure that the EEE they introduce on the Norwegian market are collected when they end up as waste, and are recycled or otherwise properly handled. They are obliged to arrange for the collection of WEEE free of charge in geographical areas corresponding to those in which the products are sold, were sold or supplied through suitable logistic systems that do not cause "unreasonably high transport costs for any municipality". The frequency of collection points must take into account the needs of the municipality, and their capacity correspond to the share of manufacturers' sales in the area.</p> <p>LRA Municipalities are obliged to receive all WEEE through accessible (regarding number, site, opening hours...) facilities. They may demand a charge for business waste, but consumer waste have to be managed with the annual municipal tax.</p> <p>Trade All distributors/retailers in Norway are required to accept consumer WEEE free of charge. Distributors are also only obliged to accept WEEE of products belonging to the same products range they are selling at the time these discarded appliances are handed in. The "old for new" condition only applies to waste from companies.</p> <p>Distributors/retailers and municipalities are responsible for a proper handling of WEEE as long as they are in their possession. This means that waste must be handled in such a way that environmentally hazardous substances can subsequently be sorted and treated, and that the opportunities for recycling are not reduced. If the municipality or the retailer does not deliver EE waste to the manufacturer/importer but forward it directly to an approved treatment facility, they are considered taking responsibility for further treatment, including the costs.</p>
<p><u>Targets</u></p>	<p>Collection In 1998 a sector agreement was signed with the Ministry of Environment setting a target of 80% WEEE collection for the 1 July 2004.</p>
<p>MANAGEMENT</p>	
<p><u>Producers' management scheme</u></p>	<p>National suppliers have established two management enterprises for consumers' WEEE :</p> <ul style="list-style-type: none"> • Hvitvareretur AS (large and small household appliances) • Elektronikkretur AS (IT&T, Consumers Electronics, toys, medical...) <p>They have joined within EI-retur in order to implement a collective logistic and recycling scheme.</p> <p>In the EI-retur system[10], WEEE is collected from about 4,000 collection points:</p> <ul style="list-style-type: none"> • 350 municipal collection facilities • 3000 retailers • and from about 650 other sources like workshops, offices and various waste management companies. <p>6 logistic subcontractors are responsible for all logistic tasks, including the provision of cages and containers free of charge for collection facilities</p>

included. WEEE are then delivered to nine recycling plants dedicated to specific areas of the country.

FINANCING

LRA finance the municipal collection facilities with local taxes.

Hvitevareretur AS levies a recycling fee per unit through the Norwegian Custom and Excise System (the fee is paid with each company's monthly taxes and duties), which forwards then the recycling fees to the system. The funds allow to pay the logistic and recycling costs as well as the kick backs to retailers and distributors.

For Consumers Electronics, **Elektronikkretur AS** members (447 businesses affiliated in 2001) pay a recycling fee per unit put on the market, through their branch associations. For brown and white goods, the recycling fee is prepaid, but for IT goods, total real management costs (for collection and treatment) are subdivided onto members' market shares (net volumes in kg) within the different product groups. Funds are managed by Elektronikkretur AS to pay the logistic and recycling partners.

Making the fee visible or not at the purchase is left to the distributor's discretion.

ACHIEVEMENTS

In 2001, 7,2 kg of WEEE per capita were collected and processed by **EI-retur**, which following the definition of recycling within the Norwegian regulation, achieved a recycling target of 82%^[11].

Euro Vironment, an independent system, was set up by 14 IT companies (including Compac and Dell which are together 50% of the IT Norwegian market). By collecting about 3,250,000 kg IT products in 2002 they achieved a collection rate of 0,7 kg per capita^[12].

Cooling and freezing equipment

The responsibility is shared between the municipalities and manufacturers : these must deal with equipment not-containing CFC while local authorities are responsible for CFC containing equipment. This has led to a complex and costly situation, so that Hvitevareretur AS is now ensuring the collection and recycling of CFC-containing equipment through separate agreements with municipalities covering 75% of the Norwegian population.

This has so far resulted in greater quantities of CFCs (both R11 and R12) being recycled from each cooling appliance processed. The scheme means a leap in the average weight volume from 249g CFC per appliance in 2002 to 350g in 2003.

Hvitevareretur AS initiated the CFC project on 1 July 2002, and processed 1,634 tonnes that year. In 2003, the company processed 6,934 tonnes.

Source : *EI-Retur Environmental Report 2003*, downloadable at : <http://www.elretur.no/EnvironmentalReport.pdf>

Other information - update Norway

In 2003, EI-Retur collected 11,1 kg of WEEE per capita.

Small appliances collection

Collection rates for small appliances (shavers, mobile phones, coffee machines...) raised from 22 % in 2002 up to 34% in 2003 thanks notably to a "Small Appliances Project" developed in 4 municipalities.

Ei-Retur subsidised these municipalities by paying them NOK 3 (...,- €) per kilogram of waste small appliances, with the view to give them incitements for increasing local information and collection efforts among their citizens (a package of information templates were provided which municipalities were free to use). Small appliances were registered in a database with an annotation giving their municipality of origin.

However 66% of this kind of appliances still remains either stored away in cupboards or drawers, or simply still thrown away in unsorted bins. The objective of Ei-Retur is to collect 50% of small appliances by the end of 2006, and since 1st July 2004, it has now given all the Norwegian municipalities the option to take part in an extended Small Appliances Collection scheme.

Clock shops collect discarded watches and clocks

Towards the end of October 2003, a collection campaign got underway for discarded watches, clocks and batteries. Every year 200 tonnes of broken watches, clocks and all sorts of other small electrical and electronic products are either stuffed into drawers and cupboards or are simply thrown away with the rubbish, with only one per cent (1.2 tonnes collected by Hvitevareretur AS in 2003) collected for environmentally sound recycling.

The industry being determined to take steps to improve the situation and raise public awareness, clocksmiths and jewellers now have stylish wooden boxes to receive these products at shops all over Norway.

Mobile phone campaign – NOK 280,000 for the Salvation Army

Around 1.5 million mobile phones have been sold annually in Norway over the past 5-6 years. Only 20% of these discarded phones – or 300,000 units – have ever been returned. Through a TV ad campaign, Ei-retur promised the Norwegian public that they would donate NOK 10 towards the Salvation Army's community work for each mobile phone returned above the "normal amount" per month (which was 25,000 phones during the four weeks the campaign lasted).

As a result, Ei-retur received more than double the number of phones than normal delivered during that period – and Ei-retur were delighted to donate NOK 280,000 to the Salvation Army.

Ella the Green Lorry touring Schools

Ella the Green Lorry is a specially-designed lorry with an integrated classroom. By arrangement with municipalities, Ella the Green Lorry will visit primary schools all over Norway to give pupils a lesson on how to sort WEEE properly and safely. The Green Lorry also functions as a collection point for municipalities for safe disposal of small appliances and hazardous waste.

This scheme was launched in cooperation with the municipal waste management company of Salten (IRIS) during the autumn of 2003, and became an immediate success.

Ella the Green Lorry has generated much positive feedback for Ei-retur and the company is considering expanding the scheme further : it will be available for all municipal companies in the North of Norway during the course of 2004, with two more lorries.

State-of-the-art waste processing

Modern plants and facilities are key factors in ensuring continued high levels of recycling and cost-effective operations.

WEEE Recycling AS (Øysand) is one of the first plant in the world to process both WEEE and cooling

appliances (fridges and freezers) thanks to two conveyor lines. All waste is sorted on arrival, weighed and registered, with the volume figures reported to Elektronikkretur and Hvitvareretur on a monthly basis. All treatment processes are automatic and the waste is sorted into different fractions, such as metal, plastic, oil, glass and gases. A fridge, for instance, will be sorted into six different fractions after having been processed at the plant; 38kg iron, 6kg plastic, 400g CFC gases, 1.5dl oil and 3kg polyurethane foam. The only parts that remain non-recycled consist of 3kg glass and other waste materials.

The plant estimates an annual processing volume of 8,000 tonnes WEEE and 4,000 tonnes of cooling appliances containing CFCs. This figure constitutes approximately 70,000 fridges and freezers. WEEE Recycling receives eight large freight car loads full of waste from the Middle and North of Norway daily, and the plant has enough capacity to process as much as 25,000 tonnes of WEEE annually.

WEEE Recycling AS is owned 50 per cent by private companies and 50 per cent by municipal operators. The company provides a good example of showing how public and private players can form a partnership to process WEEE, and is considered as a major link in the political work initiated between the waste management industry and the Norwegian Ministry of Environment to ensure high levels of collection and recycling.

Source : *El-Retur Environmental Report 2003*, downloadable at : <http://www.elretur.no/EnvironmentalReport.pdf>

1.6. Sweden

REGULATION	
<u>Scope</u>	The Producer Responsibility for Electrical and Electronic Products Ordinance (2000:208) came into effect on 1 July 2001. 10 categories of products are allocated to the Producer Responsibility. Refrigerators and freezers are excluded, since there is a municipal responsibility for these products.
<u>Responsibilities</u>	
Producers / Trade	Manufacturers, importers and retailers are jointly responsible. When selling a new product, they are obliged to take back at the place of supply or at another suitable designated place, a <i>“similar”</i> product handed to them and <i>“serving essentially the same purpose as the product sold”</i> . This obligation is related to the same number of products as the products sold. Producers may designate suitable collection points only after consultation with the municipality.
MANAGEMENT	
<u>Producers’ management scheme</u>	To avoid collection in shops, EI-Kretsen AB ^[13] (service provider owned by 20 trade associations in the electrical and electronic sectors) has made agreements with all 289 Swedish local authorities to use their collection schemes.
<u>Roles of</u>	
LRA s	Households who want to dispose of electrical or electronic products without buying a new one may give it to the Local Authority, which must dispose of it properly. Either they benefit from collection facilities (free of charge), either there is a collection service for bulky and heavy products, at a fee.
retailers	The retailer has just to refer customers to the existing facilities. If it receives electronic waste, it can deposit it free of charge at a collection point (as retailers may use municipal facilities for household waste provided that they

Collection infrastructure

respect a limit of 1 m³), or request EI-Kretsen to collect it.

The collection of electric and electronic waste at recycling centres is the most common method in Sweden. The addresses and opening hours of about 1000 collection points (about 650 for households, and 350 for businesses) are presented on <http://www.elkretsen.se>

These collection points are often supplemented with on-site collection from housing estates.

Since 1st July 2003, customers have been entitled to return their old television, radio or video recorder to the shop when they buy a new one. In response to this, EI-Kretsen started a new free service under which they collect these old products at the shops and transport them to a recycling plant. About 3000 shops have signed up for this collection service.

WEEE are also collected by EI-Kretsen from :

- Service workshops for home electronics and IT products
- Large customers of light sources
- All the Swedish hospital (system under development).

Products are sorted according to 5 main types prior to their transport :

- large white goods are handled as such
- small and medium
- sized equipment are placed in cages that hold approximately 400 kg
- fluorescent tubes (under 60 cm) are collected by means of plastic boxes of 1490 units
- fluorescent tubes (over 60 cm) are collected by means of metal boxes of 1150 units
- idem for low-energy and discharge lamps, and bulbs (plastic boxes of 1400 lamps or 2500 bulbs).

FINANCING

Collection stations are run at the own initiative and expense of local authorities (exception to the producer responsibility principle).

Producers (through EI-Kretsen) finance the further collection and the recovery of WEEE, but historical electronic waste from households is the responsibility of the municipalities.

As the Swedish law demands products show the total price, visible fees are forbidden.

Recycling fees are very complex and depend on the return rates, weight of appliances, methods and costs of treatment, material composition.

EI-Kretsen uses three different financing models

Standard : recycling fee per unit put onto the market. A preliminary cost is fixed and the accounts are settled for each product type at the end of the year.

ICT : the real costs of collection and treatment of ICT-WEEE are charged each month to the manufacturers according to their market share.

There exist also **fixed annual fees** for some products.

The funds are managed by the system to pay the different partners of the system, and the recycling costs.

On average, the costs of WEEE collected and treated are about 3,90 SEK/ kg (c.a. 0,42 €), with 72% for treatment, 19% for transport/loading boxes, and 7% for administration / information costs.

ACHIEVEMENTS

In 2001 during the six months when producer responsibility applied, about 30.000 tons of this waste were collected by EI-Kretsen from households and industry, equivalent to 7kg WEEE per inhabitant.

In 2003, EI-Kretsen collected approximately 80.000 tons of WEEE. In terms of the population as a whole, it corresponds to 9 kg/inhabitant with a cost of about 30 SEK (3,26 €) / inhabitant. The 23.500 tons of refrigerators and freezers (2,5 kg/inhabitant) handled by the municipalities shall be added to this.

Did you know that approximately one kilogram of silver, 300 grams of gold and 100 grams of palladium can be recovered from one tonne of cell phones ?

Sources : *Collecting and recycling of electrical and electronic products in Sweden, 2003-2004, EI-Kretsen AB*

1.7. Switzerland

REGULATION

Ordinance on the return, the take-back and the disposal of electric and electronic appliances (OREA), in place since 1 July 1998.

Scope

The OREA addresses appliances which depend on electricity and specifically mentions consumer electronics, office, information and telecommunication equipment, and household appliances.

Responsibilities

Producers **Manufacturers** or importers have to take back appliances of their own brand or of the brand they sell.

LRAs **Municipalities** have no mandatory take-back obligation, and are thus not obliged to provide for separate collection or for collection points. If they are willing to, local authorities can do it on a voluntary basis, knowing that electrical or electronic appliance cannot be dealt with anymore together with bulky waste collections, and that the OREA decree states that disposal of appliances must be financed by market actors.

Trade **Retailers** must take back appliances similar to those they sell from final consumers.

MANAGEMENT

Producers' management scheme [14]

2 mains voluntary schemes have been set up :

- SWICO has been dealing with "office equipment" and consumers electronics from 2002

- SENS deals with refrigerating and freezers.

Both have been working together from 1st January 2003 within a global solution for WEEE management.

Collection infrastructure

In Switzerland, the retailers network is considered to offer enough taking back opportunities in itself ^[15], and returning equipment to the dealer or the manufacturer is strongly recommended by SWICO, as they are specialists to assess the possibility to recycle the equipment or parts of it. With this approach, 5-15% of discarded equipment can be reused. Retailers take back discarded appliances from private and business users free of charge.

Pick up services are organised on request by the manufacturers associations from private households, points of delivery or (re-)distribution centres.

Roles of

LRAs There are 4 possibilities for Municipalities :

1. They choose not to organise WEEE collection : end-users are informed about the possibility of bringing back their WEEE free of charge to a retailer or an official SWICO collection point.
2. Municipalities propose to organise once or twice a year a separate collection of WEEE and are therefore provided with pallets and frames. The costs of transport and recycling are borne by SWICO.
3. EE discarded appliances they not "actively collected" may be brought to official SWICO collection points : this allows small municipalities to benefit from a take-back free of charge for small quantities.
4. For municipalities which collect more than 5 tons WEEE pa, the municipal collection point is enlarged to become an official SWICO collection point.

FINANCING

The manufacturers have set up a Convention for Recycling and Disposal, that obliges participants to impose an Advanced Recycling Fee (ARF) on the sale of new equipment. Manufacturers transfer the fees on a recycling account held by SWICO.

There are 2 different models to calculate the ARF (which includes also the Advanced Disposal Tax for batteries) :

1. IT and office products : fee conditional on the equipment value
2. consumer electronics : each piece of equipment has a specified fee.

Consumers goods which price is not higher than c.a. 35,-€ are not subjected to the ARF.

ACHIEVEMENTS

The current figure for collected WEEE in Switzerland is 8kg/ capita. More than 75% of end-of-life equipment is recycled, approximately 20% are incinerated, and 3% end up in landfills ^[16].

For more information : links with recycling organisations of WEEE in Europe

Austria

Umweltforum Haushalt : <http://www.ufh.at>

Belgium

RECUPEL : <http://www.recupel.be>

Netherland

ICT Milieu : <http://www.ictmilieu.nl>

NVMP : <http://www.nvmp.nl>

Norway

EI-retur : <http://www.elretur.no>

Sweden

EI-kretsen : <http://www.el-kretsen.se>

Switzerland

Swico : <http://swico.one.webbuild.ch/>

SENS : <http://www.sens.ch>

^[1] <http://www.recupel.be>

^[2] RECUPEL Asbl, Rapport 2002, p.10

^[2bis] RECUPEL Asbl, Rapport 2003, p. 13

^[2] RECUPEL Asbl, Rapport 2002, p.10

^[3] Danish Environmental Protection Act NO. 698 OF SEPTEMBER 22, 1998 (Part VI, Section 45(1))

^[4] 35 au 1^{er} janvier 1998. Sources : Waste 21 (1998-2004), http://www.mst.dk/udgiv/Publications/1999/87-7909-571-2/html/kap02_eng.htm

^[5] 18 stations de transfert au 1^{er} janvier 1998. Sources : *ibidem*

^[6] Waste 21, *Ibidem*.

^[7] <http://www.nvmp.nl>

^[8] <http://www.nederlandict.nl>

^[9] M. Muijser, VLEHAN, "Waste Electrical and Electronic Equipment – a Dutch success story", Jornada Internacional sobre Residuos de Equipos Eléctricos Y Electrónicos (REEE), CER, Octubre 2001.

^[10] <http://www.el-retur.no>

^[11] El-retur Environmental Report 2001

^[12] **SUNDSTRÖM H. (Electrolux)**, Implementation of the WEEE Directive in the Nordic Countries, IERC 2003, Basel January 13-15, 2003.

^[13] <http://el-kretsen.se>

^[14] <http://www.swico.ch>

<http://www.sens.ch>

^[15] Guidelines for the ordinance on the return, taking back and disposal of electrical and electronic appliances, SAEFL, 2000.

^[16] *The Swiss experience and the EU WEEE Directive*, P. Bornand (SWICO), Waste Management World, Nov-Dec 2002.

^[17] RECUPEL Asbl, Rapport 2002, p.10