

## creative policy packages for waste:

### Switzerland

#### overview

With more than 45 per cent of its municipal waste being recycled or composted, Switzerland is often given as a leading example of recycling. The application of the polluter pays principle has been the main driver of the Swiss waste strategy, and market-based solutions with limited government intervention have been favoured. Switzerland is particularly interesting for the UK because it is the only country starting with very high incineration rates that has managed to decrease them significantly in favour of recycling.

#### who did we interview?

- Hans-Peter Fahrni, Head of the Waste Management Division at the Swiss Agency for the Environment, Forests and Landscape (SAEFL)
- Conrad Bader, President of International Solid Waste Association, Switzerland
- Margit Huber-Berninger, responsible for waste management policy at the Praktischer Umweltschutz Schweiz (PUSCH) foundation

#### what kind of country is Switzerland?

Switzerland is a country roughly one fifth of the size of the UK, with a population of 7.2 million inhabitants, giving a relatively low population density of 174 people per square kilometre. However, as more than half of the country is covered with mountains (60 per cent of its surface is in the Alps), most of the population is concentrated in the less mountainous regions. The terrain also constrains landfill development: landfill capacity in 2002 is estimated at around ten years<sup>1</sup>.

The country's landfills and 28 incineration plants are publicly owned by cities or groupings of cities. Private companies can have shares in these but a majority share of every plant or site is publicly owned. Recycling facilities are in the hands of industry or collective organisations representing their interests, while composting plants can be owned either privately or by municipalities. Local authorities generally contract out municipal waste collection to local companies. Industry is responsible for the collection, processing and elimination of its own waste.

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<sup>1</sup> Based on 2000 landfilling rates.

Switzerland has a long tradition of incineration. Conrad Bader notes that the Swiss were burning 80 per cent of their waste 25 years ago: “Incineration is pretty well accepted by the population”.

## what has been achieved?

Between 1990 and 2000, Switzerland increased municipal recycling from 26 per cent to 46 per cent<sup>2</sup>. At the same time, the incineration of municipal waste decreased from 57 per cent to 48 per cent, while the percentage that went to landfill decreased from 15 per cent to seven per cent. Municipal waste in Switzerland includes household waste and similar waste from small industry and businesses and is therefore comparable to the UK definition. Little can be said about non-municipal waste due to incomplete statistics.

## what were the motivations behind the strategy?

In mid-1980s, Switzerland faced a landfill crisis with contamination of ground water from old landfill sites containing hazardous wastes, which, combined with a lack of space for new landfill sites, resulted in a strong opposition against new landfills. Air pollution caused by incineration plants with poor standards also became a public issue. Hans-Peter Fahrni comments: “In 1985, the landfilling of hazardous waste was absolutely uncontrolled. Nobody knew what to do with existing landfills and every kind of waste was accepted and at low cost.” Margit Huber-Berninger adds: “Costs to repair landfill damages were enormous. Contaminated landfills had to be excavated and damage repaired”. The problem led to a consensus among the public, politicians and industry that a new strategy was needed.

## what are the principal instruments?

### the ‘bin-liner’ fee to households

Household waste collection is funded by a combination of a flat-rate fee, ‘the ground fee’, which is paid annually and the bin-liner charge for bags for residual mixed waste. The ground fee covers the municipalities recycling costs and the bin-liner fee covers the residual waste management costs. A few municipalities have bin-liner fees only.

The three interviewees cited the introduction of the bin-liner fee charged to citizens as the main driver of the increased municipal recycling rates. Hans-Peter Fahrni: “The generator of waste has to pay for the treatment. In most municipalities, households have to use special plastic bags for their residual waste. The bags are collected at their doorstep. The costs of waste disposal are built into the price of the bags. This is a clear incentive to recycle”. Margit Huber-Berninger adds: “The bin-liner fee also had an impact on waste reduction: people became aware that packaging would fill their bin so they left it in the shops, which in turn encouraged retailers to reduce packaging”.

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<sup>2</sup> This recycling rate includes composting.

## voluntary Extended Producer Responsibility legislation with sanctions

Both Hans-Peter Fahrni and Margit Huber-Berninger emphasised the importance of the Extended Producer Responsibility (EPR) legislation in ensuring that recyclable materials are recovered by retailers and producers. EPR legislation applies to beverage containers<sup>3</sup>, electric and electronic waste<sup>4</sup>, and batteries<sup>5</sup>. The voluntary nature of the legislation backed up with the threat of more stringent measures for inaction has been effective in stimulating recycling infrastructure and increasing recycling rates. The EPR framework gives industries the choice between paying a prepaid recycling fee<sup>6</sup> to a private organisation responsible for the collection, transport, sorting and preparation of the materials for recycling, or setting up a system of equal efficiency at their own expense. PET, aluminium, and electric and electronic waste are all financed through a voluntary prepaid recycling fee, glass containers and batteries being the only materials requiring a mandatory prepaid recycling fee. Hans-Peter Fahrni: “The voluntary prepaid recycling fee system works on general agreement and has to cover 90 per cent of the market. In the case of glass, no satisfactory voluntary solution could be agreed, so we had to introduce a mandatory prepaid disposal fee”.

Legislation also allows for mandatory deposit-refund systems. Deposit-refund systems are aimed at increasing the rate of collection. They do not play any role in the financing of the recycling system itself and impose greater burdens – particularly logistical ones – on the producers. Hans-Peter Fahrni: “For one-way beverage containers, we set clear goals for the recycling of PET and glass bottles and aluminium cans<sup>7</sup>. If these goals were not reached, the Government could impose a mandatory deposit-refund system<sup>8</sup>. This threat was a great motivation for private industry to develop recycling systems”.

## competition from incineration reduced

Subsidies for incineration plants were discontinued to ensure that incineration did not compete with recycling for materials. However, incineration is considered an acceptable part of the overall strategy. Margit Huber-Berninger explains: “There is a ‘two ways’ philosophy: if the paper market is low, it is not bad to burn it. As long as it pays to recycle, it has to be collected separately. There is not a strict line between the two routes”. However, she does not believe that incineration stops people collecting and separating waste, so long as the polluter pays principle is implemented and recycling infrastructure is financed. “Incineration is more expensive than recycling in terms of operating costs, partly as a consequence of the strict emission standards.”

3 The Beverage Containers Ordinance of August 1990 was amended in 1997 and replaced by a new Ordinance on 5 July 2000. The Ordinance now covers all refillable and non-refillable (one-way containers for beverages except milk and dairy products.

4 Ordinance on the Return, the Taking Back and the Disposal of Electrical and Electronic Appliances of 14 January 1998.

5 Annexe 4.10 ‘Batteries’ of the Ordinance relating to Environmentally Hazardous Substances (OSubst) of June 1986 modified on 1 July 1998.

6 Also called an ‘advance disposal fee’, it is reimbursed to companies in the case of export. The fee also covers consumer information on recycling programmes.

7 The Beverage Containers Ordinance (see note 3) established a recycling target of 75 per cent for glass, PET and aluminium beverage containers (based on weight).

8 There is, however, a mandatory deposit-refund system for all refillable containers such as glass bottles and for non-refillable PVC containers.

## good collection infrastructure

The collection infrastructure for recyclable materials is financed by municipalities and also by producers and retailers through the EPR regulations. Municipalities use the money collected through the bin-liner fee, and through general taxes, to finance the collection infrastructure which relies mainly on bring systems: municipal collection points and container parks for glass, paper, metal and aluminium cans, and clothes. Other materials, such as PET bottles, electric and electronic waste, and batteries are returned by citizens directly to the retailers or other collection points managed by private organisations. Margit Huber-Berninger: “Easily accessible infrastructure to bring back recyclable materials was an important factor in increasing recycling rates. Most municipalities have staffed recycling points which take a wider range of materials than unstaffed points. An additional advantage of staffed recycling point is that there is always someone to help at the collecting point”.

Paper is also collected at the doorstep by the municipalities’ mandated collector and/or community/charity collectors. However, community/charity collection is diminishing in importance, due to variability of markets and no guarantee of profit.

## clear information to citizens

Information to citizens was also mentioned as important in increasing recycling rates of municipal waste. Margit Huber-Berninger: “Informing citizens about the need to reduce waste and bring back recyclables was one of the main means. For instance, every municipality had to produce a, ‘waste calendar’, a small leaflet telling citizens what they should do with their waste, using very visual and simple presentations. Municipalities also organise special events to explain why waste is treated, where it goes, what can be done with recyclates to motivate people to play the game. Consumer organisations are also strongly involved in waste issues.”

## what have been the key factors in success?

### high environmental awareness of population

The relatively high environmental awareness of the population was stressed as being a success factor. Margit Huber-Berninger: “When the bin-liner fee was proposed, one third of the population reacted positively”.

### participatory approach to municipal waste management

The Swiss system of direct democracy was suggested as being a major factor in encouraging recycling. Margit Huber Berninger: “The population of the municipality can debate and approve, or reject, the budget proposed by the council. Municipalities are compelled to produce separate waste management accounts and to cover their costs. The process is very transparent and people understand that more waste means higher fees”.

## what were the major problems for the strategy?

### a potentially confusing collection system

The collection system for recyclables can be confusing to consumers, as highlighted by Conrad Bader: “The source-separation/bring-back system must be easy to handle for the consumer and should not require complicated actions to return the collected material. At present, there is a lack of harmonisation across cantons and municipalities.”

### some resistance to the bin-liner fee

The bin-liner fee system experienced some problems initially. Conrad Bader: “When municipalities introduced the scheme, some streams of waste were shifted to the nearby areas which were still using a flat-rate scheme and some streams were diverted to other outlets. It was essential to quickly introduce the same general scheme across Switzerland.” Two thirds of municipalities now use the system. One of the main arguments against the bin-liner fee is that it generates fly-tipping. However, Margit Huber-Berninger commented: “Fly-tipping does happen but it is not connected to the charge. Municipalities now have central collecting points which can be supervised to prevent illegal dumping of waste. Where they are not supervised the materials have to be screened for dumped waste which increases costs.” Conrad Bader reaffirms the importance of enforcement: “Abuse of separate collections is controlled and eventually punished”.

### too little done on waste reduction

The interviewees recognised that Switzerland has not made source reduction as much of a priority as reducing the pollution potential of waste. Margit Huber-Berninger: “Reduction of waste at source is not satisfactory, although packaging has diminished as a consequence of taxing waste”.

## what are some of the issues for the future?

### increasing recycling rates will prove challenging

Interviewees agreed that the increase in recycling is slowing for municipal waste. Maximum feasible rates for collection of materials such as paper and glass are thought to have been more or less reached<sup>9</sup> and it will be difficult to persuade people to make more effort. However, some materials might make further progress, such as waste from electric and electronic appliances, batteries, and compost.

Shifting the focus from household waste to industrial waste is seen as the main solution for increasing recycling collection, for example, construction and demolition waste or metal from incinerator bottom ash.

<sup>9</sup> 2000 collection rates were: 90 per cent for glass and aluminium cans, 80 per cent for PET, 65 per cent for paper, and 60 per cent for batteries.

### more market development needed

The need to develop new markets for recyclable materials was emphasised as being the main issue for the coming years. Most of the existing recycling markets have reached saturation and will not be able to expand further. Developing new markets will need both the development of new technologies and processes<sup>10</sup>, and the implementation of new regulations on the use of secondary materials. It will be important to avoid pitfalls such as developing un-economic processes and/or producing new recycle materials that are of a lower quality than virgin materials.<sup>11</sup>

### focus on better resource productivity management

Margit Huber-Berninger comments: “Better resource productivity is needed. Eventually the government will have to focus on resource productivity as well as emissions control. An integrated product policy is being established by the EU: this will be the future. The philosophy that we should consume less does not work, consuming more intelligently is more likely, but what we really want is intelligent products”.

### international standards

Conrad Bader: “I fear that our strict standards with regard to environmental protection could be levelled to the European standards, or that by maintaining our standards we might reduce the competitiveness of Swiss industry. There is also a risk, that waste is shipped to other countries, where it is disposed of under less strict standards.”

### what are the lessons for the UK?

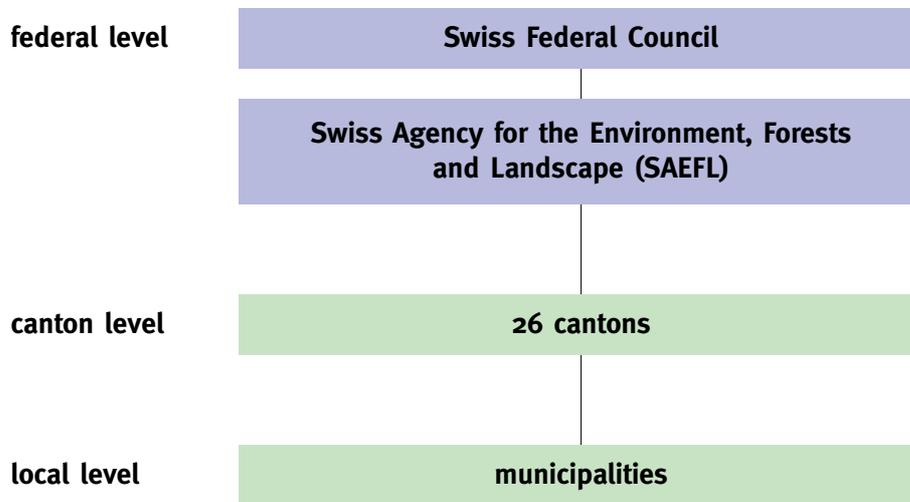
“Tell the people why you are doing it, offer them proper ways of doing what you expect them to do and let them pay for their waste to be treated.” Margit Huber-Berninger

“Within the limits of local regulations, one should only focus on recycling and waste minimisation activities that are feasible. Stay pragmatic and solve your problems locally. Recycling only makes sense if the resulting product is comparable to the virgin material, so focus on where recycling creates added value and where there is a market. If in doubt, incinerate!” Conrad Bader

<sup>10</sup> Switzerland allows use of recycled PET in the making of new PET bottles and is the first country in Europe to have established a PET bottle-to-bottle recycling plant.

<sup>11</sup> For example, the use of PVC product waste to produce vehicle parts that would not be recyclable afterwards.

## Switzerland - competent authorities



- Switzerland is a federal state comprising 26 autonomous self-governing cantons
- The key federal act governing waste management in Switzerland is the 1983 Federal Law on Protection of the Environment (revised 1995)
  - This sets out waste policy principles (including the polluter-pays principle) and responsibility for waste management
- Cantons are responsible for the management of municipal waste and waste from treatment plants
- They have responsibility for implementing waste management legislation, but they can also develop their own legislation
- Cantons set their own cost covering charges

## Switzerland - waste management plans

	guidelines for waste management in Switzerland (1986)	waste management strategy 1992
<b>type of waste</b>	<ul style="list-style-type: none"> <li>• Municipal waste</li> </ul>	<ul style="list-style-type: none"> <li>• Municipal waste</li> <li>• Industrial, construction and special waste (not included in figures below)</li> </ul>
<b>general objectives</b>	<ul style="list-style-type: none"> <li>• Limit use of landfill</li> <li>• As a whole, all disposal systems must be environmentally compatible</li> <li>• Endeavour to ensure disposal within the country</li> <li>• Management and disposal of municipal waste should be “tailored” by the cantons and communes to suit regional circumstances</li> <li>• The need for, and assignment of, capacity for permanent waste disposal must be included in spatial planning policy</li> <li>• Public authorities play a subsidiary role in waste management</li> <li>• Household waste has to be incinerated</li> </ul>	<ul style="list-style-type: none"> <li>• Avoidance of waste at source               <ul style="list-style-type: none"> <li>- Conservation of resources by reduced production</li> <li>- Lower emissions from production and waste disposal processes</li> <li>- Limitation of the number of disposal facilities</li> </ul> </li> <li>• Pollutant reduction in manufacturing processes and goods</li> <li>• Reduction of waste by recycling               <ul style="list-style-type: none"> <li>- Conservation of resources by using recycled materials</li> <li>- Lower emissions from waste disposal processes</li> <li>- Limitation of the number of disposal facilities</li> </ul> </li> <li>• Environmentally compatible treatment and dumping</li> </ul>
<b>targets</b>	<ul style="list-style-type: none"> <li>• No specific recycling targets</li> </ul>	<ul style="list-style-type: none"> <li>• 39% recycling by 1995, no later specific targets</li> </ul>
<b>results</b>	<ul style="list-style-type: none"> <li>• Decrease of 13% of waste to be eliminated between 1989 and 1995</li> <li>• Increase of recycling from 18% in 1985 to 30% in 1995</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease of waste to be eliminated of 7% between 1992 and 2000</li> <li>• Recycling targets for 1995 achieved</li> </ul>

Note: In this context, recycling in the broader sense, including composting.

Source: Abfall Konzept für die Schweiz, 1992, SAEFL.

## Switzerland - definitions

waste categories	measurement	waste treatment
<p><b>municipal waste</b></p> <p>Mixed municipal waste: comprises household waste and similar waste (small industry and businesses); household waste accounts for approximately two-thirds of the total</p> <p>Recovered household and small business waste</p>	<ul style="list-style-type: none"> <li>• Cantons have to draw up a yearly register of the quantities of waste generated within their territory, broken down according to the different types of waste, municipalities, waste treatment plants, and type of treatment *</li> <li>• The Swiss Agency for the Environment, Forests and Landscape (SAEFL) records waste delivered to waste incinerators and landfill sites every two years</li> <li>• Producers and importers of beverage containers or batteries have to report every year the volume and weight of their products/imports, recyclers have to report the recovery level</li> </ul>	<p><b>disposal</b></p> <p>Landfilling (banned for combustible waste)</p> <p>Incineration (with energy recovery as electricity and heat)</p> <p><b>recovery</b></p> <p>Direct reuse</p> <p>Recycling (material recovery)</p> <p>Composting</p> <p><b>special treatment</b></p> <p>Physico-chemical treatment</p> <p>Surface/underground storage</p> <p>For special waste</p>
<p><b>sewage sludge</b></p>		
<p><b>industrial waste:</b> also includes plastic packaging waste from agriculture</p>	<ul style="list-style-type: none"> <li>• There are no precise figures for the volume of directly recovered/landfilled industrial wastes as figures are based on individual data supplemented by SAEFL estimates</li> </ul>	
<p><b>building waste:</b> waste from civil engineering and building construction, excluding material from excavation</p>	<ul style="list-style-type: none"> <li>• Only rough estimates can be made of the volume of building and demolition waste generated annually in Switzerland</li> </ul>	<p><b>export</b></p>
<p><b>special waste</b></p>	<ul style="list-style-type: none"> <li>• Good data availability as the Ordinance on Movements of Special Wastes contains detailed notification requirements concerning the delivery and disposal of special wastes</li> </ul>	

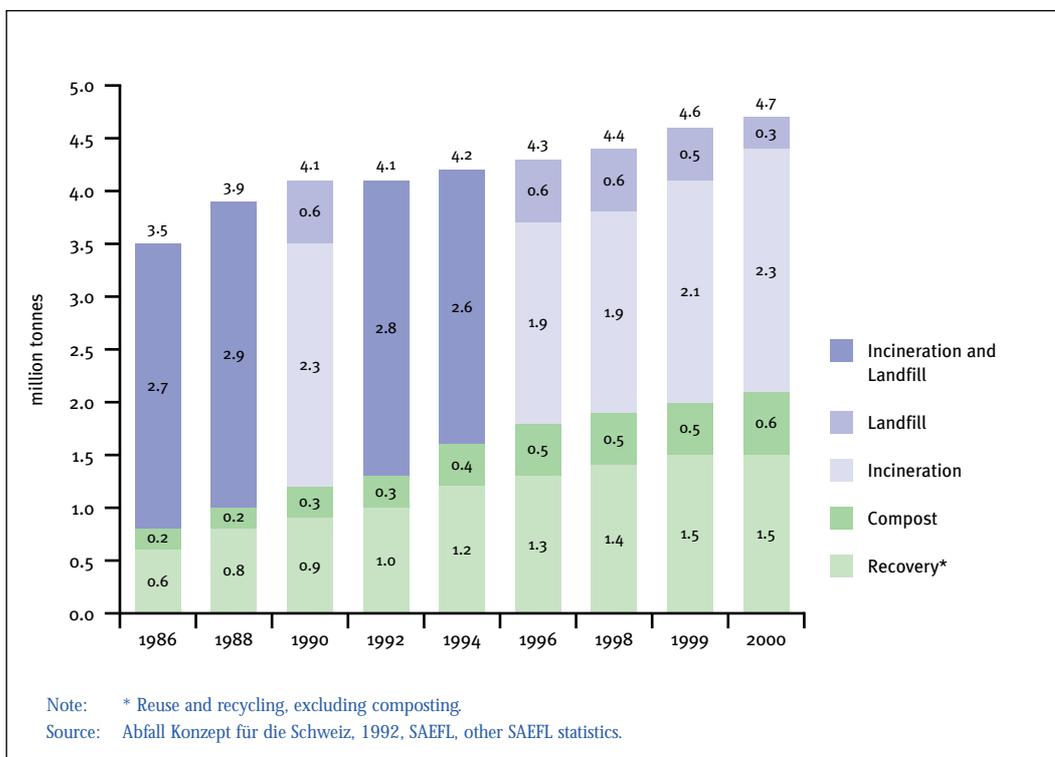
Note: \* only for waste under their management (excludes industrial waste).

Source: SAEFL.

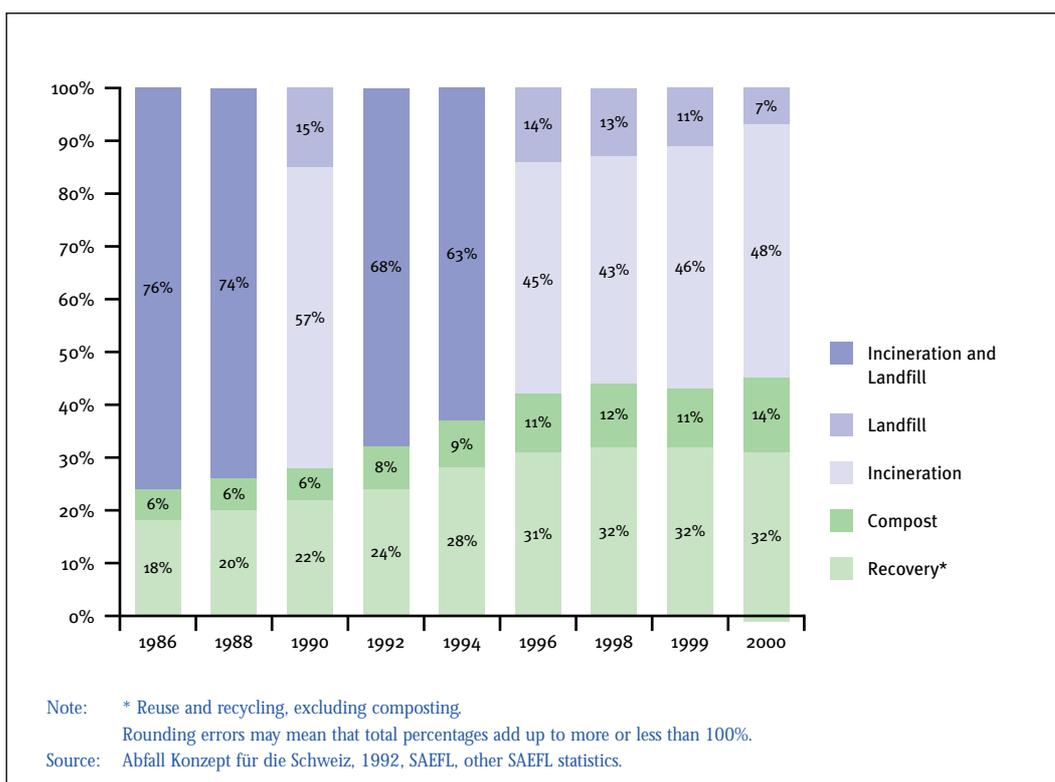
## Switzerland - municipal waste arisings and management

8.10

### municipal waste arisings and management - absolute terms



### municipal waste arisings and management - relative terms



## Switzerland - overview of policy packages

8.11

<b>tool</b> ▼	<b>target</b> ▶	<b>municipalities and/or consumers</b>	<b>businesses</b>
<b>legislative</b>		<ul style="list-style-type: none"> <li>• Ban on landfilling of combustible municipal waste (01/00)</li> <li>• Swiss incinerators have to utilise energy output for heating and/or electricity generation</li> </ul>	<ul style="list-style-type: none"> <li>• Ordinance relating to Environmentally Hazardous Substances (OSubst) (6/86) – Annexe 4.10 on “Batteries”</li> <li>• Beverage Containers Ordinance (8/90 revised 7/2000) – covers all refillable and non-refillable (one-way) containers for beverages except milk and dairy products: mandatory deposit-return system for all refillable containers and obligation to achieve waste reduction and recycling targets for non-refillable (one-way) containers (with use of deposits as legal sanctions)</li> <li>• Ordinance on the Return, the Taking Back and the Disposal of Electrical and Electronic Appliances (7/98): obligation of return for the user, obligation of taking back for retailer</li> </ul>
<b>economic</b>		<ul style="list-style-type: none"> <li>• Bin-lining fee (bag tax): based on volume or weight</li> <li>• Government subsidies for the construction of new incineration plants between 1973 and 1996</li> <li>• Prepaid disposal fees (consumers)</li> </ul>	<ul style="list-style-type: none"> <li>• Landfill tax on household and non-household waste and on the export of waste to landfill (01/01): levied at a maximum of 20% of landfill disposal cost</li> <li>• Product taxes through the system of prepaid recycling/disposal fees used to finance the recycling of recyclable materials (on a voluntary basis for aluminium cans, and PET bottles, and a mandatory basis for one-way glass bottles and batteries)</li> </ul>
<b>information</b>		<ul style="list-style-type: none"> <li>• Information campaign for consumers</li> </ul>	
<b>R&amp;D</b>		<ul style="list-style-type: none"> <li>• N/A</li> </ul>	

Source: SAEFL.