EU-TEMPUS Project

TIWaSiC
"Advanced Training in Integrated Sustainable Waste Management for Siberian Companies and Authorities"

WORK PACKAGE 3
"Incentive system"

OUTCOME REPORT

D3.1.
Cleaner Production
Incentive Schemes

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Abstract

The aim of this report is

- to demonstrate the range of instruments to promote cleaner production and improved waste management in the industry
- to give examples for the implementation of these instruments in Europe

The report should serve as an input to the discussion of instruments for cleaner production in Russia.

Classification of policy instruments and incentive schemes

In order to promote the implementation of environmentally beneficial measures in businesses and companies, various policy instruments and incentive schemes have been developed, ranging from eco-taxes to voluntary schemes. These instruments and incentive schemes can be classified in various categories and an overview of classification schemes is presented in this chapter.

In the OECD "database on instruments used for environmental policy and natural resources management" (http://www2.oecd.org/ecoinst/queries/Default.aspx, last access 10/10/2014), the following categories are used to classify the instruments included in the database:

- Taxes / Fees / Charges
- Tradable Permits
- Deposit-Refund Systems
- Environmental Subsidies
- Voluntary Approaches

In a report by the European Environment Agency titled **"Using the market for cost-effective environmental policy. Market-based instruments in Europe" (European Environment Agency, 2006)** the market-based instruments (MBI) are classified as such:

1. "**tradable permits** that have been designed to achieve reductions in pollution (such as emissions of CO_2) or use of resources (such as fish quotas) in the most effective way through the provision of market incentives to trade;
2. **environmental taxes** that have been designed to change prices and thus the behaviour of producers and consumers, as well as to raise revenues;
3. **environmental charges** that have been designed to cover (in part or in full) the costs of environmental services and abatement measures such as waste water treatment and waste disposal;
4. **environmental subsidies and incentives** that have been designed to stimulate development of new technologies, to help create new markets for environmental goods and services including technologies, to encourage changes in consumer behaviour through green purchasing schemes, and to temporarily support achieving higher levels of environmental protection by companies;
5. **liability and compensation schemes** that aim at ensuring adequate compensation for damage resulting from activities dangerous to the environment and provide for means of prevention and reinstatement."

In his paper titled **"A theoretical framework for explaining the choice of instruments in environmental policy", Böcher (2012)** writes that "the literature distinguishes among four main types of policy instruments based on the mechanisms they employ to influence and coordinate collective action. These types include

(i) informational (or persuasive),
(ii) cooperative,
(iii) economic, and
(iv) regulatory policy instruments

Informational instruments attempt to influence collective action by providing information to citizens and other actors (e.g., *eco-labels* meant to influence consumers' behavior).

Cooperative instruments use the coordination mechanism of negotiations, which can take place either between private actors or between private actors and the state, to establish voluntary measures that lead to **voluntary agreements (VA)**. An example of a voluntary instrument is *forest certification*, which is a market-driven, voluntary, private regulatory scheme that does not require state involvement (Cashore et al., 2005).

"Economic instruments use the market-based coordination mechanism of prices to influence actors' behavior. The state imposes economic incentives as price signals to promote behavioral changes. *Eco-taxes* increase the costs of environmentally detrimental behavior, such as automobile use, whereas *subsidies* stimulate environmentally friendly technologies, such as renewable energies (Böcher, 2010).

Governance through more traditional **regulatory instruments** utilizes the principle of hierarchy by applying **'command-and-control'** principles to influence actors' behavior. Governments have used regulatory instruments since the onset of environmental policy making in industrialized countries in the 1970s.

The amount of state intervention that policies necessitate also differentiates environmental policy instruments (Howlett and Ramesh, 1995, 82). **Regulatory instruments require the largest amount of direct state control**. In contrast, the state only sets economic incentives when it uses economic instruments, freeing actors in society to react flexibly to these incentives. We observe a smaller degree of direct state control in such circumstances. Cooperative instruments do not entail much direct control or priority setting on the part of the state, and **informational instruments provide the smallest amount of state intervention by only using persuasive measures**. Figure 1 shows different instrument types and examples of instruments from natural resource policy" (Böcher, 2012).

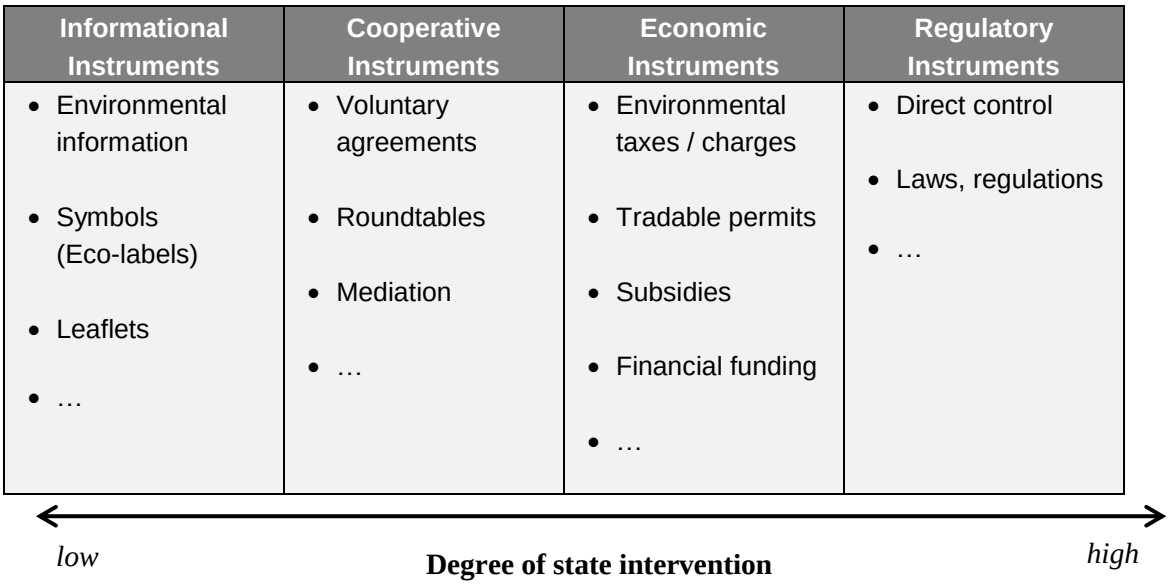

Figure 1: Environmental policy instruments and degree of state intervention (modified after (Böcher, 2012))

In the **"Study on Incentives Driving Improvement of Environmental Performance of Companies", Ecorys (2012)** divides the incentives into:

- Administrative Incentives
- Economic Incentives
- Reputational Incentives.

Administrative incentives "aim to encourage companies to reduce their environmental impact and facilitate compliance with existing legislation by designing instruments that reduce the burden (and/or cost) of regulatory compliance" (Ecorys, 2012). Examples are reduced inspection frequency and permit extensions or favourable thresholds for administrative obligations (= e.g. lower threshold before they have to provide information).

Economic incentives "are delivered through initiatives (mandatory or voluntary) that encourage behaviour through price signals rather than through explicit instructions on pollution control levels or methods". […] "Well designed economic incentives with environmental objectives attempt to 'get the prices right' by internalising the costs associated with environmental degradation, into the costs of production for the company" (Ecorys, 2012).

Economic incentives can be sub-divided into:

- *Reduced charges* (e.g. reduced waste charges for firms with EMAS certification in Bavaria)

- *Environmental taxes* (in general: charge polluters for the units of pollution they generate or used to raise capital for environmental damage mitigation measures)
  - **"Cost covering charges** – designed to cover the costs of environmental services and abatement measures e.g. water treatment charges;
  - **Incentive taxes** – designed to drive change in consumers and/or producers e.g. tax reductions/exemptions of low carbon vehicles;
  - **Fiscal environmental taxes** – simply designed to raise revenue and 'dis-incentivise' certain polluting activities e.g. Sulphur dioxide emission taxes." (Ecorys, 2012)

- *Taxed based incentives* (e.g. Effluent Charging Acts in DE, FR, NL; CO_2 levy on Heating Fuels in CH, Climate Change Levy Agreement in UK)
  - "Classical environmental taxation;
  - Taxes used within tradable permit systems, in order to:
    - reduce compliance cost uncertainty;
    - penalise non-compliance;
    - capture windfall rents.
  - Taxes used in combination with labelling schemes;
  - Taxes used in combination with negotiated agreements;
  - Taxes used in combination with subsidies" (Ecorys, 2012)

- *Other incentives:*
  - Subsidies
  - Public funding
  - Access to private funds, environmental investment capital
  - Lower insurance premiums (climate change → higher levels of risk of insurance claims based on environmental damage)
  - Tradable permits (e.g. EU Emissions Trading Scheme EU-ETS)
  - Preferred supplier status (Green Procurement)

Reputational incentives "motivate companies to change their behaviour as a result of the value they put on their visible performance and perception among consumers, NGOs and the community at large" (Ecorys, 2012). Examples: carbon emissions publications, sustainability indices, benchmarking, awards, recognition schemes … Ranking, benchmarking etc. can also provide "an external incentive to firms who wish to be ranked higher than their competitors" (Ecorys, 2012).

In this report, the classification of Böcher (2012) in **informational (or persuasive), cooperative, economic, and regulatory policy instruments** (see Figure 1 on page 9) is used.

Informative instruments

The driving motivation behind informative incentives is to inform (and influence) the customer and/or increase the company's reputation. They are mainly voluntary schemes and related to labelling and product rating initiatives as well as to benchmarking (e.g. GHG reporting schemes).

Environmental Management Systems (EMS)

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
+++++			

Probably the best known voluntary scheme that informs about certain criteria a company fulfils are official certifications issued by authorized certification organisations. For criteria related to environmental issues the most common certification is one that informs about the environmental management system that is in place at the certified company. At present mainly two EMS certificates are used at a worldwide level:

- ISO 14001
- EMAS III (1221/2009/EG)

The ISO 14001 certificate was developed by the International Standardisation Organisation and is worldwide recognized. It is based on the Plan-Do-Check-Act principle and requires certified companies to continuously improve their environmental performance in terms of reducing their environmental impacts and increasing their resource efficiency.

The EMAS (Eco Management and Audit Scheme) is a certification scheme developed by the European Union. It is based on the ISO 14001 standard but requires participating companies to additionally issue on a regularly basis environmental statements that provide information to the public on the environmental performance (environmental impacts, compliance with environmental laws, improvements, …) of the company.

Ecolabelling

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
+++++			

One informative incentive are ecolabels, i.e. symbols placed on the packaging of a product that prove that the product and/or the producer fulfil certain criteria. There are many different types of ecolabels, of which ISO defines three main types:

Type I – environmental labelling (the classic "symbol" form):
A voluntary, multiple-criteria based, third party program that awards a license which authorizes the use of environmental labels on products indicating overall environmental preferability of a product within a product category based on life cycle considerations.

Examples are: Blue Angel (Germany), EU Flower (European Union), Nordic Swan (Scandinavian countries)

Type II – Self-declared environmental claims:
Informative environmental self-declaration claims

Type III – environmental declarations:
Voluntary programs that provide quantified environmental data of a product, under pre-set categories of parameters set by a qualified third party and based on life cycle assessment, and verified by that or another qualified third party.

Entreprises éco-dynamique (Belgium)

Entreprise écodynamique is an environmental labelling scheme for enterprises in the Brussels-Capital region. The label is based on several indicators (heating, electricity, water, resource efficiency, waste, mobility, …) measuring the environmental performance of a company. According to their overall environmental performance, companies can be awarded a one-, two- or three-star (the best) label which is valid for three years. Companies certified after ISO 14001 / EMAS are granted automatically the three-stars Eco-dynamique label. The labelling process is free of charge and is funded by the government of Brussels with technical support and 200,000 Euros for guidance and communication. The label was created in 1999 with the first companies being labelled in 2000.
http://www.be-smarter.eu/en/best_practice_detail.html?liste=1&id=38 (last access: 10/10/2014)

Figure 2: Label „Entreprise eco-dynamique"[1]

More information can be found (only in French) on: http://www.bruxellesenvironnement.be/Templates/Professionnels/niveau2.aspx?maintaxid=11771&taxid=11789 (last access: 10/10/2014)

[1] *Source: http://www.bruxellesenvironnement.be/Templates/Professionnels/niveau2.aspx?maintaxid=11771&taxid=11789 (last access 10/10/2014)*

Petra Waste Management Benchmarking Tool (Finland)

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
+++++			

"The Petra waste management benchmarking tool is a free service run by the Helsinki Region Environmental Services Authority that allows companies to track and compare their waste management performance. Benchmarking the other companies in the industry helps to realize if their own actions are generating too much waste, and allows them to find ways of reducing their waste generation. A greenhouse gas emissions calculator has been added to the Petra service as part of the Julia 2030 project." http://www.ecopol-project.eu/en/waste__recycling/good_practices/finland (last access 10/10/2014)

Every two years, the Helsinki Regional Environmental Service Authority (HSY) gives an award to a company or public entity that achieved a significant reduction of its generated waste in order to encourage companies not only to monitoring their generated waste but also to take actions to reduce the amount of waste generated. Unlike in other incentive schemes, no funding for training or consulting services is provided.

Further information can be found on: http://www.hsy.fi/en/regionalinfo/climate/material_efficiency/petra_waste_benchmarking/Pages/default.aspx http://www.petrajatevertailu.net/hsy/?mo=main&userID=1543 (both last access 10/10/2014)

Cooperative instruments

Voluntary agreements of certain industries

Commitment of the chemical industry: "Responsible Care"

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
+	++++		

"Responsible Care® is the global chemical industry's environmental, health and safety (EHS) initiative to drive continuous improvement in performance. It achieves this objective by meeting and going beyond legislative and regulatory compliance, and by adopting cooperative and voluntary initiatives with government and other stakeholders. Responsible Care is both an ethic and a commitment that seeks to build confidence and trust in an industry that is essential to improving living standards and the quality of life." (ICCA, 2005)

The Responsible Care initiative was launched by the chemical industry in 1985, following a major chemical accident in India (gas leak in a pesticide plant in Bhopal) that resulted in a decrease in the reputation of the whole chemical industry (Suchanek and von Broock, 2007). In general, Suchanek and von Broock (2007) underline that – contrary to other industries – the chemical industry is perceived as a whole industry and the single companies are little known, thus making it important to improve the image of the whole industry.

According to ICCA, "by March 2012, more than 150 of the world's largest chemical companies belonging to ICCA associations and representing 85% of leading global chemical companies had signed up to the Global Charter" (ICCA, 2012).

Commitment of the detergents industry

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
++	+++		

The „International Association for Soaps, Detergents and Maintenance Products" (A.I.S.E.) is the official representative body of the industry in Europe, representing over 900 companies in Europe and abroad (A.I.S.E., 2014). A.I.S.E. started its first voluntary initiatives in 1997. In 2004 it published the "Charta for Sustainable Cleaning (CSP)" which goes further than the previous voluntary initiatives as it is based on the life-cycle approach and includes annual reporting and inspection by independent verifiers" (A.I.S.E., 2013). The Charta for Sustainable Cleaning was revised in 2010 and supplemental requirements were added. This leads to the situation that some companies are certified according to the first version of the Charta and some companies according to the requirements of the revised version of 2010. For customers this creates a difficult situation, that some products carry the logo of companies adhering to the CSC of 2005 and some of companies carrying the logo of

CSC 2010. To make it even more difficult, the CSC 2005 had 6 different labels, and the CSC 2010 has two labels (see Figure 3 and Figure 4), making it 8 labels being used at the same time.

Figure 3: "This logo will certify that the company which manufactured the product is following Charter update 2010 sustainability principles"[2]

Figure 4: "This logo will certify not only that the company which manufactured the product is following Charter update 2010 sustainability principles, but also that the product itself meets the specific 'Advanced Sustainability Profile' for the category as defined by A.I.S.E." [3]

[2] *Source image and caption: http://www.sustainable-cleaning.com/en.publicarea_chartervisual.orb (last access 10/10/2014)*

[3] *Source image: http://www.ukcpi.org/green-cleaning-rules.html (last access 10/10/2014), caption: http://www.sustainable-cleaning.com/en.publicarea_chartervisual.orb (last access 10/10/2014)*

"The Charter stipulates a set Charter Sustainability Procedures (CSPs) for companies to implement in their management systems. These CSPs must apply to a minimum of 75% of the company's production (in the Charter version 2005 50% until the first re-verification when it rises to 75%). For the Entrance Check the company must be verified on the six 'Essential CSPs' by an independent external verifier in order to provide assurance that the company does have the required processes in place, under control, and adequately applied. The other six CSPs (five in the case of the Charter version 2005), which are the 'Additional CSPs', have to be added for the first re-verification three years after joining the Charter and for every subsequent three-yearly re-verification. The external verification guarantees that all applicant companies are individually assessed on the same basis by a neutral, professional auditing body, and regularly re-assessed to ensure continued compliance. The company bears the cost of the Entrance Check CSP verification.

The Charter also defines a set of 11 Key Performance Indicators (KPIs), which are specifically linked to the CSPs. Companies that sign up to the Charter are required to report annually to A.I.S.E. on these KPIs. A.I.S.E. collects and aggregates the results and publishes them in the annual A.I.S.E. Activity & Sustainability Report, providing measurable evidence of the progress of the whole industry sector on a European level. The KPI reporting is also externally verified through a process of random audits managed by A.I.S.E. A.I.S.E bears the cost of this verification from its Charter budget.

Companies joining or migrating to the Charter update 2010 can opt to use the new voluntary 'Advanced Sustainability Profiles' (ASPs) where relevant to their products. Products which meet the requirements of these ASPs may then use a differentiated 'ASP' logo on pack which signifies not only that the manufacturer is committed to certain sustainability processes at the manufacturing level (as under the Charter version 2005), but also that the product itself meets certain advanced sustainability criteria. ASPs are specific to A.I.S.E. product categories, whether in the household or in the industrial & institutional cleaning sector, and companies are verified on their use of the ASP logo on a random basis by A.I.S.E., similarly to the KPI verification" (http://www.sustainable-cleaning.com/en.publicarea_howdoesitwork.orb#cspskpis, last access 10/10/2014).

Figure 5 shows an overview of the CSPs and KPIs used:

Relevant Life-cycle phase		Charter Sustainability Procedures (CSPs) *(essential CSPs in bold, italics)*			Link with the Charter Key Performance Indicators (KPIs)
Overall sustainability		Overall sustainability policy			1) Participating companies
1	Raw materials, incl. Chemicals and Packaging	***A***	***Raw material selection and safety evaluation***		2) Chemicals Safety 6) PBO consumption
		B	Raw material and packaging supplier selection		2) Chemicals Safety
		C	Packaging design and selection		7) Packaging material used
2	Resource Use	***D***	***Resource Use***	***Energy use***	8) Energy / CO-2 used
				Water use	9) Water used
				Raw material use	10) Waste
				Packaging material use	7) Packaging material used
3	Manufacturing	***E***	***Occupational Health & Safety***		3) Occupational Health & Safety
		F	***Manufacturing Environmental Management System***		10) Waste
4	Distribution	G	Distribution Safety Evaluation		4) Consumer /Customer safety
		H	***Product recall system***		4) Consumer /Customer safety
5	Product Use and Review	***I***	***Finished Product Safety Evaluation***		4) Consumer /Customer safety
		J	Consumer and User information		5) Consumer + user information
		K	Product Performance and Review system		4) Consumer /Customer safety 5) Consumer + user information
6	Overall	L	Internal Sustainability Target Setting		11) Products with ASP status

Figure 5: Overview of the Procedures that need to be implemented and Key Performance Indicators that have to be reported when signing up for the Charta[4]

"In 2010, a fundamental aspect was introduced into the Charter for Sustainable Cleaning, namely the product assessment. The Charter's product dimension enables companies to provide a sustainability assurance for their products. Advanced Sustainability Profiles (ASPs) for individual product categories set sustainability criteria that are ambitious but reasonably achievable by all market players. The parameters are defined based on a life cycle analysis. The Environmental Safety Check (ESC) is a key component of ASPs, which all ingredients in a given formulation must successfully pass. The ESC is a risk-based and conservative tool that assesses the environmental safety of ingredients in the aquatic compartment aligned with REACH principles." (A.I.S.E., 2014)

[4] *Source: http://www.sustainable-cleaning.com/en.publicarea_howdoesitwork.orb#cspskpis (last access 10/10/2014)*

Voluntary agreement of the Belgian battery industry association (BEBAT)

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
	+++	+	+

In 1993, the Belgian government decided to introduce a tax on all sold batteries by 1 January 1994 as part of a general ecotax law – with the exemption of batteries that are collected in a take back scheme that receives certain collection targets. Thus, this tax was never implemented, as negotiations with the battery industry lead to the development of a voluntary scheme that started in 1997. The threat of a tax being implemented served as motivation behind it. The battery industry set up a non-profit organization called BEBAT asbl which is responsible for the organization of the battery collection as well as the treatment. The principle of the voluntary agreement is that batteries are exempted from the ecotax once a voluntary collection and recycling scheme is set up which has to comply with the following conditions:

- The system had to be financed by the battery industry;
- Up to the year 2000, certain target percentages for recycling had to be met.

If these requirements are not met, the ecotax will be installed (Global PSC, 2012, ECOTEC, 2001).

The BEBAT negotiated agreement (cited from ECOTEC (2001)):

The negotiated agreement is an agreement between the federal government, the regional governments of Flanders, Walloon and Brussels, and the Belgian battery industry. The latter is represented by BEBAT, a non-profit organisation founded by the battery industry for the sole purpose of this negotiated agreement. In legal terms, the agreement states that BEBAT is responsible for collecting and recycling used batteries that were sold on Belgian territory. BEBAT places collection boxes at approximately 20,000 collection points (market stores, photo shops, jewellers, schools, etc.) at no cost for the owners of the collection points.

During the first year BEBAT started an awareness campaign to inform the consumers and distributors about the new system. The financing of the 'collection and recycling contribution' was agreed to be paid by members of the organisation (i.e., battery producers and distributors). This contribution would be passed on to the consumers through a price increase. This price increase was set by the Royal Decree of April 16, 1996 and is far lower than the ecotax of 20 BEF – and is 4 BEF per battery. This 4 BEF has been raised to 5 BEF per battery in January 1999.

The negotiated agreement deals with several aspects of collecting and recycling a fixed percentage of used batteries in Belgium. BEBAT is required to fulfil certain collection percentages. These percentage recycling rates are identical to those mentioned in the ecotax law (relating to the proposed deposit-refund system) and the actual amounts collected (BEBAT, 1998) are as follows:

- *40% in 1996 – Actual: 1264t of 2768t, or 44.9%: target met; ·*
- *50% in 1997 – Actual: 1332t of 2572t; or 51.9%: target met; ·*
- *60% in 1998 – Actual: 1844t of 3074t; or 58.7%; ·*
- *67.5% in 1999 – Actual: 1834t or 65.7%; ·*

- *75% in 2000 – Estimate: 1978 - 2000t or 66-68%;*

These percentages are calculated as follows:

$$\frac{\text{Weight of the collected amount of batteries during year x}}{\text{Weight of the sold amount of batteries during year x}}$$

The collected amount of batteries includes the batteries collected by the urban waste companies of the regions through the public collection sites as well as those collected by BEBAT. The batteries collected by BEBAT must be recycled according to the agreements signed with the three regions. For monitoring purposes, BEBAT is required to provide information to the Ecotax Commission, the regional governments and the federal government at fixed intervals. Following an annual report, the Ecotax Commission advises the governments on whether to allow the voluntary agreement to continue. ***If the prescribed percentage for any year was not reached, all sold batteries would become subject to the ecotax the following year and BEBAT would be fined.***

The first agreement ended on 31/12/2000 and is continuing providing no new conflicting regional legislation is introduced, but each party has the right to end the agreement if one of the parties is non-compliant. The arguments of the battery industry were mainly financial ones. Since there is no substitute for batteries, they argued that the consumers would be the main victims of the ecotax, spending a total of 1.5 billion BEF (37 MEUR) annually. The higher price and lower sales were predicted to lead to a fall in employment in the industry, which employed 2000 Belgians. Competitively, it was argued that the Belgian battery producers and distributors would be at a disadvantage.

In a newer description of the voluntary agreement by the Global Product Stewardship Council it says: "Producers must pay a tax of EUR 0.5 per battery placed on the market unless they collect an amount of waste portable batteries equivalent to 45% (2010) to 50% (2012) by weight of batteries placed on the market (earlier collection targets used a different calculation but were nominally comparable). Being a mature battery collection system, return rates of over around 50% have been consistently achieved over the past decade." (Global PSC, 2012)

Further information on the tax can also be found on: http://www.economicinstruments.com/index.php/solid-waste/article/153- (last access 10/10/2014)

Voluntary agreements with support from the government

The Courtauld Commitment – UK Grocery Sector

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
+	+++	+	

"The Courtauld Commitment is a voluntary agreement aimed at improving resource efficiency and reducing waste within the UK grocery sector. The agreement is funded by Westminster, Scottish, Welsh and Northern Ireland governments and delivered by WRAP. It supports the UK governments' policy goal of a 'zero waste economy' and climate change objectives to reduce greenhouse gas emissions. WRAP is responsible for the agreement and works in partnership with leading retailers, brand owners, manufacturers and suppliers who sign up and support the delivery of the targets. It was launched in 2005 and is now in its third phase." http://www.wrap.org.uk/node/14507 (last access 10/10/2014)

"Phase 1: Over 40 signatories (90% of the packaging sector) signed up for Phase 1 which was launched in July 2005 and ran to March 2010. It had three targets:

- an absolute halt in packaging growth by 2008
- an absolute reduction in packaging waste by 2010, and
- a reduction in household food waste of 155,000 tonnes by 2010.

Phase 2: Phase 2 ran from April 2010 to December 2012 and began the move from weight-based targets to new metrics which considered wider environmental impacts. This phase aimed to reduce:

- […] the weight, increase recycling rates and increase the recycled content of all grocery packaging, as appropriate. Ultimately reducing the carbon impact of this grocery packaging by 10%.
- […] UK household food and drink waste by 4%, through for example, consumer advice/information, improvements to packaging, better date/storage labelling.
- […] traditional grocery product and packaging waste in the grocery supply chain by 5%. Inclusion of the supply chain was a significant widening of scope.

Phase 3: The third phase of the Courtauld Commitment will run from May 2013 to December 2015. It aims to further reduce the weight and carbon impact of household food waste, grocery product and packaging waste, both in the home and the UK grocery sector.
Phase 3 targets (measured against a 2012 baseline) are to:

- reduce household food and drink waste by 5% - this represents a 9% reduction in real terms to counter the expected increase in food purchased.
- reduce traditional grocery ingredient, product and packaging waste in the grocery supply chain by 3% - signatories will have to make an 8% reduction in real terms to counter the expected increase in production and sales.
- improve packaging design through the supply chain to maximise recycled content as appropriate, improve recyclability and deliver product protection to

reduce food waste, while ensuring there is no increase in the carbon impact of packaging – it is anticipated that signatories will have to make a 3% reduction in real terms to counter the expected sales increase." (DEFRA, 2013)

National Industrial Symbiosis Programme (NISP)

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
	++++	+	

"The National Industrial Symbiosis Programme (NISP) was launched in the UK in 2005, and provides an information, networking and matching service for firms. The purpose of the scheme is to match firms' waste products with other firms' material needs, to bring a symbiosis between them and improve resource efficiency, find new resources streams and improve competitiveness. The economic incentive for firms lies in turning their waste streams into an asset and/or finding new, cheaper material sources. Environmental performance is improved by reducing the environmental impact of waste streams and also in the extraction and supply of material resources. The approach is understood to have been highly successful, with over 12.500 members" (Ecorys, 2012).

"NISP […*is*] a free support to business and a partnership programme aiming to establish synergies. It is a public-private partnership; the idea came from International Synergies Ltd, a company which manages and administers NISP. The Government's Department for Environment, Food and Rural Affairs (Defra) provided grant funding for NISP until 2014. NISP's main activities are carrying out workshops in which businesses can identify mutual synergies. Each year several regional workshops are organised throughout the UK. These half-day workshops, in which usually 50-60 companies participate, result in the identification of about 300 potential materials, water or energy synergies among firms. An estimated 6% are eventually realised. International Synergies Ltd facilitates and guides these synergies and provides support via implementing new processes or technologies. […]
NISP significantly enhances industrial and commercial waste reduction. It also helps businesses expand production and cut costs while reducing their extraction of natural resources, generation of waste materials and overall environmental impact (including water and wastewater treatment and energy efficiency in industry). Five environmental and two economic metrics are regularly assessed via resource monitoring. Between 2005-2010, NISP was able to:

- divert over 7m tonnes of industrial waste from landfills
- reduce carbon footprint, or CO_2 equivalent, by over 6m tonnes
- reduce water usage by industry by 9.6m tonnes
- reduce over 363.000 tonnes of hazardous waste
- cut use of virgin materials by 9.7m tonnes
- generate £176m in additional sales
- cut costs by £156m by reducing disposal, storage, transport and purchasing costs.

The outcomes are widely recognised as achieving high value for money. Beneficiaries are both the participating companies (especially SMEs), and also the government (through higher tax incomes), and the general public and communities through the creation of jobs and cost savings in the long run." (http://www.innovationseeds.eu/Policy-Library/Core-Articles/One-CompanyS-Waste-Is-AnotherS-Raw-Material-National-Industrial-Symbiosis-Programme-NISP.kl, last access 10/10/2014)

More information available on: http://www.nispnetwork.com

Waste Minimisation Clubs (UK)

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
	+++	++	

"A Waste Minimisation Club (WMC) is a cluster of companies that are brought together to make the training and sharing of waste minimization practice as efficient as possible. Primarily, WMCs act as a way to introducing economies of scale; costs are reduced because companies share the costs of gaining information and hiring consultants. The club format creates a 'peer pressure' to encourage participants to push harder within their own firm, and to learn from the experiences of others (Phillips et al., 1999). WMCs can involve industries and business of all sectors and sizes.

Phase one

- Recruitment of participating companies.

Phase two

- 'Project champion' appointed in each company to drive the project forward internally
- regular central training of 'project champion' and other relevant staff
- progress reporting by each 'project champion'
- consultancy site support
- installation of a monitoring and targeting system for each site
- identification of waste reducing opportunities on site
- implementation of waste reducing opportunities on site.

Phase three

- Further implementation
- assessment of financial and environmental savings achieved
- dissemination and replication." (Henningsson et al., 2001)

According to a report issued by DEFRA, Waste Minimisation Clubs are usually financially supported by public agencies and funding (DEFRA, 2011).

More (general) information can be found in the Overview Report

- DEFRA (2011): L1m1 – Review Overview Report. WR1403: Business Waste Prevention Evidence Review.

and in the Annex dedicated to Waste Prevention Clubs

- DEFRA (2011): L2m4-7 – Waste Minimisation Clubs. WR1403: Business Waste Prevention Evidence Review.
  - ➔ for case studies see Annex A

All Annexes are available at:
http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=17499

Economic instruments

Taxes / charges

The most common economic incentives are tax incentive measures with the two main forms being, according to Ecorys (2012):

- Taxes penalising poor environmental performance
- Tax reductions to favour investments leading to improved environmental performance

Germany

Reduced charges: Umweltpakt Bayern

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
		+++++	

"The Umweltpakt Bayern example is an agreement between local government and SMEs in the state of Bavaria in Germany. It allows for firms to receive preferential treatment in their municipal tax/charge obligations if they commit to environmental performance improvements. It also provides support to firms to improve their environmental performance, allowing up to 30% of the costs of securing EMAS certification to be paid through the scheme. Firms that achieve EMAS certification are able to receive a 30% reduction in their permitting costs and a 50% reduction in their water abstraction costs. Similar exemptions and reductions are applicable to firms with ISO 14001 or other local, regional or national environmental certifications (Ecorys, 2012)." → **Voluntary**

Increased charges: Effluent Pollution Charging

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
		+++	++

"Charging firms for their effluent discharges to watercourses or public wastewater treatment systems has been a commonly used tax incentive in a number of European countries such as Germany, France, the Netherlands and the United Kingdom. The charge in Germany is applied to the effluent discharges of firms and is calculated according to the amount and harmfulness of the respective substances discharged. The tax was applied in a way where firms were able to be exempted from up to 50% of the charges if they could demonstrate investment in technology or other measures to treat their effluent streams. In this way the scheme incentivised the adoption of best available technology and improved standards and environmental performance across the whole country." → **Mandatory**

United Kingdom

Increased charges: Landfill Tax escalator

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
		++	+++

"The landfill tax escalator in the UK is a tax-based incentive that charges for disposal of waste at landfill sites. Introduced in 1996, the tax was initially set at GBP seven / tonne of active waste and GBP two / tonne of inactive (inert waste). The price for active waste has risen annually and stands at GBP 56 / tonne in 2011, and is scheduled to rise by GBP eight / year over next three years. In the fiscal year 2009/2010 the tax raised a total of GBP 1 018 million. On average around six to seven percent of the tax is re-credited to those liable on the basis of their contributions to environmental bodies. The incentive to most firms has been applied somewhat indirectly as the landfill charges are paid by the municipalities and this is reflected then in business rates / waste disposal charges, although some large firms have direct contracts with waste companies and see the charge more clearly. Nevertheless since the introduction of the tax, the proportion of waste sent to landfill has fallen by around a third, and this has been accompanied by a similar increase in recycling" (Ecorys, 2012). → **Mandatory**

Increased charges: Aggregates levy

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
		++	+++

"The aggregates levy is an economic tax incentive which has been successfully applied in the UK. It was introduced in 2002 and imposes a levy of £2.10 on each tonne of virgin aggregate (gravel and stone) extracted (i.e. quarried from the ground), which serves to increase the average price per tonne by approximately 25%. In 2008/9 the levy raised approximately 334 million in tax revenue, 90% of which is recycled back to firms in the sector through reduced national insurance (employer social security contributions per employee) and 10% is provided to fund research into reducing the environmental impact of aggregates and their recycling and disposal. The levy is believed to have been the primary factor in a decrease of around 18 million tonnes of virgin aggregates use between 2001 and 2005, and also for aggregates recycling rates of around 25%. The evidence suggests that this recycling rate has been by far the highest in Europe, almost double the rate of the next best performing Member State. At the same time there are also concerns that the levy has encouraged greater imports of materials, exempt from the levy, with greater environmental impacts. Recycling tax revenues back to the sector is understood to have been beneficial economically, transferring the cost burden to resources and away from labour, this is believed to have increased the employment and value of the sector. Along with the environmental improvements this is providing the sought after double-dividend to society" (Ecorys, 2012). → **Mandatory**

Funding

REMake Innovation Vouchers for Manufacturing SMEs

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
		+++++	

The REMake Innovation Voucher was the outcome of the European innovation project "REMake". It is a new funding scheme that aims at supporting eco-innovation in the manufacturing industry through technical, business and innovation support in the field of recycling and resource efficiency. The principle of the REMake voucher system is that SMEs can apply for vouchers that they can exchange for technical advice and guidance. During the project, the voucher application was administered by the public innovation agencies demea (Germany), OSEO (France), Innovhub Milan (Italy), DII Navarra and CICI Valencia (Spain) and WRAP (UK) (REMake, n.d.), http://www.innovationseeds.eu/Policy-Library/Core-Articles/Encouraging-The-Use-Of-Recycled-Content-REMake-Innovation-Vouchers-For-Manufacturing-SMEs-In-Wales.kl (last access 10/10/2014).

The voucher can be used for:

- Analysis of material flows and assessment of savings potentials;
- Life-cycle analysis and eco-design support;
- Consultancy on the incorporation of recycled content into products;
- Advice on the implementation of technological innovation measures;
- Management of eco-innovation and financing solutions

(Bersano, 2010)

Innovation vouchers – example from Germany

In Germany, the Ministry of Economy and Technology is responsible for the innovation vouchers programme called "BMWi-Innovationsgutscheine" (go-Inno) which is **aimed solely at manufacturing companies**. Within the programme, 50% of the costs for external consulting services are funded. The programme consists of two modules that are explained in detail below.

Innovation management (go-innovative)

Go-innovative is the funding scheme for consulting services related to product or process related innovations. Within the module, two levels are available:

1) Potential analysis: Strengths-weaknesses-profile, market profile, planned innovations, time requirement
2) Realisation concept and/or project management: e.g. determination of suitable providers of technology, supervision by external project management

The maximum value of the go-innovative voucher as well as the maximum number of consulting days for each level is shown in Table 1.

Table 1: Maximum value of the go-innovative voucher (BMWi, 2014)

Level	Maximum number of consulting days	Maximal value of the voucher
Potential analysis	10	5,500 €
Realisation concept	25	13,750 €
Project management	15	8,250 €

To be eligible for the voucher, companies need to be registered in Germany, have less than 100 employees and a maximum annual turnover (or annual balance sheet) of 20 Million € (BMWi, 2014).

Raw material and material efficiency (go-efficient)

Go-efficient is the funding scheme for consulting services that aim at reducing the use of raw materials and increasing the material efficiency. Within the module, two levels are available:

1) Potential analysis: analysis of material losses, material efficient product design, suggestion of suitable measures
2) In-depth consulting: e.g. planning of measures, implementation support, financial advising.

The maximum value of the go-efficient voucher (depending on the level) is shown in Table 2.

Table 2: Maximum value of the go-efficient voucher (BMWi, 2014

Level	Maximal value of the voucher
Potential analysis	17,500 €
In-depth consulting	80,000 € (minus the value of the potential analysis)

To be eligible for the voucher, companies need to have their seat in Germany, have less than 250 employees and maximally 50 Million € annual turnover or a maximal annual balance sheet of 43 Million €. In individual cases, also companies with less than 1,000 employees can be funded if the project idea is particularly innovative and risky (BMWi, 2014).

More information can be found on: http://www.innovation-beratung-foerderung.de/INNO/Navigation/DE/go-Inno/go-inno.html (last access 10/10/2014)

Incentives related to EMAS/ISO Certification

Italy – Lombardia

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
		++	+++

In summer 2014 the Italian region Lombardia voted in favour of a law that grants companies that are EMAS or ISO 14001 certified certain benefits. The main benefits are:

- Reduced inspection frequency compared to not-certified companies
- Substitution of controls by re-sending the environmental declaration to the entity responsible for the inspection

(Legge Regionale 8 luglio 2014, n. 19)

Italy – Emilia-Romagna

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
		++++	+

In summer 2014 the Italian region Emilia-Romagna voted in favour of a law that grants companies that are EMAS or ISO 14001 certified certain benefits. The main benefits are:

- Reduction of the costs for the IPPC permitting process by 25 % for EMAS registered companies and by 15 % for ISO 14001 registered companies.

(Legge Regionale 18 luglio 2014, n. 14)

http://www.ilboscodicarta.org/nuovi-interventi-regionali-in-lombardia-ed-emilia-romagna-per-incentivare-le-certificazioni-ambientali-delle-imprese/

Further, according to Ecorys (2012), in Emilia-Romagna waste fees are reduced by 30% for EMAS-registered companies and by 10% for ISO 14001 ones, times and costs of permitting under IPPC is reduced for them; and for EIAs (Environmental Impact Assessment) the threshold is higher. "The Emilia-Romagna region in North Italy has implemented an administrative incentive scheme that links possession of an EMS to reduce administrative obligations. This is reflected both in reduced costs and frequency for IPPC permit applications and also a higher threshold for requiring an Environmental Impact Assessment (EIA). Also linked to these administrative incentives are economic incentives in reduced fees and charges for municipal waste. There are over 430,000 SMEs in the Emilia-Romagna region. By 2011 there were 192 EMAS registrations in the region (compared to 182 registrations in 2009) and 1,558 companies were ISO 14001 certified (1,352 in 2010). These numbers of environmental certifications in Emilia-Romagna are among the highest in Italy: the first in Italy for EMAS certification, the second for both ISO 14001. Some of the actions that have contributed to this growth in registrations include previous pilot schemes in the region to support companies in developing EMS and EMAS

certifications and the co-ordination role of local government, which also called for 500,000 € to become EMAS registered. The number of certifications differ across productive sectors, the Ervet survey identifies the metal sector as having the highest number of certifications, with 28% of the total, followed by the construction sector (17% of total) and professional services companies (13%)" (Ecorys, 2012).

Italy – Tuscany

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
		++++	+

"In the Tuscany region of Italy a mechanism has been introduced to reduce regional business tax rates based on firms possessing a certified EMS such as ISO14001 or EMAS. Specifically, the mechanism provides a 0.75% reduction in taxes for an EMAS registered firm, and a 0.4% reduction to ISO 14001 certified firms. The regional government increased taxes on waste disposal at landfill to replace revenue foregone with this measure. Overall the measure has reportedly led to a significant increase in the number of EMAS registered companies in the region. They are currently mapping further possibilities for this type of measure" (Ecorys, 2012).

Regulatory instruments

Austria

Landfill tax and -fee

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
		++	+++

In 1989 a landfill tax was introduced in Austria at a national level with rates depending on the type of waste, the type of landfill and the landfill's standard of technology. In 1997 the obligation for all landfills to upgrade to "state-of-the-art" technology until 2004 at the latest was introduced (ECOTEC, 2001), thus since 2004 only waste and landfill type determine the tax rate. In Table 3 the current prices per type of waste are shown, the rates that apply in case of landfilling can be seen in Table 4. The revenue of the tax builds a fund which is used exclusively for the clean-up of contaminated sites (§11 Altlastensanierungsgesetz).

Table 3: Austrian landfill tax per type of waste (per tonne (or part of a tonne)) [5]

Excavated soil, demolition waste and similar waste and other mineral waste	9.20 EUR
All other wastes	87.0 EUR

Table 4: Austrian landfill tax for landfilling per tonne (or part of a tonne)[6]

Landfill for excavated soil, inert waste or demolition waste	9.20 EUR
Landfill for residual waste	20.60 EUR
Landfill for mass waste or hazardous wastes	29.80 EUR

Additionally to the landfill tax, which applies uniformly on national level and is administered by the competent custom office, landfill operators charge waste generators for each ton of waste they deliver. These fees are fixed by the operators themselves. Below the example of the landfill of the city of Vienna (Deponie Rautenweg) is shown, which clearly shows that the amount of commercial waste transported to the landfill of Vienna between 1983 and 1995 decreased with increased landfilling costs.

[5] *Source: §6 1 Zi. Altlastensanierungsgesetz*
[6] *Source §6 4 Zi. Altlastensanierungsgesetz*

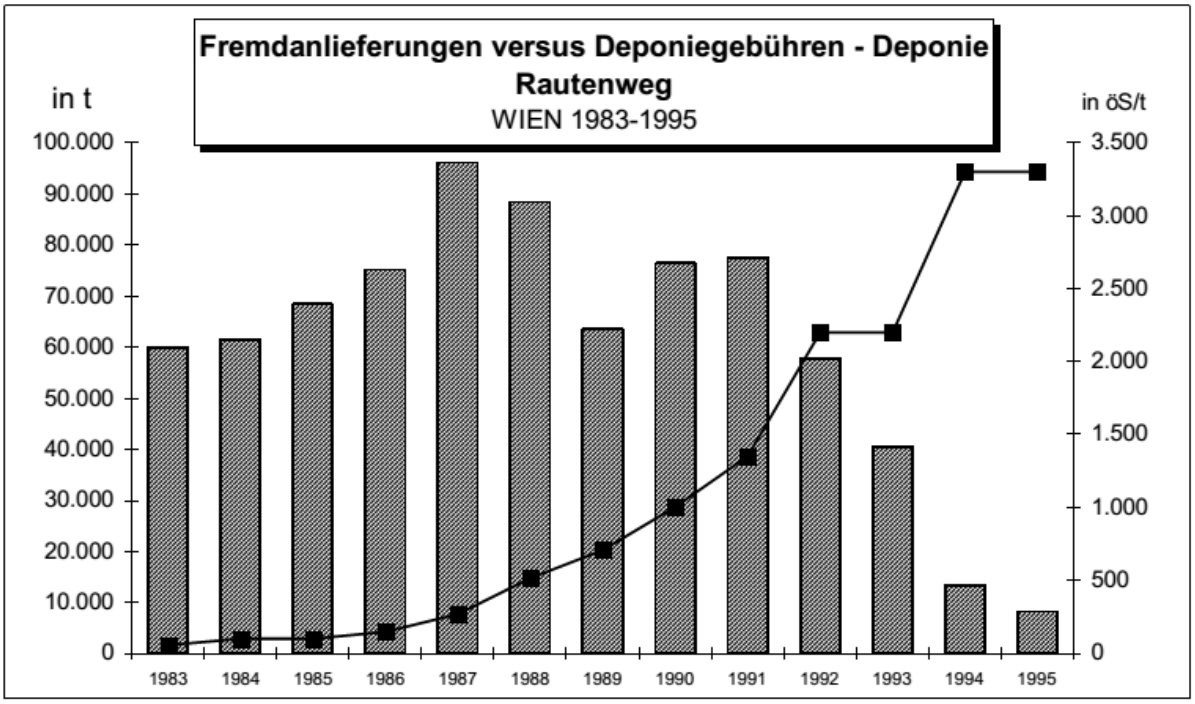

Figure 6: Amount of commercial waste delivered in tons (grey bars) vs. landfill fee in Austrian Schillings/t (black line) for the landfill "Rautenweg" of the city of Vienna (remark: 500 öS correspond to about 45 EUR) [7]

Since 1995 various changes in the waste management policy of Austria have taken place (see also chapter 0) which resulted in massive restrictions concerning the types of wastes being allowed in landfills. Today, at the landfill "Rautenweg" only waste incineration residues are accepted[8].

Landfill ordinance

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
			+++++

However, taxing landfilling was not the only measure aimed at reducing the amount of wastes going to landfill. In 1991 an ordinance on the separate collection of demolition waste[9] was introduced, followed in 1995 by an ordinance on the separate collection of organic waste[10] and in 1996 by an ordinance on packaging waste[11]. Also

[7] *VOGL, G. (1997): Abfallwirtschaft in europäischen Städten (Kurzfassung). Internationaler Vergleich abfallwirtschaftlicher Kennzahlen im Auftrag der MA 48 der Stadt Wien. Wien.*

[8] *https://www.wien.gv.at/umwelt/ma48/entsorgung/abfallbehandlungsanlagen/deponie.html (last access 17/10/2014)*

[9] *Verordnung des Bundesministers für Umwelt, Jugend und Familie über die Trennung von bei Bautätigkeiten anfallenden Materialien BGBl. Nr. 259/1991*

[10] *Verordnung des Bundesministers für Umwelt, Jugend und Familie über die getrennte Sammlung biogener Abfälle BGBl. Nr. 68/1992 idF BGBl. Nr. 456/1994*

in 1996, the landfill ordinance[12] was implemented that restricted the organic content in wastes being landfilled to max. 5 % total organic carbon (with the only exception of wastes after mechanical-biological treatment) (BMLFUW, 2011).

Additionally, in 1999 the EU directive on landfilling (Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste) was adopted that required member states to reduce the amount of organic wastes being landfilled and to foster measures like recycling, composting or energy recovery. More precise, Article 5 Paragraph 2 set reduction targets for bio-degradable municipal wastes based on the amount of organic wastes produced by each member state in 1995. Until 16 July 2006, the amount of bio-degradable wastes being landfilled had to be reduced to 75 % of the amount of 1995, until 16 July 2009 to 50 % and until 16 July 2016 to 35 % (European Commission, 1999, BMLFUW, 2011).
In 1995, Austria produced 2.675.300 t of bio-degradable municipal waste (composed of the bio-degradable fraction of residual waste, bulky waste, waste paper, organic wastes and green waste). However, already in 2006 only 69.860 t of bio-degradable municipal wastes were landfilled and since 2009 an overall ban on the landfilling of bio-degradable wastes is in place, making Austria one of the first countries fulfilling the EU requirements (BMLFUW, 2011). The results of the combined measures can be observed in Figure 7 below.

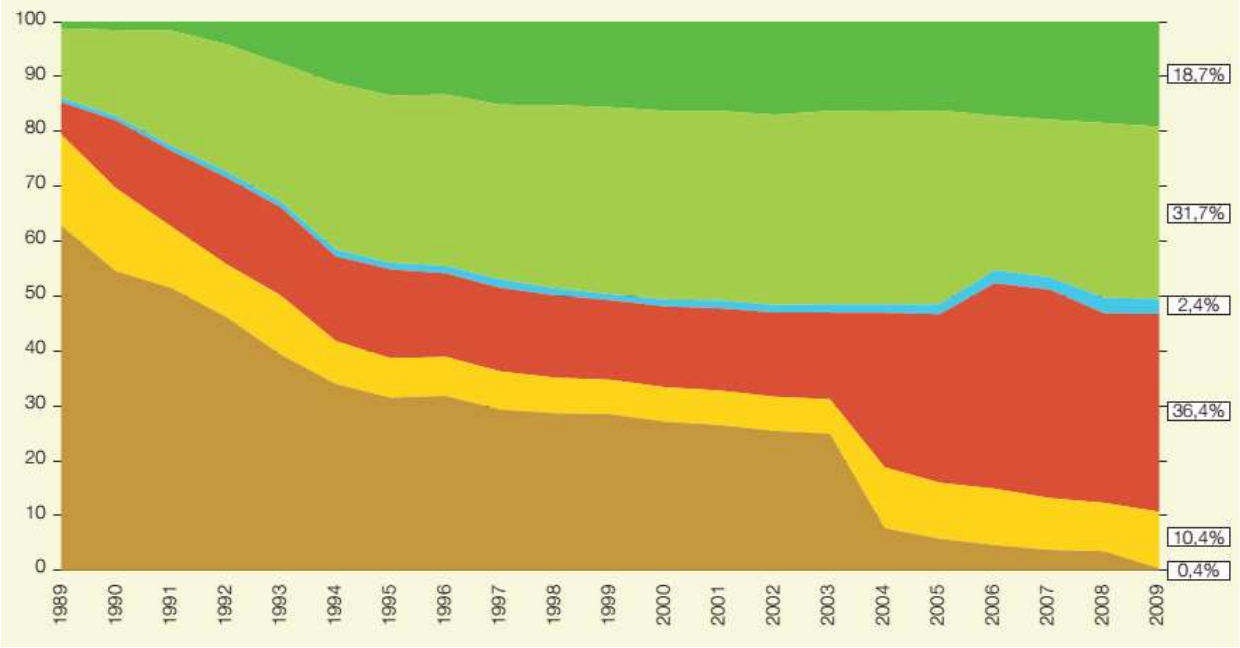

Figure 7: Dark green = organic wastes, light green = recyclables, blue = WEEE, red = incineration, yellow = mechanical-biological treatment, brown = landfilling[13]

[11] *Verordnung des Bundesministers für Umwelt, Jugend und Familie über die Vermeidung und Verwertung von Verpackungsabfällen und bestimmten Warenresten und die Einrichtung von Sammel- und Verwertungssystemen (VerpackVO 1996) BGBl. Nr. 648/1996 idF BGBl. Nr. 34/2006*

[12] *Deponieverordnung, BGBl. Nr. 164/1996*

England and Wales – OPRA

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
		+	+++++

The operational risk appraisal (OPRA) is a risk assessment and rating tool of the Environment Agency (EA) of England and Wales. It is used to determine how much a business is charged for an activity or – more precise – "to establish facility specific fees and to determine workload elements such as the priority and frequency of facility inspections and audits. Key to this system is that it is facility-specific and dynamic. Both fees and workload can vary on an annual basis depending upon the facility's EP OPRA *[Environmental Permitting Operational Risk Appraisal]* score" (EPA NCEI, 2008).

OPRA is based on five attributes:

1. Complexity - the type of activities covered by your permit,
2. Emissions - the amounts you are allowed to put into and release from an activity (air, water, land, waste),
3. Location - the state of the environment around your site,
4. Operator performance - your management systems and enforcement history and
5. Compliance rating - how well you keep to the conditions of your permit.

The first four attributes are completed by the facility, the fifth by the Environment Agency. The result is a banded profile with a series of letters (A-E or A-F) where the letter A represents the lowest risk and little need for regulatory oversight and E or F the highest risk and the poorest level of compliance. Each attribute is allocated one or more lettered bands, which are then transformed via weighting tables into a total score (see Table 5 below). This score then determines the fees and the workload elements (frequency of inspections, …) for a specific facility (Environmental Agency, 2014, EPA NCEI, 2008).

Table 5: OPRA weighting table for the attribute "Emissions", subcategory "waste input" (Environmental Agency, 2014)

OPRA band	A	B	C	D	E	F
e.g. Emissions – waste input	3	7	15	30	40	-

[13] *BMLFUW (2011): Bundesabfallwirtschaftsplan 2011. Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft.*

In Figure 8, the process of how the banded profile is determined is shown.

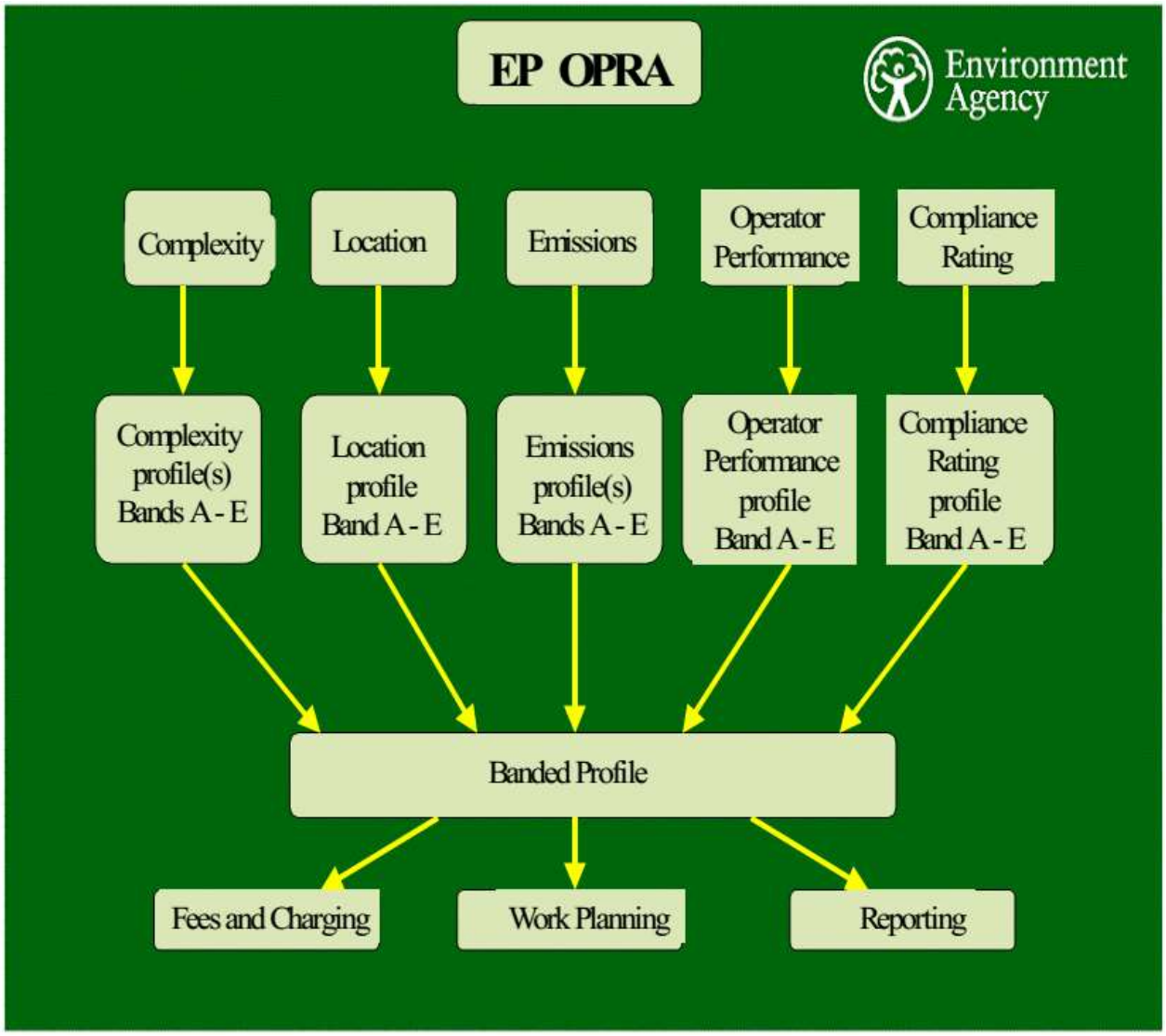

Figure 8: Process of compiling the OPRA banded profile (EPA NCEI, 2008)

Mixed approaches

EcoBusinessPlan Vienna (ÖkoBusinessPlan Wien)

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
++	++	+	

The EcoBusinessPlan Vienna is a voluntary incentive launched by the Vienna City Administration in 1998. The principle of the EcoBusinessPlan is that the voluntary implementation of quality standards and ecological management practices exceeding the legal requirements creates financial benefits for the implementing company.

Within the EcoBusinessPlan Vienna there are five different programme modules that have in common that consultancy services are provided in order to encourage businesses to reduce their environmental impact through efficient and economical management practices. Depending on the module the target group are small or large enterprises in many different industries. The modules are the following:

1) **EcoBonus** – for businesses up to 50 employees
2) **Ecoprofit** – aimed at manufacturing firms who want to rapidly reduce the input of resources
3) **EcoQuality** – a label for hotels, hostels, etc.
4) **ISO 14001** – support for companies introducing the ISO 14001 environmental management system
5) **EMAS** – support for companies introducing the EMAS environmental management system

(https://www.wien.gv.at/english/environment/protection/eco/index.html, https://www.wien.gv.at/english/environment/protection/eco/philosophy.html, https://www.wien.gv.at/english/environment/protection/eco/modules.html, last access 10/10/2014)

The consultancy services are structured in three stages (https://www.wien.gv.at/english/environment/protection/eco/consultancy.html, last access 10/10/2014):

"Stage 1: Consultants working within the EcoBusinessPlan network conduct an environmental check-up together with the company to find savings potentials and detect environmental weak points in the operation.

Stage 2: On this basis, the company management can decide to participate in the programme and select a suitable consultancy module.

Stage 3: Supported by tailored consultancy services and expert input, the company develops its environmental project(s) and starts implementation already

during the first year of participation. An independent commission assesses the progress made and takes a decision about the award. All measures taken are documented in the EcoBusinessPlan database".

The EcoBusinessPlan Vienna has been included in the UN Habitat Best Practice Database for worldwide best sustainability projects and is recognized as an example of best practice by the EU Commission.

Ecoprofit (Ökoprofit®)

Informational Instruments	Cooperative Instruments	Economic Instruments	Regulatory Instruments
++	++	+	

The Ökoprofit®/Ecoprofit® programme (short for **ECO**logical **PRO**ject **F**or **I**ntegrated Environmental **T**echnology) was developed in 1981 by the City of Graz (Austria) and is aimed at improving the sustainable economic development within companies. It is a cooperation programme between the public administration, companies and consultancies. Within the programme, training courses are organized and networking between the participating companies is encouraged, thus fostering synergy effects. The programme is already known outside of the City of Graz and special Ökoprofit® academies offer courses in order to promote the programme on the international level. In general the project costs are financed by public grants and contributions from participating companies and in some cases sponsorship through funding programmes (CPC, n.d.-a).

In the German province of Saxony for example, up to 75 % of the company's costs are financed by public grants (Staatsministerium für Umwelt und Landwirtschaft, 2009). In the Austrian province of Vorarlberg, every participating company has to pay a fee of max. € 5,200 (plus VAT, incl. certification-fee) to the Ökoprofit® consultants. After successful completion of the basis programme, the province and usually also the commune partially reimburses this fee. The reimbursed amount depends on the number of employees. At present (if the commune participates) the reimbursed amount is

- For companies up to 20 employees: € 3,360
  (without participation of the commune minimum € 1,680),
- For companies between 21 and 50 employees € 2,600
  (without participation of the commune minimum € 1,300),
- For companies over 50 employees € 1,800
  (without participation of the commune minimum € 900).

http://www.vorarlberg.at/vorarlberg/wirtschaft_verkehr/wirtschaft/wirtschaft/weitereinformationen/oekoprofitinvorarlberg/oekoprofit_-basisprogramm.htm (last access 10/10/2014)

The Ökoprofit® programme comprises of three steps (CPC, n.d.-a, CPC, n.d.-b):

1) **Training of the consultants and the local authorities in the Ökoprofit® academy**. Upon completion they receive an Ökoprofit® consultant / project manager certificate.

2) **Start of the Ökoprofit® basic programme** with knowledge-transfer to the participating companies and implementation of measures. Usually the basic programme lasts approximately one year. The Ökoprofit® project managers of the authorities manage the project whereas the Ökoprofit® consultants hold workshops within the companies and help to achieve the objectives. The necessary steps in the Ökoprofit® basic programme are:

    - **Preparation and licence agreement**
        - A licence agreement has to be signed between the city/region and the Ökoprofit® licence holder (in Austria this is CPC Austria – Cleaner Production Center Austria).
    - **Kick-off event**
        - Content, structure and objectives of the project are presented to politicians, local authority representatives, etc.
    - **Workshop series**
        - Workshops are held for the employees of the participating companies on various aspects of integrated environmental protection (energy, water, material stream management, production- and process-analysis, waste management, environmental controlling, business- and environment-related legislation, etc.) and practical manuals and worksheets on the topics are compiled.
    - **Operational implementation**
        - Per company, a minimum of five days of individual consultancy services are provided by the Ökoprofit® consultants in which the companies are analysed on potential savings and develop an implementation programme that includes measures to increase the eco-efficiency of the company.
    - **Evaluation and examination by a commission**
        - Upon completion of the basic programme, an independent commission consisting of the contracting authority, representatives of economy and science and the CPC Austria evaluates and reviews the success of the implemented measures.
    - **Certification**
        - If the evaluation has been positive the company is awarded the certification as Ökoprofit® company.

3) After participation in the Ökoprofit® basic programme, **companies join the Ökoprofit® club** in order to exchange experience and knowledge with other Ökoprofit® companies. Further, they are encouraged to develop and implement new measures to further improve their environmental performance.

On the homepage of CPC Austria (http://www.cpc.at/oeko/oe_2-4.htm), some selected case studies are listed. Two of them are described below:

- **Andritz AG, High-Tech Production Systems for the Paper Industry (Graz, Austria)**
  - Environmental benefits
    - Purchase of a two components three color spreader for the production process improvement leads to material savings, reduction of hazardous waste, shorter running time: cost reduction € 14.500/y
    - Realisation of air pressure control: cost reduction € 5.100/a
    - Reorganisation of waste collection system, co-workers trainings, reduction of production waste: cost reduction € 970
    - Installation of an air curtain in hall Halle S 4, implementation of light control: reduction of energy costs of € 2.850
    - Realisation of energy data base for display of product related business ratios

  - Environmental program
    - Waste treatment: reduction trade waste -10%
    - Air pressure: reduction energy costs -10%
    - Water: reduction reference -10%
    - Sustainability through new projects: heating steel halls
    - Modernization duct system

- **Bakery Mauerer GmbH (Munich, Germany)**
  - Environmental benefits
    - Optimization of oven retention by measuring the lost heat at disuse. Turn off of oven after 52 minutes. 20.000 kWh less energy and saving of 510 € per year, no investments
    - Enhancement of heat isolation by installation of docking stations for the trucks, 90.000 kWh less energy and savings of 2.350 € per year, invetements: 5.100€
    - Purchase of an automatic stikkenwagon cleaning construction, 5.200 kWh less electricity and 26.000 liters less water and cost savings
    - Change of waste depolluter, savings of ca. 5.100 € per year

  - Environmental program
    - Acquisition of material value of food waste for possible waste prevention, reduction of food waste

- Savings

Heating	About 407.000 kWh, 76.475 kg CO_2
Water	46.000 litres water
Waste	More than 39 m^3 garbage
Energy	5.200 kWh, 1.040 kg CO_2
Money	More than 20.430 €

Similar Incentives in Germany

In several provinces of Germany there are incentives for companies, public institutions and other entities that support the implementation of environmental management services or other measures aimed at increasing resource- and energy efficiency. In general these incentives consist of consultancy services, sometimes combined with workshops on environmental topics, provided by the municipality. Together with the consultants, measures to reduce the environmental impact are developed and implemented. Upon fulfilment of the measures agreed on, the companies receive an award / a document as evidence. Within these incentives, often the implementation of an environmental management system (EMAS or ISO 14001) or of an eco-label is supported.

Various Provinces of Germany

PIUS – Counseling services for „production integrated cleaner production" for SMEs
http://www.pius-info.de/de/index.html

e.g. Hessen: http://www.hessen-umwelttech.de/dynasite.cfm?dsmid=13957

Baden-Württemberg

ECOfit – for companies, NGOs, public institutions, churches, etc.
https://um.baden-wuerttemberg.de/de/wirtschaft/betrieblicher-umweltschutz/foerdermoeglichkeiten/foerderprogramm-ecofit/

ECOfit – Sustainable economic activies for SMEs in Heidelberg und mittelständische
http://www.heidelberg.de/hd,Lde/HD/Leben/Nachhaltiges+Wirtschaften.html

Bremen

Counseling service for ecological efficiency and responsible and sustainable economic activities (implementation of EMS, PIUS, eco-labels, …)
www.rkw-bremen.de/anhaenge/270/Flyer_Beratungsprogramm ökologische Effizienz.pdf

Nordrhein-Westfahlen

Counseling services for resource efficiency
http://www.lanuv.nrw.de/agrar/foerderprogramme/ressourcen_beratung.htm

Other

Tools for environmental training for SMEs

An overview of tools for environmental training for SMEs can be found in the 7th newsletter of the ACT CLEAN project http://www.act-clean.eu/index.php/Ext-Newsletter-;523/1. There, tools for environmental training for SMEs in Austria, Germany, Czech Republic, Hungary, Italy, Slovakia, Slovenia as well as worldwide examples are listed.

Green Deals, Netherlands

„[T]he Green Deals programme seeks to promote and support domestic sustainability. Citizens, companies, local councils and other can propose projects to the government. The projects must address energy, raw materials, transport or water. *The government does not provide grants for these projects but can offer seed capital and loans through an innovation fund, and supports projects in various other ways, including through tax breaks, sustainable public procurement and even changing the law to eliminate obstacles.* One example of this is reviewing planning regulations relating to wind turbines.

The aim of Green Deals is to support projects that will produce rapid results – the benefits should become clear within three years. The programme has been very successful. The Dutch government aimed to sign 100 Green Deals in 2012. By halfway through the year it had already signed 130.

The Green Deals seek to promote sustainability, rather than eco-innovation specifically. However, one of their effects is to support eco-innovation. One beneficiary of a Green Deal is the Green Chemistry Campus in Bergen-op-Zoom near the Belgian border. The campus develops bio-based, rather than petroleum-based, substances and materials. The Green Deal will support the development of the Green Chemistry Campus by helping researchers access capital markets, and reducing administrative barriers they might face as they attempt to develop new products. The Green Chemistry Campus opened in September 2011, as an initiative of municipal and provincial governments and the company SABIC."

http://ec.europa.eu/environment/ecoap/about-eco-innovation/policies-matters/netherlands/20120726_en.htm

"The Green Deal approach centres on businesses, civil society organisations and authorities seizing every possible opportunity for greening with activities that contribute to economic growth while also improving the environment. The central government facilitates innovative initiatives from society. This can be done for example by giving an extra boost to initiatives that have stalled, or by providing new

opportunities for greening and by removing problems where possible. The role of the government varies for each initiative; from adapting regulation to supporting entry into the capital market or networks. Green Deals have an average timeframe of two to three years. All parties participating in a Green Deal are joining efforts to make the sustainable initiative a speedy success that can count on broad public support. Over 150 Green Deals have been initiated to date.

Do you have a sustainable initiative that improves both your competitiveness and the sustainability of the Dutch economy? But do you encounter barriers that hamper your initiative? Then notify us of your Green Deal initiative. You can do this online via www.rijksoverheid.nl/greendeal.

When deciding whether to approve a Green Deal, the government considers the following points:

- The initiative has a clear objective for sustainability in the area of raw materials, biodiversity, water, mobility, energy, food, construction and biobased economy.
- Your initiative is or has the potential to be economically and technically viable.
- Your initiative clearly has a positive impact on both sustainability and economic results (green growth).
- Your initiative is inspiring and sets a good example, for instance for use in other sectors or regions.
- Your initiative encounters barriers the government can help remove.
- Your initiative will deliver results after a relatively short time (preferably within three years).
- If your initiative is comparable to initiatives from previous deals, it clearly adds value to the deals that were previously made.
- Being the initiator, you will be actively engaged in the implementation of the initiative."

Source: GreenDeal Information Folder (http://www.rvo.nl/sites/default/files/2013/12/Folder%20Green%20Deals%20-%20Engels.pdf)

References

Bundesgesetz vom 7. Juni 1989 zur Finanzierung und Durchführung der Altlastensanierung (Altlastensanierungsgesetz). BGBl. Nr. 299/1989 idF BGBl. I Nr. 103/2013

A.I.S.E. (2013): An overview of A.I.S.E.'s voluntary initiatives. International Association for Soaps, Detergents and Maintenance Products.

A.I.S.E. (2014): ACTIVITY AND SUSTAINABILITY REPORT 2013-2014. International Association for Soaps, Detergents and Maintenance Products.

BERSANO, G. (2010): The REMake project: Recycling and resource efficiency in manufacturing (Presentation). Forum on Environmental Goods & Services and Green Business Models. Brussels, 15 October 2010.

BMLFUW (2011): Bundesabfallwirtschaftsplan 2011. Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft.

BMWI (2014): BMWi-Innovationsgutscheine (go-Inno). innovativ und effizient. Bundesministerium für Wirtschaft und Energie.

BÖCHER, M. (2012): A theoretical framework for explaining the choice of instruments in environmental policy. Forest Policy and Economics 16: 14-22.

CPC (n.d.-a): Ökoprofit®. Sustainable Economic Development through Eco-efficiency in Public Private Partnerships. Programme Basics. Cleaner Production Center Austria.

CPC (n.d.-b): Ökoprofit®. Sustainable Economic Development through Eco-efficiency in Public Private Partnerships. Structure and Organisation. Cleaner Production Center Austria.

DEFRA (2011): L2m4-7 – Waste Minimisation Clubs. WR1403: Business Waste Prevention Evidence Review.

DEFRA (2013): Waste prevention programme. Summary of existing measures.

ECORYS (2012): Study on Incentives Driving Improvement of Environmental Performance of Companies. Rotterdam, European Commission - DG Environment.

ECOTEC (2001): Study on Environmental Taxes and Charges in the EU and its Member States. Brussels, ECOTEC in association with CESAM, CLM, University of Gothenburg, UCD and IEEP (CR).

ENVIRONMENTAL AGENCY (2014): Environmental Permitting Charging Scheme & Guidance Scheme effective from April 2014. Version 1. Bristol, UK.

EPA NCEI (2008): An In-depth Look at the United Kingdom Integrated Permitting System. Exploring Global Environmental Protection Perspectives. US Environmental Protection Agency (EPA), Office of Policy, Economics & Innovation, National Center for Environmental Innovation (NCEI).

EUROPEAN COMMISSION (1999): Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste. Official Journal L 182 , 16/07/1999 P. 0001 - 0019.

EUROPEAN ENVIRONMENT AGENCY (2006): Using the market for cost-effective environmental policy. Market-based instruments in Europe. EEA Report No 1/2006.

GLOBAL PSC (2012): Battery Product Stewardship in Belgium and Switzerland. Global Product Stewardship Council.

HENNINGSSON, S. et al. (2001): Waste minimisation clubs: A cost-efficient policy instrument? European Environment 11: 324-339.

ICCA (2005): Responsible Care Global Charter. International Council of Chemical Associations.

ICCA (2012): ICCA RESPONSIBLE CARE® PROGRESS REPORT 2002 - 2012. Growing our future. International Council of Chemical Associations.

REMAKE (n.d.): Recycling and resource efficiency in manufacturing (REMake Folder) IN INDUSTRY, E. C.-E. A. (Ed.).

STAATSMINISTERIUM FÜR UMWELT UND LANDWIRTSCHAFT (2009): Umweltallianz Sachsen - ÖKOPROFIT SACHSEN. Eine Chance für Unternehmen und Kommunen.

SUCHANEK, A.; VON BROOCK, M. (2007): Die Responsible Care-Initiative der chemischen Industrie – Eine wirtschaftsethische Betrachtung. DISKUSSIONSPAPIER NR. 2007-4. Wittenberg-Zentrum für Globale Ethik e.V.

VOGL, G. (1997): Abfallwirtschaft in europäischen Städten (Kurzfassung). Internationaler Vergleich abfallwirtschaftlicher Kennzahlen im Auftrag der MA 48 der Stadt Wien. Wien.