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Inventory and assessment of policy instruments (final draft)

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Preface

The issue of Sustainable Consumption and Production was mentioned as action point in the Rio Conference in 1992 and later in the Johannesburg Plan of Implementation of 2002 that called for the development of a Ten-year Framework of Programs on Sustainable Consumption and Production (10 YFP on SCP). In 2006 SCP was included in the revised EU Sustainable Development Strategy (SDS). Implementing an action from the revised SDS, the EC publiced an SCP Action Plan (EC, 2008). Given the policy interest in SCP, under the EU’s 6th Framework Programme, a project was executed on the topic of the ‘effectiveness of policy instruments for SCP’. The project was performed by the Netherlands Organisation for Applied Scientific Research TNO (Netherlands), the Sustainable Europe Research Institute (SERI, Austria/Germany) and the International Institute for Industrial Ecological Economics (IIIEE) of Lund University (Sweden). The project was named Sustainable Consumption Policy Effectiveness Evaluation, in short: SCOPE2. Parallel to SCOPE2, a project lead by IÖW from Germany, with SIFO (Norway) and the Free University of Brussels (Belgium) was executed called ASCEE, also on policy instruments for SCP.

One workpackage (WP) in SCOPE2, WP1, focuses on an inventory and assessment of policy instruments. The second deliverable of this WP is an inventory and assessment of policy instruments and countries applying them. This evaluation is attached. Note that the chapter numbering was adjusted to the expected place of the chapters in the integrated final report; in this deliverable the numbering starts hence with chapter 3 since the final report would give 2 introduction chapters.
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Policy instruments
3 Introduction

3.1 Aim chapter

The main purpose of this chapter is to identify how governments can become active in the pursuit of sustainable consumption and how they can induce change.

Therefore we here concentrate on policy instruments for sustainable consumption and greening the market. First, we provide an extensive inventory of policy instruments based on a survey among civil servants responsible for sustainable consumption and production in the respective ministries of their countries. Then, we choose a set of promising policy instruments and evaluate their environmental and economic impacts. In order to do so we elaborate the possibilities of different evaluation methods. From our findings we develop a list of drivers and barriers for using various policy instruments and provide a list of success factors that facilitate the realisation of sustainable consumption and greening of the markets in the three environmentally most important domain areas: housing, food and mobility. We identify best practices and evaluate the possibility of extending these practices to a broader range of product categories, sectors, stakeholders and countries.

3.2 Categorisation of policy instruments

Policy instruments for sustainable consumption—just like policy instruments in general—can be categorised in different ways. In this study we follow the degree of authoritative force and differentiate between administrative instruments, economic instruments, and informative instruments. We further consider whether the instrument has a mandatory character or shall induce voluntary activities from administration, business, civil society or consumers.

The different categories of instruments are characterised in the following way:

**Mandatory** instruments are instruments with a clear binding character (decrees, directives, laws, regulation, standard reporting obligations, etc.)

**Voluntary** instruments are those without a strict official force but which represent normative requirements, commitments, etc.

**Administrative mandatory** instruments refer to bans, product standards, material and quality requirements, maximum emission levels, regulation of chemicals, recycling and recovery quotas, etc.

As **administrative voluntary** instruments we mainly categorise approaches towards public procurement. Here the administrations themselves are attracted to follow sustainable consumption requirements. This category also refers to recommendations from official papers (e.g. National Sustainable Development Strategies) with appellative but voluntary character.

**Mandatory economic** instruments are all forms of regulation which directly affect the markets. Taxes and subsidies, as well as licenses and permits are subsumed under this category.
Voluntary economic instruments are regarded from a slightly different perspective. They include such forms of economic incentives that do not come automatically but via application to consumers or institutions. Examples are earmarked budgets from taxes, charges or funds as well as fixed budget lines for research or NGO support (core funding).

Mandatory informative instruments are again based on regulation and can be separated into information public authorities have to deliver themselves, and information required from businesses.

The voluntary informative instruments finally subsume the broad range of information on how to consume in a (more) sustainable way, from eco and fair trade labelling to all kinds of consumer campaigns, and education.

Table 3-1 Categorisation of SCP policies

<table>
<thead>
<tr>
<th>Policy strategies</th>
<th>Policy instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicit strategies on sustainable consumption and production</td>
<td></td>
</tr>
<tr>
<td>National Sustainable Development Strategies with explicit reference to SCP</td>
<td></td>
</tr>
<tr>
<td>Further general environmental strategies</td>
<td></td>
</tr>
<tr>
<td>Sector-specific strategies and policies (agriculture, energy, CO₂ reduction, waste, others)</td>
<td></td>
</tr>
<tr>
<td>Environmental education</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Degree of authoritative force</th>
<th>Policy instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory instruments</td>
<td>instruments with a binding character (decrees, directives, laws, regulation, standards reporting obligations etc.)</td>
</tr>
<tr>
<td>Voluntary instruments</td>
<td>Instruments without official force but normative requirements, commitments etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Administrative</th>
<th>Public procurement policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>bans, product standards, material and quality requirements, emission levels, regulation of chemicals, recycling, and recovery quotas</td>
<td>.....recommendations of official documents with a normative but non-binding character</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Economic</th>
<th>State aid for environmental purposes, including earmarked budgets from taxes, charges or funds fixed budget lines for research or NGO support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentally related taxes and subsidies</td>
<td></td>
</tr>
<tr>
<td>Fees and charges</td>
<td></td>
</tr>
<tr>
<td>Licenses and permits</td>
<td></td>
</tr>
<tr>
<td>Emissions Trading Scheme</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Informative</th>
<th>eco-labelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information which has to be given</td>
<td>consumer advice, consumer campaigns, education voluntary certification schemes</td>
</tr>
<tr>
<td>- from governments to the public or to upstream governmental bodies (e.g. for statistical reasons)</td>
<td></td>
</tr>
<tr>
<td>- from business to the public and/or to governments</td>
<td></td>
</tr>
<tr>
<td>Mandatory certification</td>
<td></td>
</tr>
</tbody>
</table>

In general it can be observed that administrative instruments are more likely applied to producers while many examples of economic instruments are directed at consumers. Informative instruments are being used for both consumers and for producers.
3.3 Evaluation approach

The overarching objective of environmental policies is to reduce the manmade impacts on the environment. Policies towards sustainable consumption and greening the market have a broad perspective as well as a narrow focus at the same time. As an additional aim, sustainability and sustainable consumption policies take into account the improvement of the social situation along the production (and consumption) chain. As a limiting factor, sustainable consumption policies quite often declare changes visible on the markets as their only explicit aim. Those changes can be induced via behavioural change of consumers or via changes within the supply structure. Nevertheless, we have to be aware that sustainable consumption policies which intend to be meaningful have to ensure that they do not lose the final impact on the environment out of sight – and so does sustainable consumption policy evaluation.

3.3.1 Scheme of a policy cycle

As said, sustainable consumption policies regularly intend to reach their objectives through a change in consumer behaviour towards more eco-sensitive habits and/or through the better supply of environmentally friendlier products. These changes are the outcome of policies. The policies themselves are developed and quite often negotiated in a formulation process and need adequate implementation. Thus the flow of policy development, policy implementation, outcome and the final impact on the state of the environment (and in various cases on the social situation along the product chain) can be described as a policy cycle.

Figure 3-1 Policy cycle

![Policy cycle diagram](image)

The illustration in figure 3-1 may give the impression of an easy and logical flow: a burden on the environment is recognised. To overcome this burden a policy is formulated and implemented. The relevant actors react in the expected adequate way and the impact on the environment is reduced. Depending on whether the state of the environment is in a sufficiently good condition afterwards or not, the policy cycle may start from the beginning.

This ideal line is far from reflecting reality. Within each step in the policy cycle and from one step to another a broad range of complex influences can be observed which may support or hinder the ultimate success of a policy to improve the state of the environment.

A policy as sketched here might be a single policy instrument or, more likely, a set or toolbox of different policy instruments, a policy programme or even a policy strategy. The generalised outline fits all these possibilities.

Let us have a look at the steps one by one.
**Policy development:**

The initiative to set up a policy on sustainable consumption is mostly derived from scientific or societal information about an unsustainable ecological or social situation.\(^1\) As a reaction to this, policies are developed in discursive processes, mostly in negotiation with stakeholders. Various elements of complexity appear here, making evaluation fairly difficult.

There are some examples where the stated goal of a sustainable consumption or greening-the-market policy under development is to reduce the impact on the environment and an explicit target is formulated. This is mainly the case for policy programmes (e.g. the reduction of CO\(_2\) emissions in the housing sector).

The more restricted a sustainable consumption policy becomes, for instance down to one single instrument, the more difficult it is to relate an impact to the policy. In these cases the target directly intended is the outcome in form of behavioural change, for instance an increase in the market share of eco-labelled products. These policies can hardly identify which impact the behavioural changes will have.

In other cases, the expected outcome might not even be made explicit. This alone makes it very difficult to measure whether a policy goal is achieved or not.

The situation bears a second kind of problem: different stakeholders in the policy process may have different expectations of what the goal is and how to reach it.

The main questions for an evaluation of policy development are:

- Are the goals meaningful in respect to the impacts on the environment and/or the social conditions along the product chain?
- Are the goals explicit and shared among the stakeholders/actors?
- Has the policy been developed in a transparent and participatory way?

**Policy implementation:**

Having a policy formulated and accepted is a necessary step, but the very first only. As a second step, the policy has to be implemented. According to the different types of policy instruments – administrative, economic or informational – implementation subsumes such different activities like developing an educational campaign, the transformation of EU directives into national law or establishing control mechanisms for specific legislations. How—if at all—policies are implemented in a sufficient way depends on several factors. Important questions are: (1) Is the implementation process

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\(^1\) We are aware that specific instruments might not always be derived from the lack of sustainability but from other reasons like hard-core economics. For some actors the reasons, e.g., to introduce a green tax reform include the need for more state income and the willingness to facilitate/reduce the taxation of labor. For the schematic picture we like to draw such considerations are neglected. Meinst du hier die Besteuerung „erleichtern“ im Sinne von vereinfachen (dann “facilitate”) oder die Steuerlast zu erleichtern im Sinne von reduzieren (dann „reduce“)?
backed with a sufficient amount of money, and (2) do the actors on the implementing level share the goal of a policy or do they have differing expectations on what the goal might be?

The main question for the evaluation of policy evaluation is:

- Has the policy been implemented?

Potential sub-question are:

- Does the implementation process have a budget line?
- Do the implementing actors know what is expected from them?

**Policy outcome:**

Even a successful implementation of a policy does, however, not say too much about how the instrument is taken up by the consumers afterwards. As actors and activists in sustainable consumption policies had to learn, consumers can be very resistant in changing their ways of behaviour towards a direction intended. This can be observed when comparing consumer values and their purchasing behaviour declared in surveys with the actual market data. In sociology of consumption literature this problem of divergence between values and action is often interpreted to signify the fact that consumers find themselves in the pressure of competing values, goals and needs and are therefore victims of constrained social structures (Jackson and Michaelis 2003).

Yet, the high ranking of the ethically right behaviour indicates that the implementation of information campaigns, for instance, is quite successful. Information about the “right thing to do” has reached the consumer, but it is stuck in the knowledge phase and is not transferred to action (Lebel, Fuchs et al. 2006).

An additional challenge when analysing the outcome of a policy are competing influences of general socio-economic trends like aging society, decrease of household size, individualisation etc. In this respect, the re-bound effect may become effective: consumers buy more energy efficient kitchen appliances but also equip more households with them.

Additionally, technological developments with an increasing range of new products compensate successes gained in the range of traditional goods (shift of high energy consumption through cooking and cooling to infotainment appliances).

The main questions for the evaluation of a policy outcome are:

- Has consumer behaviour changed as intended?
- Have the markets become greener?
- Can it be verified that changes are due to the policy?

But we also have to consider:

- Would a still ongoing unsustainable trend have been even worse without the policy?

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2 In Germany, for example, a deposit system for one-way beverage packages was successfully established. The policy goal was to rise the package price and to reduce their attraction for consumers. As a result, a deposit has to be paid for nearly every beverage package. After some years experience showed that consumers had lost overview of which bottles are in fact being reused and which ones are recycled only.
**Policy impact:**
As mentioned in the beginning there are some examples where the stated goal of a sustainable consumption or greening-the-market policy instrument is to reduce the impact on the environment. Legislation on maximum emissions of specific substances is such a case. The phase-out of chlorofluorocarbon may serve as an example. In intensive and successful negotiations a policy programme consisting of different instruments was agreed on. In cases like that the achievement of the goal can be evaluated via impact assessment.

The main question for the evaluation of a policy impact is:
- Has the policy indeed had a meaningful impact on the environment (and/or the social conditions) along the product chain?

3.3.2 **Evaluation concepts**
In the best of all cases all these questions appearing at the different stages of the policy cycle would be answered through an evaluation process. Each of them needs to be answered, and only in combination the achievement of certain policy impact together with transparency and social justice as the overarching objective be kept in mind along the process and, in the end, be verified. Unfortunately, this has to be accepted as overambitious. Even the best evaluator will fail to do justice to this diversity.

But what can be done to carry out an evaluation as clearly and concretely as possible? Several evaluation approaches can be considered.

**Impact evaluation**
This method directly evaluates what we have described under policy impact above. It tries to identify impacts that are clearly due to the policy and its implementation. It has been applied, for instance, in the two EEA pilot studies on effectiveness evaluation of specific environmental policy measures (EEA 2005a). These studies illustrate that a robust evaluation of effectiveness requires two components: (a) the definition of (quantitative) targets in the formulation and implementation of the specific policy instrument which serve as benchmarks in the evaluation, and (b) indicators (performance indicators) to evaluate progress or set-backs which need to be specific for the specific purpose and area of the policy measure.

**Evaluation of goal achievement**
As explained, the majority of policy instruments aims at more specific goals. This kind of evaluation simply asks whether the goal is achieved or not. The market share of products is a typical example.

**Side-effect evaluation**
This evaluation type appeared as a response to the limitations of the goal-achievement model. Besides the intended ones, it additionally asks for other impacts of a policy beside the intended ones. In side effect evaluation models policy outcomes are (1) divided into anticipated and unanticipated effects and (2) split according to whether the effects occur inside or outside the target area. The anticipated effects are classified as beneficial or detrimental; the unanticipated effects are divided according to environmental and other effects (Vedung 1997).

**Process evaluation**
One important feature of policy instruments is that they invariably involve connections between different actors. These links may profoundly influence the outcomes of the
policy instruments and are therefore of particular interest in an evaluation. Looking into the policy process network approach focuses on the relations between authorities and other agents. From an evaluation point of view variations in the networks are of particular interest. In other words, the extent to which the networks vary from one policy instrument to another and from one regional/local environment to another, taking into account contextual differences such as industrial structure and size of administration. This variation can illustrate the flexibility of the instruments (Hilden, Lepola et al. 2002).

Theory-based evaluation

Each of these methods holds benefits and limitations. To overcome the limitations evaluation literature recommends a theory-based evaluation approach. Pawson describes theory-based evaluation in the following way:

(1) In the very beginning policies are iterative sequences of theories: ‘if we implement A this should achieve our initial intervention goal B, and when B is in place we will be in a position to attempt C, which will then enable the next output D, and so on.’ The core hypothesis is always as follows: ‘If we provide these people with these resources it may change their behaviour.’ The resources may be material, cognitive, social, or even emotional.

(2) Evaluation seeks to discover whether policies work or not.

From that Pawson follows:

(3) Evaluation is theory-testing.

Characteristic of a theory-based evaluation is a better understanding of the underlying mechanisms of change (Pawson 2003).

Theory-based evaluation according to evaluation literature means to open the “black box” and to find out about a policy’s underlying assumptions. These assumptions might be about the goal of the policy or its chain of implementation. They might be about the relationship between impacts, goals, and various actors. They might be made explicitly or be hidden in some documents. They might be commonly shared by all actors along the implementation chain or differ between different actors or on different levels. Theories in the context of theory-based evaluation are the assumptions and hypotheses of actors. And these should be re-constructed.

Theory-based evaluation intends to go further than just saying whether a specific policy in a specific situation has worked (or not) in the form of goal achievement. Instead, it increases the ability to explain according to which specific elements policy measures turn out as they do.

It has to be considered that a policy will have different outcomes in different situations. Stame therefore points at the misplaced belief in ‘best’ policies as an absolute concept. Instead, she argues that evaluation needs to compare different situations in order to understand why what fits in one case does not fit elsewhere, and vice versa (Stame 2004 p. 67). Theory-based evaluation intends to discover more than whether the assumptions on which the policy was based were ‘right’ or not. In the end it should help to answer the core question:

“What works for whom in which circumstances?” (Pawson and Tilley 1997)

This way, ex post evaluation of policies provides the basis for some ex ante considerations whenever policies are to be established in a new context (another country or different consumption area). Evaluation can never reach the stage of ‘fortune
telling’ – offering guidance on whether the ‘same’ programme will work in another place and on another occasion (Pawson 2003). What it can do is to induce collective learning (Van Der Meer and Edelenbos 2006).

The result of theory-based evaluation will be: ‘remember A’, ‘beware of B’, ‘take care of C’, ‘D can result in both E and F’, ‘if you try G make sure that H is in place’ (Pawson 2003).

3.3.3 Evaluation approach used in this study

From the evaluation approaches described above the theory-based approach appears to be the most valuable and has worked to evaluate policies in different economic, social and environmental settings.3

In this study, however, we can only borrow parts of this concept and do not use it in its full range due to two reasons:

1) As described above, “theory” in the context of evaluation is used as another word for the assumptions, hypotheses and expectations of the actors involved. This differs from the way “theory” and theory-building is used in social science. As we do not like to cause misleading expectations in the mind of our readers we avoid this typology.

2) The policy field of sustainable consumption and greening the market (within the EU and its member states) includes such a broad variety of instruments that a comprehensive approach is not possible within the scope of this project. The only thing we can do is to prepare the ground for such an effort and build up some first elements.

What remains is an evaluation concept rooted in the theory-based approach. This way, the study goes beyond offering a huge toolbox of instruments for everyone to pick from and which are evaluated to have already been successful in some other settings. Instead, the study intends to offer incentives to structure policies and policy mixes in a more systematic way.

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3 The following may give an impression of the variety of topics:
Anticorruption initiative of the Worldbank Institute; see Leeuw (2003)
Prevention programmes to reduce the rate of repeat offences in the US; see Pawson 2003
Policy instruments of the Finnish pulp and paper and chemical industry; see Hilden et al 2002
4 Structured inventory of policy instruments

4.1 Introduction inventory

This chapter provides an overview of different types of sustainable consumption policies. It starts with a description of general policy strategies (chapter 4.2). Here, explicit sustainable consumption and production strategies provide the most advanced examples of countries’ aspirations towards sustainable consumption policies. The strategies rank from national sustainable development strategies with explicit reference to sustainable consumption via general environmental strategies to sector specific strategies. Chapter 4.3 then takes a look at countries’ administrative instruments. Chapter 4.4 focuses on economic instruments and 4.5 finally provides examples of informational instruments. The latter three sub-chapters are further divided according to whether instruments are “mandatory” or “voluntary”. The chapter closes with a comprehensive list of policy instruments in use in EU countries.

Sources for relevant policies and instruments

This basic list of policy instruments is distilled from the EU inventory on Sustainable Consumption and Production. It was gathered in 2004 in preparation for the ‘First European Roundtable on Sustainable Consumption and Production’ in Ostend in November 2004. Country representatives responsible for sustainable consumption in their ministries contributed to the survey. As a consequence, the list does not provide a complete overview of all instruments in use in the countries. In fact, examples of informational instruments alone are countless. Instead, the list demonstrates a comprehensive collection of those policy instruments the countries themselves—respectively its representatives—consider important. This allows insights into how the topic of sustainable consumption is recognised within the EU member states.

The collection illustrates that different countries use different approaches to achieve sustainable consumption. The general picture is dominated by informational instruments with less emphasis on mandatory or economic instruments. The complete results of the survey – clustered according to the types of instruments explained above – can be found in Annex 1.

4.2 Policies and strategies

The explicit strategies on sustainable consumption and production make up an interesting field for research and evaluation. Four countries, namely the Czech Republic, Finland, Sweden and the United Kindom, have developed such strategies. As a common ground, all of them show a strong adoption of the principles of Integrated Product Policy, such as life-cycle thinking, co-operation with the market, as well as stakeholder participation. Interestingly, they differ quite a lot with regard to their scope. Finland’s programme “Getting more and better from less” focuses on material and energy efficiency and on further research in these fields. Sweden’s “Think twice!” addresses consumers taking everyday consumption as a starting point. The UK developed the Government Framework for Sustainable Consumption and Production “Changing Patterns” which mainly focuses on business. An extensive analysis on the Finnish, Swedish and UK cases can be taken from Berg (Berg 2006).
Other countries include sustainable consumption and production aspects in their National Sustainable Development Strategies: Austria, Belgium, France, Greece, Hungary, Italy, Malta, the Netherlands, Poland and Romania, among others. An extensive overview is given in the report “National Sustainable Consumption and Production Strategies in the EU” carried out on behalf of the European Topic Centre on Resource and Waste Management and the European Environmental Agency (Szlezak 2007).

4.3 Administrative instruments

Administrative instruments are among the core businesses of governments. Legislation mostly targets at other stakeholders than the consumer, but at business and local governments to produce the “hardware” for consumption change. Broadly speaking this type of legislation concerns both the (environmental) quality improvements of the products or infrastructure and the supply of reliable information about the environmental impact, either addressed at the consumer or the regulator.

Examples directly aimed at the consumer include local bans in some countries on using water for watering the garden or washing the car in times of water scarcity, car-free periods in times of energy shortage or for awareness raising reasons, and environmental testing obligations for cars of a certain age (OECD 2001).

4.3.1 Mandatory administrative

A broad range of instruments are of mandatory administrative nature. Several of them focus on hazardous substances. This corresponds to a governmental obligation to protect life and health of its citizens. The cluster includes the phase-out of products and goods containing chemicals with particularly problematic effects on health and the environment, inspection requirements for traffic-related particles in the air, or packaging return systems for hazardous substances.

Further, energy-related aspects are addressed by mandatory administrative instruments. Here, the purpose is mostly the reduction of energy-related CO\textsubscript{2} emissions. Partly, the instruments correspond to requirements due to EU regulations. Typical examples are: minimum requirements of efficiency in new buildings, minimum requirements of efficiency in existing buildings undergoing renovation, individual metering for heating in apartment blocks (EU Directive 2002/91/EC), or requirements in regard to the share of renewable energies in electricity production (EU Directive 2001/77/EG). Some more specific instruments are found, too. Germany for example requires priority purchase of electricity from renewable sources. Poland has set quantitative targets for the share of bio-fuel in fuel. Slovenia requests minimum standards for energy efficiency of appliances.

4.3.2 Voluntary administrative

As voluntary administrative we identified two different types of instruments. One category is on public procurement, where the administrations themselves are attracted
to follow sustainable consumption requirements. In Sweden, for instance, 25% of vehicles bought by the government shall be environmentally adapted. A broad range of countries offer handbooks or web-based guidelines and training courses for green procurement in governmental institutions on all levels. Interestingly, the activities reported mainly come from the local level highlighting some specific cities.

The second type of voluntary administrative instruments builds on classical voluntary commitments from specific business sectors developed in cooperation with specific ministries. In Finland, for instance, the Housing and Construction Association on the one hand and the Ministries of Environment as well as Trade and Industry on the other hand agreed on energy conservation in residential buildings. As a German example for extended producer responsibility serves the Packaging Ordinance. The system organises the collection, sorting and recycling of packaging waste in Germany with the support of about 400 waste management partners.

These instruments will broadly be elaborated in our chapter on business initiatives.

### 4.4 Economic instruments

Whereas administrative policies mainly consist of enforcements and restrictions, economic instruments are designed to provide positive or negative financial incentives to promote more favourable forms of production and consumption. In general, economic instruments work by making people face the environmental costs they impose on society. Economic instruments include selective taxes and fees, as well as various kinds of subsidies, grants and tax exemptions for both companies and individual citizens. The key feature of all these measures is that the authorities are involved at one end of the financial transaction. Through another type of economic instrument, the authorities can also set favourable frameworks for financial transactions within the private sector. Such instruments include deposits paid on returnable beverage containers, and emission trading schemes.

Economic instruments generally allow greater flexibility of response than administrative instruments by helping to reduce the costs of raising environmental performance. The choice of an economic instrument depends on the nature of the problem to be addressed. Environmental taxes are useful where they can incentivise people to switch from using one product to using another or where a low-level incentive effect will help curb general levels of pollution or resource use in the long term but where there is no immediate need to control pollution or resource use in a particular way. Part of the revenue from environmental taxes can be used to facilitate the desired changes in behaviour.

#### 4.4.1 Mandatory economic

Mandatory economic instruments are all forms of regulation which directly affect prices. This includes taxes and subsidies, licenses and permits.

Eco-taxes form a popular instrument in the context of energy and energy-related emissions. Taxes for CO$_2$, energy and fuel reduction are mentioned several times. For instance, in the survey Denmark reports that over half of its revenue of environment-related taxes is derived from the energy sector and that one third comes from transport. The strongest environmental effects of taxes have been observed where substitutes are available, or where new technology has assisted in curbing pollution as it has been the case for the difference in taxes on leaded and unleaded petrol.
In the context of hazardous substances eco-taxes also play an important role, but so do charges. Herbicides and pesticides, batteries or chemicals in general are targeted with both kinds of instruments. The same can be observed with waste. Taxes on waste—whether in general or more specifically as in the case of disposable cameras—are as common as charges or mandatory deposits, e.g. for beverage packages. An interesting charge of increasing popularity is the so called congestion charge. Its purpose is to reduce individual traffic in densely populated areas.

The taxes mentioned above are used as disincentives, yet can also be used as incentives. The latter is the case when a specific tax reduction is given for environmentally friendly alternatives, for example for bio-fuels or energy-saving investments in houses or tax compensation for investment in green funds.

A further economic instrument is fixing minimum prices. This method is, for instance, chosen by Germany regarding electricity from renewable sources. Here, every producer receives a guaranteed price for the kWh electricity he/she feeds into the grid.

4.4.2 Voluntary economic

The administrative economic instruments are mostly related to a purchase of goods or services and are of indirect character. The voluntary economic instruments are of different nature. Here, monetary incentives are restricted to support positive environmental investments consumers or institutions can apply for.

Two main categories appeared in the survey. Several countries reported on specific funding schemes to support private investment in thermal isolation or renewable energies. Others report on specific support for Local Agenda 21 initiatives or the ecological development of tourism infrastructure. Those kinds of incentives are often financed with earmarked budgets from related taxes or charges.

The second category is fixed budget lines for research projects or NGO support. Several countries highlight this engagement. General research programmes are established to fund strategic research. This is the case in Denmark, for instance, to support sustainable development, in Germany with a programme on socio-ecological research, or in Ireland with the funding of strategic planning and innovative solutions. All these programmes target at general improvements and deepening insights, and these differ from purely informative campaigns. Additionally, much financial support is given for energy-related research.

4.5 Informative instruments

As environmental problems are mostly complex ones, it is often difficult to know how to deal with them in the first place. It is therefore vital that authorities also make use of softer policy instruments to improve the understanding and awareness of these issues.

Informative instruments have long been identified as the most promising for sustainable consumption. Agenda 21 recommended “assisting individuals and households to make environmentally sound purchasing decisions by developing criteria and methodologies

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4 For further information on earmarked environmentally related taxes (and others) see http://www2.oecd.org/ecoinst/queries/index.htm
for the assessment of environmental impacts and resource requirements throughout the full life-cycle of products”. It is also considered important “to promote more positive attitudes towards sustainable consumption through education, public awareness programmes, and other means, such as positive advertising of products that utilise environmentally sound technologies”.

Significant changes towards more sustainable behaviour have however been limited to the so-called “easy choices”. These are alternative actions that individuals are prepared to carry out for the sake of the environment, because the costs of the new behaviour (in monetary terms as well as in terms of convenience and time spent) are relatively low. This explains the successes of many recycling schemes and the problems encountered by persuading consumers to use public transport instead of a private car.

The reason behind is the “information dilemma”. On the one hand, a huge amount of environmental information seems to be available in the media; on the other hand, consumers often complain about a lack of information. The problem seems to lie less in the quantity of information than in its quality, its reliability and its format (OECD 2001).

This induces specific requirements for the extensive research and monitoring work on sustainable consumption available so far. Sustainable consumption should be supported and publicised, and public awareness of environmental issues should be increased through education and special training. Other informative measures such as environmental labelling schemes attempt to control consumption patterns by encouraging consumers to use products and services that are less harmful to the environment.

Examples of information instruments include: written, phone, internet or face-to-face advice, training, research and development, and awareness raising campaigns. They work best where a lack of information about how best to reduce environmental impacts is in itself a significant barrier to people changing their ways of behaviour. Information instruments may not need public subsidy to be effective if an incentive for consumers to get information or for others to provide it is given. However, public subsidy may be required, at least partially or in the start-up phase.

From the survey used in this research it was hardly possible to distinguish whether specific information was provided by public authorities, from other stakeholders, or from both.

4.5.1 Mandatory informative

Mandatory informative instruments are again based on regulation and can be separated into information from public authorities and information required from businesses. Countries periodically report on the state of the environment, which allows consumers and interested stakeholders to draw both temporal and international comparisons.

Several countries have developed specific instruments to establish environmental or sustainability reporting duties for specific companies. Denmark adopted legislation stipulating enterprises with activities important for the environment to publish green accounts each year. The French Law on New Economic Regulations compels companies quoted on the Stock Exchange to report on their actions in the social and environmental fields. In the housing sector the EU-wide required labelling of white
appliances is accompanied now by labelling of environmentally friendly construction materials, energy efficient buildings, and electricity from renewable sources.

4.5.2 Voluntary informative

The voluntary informative instruments subsume the broad range of forms of information on how to consume (more) sustainably—from eco and fair trade labelling to all kinds of consumer campaigns and education. Their amount is enormous.

Research and studies are again part of the instrumental mix with the main purpose of research being the preparation of the ground for better decision-making in the field of sustainable consumption. Thus specific studies have elaborated the possibilities of a “Sustainable Development Label” (Belgium), have calculated the carrying capacity of tourism (Malta), or have analyzed the best ways to remove harmful subsidies (Sweden). Labels and other certification schemes are seen to play a strong role towards sustainable consumption patterns. Labels of all kinds are mentioned frequently. They range from general labels like the “Nordic Swan”, the “EU Flower Label” and the German “Blue Angel” to sector-specific ones. In the food sector labels for organic farming and regional production are dominant.

Again some countries focus on more specific aspects. Austria, for instance, runs an eco label for Green Funds, while Belgium has developed a social label for goods and services produced in the respect of the 8 ILO conventions on labour. Several countries—Slovenia, Austria and Poland—have reported on certification schemes for environmentally friendly nurseries and schools.

Information centres are another tool to increase the attention of consumers and business actors for sustainability aspects. They can be found as travelling exhibitions, in busses or trucks, or traditionally in exhibition halls. Some information centres additionally offer support and information on diverse issues from waste prevention to environmental and health aspects.

Huge amounts of different forms of print media were reported. They range from leaflets, brochures and newspapers to more or less academic reports, conference proceedings and publications about indicators.

Also, electronic media play an increasingly important role. Lots of written information is available there, too: on web sites or as downloads. As an additional benefit, these new communication tools allow the dissemination of information in the form of audio, video, or multimedia files, and offer the possibility of interactive communication. Nearly all issues relevant for information and awareness building are present on the web.

A specific variety of print and electronic media is educational material especially designed for use in kindergarten, school or forms of higher education.

A more comprehensive approach is taken in media campaigns. They focus on specific sustainability aspects in a defined time slot and combine print and electronic information dissemination with local promotion and “traditional media” like TV and radio. In Austria, Belgium and the Czech Republic “Sustainability Weeks” are organised that way.
Last but not least awareness is raised by awards. Prices for extraordinary ecological or sustainable or—alternatively—very unsustainable performances are awarded to individuals, institutions or companies. The award might come with some money or with the honour only. In any case media attention is part of the concept.

Table 4-1 Sustainable consumption related instruments in use in European countries
<table>
<thead>
<tr>
<th>Policies and Strategies</th>
<th>all</th>
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5 Effectiveness evaluation of policy instruments

5.1 Introduction

In chapter 4 we elaborated a broad overview of policies related to a broad understanding of sustainable consumption. For our evaluation we have to narrow down the scope. Which instruments do in fact have a high or interesting potential to make a difference? To identify these instruments we first conducted a broad literature research and analysed where policy evaluation on sustainable consumption policies had already been carried out.

In chapter 3.3 we described general approaches towards policy evaluation, especially the evaluation of environmental policies. What we can summarise is:

- Environmental problems are of complex nature and in most cases there are no easy or linear answers to whether sustainable consumption policies are successful and actually do bring about specific improvements for the environment.
- A number of developments and trends occur in parallel along policy cycles which can push the process towards the direction planned, or the opposite way.
- Policies often do not address the environmental situation directly but rather aim at changes in behaviour.

These might be the reasons why explicit evaluation of sustainable consumption policies is rare on a national as well as on an EU level. Another reason may be that the evaluation of environmental policies in general as well as of specific policy instruments is a rather new discipline (Mickwitz 2003). Only for few policies in few countries in-depth evaluations have been undertaken so far.

We are also aware of the fact that this project can only be one first step in this developing process. Even though comprehensiveness cannot be achieved within the limited time and resources, we intend to contribute to a better understanding of the potentials of different policies.

Based on the assessments available and the gaps identified we defined a set of instruments for further analysis fulfilling the following criteria:

- being expected to be of adequate relevance;
- representing the various types of instruments as outlined in chapter 4;
- in some cases showing coherence within a consumption domain to allow the possibility for crosschecking the potential of policy mixes;
- representing a mix of traditional and innovative instruments.

With one exception (energy labelling) we explicitly avoided those instruments already required by some EU directive or EU regulation as they are obligatory for the countries anyway. Rather, we evaluated where countries have expanded the requirements beyond the EU directive in their national laws (EU directive on new buildings).

As already described above, we concentrate on the consumption areas of housing, food and mobility as those areas with the highest impact on the environment and thus the
highest potential for change. Still, in order to include the systemic view into the policy analysis we additionally take into account crosscutting instruments.

Three instruments are chosen in the overarching category of crosscutting instruments. They are placed at the beginning of the evaluation to illustrate the necessity of systemic approaches when targeting sustainable consumption patterns (see Ref to WP3). The examples we present are in use in one respectively few countries only. This provides a large potential for further discussion and development for the use in other countries. The instruments can give incentives on how societies as such could be integrated into sustainability dynamics. We analyse the 35-hour working week in France (a mandatory administrative tool), CO$_2$ taxes in the Nordic countries with emphasis on Denmark (a mandatory economic tool), and the Sustainability Weeks in Austria as a voluntary informative tool.

In the housing domain quite some instruments concentrating on new buildings have already been established through mandatory EU regulation. We borrow from the toolset given but explicitly consider where and how countries reach beyond the EU requirements. We focus on existing buildings, analysing national minimum requirements as a mandatory administrative tool and introducing financial incentives as an economic tool. This choice enables us to see how different instruments fit together in a toolset.

A totally different approach compared to housing has driven the instrument choice on electricity use$^5$. Two strategies form the policy sets in this field: efficiency and renewables. Thus, we evaluate two instruments, one targeting each of the strategies. Regarding renewable energies we analyse the effectiveness of feed-in tariffs for the promotion of electricity from renewable sources. From the toolset supporting energy efficiency we evaluate the contribution of energy labelling for household appliances.

A broad variety of instruments to reduce environmental impacts is in use in the mobility domain, for instance CO$_2$ emission limits for vehicles, purchase and use taxation of vehicles and fuel, or road pricing. The explicit goal of our choice in this study was to go beyond technical solutions and to evaluate instruments targeting at behaviour change. We selected third payer support for public transport, programmes to train eco-driving, as well as congestion charges.

In the food domain we concentrate on instruments to support consumption of organic food. This is not because we are underestimating the sustainability effect of animal production and products. Rather, policy instruments can hardly be found here. Again, having two instruments aiming at the same target can help to find synergies in instrument performance. Therefore we evaluate the effectiveness of demand side aspects of organic products via national labels on food from organic farming and public procurement of organic food.

Table 5-1 Overview of instruments evaluated

|                      |                      |                      |                      |

$^5$ Formally electricity use is considered as part of the consumption domain housing. We separate the two for methodological reasons.
This mixture necessarily leads to different perspectives in our evaluation process. For the instruments in use in all or most countries detailed evaluation can be made on how the instrument shall be designed the best way. For innovative instruments in use in one or few countries data availability is low in most cases. Therefore considerations on the effective design of an instrument necessarily stay more general.

The instruments chosen are evaluated according to the following criteria.

Environmental:

- **Relevance**: Does the instrument target consumption aspects of important environmental relevance? Is it designed to target a relevant market share? (Relative environmental impact of the consumption domain? Which part of the market is reached? …)

- **Impact**: What is the ecological impact of the policy? (Which % reduction per unit/action? Tons of CO₂ reduction? …)

- **Side effects**: Are negative/positive (environmental) effects expected in another area? (rebound effect)
Economic criteria:

- Cost-effectiveness: Do the results justify the financial resources used? Could the results have been achieved with fewer financial resources?* (can only be illustrated by existing studies)
- How does the instrument affect competitiveness and employment?
- Consumer acceptance: Is the instrument attractive for the consumer? How does it affect the user value (willingness to pay)?

(list further developed from (Mickwitz 2006))

As we will see, not every criterion fits for every instrument. Linking back to the evaluation approaches described in chapter 3.3 the impact criterion relates to impact assessment, economic criteria as considered here represent side effects in the policy cycle.

We can also see that these evaluation criteria show quite some overlaps with the main questions that appeared along the policy cycle.

As far as possible we try to cross-check the analysed effectiveness measures with related general indicators through country comparison. This is to prove how far countries with good performance on a specific instrument also show a good ranking in the related national environmental performance. Nevertheless, this comparison can not be drawn in each case, either due to lack of adequate data (e.g. third payer support) or because country comparison is not an adequate measurement (e.g. congestion charges).

5.2 Focus and limits of previous evaluations of SC policy instruments

Which policy evaluations already exist in the field of sustainable consumption and production policies on the EU level as well as the level of single member states? The objective of this sub-chapter is to identify those (aspects of) policies which already have been identified as best practice in a specific field or specific country in the three major consumption categories food, housing and mobility.

The review takes information from the following main sources into account:
- Impact assessments and policy evaluations undertaken by the European Commission and the EEA
- Policy assessments carried out by international organisations (such as the UN)
- Policy assessments and evaluations undertaken by research institutions and consultants

It is important to note that the European Commission has undertaken a large number of impact assessments (IAs) in a number of different policy areas⁶, following the EU Impact Assessment Guidelines (European Commission 2005). These assessments are beforehand assessments of the possible future impacts of different EU policies and compare a baseline scenario (without policy intervention) with alternative policy scenarios. These IAs are not useful for the purpose of this chapter, as we want to analyse existing policy evaluations from a retrospective in order to identify those instruments which have already proved to be effective.

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The review revealed that only a small number of studies exist which actually apply a coherent evaluation framework to assess the effectiveness and impacts of environmental policies (see, for example, (Irrek and Lutz; 2007). Therefore, also other studies from literature are included in the review which provide qualitative-descriptive or indicator-based descriptive approaches to discuss current trends in (un)sustainable consumption in different EU countries (see, for example, (Martens and Spaargaren 2005; Sanches 2005; Christensen, Godske sen et al. 2007).

The available evaluations reveal that methodological approaches used to analyse the impacts of policy measures are highly varying. They differ in many respects, such as the method used (qualitative or quantitative), the scale applied (regional, national, super-national), or the impacts analysed (social, environmental, economic). However, the huge diversity of policy measures and policy mixes introduced in many countries complicates the development of a universal assessment method.

Table 5-2 provides a short overview of existing studies, which are clustered according to the level of analysis (regional, national, EU) as well as the different instruments analysed in the main consumption categories.

Table 5-2 Summary table of studies reviewed

<table>
<thead>
<tr>
<th>Author and Country</th>
<th>Instruments analysed in different consumption domains</th>
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<tbody>
<tr>
<td><strong>European Commission and EEA</strong></td>
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<tr>
<td>EC DG Environment (2005)</td>
<td>EU countries</td>
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<tr>
<td>EEA (2005)</td>
<td>various EU countries</td>
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<td>EEA (2006)</td>
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<tr>
<td>Agholucci (2004)</td>
<td>various countries</td>
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<tr>
<td>Andersen et al. (2000)</td>
<td>various EU countries</td>
</tr>
<tr>
<td>Christensen et al. (2007)</td>
<td>Denmark</td>
</tr>
<tr>
<td>Difia (2006)</td>
<td>various EU countries</td>
</tr>
<tr>
<td>ECOTEC Research Consulting (2001)</td>
<td>EU countries</td>
</tr>
<tr>
<td>Gillingham et al. (2004)</td>
<td>USA</td>
</tr>
<tr>
<td>Görlach and Newcombe (2005)</td>
<td>various EU countries</td>
</tr>
<tr>
<td>Gram-Hansen et al.</td>
<td>Denmark and Belgium</td>
</tr>
</tbody>
</table>
This list seems to be quite ample. We found a large number of policy evaluations concerning sustainable consumption. Yet, there is still a substantial lack of analyses in various fields. For instance, it is hardly possible to find any evaluation of EU-wide policies. Although the European Commission periodically publishes “policy reviews”—such as the Mid-term review of the European Commission’s 2001 transport White Paper (European Commission 2006) or the 2006 Environmental Policy Review (European Commission 2007)—they do not contain comparable quantitative information.

Moreover, the very important consumption domain food—which, after all, is the domain with the second largest energy consumption (Vringer, Aalbers et al. 2001)—is extremely underrepresented. The major part of existing studies examines policy measures targeting energy efficiency in domestic heat and electricity use (consumption domain housing). It seems likely that national as well as international politics tend to focus on economic and information measures. Regulative measures such as laws and regulations are either not adopted to address sustainable consumption, or are not yet represented within evaluations.
Aside from that, many authors do not differentiate clearly between measures (respectively impacts) addressing production or consumption patterns.

The big variance in the methodological approaches applied substantially impedes a comparison of policies and their impacts. Finding ‘best practice’ examples and introducing them in other countries or regions is one of the greatest shortcomings of previous evaluations.

Nevertheless, some core messages can be derived. Several studies (for example, Christensen et al. 2007) point out that substantial decreases of the negative environmental consequences from specific consumption domains (e.g. housing) can only be achieved if several measures are in place at the same time. These can include, among others, economic measures (taxes, subsidies), information measures (labelling and campaigns), as well as the readiness of new eco-efficient technologies to be spread widely across the market.

When pursuing the transformation towards more sustainable consumption, the most promising approach therefore is to seek the best combination of policy measures using different types of policy instruments rather than the single-best instrument to tackle specific unsustainable consumption patterns. This aspect seems crucial, when providing recommendations on how to best achieve the desired policy outcomes.

It is important to note that a successful implementation of a policy instrument is always context-dependent. Aspects such as the historical development of specific consumption patterns, institutional arrangements (including societal values), technological aspects and other factors determine to a large extent, whether or not a policy is effective. Therefore, experiences from one country cannot be directly transferred to other countries (Christensen, Godskesen et al. 2007).

Finally, it appeared relevant not to lose some systemic changes with a larger potential of change than single instruments or even certain instrument mixes out of sight. Thus, in addition to specifically targeted policies in the three dominant consumption domains, we also briefly highlight that selected macro-economic policies have an important, but more general impact on sustainable consumption. The next chapter starts with this issue.

5.3 Crosscutting policy instruments

Three instruments are chosen in the overarching category of crosscutting instruments. They are placed at the beginning of the evaluation to illustrate the necessity of systemic approaches when targeting sustainable consumption patterns. The examples are in use in one respectively few countries only, which implies a large potential for further discussion and development for the use in other countries.

We analyse the 35-hour working week in France, CO₂ taxes in the Nordic countries with emphasis on Denmark, and the Sustainability Weeks in Austria.

5.3.1 35-hour working week

In academic literature, the implementation of regulations to decrease the number of weakly working hours is frequently discussed as one key instrument to limit or even
reduce the negative environmental impacts of consumption. At the same time, this measure is regarded as having huge potentials to increase “social cohesion” of societies through a more equal distribution of labour on the one hand and free time on the other hand and thus contributing to a reduction of unemployment (Hans-Böckler-Foundation 2000; Marks, Simms et al. 2006)

The law to limit weekly working hours to 35 in France was passed by the socialist/communist/green coalition in 1998 and took force in 2000 for large enterprises, in 2002 for small and medium-sized enterprises. Employees thereby gained an average of 4 additional hours of free time per week without a reduction in salary. Employers, on the other hand, had the guarantee that future salary demands would be moderated, national insurance contributions of new employees reduced and working time organised more flexibly.

The link between a reduction in working time and more sustainable consumption is not immediately visible and the original reasoning behind the reform was indeed to fight unemployment. Still, a number of important environment-related changes have taken place in France due to the introduction of this law. The most visible effect of the 35-hour week was a “smoothing” effect on the structure of time use. Traditional peak hours in transport (including congestion), shopping and leisure were extended to broader time spans, reducing the negative impacts related to these peaks, such as time spent in road congestions (Sanches 2005).

In general, the introduction of this measure increased the status of non-commercially related activities. For example, in a poll undertaken by the Ministry of Employment, 52% of people stated that they would use the additional hours to expand their time spent with their families and children, 35% would rest more, 34% would engage more frequently in sporting activities, and 18% would increase their cultural activities. Only 2% declared that they would want to consume more. Thus, the 35-hour week started a shift of values towards greater importance of non-materialistic needs at the expense of materialist desires. Such reforms thus have potential to support a longer-term cultural shift (Sanches 2005).

Environmental Evaluation
The environmental effects of the introduction of the 35-hour working week are hard to assess for the time being. No recent studies are available which would specifically evaluate the environmental consequences of this policy measure in France in the past few years. Furthermore, policies have continuously been reformed by the past and present administrations (see below), making it difficult to assess the implications over time.

In the short run, it was assumed likely that overall consumption on the macro level would actually increase due to the reduction of unemployment (Sanches 2005). However, total unemployment remained rather constant on a level between 8.5% and 9.2% between 2001 and 2006.

At the same time, total private household expenditure did increase more between 2000 and 2008 (2.0% p.a.) than it did in the 1990s (1.8% p.a.). At least on this aggregated level, no slow-down of private consumption expenditure could be observed (European Central Bank 2008).

One specific measure initially implemented in France was the introduction of high taxes on overtime hours, which provides disincentives for people to further increase their
absolute purchasing power. Furthermore, the maximum level of overtime hours was initially restricted to 180. In recent years, these restrictions were alleviated step by step. In 2004, the French Parliament extended the maximum number of overtime hours to 220; in March 2005, another law extended the possibilities of overtime hours. Finally, in 2007, President Sarkozy announced a de-taxation of overtime hours, which was approved by the French senate in October 2007, meaning that overtime payment will be excluded from taxes and social security contribution. It is expected that this measure will lead to an increase in working hours without providing an incentive to create new jobs (Wyplosz 2007).

From this initial analysis it can be concluded that an absolute reduction of consumption levels can only be achieved through the introduction of accompanying measures. In order to achieve substantial reductions also with regard to the environmental impacts, it is likely that working time reductions have to be combined with real reductions in income in order to limit the amount of money spent per person (Hinterberger and Stocker 2004). As other studies (Christensen, Godskesen et al. 2007) illustrate, increased personal income or income saved due to efficiency increases (e.g. less spending on energy due to increased energy efficiency) is in most cases not spent on less resource-intensive activities, but on environmental-intensive consumption, such as travelling.

<table>
<thead>
<tr>
<th>Table 5-3 Evaluation of the 35-h working week</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relevance</strong></td>
</tr>
<tr>
<td>35-h working week</td>
</tr>
</tbody>
</table>

5.3.2 CO₂ Taxes

In some countries, particularly in Nordic ones, a shift of the tax burden from labour-related to environmental taxes has been undertaken (EEA 2006). Most of them are linked to energy use. They go far beyond just raising taxes for direct energy carriers on households like electricity, fuel and petrol. Instead, every product and service carries its share of energy tax, too, depending on how much CO₂ is emitted in its production process.

Scholars recommend that in order to ensure that green taxation of households does not become just another way of raising state revenue and thus become disassociated from its original purpose, i.e. improving the state of the environment, it has to be ensured that the introduction of green taxes directed towards households is linked with the suspensions or reductions of other taxes. However, many current green tax reforms directed towards households do not fulfil this requirement. Instead, they are merely fiscal taxes which have been labelled green taxes in order to legitimate them towards the public (Svendsen, Daugbjerg et al. 2001).

Accordingly, analysis shows that a shift towards ecological taxes does not necessarily reduce burden for private households. Instead, when comparing CO₂ tax rates for households and those for industry tremendous differences can be observed (Table 5-3).
Table 5-3 CO₂ tax rates for industry and households in 1997 (EURO/ton CO₂)

<table>
<thead>
<tr>
<th></th>
<th>Finland</th>
<th>Sweden</th>
<th>Norway</th>
<th>Denmark</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td>7.8</td>
<td>10.4</td>
<td>19.6</td>
<td>8.9</td>
<td>8.1</td>
</tr>
<tr>
<td>Households</td>
<td>17.8</td>
<td>41.6</td>
<td>44.2</td>
<td>79.5</td>
<td>8.1</td>
</tr>
</tbody>
</table>

(Svendsen, Daugbjerg et al. 2001)

Except Finland all countries with CO₂ tax schemes have introduced exemptions for energy-intensive industries, although it is widely recognised that exemptions reduce economic efficiency in CO₂ reduction.

To explain this imbalance between household and industry taxation it is argued that households are a collection of weakly organised micro units and therefore do not have an adequate lobby to avoid this kind of tax burden (Svendsen, Daugbjerg et al. 2001).

However, Svendsen et al. regard taxation as the only practically applicable solution to get control over CO₂ intensive household consumption, as the target is to tackle rather small amounts of emission per economic entity, at least as far as direct emissions are concerned. If, for example, tradable permits for households were introduced for direct household emissions, transaction costs would form a large share of the total permit cost, and it would be difficult to apply effective measures of control.

Denmark provides a well-studied example of CO₂ taxes. The first Danish CO₂ tax was imposed on households in January 1992 on top of existing energy taxes on coal, oil, gas, and electricity consumption. In January 1993, a new comprehensive tax reform was launched focusing on household energy consumption and others. In 1996, the direct household tax payment was 253 million €. The indirect household payment (taxes paid by industry, but fully transmitted in final consumer prices) was 75 million €—approximately one third of direct household payments. The highest CO₂ tax contribution per Euro consumed was on water supply and sewage service, package holidays, dairy products, butter and oil, while the lowest share of tax had to be paid on gross rent, domestic services, cigarettes and tobacco, and insurance services (Wier, Birr-Pedersen et al. 2005).

5.3.3 Evaluation of CO₂ taxes

Environmental evaluation

CO₂ taxes in general work well and are a quite efficient measure. As comprehensively demonstrated by the Eurostat data, energy efficiency in the EU has improved in parallel with increased energy taxation (EEA 2006). The EEA furthermore states that such a shift of the tax burden can lead to a better functioning of the market with improved conditions for employment and innovation.

Various studies have examined the effects and efficiency of the Danish CO₂ tax scheme. In 1999, the Danish Ministry of Finance presented an evaluation of the business CO₂ tax scheme. Based on an extrapolation of the data and models that had originally informed the macroeconomic estimates behind the CO₂ tax scheme, it was concluded that the scheme had created a substantial environmental effect in an
economically efficient way, while taking international competitiveness into proper consideration. The CO\textsubscript{2} reductions originally expected had generally been realised and causes for adjustments were only minor. The overall national CO\textsubscript{2} reduction target was missed by 5%, which was mainly the result of insufficient initiatives within the transport sector.

Another study points in the same general direction. Based on an extensive panel data analysis of energy prices and consumption relations, it is concluded that, in general, business energy taxes due to the CO\textsubscript{2} tax scheme have contributed to an overall reduction in energy consumption levels of 10% during 1993–1997.

Investigating the effects of market-based instruments in Denmark in the period from 1977 to 1991 on the household sector shows that energy taxes reduced household energy consumption in the analysed 25 years by 15%. Subsidies furthermore helped cutting energy use on heating by 20% in the same period (Boom 1998).

**Economic evaluation**

Danish CO\textsubscript{2} taxes are regressive as they have a higher impact on low budget households, and this result holds for direct as well as indirect CO\textsubscript{2} tax payments. While both types of CO\textsubscript{2} tax payments are increasing with disposable household income, they constitute a smaller share of the budget as income increases. The CO\textsubscript{2} taxes are more regressive than the average Danish levy, including VAT taxes, and direct CO\textsubscript{2} taxes are more regressive than the indirect CO\textsubscript{2} taxes. The same regressive result holds, to a lesser extent however, when applying total household expenditure instead of disposable income. Low-income families paid around 0.8% of disposable income on CO\textsubscript{2} taxes, while high-income families paid only 0.3% of disposable income (Wier, Birr-Pedersen et al. 2005).

An analysis based on Swedish data additionally points out that CO\textsubscript{2} taxes also have regional distribution effects in the sense that household living in sparsely populated areas carries a larger share of the tax burden.

<table>
<thead>
<tr>
<th>CO\textsubscript{2} taxes</th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness</th>
<th>User value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+/-</td>
<td>+</td>
</tr>
</tbody>
</table>

5.3.4  **Sustainability weeks**

The survey on policy instruments in chapter 4 indicated that information instruments play a vital role in the promotion of sustainable consumption and greening the market.

Among the broad variety of informational instruments sustainability weeks are chosen as an example of crosscutting, concentrated efforts to spread the message of sustainability. This is because it combines lots of single efforts via media and direct campaigns, information and education.

This chapter introduces the Austrian “Sustainable Weeks” as an instrument of coordinated action to raise attention for sustainable products. “Sustainable weeks” is a joint national initiative of several Austrian ministries and provinces, the Austrian retail trade and the Federal Economic Chamber. Since 2004, it has annually been held
between September 15 and October 15. It thus differs from several other sustainability weeks which are organised on town level by single organisations or devoted to a specific topic, such as the sustainable energy weeks.

The declared goal of the “Sustainable Weeks” is to raise consumer awareness among the general public and thus to enhance the sale of sustainable products. In 2004, when the “Sustainable Weeks” were organised for the first time, the project partners commonly developed a logo for the campaign. The word-image trademark “Getting there. The Sustainable Way” (“Das bringt’s. Nachhaltig.”) is exclusively reserved as an advertisement eye-catcher for the period of the “Sustainable Weeks.” During the four weeks’ period, the label is used in advertising material of the participating retailers and at each point of sale in order to inform the consumers on the relevant product lines and to encourage them to shop accordingly. It is neither meant to replace nor to check on existing eco-labels. The labelling is on all advertisement tools, posters, as well as on the shelves of the participating branches and stores, and thus draws consumers’ attention to sustainable products (Lebensministerium 2004).

It is the early integration of market actors which is regarded as a precondition for the success of the “Sustainable Weeks” and which allows their identification with the campaign. A similar approach with less participation in Germany, for instance, failed.

The adequate timeslot for the campaign, which was chosen by the retailers, is of great importance as well. Fitting to the Austrian cultural context it bridges from the summer holiday period to Christmas preparations without interfering with other attention seeking events. The only overlap that occurs is with the harvest festival, which, however, even induces synergies for food retailers.

The participants of the “Sustainable Weeks” jointly take up issues such as organic products, fair trade, regional marketing, construction and living, as well as recycling, and target them in their self-advertisement. Public and economic interests as well as awareness are being generated and raised: Consumers who buy products from organic farming protect us and our environment. Consumers who opt for putting regional, domestic quality into their shopping carts help to reduce the traffic and transport load, secure jobs, and thus support sound economic development in the rural regions (Gupfinger, Schmon et al. 2007).

More and more retailers are attracted to join the efforts of the sustainable weeks. Food retailing participated from the very beginning, in later years even the discounters joined. In 2007, 28 trade chains took part (10 in 2004) including do-it-yourself chains, drugstores, furniture stores, and shops for electric and electronic appliances, as well as bakeries and butchers. Also, more and more independent retailers participate. Their number increased fivefold from 500 in 2004 to 2700 in 2007.

Main awareness is raised through advertising material and substantial information at the point of sale. The number of pages of advertising supplements increased from 35 in 2005 to 73 in 2007 and so did the printing from 26 million to 61 million in the same time span. On average, each Austrian household was reached by the advertisements 18 times. In the shops themselves attention seeking media additionally increase awareness for the products. Here, more substantial information is provided in form of comprehensive and attractive brochures (Lebensministerium 2004 - 2007).
Opposite to the increased advertising efforts the general media’s, e.g. newspapers’ attention used to be larger during the campaign’s first years. Obviously, the news effect of the instrument is decreasing.

The sustainable week does not only influence consumers to choose more sustainable options. In connection with the sustainable weeks retailers list more and additional sustainable products and thus increase availability of those products. On the other hand, some retailers remove unsustainable products like battery eggs.

Besides the market players also major Austrian non-governmental organisation support the “Sustainable Weeks”, even though some of them have also contributed critical remarks and debates in their own publications. A prominent point of concern is the criteria setting for products labelled as sustainable in the context of the “Sustainable Weeks”. According to the critics’ approach the promotion of regional products, for instance, has so far not sufficiently taken into account the criteria of organic farming.

5.3.5 Evaluation of sustainability weeks

Environmental evaluation
Data provided from Bio Austria show an increase of the organic market between 2003 and 2006 of 21% in volume and 35% in value. In major product groups organic products have reached a relevant market share: milk (14.2%), eggs (21.8%), potatoes (13.2%), fresh vegetables and fruits (6.6%) (Bio Austria). It can be expected that part of this increase is due to the focused awareness raising during the sustainable weeks. Yet, no hard figures are given allowing estimations about how influential the aspect is compared to other factors.

At least, goal achievement in form of “raised awareness” can be confirmed. Surveys conducted before and after the first and second sustainability week confirmed an increase in attention for and recognition of sustainable products and their availability in shops. The largest effect was recognised on women with lower education level in urban areas. In general, the sustainable weeks have helped to shape the understanding of the concept of sustainability. In free associations the persons interviewed reported about positive impressions and linked the term to durability, environment, energy and/or resources (Lebensministerium 2004).

Economic evaluation
No hard figures can be given about the economic effectiveness of the sustainability weeks since all this information is kept confidential. Still, the increasing interest, advertising efforts and participation in the sustainability weeks can serve as indicators for the economic success of the instrument.

Frequently, the products advertised during the campaign are sold at cheaper prices in order to attract consumers. This way, the amount of sustainable products sold during the sustainable weeks increases while it remains unclear if profit increases as well. What can be recognised is an increase of first listings of sustainable products in the retail chain just in time for the sustainability weeks.

Table 5-5 Evaluation of sustainability weeks
5.4 Policy instruments for housing

The EU Directive 2002/91 Energy Performance of Buildings (EPBD) calls EU member states to define measures for the reduction of energy consumption in the building stock. The directive primarily focuses on new buildings. Still, it also calls for energy efficiency in existing buildings larger than 1000 m² when they are undergoing major renovation. The existing building stock represents a far larger challenge. A study from 1998 assessed the potential for the savings of CO₂ emissions in the existing European building stock with 85-103 Mt/a. Proper glazing was calculated to contribute an additional of up to 94 Mt/a of savings (Ashford 1999).

This chapter analyses where countries go beyond the EU requirements. Different types of instruments are available to induce energy efficiency in existing buildings. (Stronger) national minimum requirements as a mandatory administrative tool and financial incentives as an economic tool are introduced here.

5.4.1 Minimum requirements in existing buildings

Part of the EPBD is to establish minimum requirements for existing buildings. While these requirements have to be set for buildings larger than 1000 m² when they are undergoing major renovation, member states still have a broad variety of possibilities on how to adopt this directive. They include the level of ambition in defining the minimum requirement, allowance of exceptions, control mechanisms, and the period for adoption. The minimum requirements often go hand in hand with an energy certificate for buildings as an informational instrument. Table 5-6 displays a selection of countries where regulations go beyond the EU requirements.

<table>
<thead>
<tr>
<th>Country</th>
<th>Regulation beyond EU demand</th>
<th>In force from</th>
<th>Strengthened</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium-Flemish</td>
<td>Refurbishment of small buildings</td>
<td>January 2006</td>
<td>Evaluation of energy performance regulation and requirements every two years</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>When renovation of the building envelope exceeds 25% of the external surface area, or when changes to the building technical equipment cause a 25% increase in the overall energy consumption relative to the original energy consumption prior to the renovation.</td>
<td>2007</td>
<td>Not before 2009</td>
</tr>
<tr>
<td>Denmark</td>
<td>EPBD applies to all buildings, also to small dwellings. Existing buildings sold or rented must have an energy label not older than 5 years.</td>
<td>01.04.2006</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>Requirements obligatory if more than 20% of an element (wall, window, roof, cellar) is up to refurbishment. Regulation also for smaller buildings</td>
<td>01.10.2007</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>For small renovations minimum requirements concerning ventilation and isolation</td>
<td>01.01.2008</td>
<td></td>
</tr>
</tbody>
</table>

Table 5-6 National regulation according to EPBD

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8 http://www.buildingsplatform.eu/epbd_publication/doc/P035_EN_Czech_Republic_p2727.pdf
9 http://www.buildingsplatform.eu/epbd_publication/doc/P09Denmark_p2508.pdf
In most cases, these countries already request minimum standards for buildings smaller than 1000 m², or they define the renovation criterion in a stricter way. Differences can be observed regarding the point in time when the regulations are set in force. While in Spain, for example, the directive will only start in 2009, Denmark will by then already be conducting an evaluation of the regulation.

5.4.2 Financial incentives for renovation of existing buildings

Indeed, various economic instruments are in place in different countries for some form of financial support for house owners when they intend to invest in energy efficiency of existing buildings: direct subsidies, loans with reduced interest rates and different kinds of tax deductions.

Subsidies

A frequent instrument is a direct subsidy in the form of grants. In several countries active financial support is given for modernisation investments. The money is often generated from funds or ear-marked budgets. Direct subsidies are deployed for particular measures like the installations of renewable energy systems, i.e. solar thermal and photovoltaic, or to support specific population groups.

The second way of fostering the energetic improvement of existing buildings are indirect subsidies in the form of loans with subsidised interest rates. In this case, the investor is partly released from capital costs for loans. This reduces the time span of payment for the credit and can be financed by the energy cost savings.

Table 5-7 Subsidies for modernisation in existing buildings

<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>The Dwelling Improvement Act and Housing Promotion Subsidies were redesigned</td>
<td><a href="http://www.buildingsplatform.eu/epbd_publication/doc/P056_EN_Netherlands_Nov07_p2904.pdf">http://www.buildingsplatform.eu/epbd_publication/doc/P056_EN_Netherlands_Nov07_p2904.pdf</a></td>
</tr>
<tr>
<td></td>
<td>in 2003. Energy efficiency and the use of renewables are criteria in the level</td>
<td></td>
</tr>
<tr>
<td></td>
<td>of subsidies in most provinces.</td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>All provinces offer subsidies for insulation as part of housing promotion</td>
<td><a href="http://www.buildingsplatform.eu/epbd_publication/doc/P18SlovakRepublic_p2584.pdf">http://www.buildingsplatform.eu/epbd_publication/doc/P18SlovakRepublic_p2584.pdf</a></td>
</tr>
<tr>
<td></td>
<td>and housing improvement laws. The Burges Forderungsbank, a specialised bank</td>
<td></td>
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<tr>
<td></td>
<td>in charge of administration of ERP funds, provides financial support, inter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>alia, for energy efficiency measures.</td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>Some provinces and utilities offer soft loans for thermal improvement of</td>
<td><a href="http://www.buildingsplatform.eu/epbd_publication/doc/P48Spain_p2846.pdf">http://www.buildingsplatform.eu/epbd_publication/doc/P48Spain_p2846.pdf</a></td>
</tr>
<tr>
<td></td>
<td>houses.</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>The Walloon region offers subsidies for low income households to improve</td>
<td></td>
</tr>
<tr>
<td></td>
<td>energy efficiency.</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>Grant provisions totalling 135 million € are made each year to improve</td>
<td><a href="http://www.buildingsplatform.eu/epbd_publication/doc/P050_EN_UnitedKingdom_Sep_2007_p2845.pdf">http://www.buildingsplatform.eu/epbd_publication/doc/P050_EN_UnitedKingdom_Sep_2007_p2845.pdf</a></td>
</tr>
<tr>
<td></td>
<td>energy efficiency. Subsidies for pensioners with low income, as well as</td>
<td></td>
</tr>
<tr>
<td></td>
<td>other grants to promote central heating.</td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>Description</td>
<td>Source</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Finland</td>
<td>Grant scheme to support additional insulation, window replacement, heating system modifications and balancing of heating and ventilation systems up to an amount corresponding to 10-15% of eligible costs of refurbishment.</td>
<td>Grant</td>
</tr>
<tr>
<td>Germany</td>
<td>Householders can receive a payment of 255.65 € per year over eight years for the installation of certain heat pumps, solar systems or heat recovery boilers, or by purchasing a low energy home. Further support can be given if energy requirements are 25% lower than the standards established by the Heat Insulation Ordinance.</td>
<td>Grant</td>
</tr>
<tr>
<td>Germany¹</td>
<td>More than 4000 subsidy programmes in Germany both on regional and national level; soft-loans are partly combined with direct subsidies.</td>
<td>combination</td>
</tr>
<tr>
<td>Hungary</td>
<td>Grant for additional insulation of residential buildings, EE reconstruction of the heating system, or changing windows.</td>
<td>Grant</td>
</tr>
<tr>
<td>Lithuania</td>
<td>Long-term loans for energy efficiency improvements</td>
<td>Loan support</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>A tender opened in 2006 concerning subsidies for projects which inform, advise and help to save energy for low-income households. The tender is a follow-up from the tenders of 2002, 2003 and 2005.</td>
<td>Grant</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>Green mortgages under the Green Investment Scheme can be offered to house owners and building projects if these are sustainable buildings (including energy savings). The interest rate is lower (about 1.5) than usual because the banks raise the money for these mortgages from green funds. People invest in green funds as the interest from these funds is excluded from income tax.</td>
<td>Loan support</td>
</tr>
<tr>
<td>Poland</td>
<td>A programme on energy efficiency and thermo-refurbishment of buildings in communal housing sector covering 2.4 million flats</td>
<td>Grant</td>
</tr>
<tr>
<td>Portugal</td>
<td>Incentive scheme for the promotion and deployment of energy efficient technologies. Grants include energy measurements, investments and demonstration of prototypes.</td>
<td>Grant</td>
</tr>
<tr>
<td>Portugal¹</td>
<td>Co-financing of the rehabilitation of buildings, dwelling programmes for specific target groups (rented, municipal, condominiums)</td>
<td>Grant</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Financial assistance for the investment in energy efficiency in apartments</td>
<td>Grant</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Subsidy for insulation of flats and houses with a subsidy of up to 70% of the interest charges, short-term three-year loans or 75% of the loan value as bank guarantee</td>
<td>Loan support</td>
</tr>
<tr>
<td>Slovenia</td>
<td>Energy advice free of charge. Grants for replacement of windows and loft insulation. Energy audit programme for multi-apartment buildings subsidised up to 50%</td>
<td>Grant</td>
</tr>
<tr>
<td>Spain</td>
<td>Under the Plan for the Promotion of Renewable Energy, loans are provided for renewable energy and improving energy efficiency in industry and buildings.</td>
<td>Grant</td>
</tr>
<tr>
<td>Sweden</td>
<td>Grants for reduced use of electricity for heating and grants for enlargement of district heating networks. 165 million dollars (for a five-year period) are available.</td>
<td>Loan support</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>The Community Energy Programme provides grants to promote community heating (district heating). The current programme has been extended to 2007-08.</td>
<td>Grant</td>
</tr>
</tbody>
</table>

Source: (EuroACE 2006) ¹ (Heunemann 2004)

**Tax reduction for energy saving investments in houses**

Another way of subsidising energy efficiency measures are tax reductions from the individual income taxes. The advantage for the investor is similar to one resulting from an interest rate reduction: a continuously lowered burden.

Also, a reduced VAT rate for specific material or services can be found in some countries, making the demand of renovation products of good environmental performance more attractive.

Table 5-8 Tax reductions

<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>Tax reductions are provided for the replacement of old boilers, solar energy, double glazing, roof insulation, central heating controls and energy audits.</td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>A lower rate of VAT is charged on the purchase of “Environmentally Friendly” technologies. This includes energy efficient technologies.</td>
<td>VAT reduction</td>
</tr>
<tr>
<td>France</td>
<td>Income tax credits are given for installing insulation, heating regulation and efficient boilers. The Finance Law for 2003 extended the tax credit on the acquisition of large collective equipment.</td>
<td>Income tax reduction</td>
</tr>
<tr>
<td>Country</td>
<td>Incentive Details</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>Reduced income tax (-36%) for energy savings maintenance and renovation and reduced VAT (-10%) for the material used up to 48000 € of eligible costs. Combined VAT - Income tax reduction.</td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>VAT reduced tax in “devices, machines and others equipments that are exclusively or principally destined to alternative forms of energy” VAT reduction.</td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>Deduction to the singular income tax collect of 30% of expending cost with the new equipment for the electric energy production and/or thermal (co-generation) by micro-turbines with a power up to 100 kW, which consume natural gas. Income tax reduction.</td>
<td></td>
</tr>
</tbody>
</table>

Source: (EuroACE 2006)  
(Heunemann 2004)

In our evaluation, we observe all these types of economic incentives in more detail. Additionally, chapter 5.3.1 already dealt with the aspect of financial incentives in the form of increasing taxes, for instance for energy consumption or CO₂ emission.

5.4.3 Evaluation of policy instruments for housing

The instruments chosen to support energy efficiency in existing buildings are narrowly linked; indeed, in most countries they form a policy package. As a consequence, evaluation of their economic and environmental effectiveness can hardly be separated from each other. Therefore we look at the environmental and economic effects in a combining way.

**Environmental evaluation**

Calculation for buildings larger than 1000 m² shows a technical potential of CO₂ reduction of 82 Mt/a within the EU 15. The expected CO₂ savings due to the EPBD sum up to 34Mt/a in 2010 and 54 Mt/a in 2015 if existing buildings are renovated stepwise. This certainly has a clear positive and relevant impact on the environment.

Still, calculations show that the theoretical, technical saving potential for all buildings is 398 Mt/a. Only 10% of the saving potentials are addressed by the EPBD in its current form (Ecofys 2007). In fact, it is houses in a size of less than 200 m² which matter at least just as much. Including them in the energy renovation requirements could double the amount of CO₂ savings to 70 Mt/a in 2010 and 119 Mt/a in 2015 in the EU15 countries alone (Boermans 2006). The Committee on Industry Research and Energy of the European Parliament shares this position and calls on the Commission to revise the Energy Performance of Buildings Directive (Article 6) to include all buildings requiring heating or cooling, regardless of size as of 2009 (Committee on Industry Research and Energy of the European Parliament 2007).

The minimum requirements for existing buildings are a relevant precondition for the inducement of substantial changes on the market. They introduce quantitative targets which are crucial for assessing target achievement. On the other hand, regulations are not the most flexible instruments. Thus, regular update and evaluation on the national level is needed to encourage over-performance. Well-adapted regulations can effectively phase out inefficient technologies from the market. By fixing set standards or targets they send clear and easily understandable signals to the different actors in the market.

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15 These laws were not specifically designed for energy saving purposes only, but also to support the construction sector and for the reduction of the black market in restructuring.
Beyond standard settings, implementation control is a necessary accompanying step. This can be fulfilled with an energy audit (also a requirement in the EPBD but not analysed here). Especially subsidy schemes in combination with energy audits demonstrate building owners the potentials of savings. The energy audits can also be subsidised and should be mandatory in case of subsidised projects.

Also, for the evaluation of subsidies it is necessary to link the financial incentives to an ecological target, for instance the achievement of primary energy requirements. The amount of the subsidy and grants as well as income tax reductions can vary depending on the level of ambition. The design of a subsidy scheme has to ensure that higher levels of energy savings are attractive enough to appeal to the investors towards more ambiguous targets (Heunemann 2004).

**Economic Evaluation**

Energy efficiency initiatives in the building sector are among the *most cost-effective measures available* to policy makers seeking to reduce carbon dioxide emissions (Ashford 1999).

Still, a recent analysis of national minimum requirements for building components like roof, floor, wall, windows, etc. (the so-called U-value) pointed out that those standards neither reflect the economic optimum nor specific environmental targets. The project calculated adequate requirements, first from a financial point of view searching for an economic optimum for insulation levels, and second from necessary insulation levels to meet climate protection targets. Both argumentations for cost effectiveness and in the climate protection approach result in comparable maximum requirements. Thus, they point out that insulation levels necessary to meet the actual climate targets can be justified from a financial point of view. Climate protection and cost efficiency are not contradictory but can be well combined in the renovation of buildings. Additionally, the recommended maximum requirements are in most cases more ambitious than current national standards, and in this way offer room for improvement of national requirements. Table 5-9 shows the capital costs calculated, energy savings and total cost savings that can be realised through the consequent adoption of the EPBD and a possible extension to all buildings (Ecofys 2005).

<table>
<thead>
<tr>
<th></th>
<th>EPBD &gt; 1000m²</th>
<th>extended EPBD &gt;200m² &lt;1000m²</th>
<th>EPBD all houses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total capital costs</td>
<td>3.9</td>
<td>5.1</td>
<td>8.4</td>
</tr>
<tr>
<td>Energy cost savings</td>
<td>7.7</td>
<td>9.6</td>
<td>15.9</td>
</tr>
<tr>
<td>Total cost savings</td>
<td>3.8</td>
<td>4.5</td>
<td>7.5</td>
</tr>
</tbody>
</table>

Source (Ecofys 2005)

An important factor in the assessment of the cost-effectiveness of the measures is to use adequate opportunities. If energy conservation measures go hand in hand with major refurbishment initiatives\(^{16}\) they are generally far more cost-effective than piece-meal retrofitting\(^{17}\) (Ashford 1999).

---

\(^{16}\) Refurbishment: upgrade of existing equipment during a new building programme or major refurbishment. Costs allocated relate to the incremental costs of parts and labour over and above those required for more traditional installations

\(^{17}\) Retrofit = replacement of equipment. The costs incurred are therefore total replacement costs including all parts and labour.
Unfortunately, despite the overall cost-effectiveness of energy saving investments in the existing building stock they will not be implemented automatically due to the regulatory requirements alone. Several reasons are behind this, with the following relevant in the design of financial incentives:

Especially for small, privately owned houses availability of capital may overrule the longer-term economic considerations of the investor. Here, the design of grants has to consider the calculation of the time span for payback adequate to the money saved through energy conservation measures.

Second, the reduction of income tax may create social incoherence. Individual tax rates differ widely and it therefore has to be secured that the level of subsidising is the same for every building owner (Heunemann 2004).

Third, a lack of information and a lack of clarity may hinder the potential investors to become active, as it is too difficult to evaluate the actual benefit for the building owners. The user value is relevant regarding income tax regulations as well as subsidies. Compared to this, VAT tax reduction is relatively easy to calculate.

To sum up, subsidies granting procedures need to be kept as simple as possible. For instance, internet-based information sites should carry all factual information besides calculation tools to assess the financial and ecological consequences. Important in the design of a subsidy scheme of any kind is to generate the confidence of the investors. Changes have to be made as rarely and as slightly as possible, or be announced well in advance, in order to keep up continuity. Especially when subsidy rates are expected to increase, intended investments are often delayed. On the other hand, interest in a grant will tend to increase if it is announced to come to an end.

The Committee on Industry Research and Energy of the European Parliament especially highlights the tax incentives as an adequate instrument to increase the effectiveness of energy efficiency in buildings. It recommends to remove the value-added tax on materials and components that improve energy efficiency in buildings and as well to introduce specific tax incentives to encourage households, micro businesses and private landlords to take energy efficiency measures in all member states (Committee on Industry Research and Energy of the European Parliament 2007).

*Verifying evaluation results with general indicators.*

Figure 5-1 Country comparison of space heating consumption per m²
Source: Odyssee 2008

Data from the Odyssee\textsuperscript{18} database shows a remarkable decrease in German heating consumption per m\textsuperscript{2} between 1995 and 2004. The German incentive system thus seems to be extremely efficient when it comes to reducing space heating consumption per square meter (Odyssee 2008).

Germany’s minimum requirements for energy efficiency measures in existing buildings are obligatory if more than 20% of an element (wall, window, roof, cellar) is about to be refurbished. The regulation also applies for smaller buildings. As financial support householders can receive a payment of 255.65 € per year over eight years for the installation of certain heat pumps, solar systems or heat recovery boilers, or for purchasing a low energy home. Further support can be given if energy requirements are 25% lower than the standards established by the Heat Insulation Ordinance. More than 4000 subsidy programmes are active in Germany, both on the regional and the national level. Finally, soft loans are partly combined with direct subsidies.

Table 5-10 Evaluation of financial incentives for energy saving investments in existing buildings

<table>
<thead>
<tr>
<th></th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness</th>
<th>User value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial incentives</td>
<td>+++</td>
<td>+++</td>
<td>?</td>
<td>+++</td>
<td>++</td>
<td>++</td>
</tr>
</tbody>
</table>

Table 5-11 Evaluation minimum requirements for existing buildings

<table>
<thead>
<tr>
<th></th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness</th>
<th>User value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum requirements</td>
<td>+++</td>
<td>+++</td>
<td>?</td>
<td>+++</td>
<td>++</td>
<td>+</td>
</tr>
</tbody>
</table>

\textsuperscript{18} ODYSSEE is a project between ADEME, the EIE programme of the European Commission/DGTREN and energy efficiency agencies, or their representative, in the 27 countries in Europe plus Norway and Croatia.
5.5 Policy instruments for electricity use

A totally different approach compared to the one followed for housing has driven the instrument choice on electricity use. There are two strategies from the policy sets of change in this field: efficiency and renewables. In consequence we evaluate two instruments, one addressing each of the strategies. Regarding renewable energies we analyse the effectiveness of feed-in tariffs for the promotion of electricity from renewable sources. From the toolset to reach energy efficiency we evaluate the contribution of energy labelling for household appliances.

5.5.1 Feed-in tariffs for electricity from renewable sources

The target of a renewable energy share of 20% in the overall EU energy consumption by 2020 is an ambitious goal the promoters of which regard as a big and important step in the direction of a sustainable energy supply, the mitigation of climate change and the creation of employment opportunities (Feed in Cooperation 2007).

Support schemes for energy production from renewable sources have a long tradition. After the first schemes in Portugal (1988), the Netherlands (1989) and Germany (1990), all member countries followed these examples and implemented support mechanisms (Ringel 2006).

Two major systems have recently been under development: older and more widely used feed-in tariffs on the one side and newer green certificates (quota systems) on the other side—both quite promising tools for fostering renewable energies. Success of both of them will depend very much on in-detail regulations. A frequent argument regarding feed-in tariffs is that they would not offer policy makers the option to precisely predict the amount of ‘green’ power production in a given time period (Ringel 2006). In practice, price-based approaches have delivered far better results than quantity-based approaches. Fixed feed-in tariffs—if high enough—foster the use of renewable energy sources quickly and to a sufficient extent. The difference between theory and practice can be explained by the attraction of fixed prices which give project developers a safe basis for investment (Menanteau, Finon et al. 2003).

Additionally, feed-in tariff systems have proven a successful instrument for supporting renewable energies in terms of effectiveness and efficiency, whereas quota systems still have to prove themselves in practice. Feed-in systems are particularly suited to drive down the costs of the different technologies and can thus bring renewable energies closer to competitiveness at the energy market (Feed in Cooperation 2007).

Feed-in tariffs for electricity from renewable sources especially are an incentive for small investors like house owners—a crucial point for the purpose of this study. Electricity produced by photovoltaic appliances is fed into the grid at a guaranteed price. This helps to reduce the time for investment amortisation.

At present, the system of fixed feed-in tariffs is the dominant policy scheme for promoting electricity generation with renewable energies in Europe.

In 2007, 18 of 25 member states of the European Union were applying a variety of different feed-in tariff designs (Klein, Held et al. 2007).

Several issues are relevant for successful feed-in laws.
Stepped tariffs reflect the technology-specific generation costs. Tariffs can depend, for example, on the location (such differentiation is made in the Netherlands, Portugal, Denmark, France, Cyprus, and Germany where it is, for instance, relevant for wind power), the plant size (Portugal and Luxembourg), or the fuel type (Germany, Portugal, Spain, e.g. biomass grown for fuel or the organic fraction of waste).

Stepped tariffs allow differences in power generation costs due to the plant size or the fuel type that is taken into account. They can consider local conditions and reflect them in the tariff level. For instance, higher electricity generation costs due to deeper water or large distances to the coastline (in the case of offshore wind turbines) can be considered. This way sites with the most favourable conditions won’t be exploited and over-compensation of very efficient plants can be minimised. Producer profit is kept on a moderate level at favourable sites which lowers the burden on electricity consumers (see burden sharing).

Germany, France and Italy have established tariffs with an annual regression. Here the tariff level depends on the year the energy plant starts to operate. Each year the level for new plants is reduced by a certain percentage. If announced in time, this instrument sets incentives to build a plant early in time. It ensures investment security, transparency and at the same time, lowers the burden on electricity consumers.

Finally, introducing a priority purchase obligation is one of the most important features of a law establishing feed-in tariffs. Thus, electricity from renewable energy sources is purchased to the grid ahead of electricity from other sources. The consequence of this obligation is that conventional power generation plants must reduce their production. This feature is important to increase investment security because producers will be assured that each unit produced can be sold.

A feed-in tariff can be paid as a fixed tariff or as a premium tariff.

The premium tariff is more market and demand orientated as it provides an incentive to feed electricity into the grid in times of peak demand. It is applied in Spain, the Czech Republic, Slovenia, the Netherlands, as well as in Denmark and Estonia. On the other hand it lacks the important element of a purchase guarantee for the producer and therefore provides less investment security. This can cause higher costs for electricity consumers, especially if the market price rises.

What all models introduced so far have in common is a compensation scheme. In most EU countries the higher costs resulting from feed-in tariffs are distributed equally among all electricity consumers by including them in the power price (burden sharing). Some European countries have implemented burden sharing for different consumer types, for instance by leaving out energy-intensive industries (Austria, Denmark, Germany; compare the discussion on exceptions for industry in chapter 5.3.1). In other countries, like Spain, the state pays the feed-in tariffs and finances this expenditure by an energy tax (Ringel 2006).

Especially the support in Spain and Germany has been highly effective, now leading to the highest absolute increase of electricity from renewable sources compared to all other EU member states. These countries’ feed-in systems have triggered major investments in renewable energies and are responsible for creating lead markets for renewable energy technologies in both countries.

Both the Spanish and the German markets are characterised by high investment security and early promotion of presently less matured technologies such as solar thermal electricity or photovoltaics. The feed-in tariffs are supplemented by a broad portfolio of additional support measures, in particular by tax deductions on investments, soft loans
with stable financing conditions as well as investment incentives (subsidies, partial debt relief) for some selected technologies. This well-balanced policy mix, increasing the stability of investments, is one of the key success factors of the applied promotion scheme (Ragwitz, Resch et al. 2007).

5.5.2 Evaluation of feed-in tariffs

Environmental evaluation

Feed-in tariffs are generally presumed to reach the goal of ecological effectiveness (Ringel 2006). Calculations show that external costs avoided due to electricity generation from renewables are higher than the costs required for compensation. The external costs avoided are largely determined by the impact categories acidification and eutrophication, human health effects, and climate change, while impacts on crops as well as material damage are negligible\(^\text{19}\) (Krewitt and Nitsch 2003).

In theory, feed-in tariffs are suspected not to fulfil the desired amount of renewables in a timely manner, yet reality shows that in the case of wind power the largest increase has taken place in countries with feed-in systems.

Minimum price systems have proven to be more efficient than quota systems when defining cost efficiency in terms of achieving objectives at the lowest cost. The most effective regulations for wind power, for instance, are at present the minimum price systems in Germany, Spain and Denmark, which at the same time provide the lowest profit rates. Quota systems, in contrast, are less effective while allowing for significantly higher payment and profit rates. This is a result of higher investment risk in quota systems compared to the reliability of minimum price systems due to fluctuating certificate prices (Lackmann and Pieprzyk 2006).

Economic evaluation

Guaranteed feed-in tariff schemes, such as in Austria, Denmark, Germany and Spain, have proven to be very effective in promoting the deployment of renewable energy sources (especially in Denmark, Germany and Spain in the case of wind power), and cause relatively minor regulatory and administrative costs (Madlener and Stagl 2005).

It has been calculated that the German renewables industry employs around 234000 people, almost 60% of which were employed as a direct result of the German law on renewable energies (World Future Council 2008). Critical experts expect positive employment in the first years mainly due to investments into new power generation technologies as well as into the power transportation and distribution grid, and—in a multiplier effect—the investment in goods industries (steel construction, machinery, electrical equipment, and construction). On the other hand, increase in electricity prices particularly for private households is expected to induce reductions in real income and private consumption and, therefore, to further amplify the contractive effect (Hillebrand, Buttermann et al. 2006).

Some scholars still are in doubt about feed-in tariffs to be able to meet economic efficiency criteria. They point out that minimum processes are set arbitrarily. In order to

\(^{19}\) Summing up damage costs (health effects, crop losses, material damage) and abatement costs (climate change, acidification and eutrophication) is problematic. A widely accepted second-best option is to at least come up with an indication of potential external costs for the important impact categories climate change and acidification.
support ecological effectiveness politicians may tend to define too high tariffs leading to a loss for the economy (Ringel 2006).

**Verifying evaluation results with general indicators**

Table 5-12  Installed photovoltaic capacities in European countries (top ten) (in MWp)

<table>
<thead>
<tr>
<th>Country</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>934000</td>
<td>1537000</td>
</tr>
<tr>
<td>Spain</td>
<td>37300</td>
<td>51800</td>
</tr>
<tr>
<td>Netherlands</td>
<td>49079</td>
<td>50776</td>
</tr>
<tr>
<td>Italy</td>
<td>30700</td>
<td>37500</td>
</tr>
<tr>
<td>France</td>
<td>25300</td>
<td>33043</td>
</tr>
<tr>
<td>Luxembour</td>
<td>23200</td>
<td>23266</td>
</tr>
<tr>
<td>Austria</td>
<td>19180</td>
<td>24021</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>8164</td>
<td>10664</td>
</tr>
<tr>
<td>Greece</td>
<td>4544</td>
<td>5444</td>
</tr>
<tr>
<td>Sweden</td>
<td>3866</td>
<td>4237</td>
</tr>
</tbody>
</table>

The success of the outstanding quality of feed-in regulation in Germany and Spain can be verified with data from the European Commission (European Commission DG Energy 2008). A remarkable growth of the Spanish PV capacity was observed in 2005. This can be explained by the improvement in photovoltaic electricity purchase conditions resulting from a new decree in March 2004.

Also, Italian capacity grew well above the average after a new purchase price system.

Table 5-13 Evaluation of priority purchase for electricity from renewable sources

<table>
<thead>
<tr>
<th>Priority purchase for renewables</th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness</th>
<th>User value</th>
</tr>
</thead>
<tbody>
<tr>
<td>++</td>
<td>+</td>
<td>?</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>+</td>
</tr>
</tbody>
</table>

**5.5.3 Energy Labelling**

In 1990, Denmark expressed the wish to implement an EU-wide mandatory energy labelling scheme, but the European Commission (EC) refused the request declaring that this would present an obstacle to free trade (Harrington and Damnics 2001). However, as early as in September 1992 the Council Directive 92/75/EEC (Directive For Mandatory Energy Labelling Of Household Appliances) came into force with the first labels for refrigerators and freezers following in 1995 (European Commission 1992). Step by step other white goods were included in the programme. Between 1995 and 2003 washing machines and dryers, dishwashers, light bulbs, air conditioners and electric ovens were integrated into the scheme (Harrington and Damnics 2001), lately also considering cars and building components.

The energy label displays the energy efficiency index. All appliances are rated from A (most efficient) to G (least efficient). To keep up with technical advances the additional grades A+ and A++ were later introduced for cold appliances. The labels have to be displayed clearly when they are offered for sale or hire. In addition to this comprehensible 7-class-rating the labels indicate some more detailed information about energy consumption (in kWh per year or per cycle), washing and spinning performance,
capacity, water consumption, and noise. This way, the European energy labelling scheme fulfils the requirement of being “simple enough to meet the needs of the general customer” and providing “enough complementary information to satisfy individual consumers’ different information needs”, which, according to Huh, may work best (Huh 1999).

But the authors had to acknowledge that this success, to a significant part, was due to mandatory minimum energy-efficiency standards (Directive 96/57/EC) valid for refrigerators and freezers since 1998 (2001, p. 100), which banned almost all appliances within the energy efficiency classes D to G. This was also the result of an Australian study on energy efficiency trends of household appliances (see Energy Efficient Strategies, 2006). Energy consumption of freezers and refrigerators decreased at an average of nearly 4% per annum between 1993 and 2005, with the most significant part of the reduction appearing in 2005 linked to the introduction of stringent minimum energy performance standards (MEPS) (ibid., p. 3f.). A success factor of energy labelling programmes—whether in the EU or in Australia—therefore seems to be minimum energy efficiency standards. The Sustainable Consumption Roundtable, UK, even remarked that the high market penetration with A-rated products (A+, A++) indicates the standard setting could have been more ambitious. Indeed, recent discussions about the Japanese concept of “Top Runner Models” reflect these considerations. Within the “Top Runner” concept the best product on the market influences the standards for all products allowed on the market.

The Sustainable Consumption Roundtable identified an additional aspect for successful market penetration with A-rated products. They recommend to reduce the price of the highest rated products to keep the price differential to the mainstream products acceptable. In the UK this was ensured through an additional fee on electricity bills subsidising the purchase price of more efficient cold appliances through retailer, manufacturer and energy supplier agreements (Sustainable Consumption Roundtable 2006).

According to the EVER study carried out on behalf of DG Environment the European energy labelling scheme fulfils another very important requirement. Together with factors like visibility in shops, trust, confidence and obligation, the authors of the study claim a very important role for positive/negative labels, therefore labels that signal positive as well as negative environmental consequences. For instance, the study shows very disappointing results for the European Flower, a voluntary eco-label that indicates only products that are particularly environmentally friendly (EU DG Environment 2005).

It should also be mentioned that particular socio-economic and cultural circumstances are very important for the success and failure of a labelling programme. Huh (1999, p. 6) suggests “that consumers in different countries and different cultures react differently to energy labels.” With this in mind, he tries to explain the humble effectiveness of energy labelling in the United States.

5.5.4 Evaluation of energy labelling

Based on the EU directives each country is self-responsible for all aspects of implementation. Detailed results of an evaluation of the energy labelling programme are available for Germany (see Schlomann, Eichhammer et al. 2001). Since the scheme came into force in Germany in 1998 a steady decrease in average energy consumption of household appliances can be observed. For refrigerators and freezers, energy
efficiency increased by 13-19% between 1995 and 2000, for washing machines and dryers by 7-10%. The programme brought about yearly CO\textsubscript{2} savings of more than 450 Kt, achieving the bigger part thanks to more efficient refrigerators (250 Kt) and to other cold appliances (150 Kt) (ibid., p. 100).

In the UK the market share of A-rated fridge freezers rose from 1% to 76% within 5 years, washing machines from 0% to 85% and dishwashers from 0% to 74% within 7 years until 2005. How far these impressing increase rates are due to the informational instrument “energy labelling” is difficult to estimate. The Sustainable Consumption Roundtable identified at least three other aspects, namely availability of A-rating products from well-known brands, a proper retailer stock policy and price support to reduce price differentials. At least for fridge freezers the latter influence is obvious. In the five years of energy labelling with still high price differences (1995-2000) A-rating cold products had a market share of 0-5% only.

Table 5-14 Evaluation of energy labelling

<table>
<thead>
<tr>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness</th>
<th>User value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy labelling</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
</tr>
</tbody>
</table>

5.6 **Policy instruments for mobility**

Similar reasons as we described for our selection of instruments for electricity use led to the selection of instruments in the transport area. A broad variety of instruments to reduce the environmental impact of mobility are in use in this area, for example CO\textsubscript{2} emission limits for vehicles, purchase and use taxation of vehicles and fuel, or road pricing. The explicit motivation for our choice was to go beyond technical solutions and to evaluate instruments targeting at behaviour change. What we selected are *third payer support for public transport*, *programmes to train eco-driving*, and *congestion charges*.

5.6.1 *Third payer support for public transport*

Three major groups or phases of transportation taxation can be identified: during the purchase of a vehicle, during the ownership of a vehicle, and finally in the use phase via fuel taxation and employer-provided transport benefits. The first two intervention points are crucial if the target is to green the vehicle fleet. They support efficiency strategies and greening-the-market. To induce behavioural change through modal shift, the third group is far more important.

One of the major aspects of personal mobility are work-related trips. Commuter traffic regularly induces congestions twice a day and causes pressure on air quality, noise and climate-relevant emissions. During working days cars are immobile, demanding parking space frequently provided by the company of the commuters.

To companies, the support of a reduction of their employees’ car commuting shall be motivated via obvious incentives. The most visible is they no longer need to provide parking area. Another might be pressure from local communities to establish travel plans to reduce the side effects of commuting—as has recently been the case in the UK.

Several types of incentives can encourage employees to switch to alternative commutation modes:
Parking Cash Out (cash equivalent instead of subsidised parking if employees use alternative travel modes)

Travel allowances (money to pay for parking elsewhere or for another travel mode)

Reduced employee parking subsidies (commuters pay for their parking costs)

Company travel reimbursement policies (other modes of transportation get reimbursement comparable to automobile mileage)

Transit and rideshare benefits (free or discounted transit fares offered to employees)

Governmental initiatives can support all these measures. So far the main emphasis to convince commercial organisations to help employees to change travel behaviour has been on information provision. While there is no doubt that information performs a useful function, in practice this approach is making very little progress. Regulation, for example, works if a new factory or office building is built or an existing one extended. Then, travel plans can be made obligatory. Finally, fiscal incentives can be offered to both commercial organisations and their employees (Enoch and Potter 2003).

One way by which fiscal incentives could be introduced is tax incentives.

In 1999 Ireland introduced the TaxSaver scheme allowing employees to qualify for a reduced ticket in public transport systems as long as the ticket is provided by the employer. The employee simply has to fill in a form, and his/her company buys the ticket. The price of the ticket reduces the employee’s gross salary. This way both parties—employer and employee—profit. Through the reduced gross income the company can save social security and pension costs of up to 10.75%. The employees on the other hand save on income tax.

By the end of 2007, about 2100 companies were participating in the system. The tickets can be purchased for railways, buses, light rail trams (Luas), or in combination of various means of public transport. The majority of the tickets are sold in the Dublin area (95% of the contracts with the railway). They sum up to 30000 tax saver tickets a year. With 860000 inhabitants this is a share of 3.5%.

As the name suggest, the ticket is subsidised by the state. The costs of revenue forgone as a result of the TaxSaver commuter ticket increased eight-fold between 2001 and 2005 from 1.1 million to 9.7 million €.

Besides Ireland, Finland has also started a commuter ticket scheme supported by employer and state. The explicit political objective of introducing the employer-subsidised commuter ticket is to increase the popularity of public transport, especially in the cities.

From the beginning of the year 2006 the employers have had the possibility to get tax benefits on the tickets they buy for an employee. In general, the instrument is more common in the public sector and mainly applied by big cities as employers. In the Helsinki regional area the City of Helsinki and the regional healthcare district participate, as well as about 250 companies. In the whole country participation is below 1000 companies.

In the Helsinki regional area apparently 20000 employees participate; all over Finland probably 40000-50000 commuters use this offer, which makes up for 5% of those employees who have travel expenses in taxation.
The employer-subsidised commuter ticket is a regular travel ticket for public transportation, for example, a period ticket that the employer buys for an employee mainly for the purpose of travelling between work and home. The ticket cannot be assigned to any other person. The Finnish support from the state is less generous than in the Irish example. Only 25% of the ticket price are reduced from the gross salary and are thus a tax-free incentive. 75% are taxed the same way as a salary, meaning employer and employee pay for social insurance and pension insurance and into employee’s taxation.

As employees can deduct travel expenses in their taxation anyway—as far as total travel costs run between 500 and 7000 € per calendar year—the main benefits appear for those employees with yearly travel expenses below 500 €.

In general, deductible travel expenses run up to about 1000 million € in the Finnish income taxation per calendar year. The new instrument is estimated to cost the state and municipalities about 35 million € per year due to lower taxes and social insurance fees.

The City of Tampere, a large employer and municipal organisation in Finland, offers its employees an employer-subsidised public transport ticket. The employers’ contribution of about 25% of the fare is invoiced directly from the City of Tampere, while the rest of the ticket price is paid by the employees as they purchase their tickets. The ticket system was introduced in April 2006 and during the first ten months approximately 2000 out of 14000 employees purchased a subsidised season ticket.

According to the survey the employer-subsidised public transport is highly beneficial and its effects on job satisfaction are extremely positive. Almost every employee who holds such a ticket considers it as an important benefit (Sinisalo and Kalenoja 2007).

Even 80% of those employees who had not purchased a ticket considered the employer-subsidised public transport ticket a significant benefit. The most common reason for employees not to purchase the ticket was their preference to go to work by bike or on foot. The most important measures to improve the ticket system are an increased ticket variety and more efficient information on and marketing of the ticket system.

During the start-up phase of the ticket system those employees who used public means of transport regularly anyway purchased the ticket more readily than others. The ticket has however also enticed other employees to use public transport more often to get to their place of work. The number of public transport trips among the employer-subsidised ticket holders has increased by about 8%.

5.6.2 Evaluation of the third payer support for public transport

Environmental evaluation

The ecological effects of this instrument are expected to be rather low.

According to the survey the ticket has evoked 57800 new public transport trips per year in the Tampere region, which means an increase of 0.25%. Passenger car traffic has decreased by 21000 trips per year leading to a reduction of 216000 kilometres travelled by car.

In Ireland no increase is reported for the use of public transport since the introduction of the scheme.20

20 Interview with Ronen Murphy, Commercial Sales Executive, Iranrod Eireann.
Economic evaluation

The City of Tampere evaluates the effects of the employer-subsidised public transport ticket system extremely positively. The main reason for this is job satisfaction which increased with the introduction of the commuter ticket, even among those employees who are not participating. This can be regarded mainly as a social side effect of the measure (Sinisalo and Kalenoja 2007).

Table 5-15 Evaluation of third payer support for public transport

<table>
<thead>
<tr>
<th>Third payer support</th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness</th>
<th>User value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>+</td>
<td>?</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+/-</td>
</tr>
</tbody>
</table>

5.6.3 Congestion charge

Since February 17, 2003, the City of London has been charging a fee for driving private automobiles in its central area during weekdays as a way to reduce traffic congestion and to raise revenues to fund transport improvements. This was the first congestion pricing programme in a major European city and its success suggests that congestion pricing may become more politically feasible elsewhere.

Goals of this kind of measure are to reduce congestion, to improve public transport services, and to discourage the use of private cars. Additionally, by reducing traffic levels it shall also contribute to reduced vehicle emissions.

A congestion charge zone of about 22 km² (a circle with a radius of 2.7 km) has been defined in downtown London, comprising about 370000 inhabitants and 1.2 million jobs. This is a relatively small area, representing about 1.5% of the Greater London area and 5.2% of its population—and a much smaller proportion of the hard-to-define but economically significant London agglomeration. Since February 2003, vehicles driven into this zone between 7h30 and 18h30 on week-days must pay a charge of 5 £ (or 7.2 €) per day. The average charge paid is actually lower due to exemptions and reduced charges for some people, not to mention charge evasion. The zone’s traffic reduction objectives have been reached. The number of vehicle kilometres in the zone has declined by about 15%, while speed has increased by about 17%. Bus patronage in the charged zone has increased (Prud'homme and Bocarejo 2005). In 2005 the charge was raised to 8 £ and in 2006, an extension of the charging zone to some parts of western London was implemented (Transport for London 2007). All surpluses raised from the charges must be reinvested into London's transport infrastructure.

The London congestion charge is seen as a “clear success in changing mainstream consumer behaviour” (source of quote). It has significantly reduced traffic congestion, improved bus and taxi services, and has generated substantial revenues. Public acceptance has grown and the expansion of the programme to other parts of London and other cities in the UK is strongly supported. The measure addresses consumer priorities such as time pressure, household budgets and convenience/routine. Clear benefits of the measure are its potential to tackle specific barriers to sustainable consumption, like the lack of awareness and facilities, and the fact that it works through behavioural
influences on social norms, habits, cognitive limitations, moral values, and emotional responses (Holdsworth and Steedman 2005).

A potential for charging schemes does practically exist in every city. In order to be successful the scheme has to create positive incentives to dispense with ones’ car such as car share schemes, park and ride provision, cycle ways and bike loans.

Another example for the measure of congestion charge is Stockholm where the scheme has been introduced in August 2007. Prior to the introduction Swedish evaluators highlighted, for example, social and distributional effects, which need to be taken into account by all cities introducing congestion charges in the future. For instance, drivers from rich households were expected to continue to cross the cordon and to be prepared to pay the charge. In such a case the overall effect would be that on average, rich people will pay the toll and poor people will not (Santos and Rojey 2004). This tendency of inequity was confirmed in the trial. 75% of revenues from privately owned vehicles originated from about one fifth of all cars in the relevant area and with a high share of men of high income or double-income couples with children (Transek 2006a). It remains a question of personal perspective whether to regard this group of population as the party to take the higher burden, or whether it is instead privileged to be able to pay the price while others simply cannot afford it.

This inequity between high and low-income inhabitants can be avoided if revenues are explicitly used for improving public transport, which benefits women and low-income groups most. If revenues are used for tax cuts, the net benefits will be about equal for men and women alike, while it naturally will benefit high-income groups. Given that it is likely that the revenues will to some extent be used to improve the public transport system, a congestion-charging scheme is progressive rather than regressive (Eliasson and Mattsson 2006).

5.6.4 Evaluation of congestion charges

Environmental evaluation

According to the fifth annual impact monitoring report of “Transport for London” the intended objectives of the London congestion charge have been achieved. The measure has even exceeded its expectations. From initially 334000 vehicles entering the zone each day in 2002, a reduction of about 70000 vehicles was obtained, or in other words, a traffic reduction of 21%. Consequently, a congestion relief of 30% was achieved in the first year of the congestion charge.

London, moreover, has seen an increase in cycling of 43% within the respective zone. All these developments have resulted in a reduction of road traffic accidents by 22% within Central London. It was estimated that the toll had been directly responsible for reductions of 16% of CO\(_2\) emissions, 7% of fine particulate matter and 8% of nitrogen oxides (Transport for London 2007).

Similar positive are the effects in the Stockholm case, here reported from results in the trial phase. From the three explicit goals—(1) traffic reduction, (2) better environment and (3) improvement of the city environment—at least the former two appeared to turn out a substantial success. Traffic flows were cut down by 22% on average—even more than the expected 10-15%—and travel times decreased. So did emissions of both carbon dioxide and fine particles. In fact, the emission reduction is appraised as substantial taking into account that it was induced by one single measure (Stockholms Stad 2006).
It was calculated that the health benefit was about three times higher than the benefit that would have been gained via an increase in fuel prices (Miljöavgiftskansliet 2006). Additionally some side effects did not appear as strong as expected. On some roads outside the congestion charge zone traffic increased, but significantly less than the large scale decrease (Miljöavgiftskansliet 2006).

**Economic evaluation**

Net revenues of 123 million £ have been generated in 2006/2007, which, reinvested into London’s transport infrastructure, has particularly led to an improvement of bus services and public transport in general (Transport for London 2007).

In the Stockholm case, costs and benefits were analysed for two components of the instrument: the congestion-charging system and the expansion of bus services. For the congestion charge system the investment costs sustained by society were calculated to be paid back in the form of socio-economic benefits within four years only. The expansion of bus service on the other hand was expected to be unprofitable if taking into account strictly financial criteria. Still, the authors of the study insist that this is not unusual for public transport in general and public authorities still do provide this service (Transek 2006).

<table>
<thead>
<tr>
<th></th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness</th>
<th>User value</th>
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<tbody>
<tr>
<td>Congestion charges</td>
<td>++</td>
<td>++</td>
<td>+++</td>
<td>+/-</td>
<td>+</td>
<td>+/-</td>
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**5.6.5 Eco-driving programmes**

It has been known for a long time that the driving style influences fuel consumption. Some of the early recommendations on how to drive economically are still valid, but some have changed with engine technology. Most important in this respect is the change that has taken place in the method of acceleration and deceleration. Modern cars with fuel injection also provide fuel cut when braking via the engine. Efficient deceleration with these cars can be achieved by engine braking in a high gear instead of disengaging the clutch, the latter having usually been most efficient for cars with carburetors. Other recommendations like planning the trip carefully to avoid unnecessary stops have been and will always be valid. Also, the objective of an economic driving style has changed from purely fuel and money-saving to an additional reduction of carbon dioxide emissions. Some testing in Sweden has shown that the recommendations of a maximum of half throttle and a maximum of 3000 rpm during acceleration are essential to keep the emissions at a low level (Johansson, Gustafsson et al. 2003).

Some Japanese results show that more than 15% fuel-saving can be reached by eco-driving, although it might be lower if including automatic gear cars. As the transportation sector contributes more than 20% of CO\(_2\) emission, a 15% reduction of

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21 The eco-driving program – at least as described in the Dutch example – is in fact a multi instrument program. We concentrate on the part with the education and behavioral element.
fuel consumption could reduce overall CO₂ emission by 3.5%. This would be more than half of the 6% reduction promised in the Kyoto Convention. According to that, environmental policy should be more focused on the driving style of each driver, and such campaigns should be more enforced beyond the design of energy saving cars themselves (Ukita and Shirota 2003).

A praxis test by the Swedish National Road Administration with eco-trained drivers and a control group turned out less optimistic. No significant differences in emissions between trained and untrained drivers were observed. Drivers trained in eco-driving who, in a pre-test enquiry, stated that they regularly check their fuel consumption and therefore have a motivation for driving economically, showed lower fuel consumption compared to other trained and untrained drivers. This result shows that both training and motivation is needed to achieve low fuel consumption (Johansson, Gustafsson et al. 2003).

The Dutch national eco-driving programme “Het Nieuwe Rijden” introduced in 1999 as part of the National Climate Policy Plan intended to reduce CO₂ emissions in traffic and transport by promoting more energy-efficient purchase and driving behaviour. Additionally, the programme aimed at economic gains (reduction of costs for fuel, maintenance costs), increased safety and comfort, and a reduction of local emissions and noise. These “side effects” of an environmentally friendly driving style were particularly emphasised (Hoed, Harmelink et al. 2006).

The range of activities in order to achieve the behavioural change were divided into five different modules (ibid., p. 6f.):

1. Stimulating eco-drive driving style of (professional) drivers
2. Integrating eco-drive principles in driving school curriculum
3. Stimulating fuel-saving in-car devices
4. Facilitating optimal tyre pressures
5. Stimulating purchase of more efficient vehicles

Within these modules most notably a wide range of communication instruments was included, such as TV and radio spots and programmes, commercials in movie theatres, newspapers and magazines, an internet presence including an online game, over 20 conferences and a lot of promotional material.

The following factors were seen as the success points for the Dutch eco-drive programme:

- its efforts to incorporate its activities in institutionalised structures (e.g. in driving schools)
- the creation of a network with representative stakeholders in the automotive and transportation sector
- high recognition of the programme (> 31% in 2004)

(Hoed, Harmelink et al. 2006)

5.6.6 Evaluation of eco-driving programmes
**Environmental evaluation**

IN the Dutch case the direct net effects on the emission of carbon dioxide were evaluated to be a reduction of about 220000 tons of CO$_2$ through passenger traffic. Including autonomous effects the overall savings due to the programme add up to 560000 tons of carbon dioxide in 2005 (Hoed, Harmelink et al. 2006). According to SenterNovem, this equals the CO$_2$ emitted by approximately 185000 passenger cars per annum (SenterNovem 2006).

**Economic evaluation**

In 2005, the Dutch government spent about 2.5 million € for its national eco-driving programme. Additionally, it lost tax revenues because of fuel savings. Neglecting the income losses, cost-effectiveness for the government amounts to about 9 € per ton of avoided CO$_2$ emissions. The cost efficiency for the consumers is even better. From each ton CO$_2$ saved they benefit from 210 to 418 € thanks to fuel savings (Hoed, Harmelink et al. 2006).

**Verifying evaluation results with general indicators**

Figure 5-2 Decrease of the average specific consumption of the car stock between 1990 and 2004 (l/100km)

Odyssee data do not confirm a large impact of eco-driving programmes on the average fuel consumption from the Dutch car stock. Reduction rates in other countries between 1990 and 2004 are much higher. On the other hand, decrease rates may be influenced by high fuel consumption in specific countries at the beginning of the period.

<table>
<thead>
<tr>
<th>Table 5-17 Evaluation of eco-driving programmes</th>
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<tbody>
<tr>
<td>Eco-driving programmes</td>
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5.7 Policy instruments for food

Three major areas dominate the environmental impacts of food consumption. What is consumed? Where is the food produced? And how is the food produced? More precisely, the following questions are relevant: meet or vegetarian food, organic or conventionally produced, and the mode and distance of transport up to the plates (Lorek and Spangenberg 2001). This evaluation concentrates on two instruments influencing the consumption of organic food products. This is not because the other impacts are recognised as less important. On the contrary, among the ten most environmentally relevant products/services five are related to animal production or products (Tükker, Huppes et al. 2005). Yet, there is hardly any governmental policy targeting at the reduction of meat consumption—with the exception of information campaigns against obesity—being mainly a matter of value creation and campaigning in close cooperation of scientific and civil society (Bellarby, Foereid et al.) The only instruments pointing vaguely in this direction are CO₂ taxes (see 5.3.1) or the carbon labelling practiced on a voluntary basis in the UK (Williams 2007).

The aspect of food miles is under discussion in some countries but not taken up here for two reasons. On the one hand initiatives to promote increased consumption of regional food may conflict with EU policies of open markets. On the other hand, when it comes to food miles of products beyond fresh products data are difficult to trace and difficult to communicate to consumers.

This chapter evaluates the effectiveness of demand side aspects of organic products via national labels on food from organic farming and public procurement of organic food.

5.7.1 National label on food from organic farming

Whether consumers buy organic food is, above all, a matter of values, information, and trust. Health effects, animal welfare and ecological aspects are the incentives consumers frequently mention when asked for their motivation to buy organic.

Various forms of information are necessary to convince consumers in the surplus of organic products and to pay the higher price that comes along organic products: media reports, information brochures, or education material are some examples. At the point of sale, when it comes to the actual purchase decision, a clear and recognisable label is needed to help consumers choose the right products. To ensure trust, such a label has to be based on clear criteria developed and controlled as a common effort of all relevant actors. Within the EU, the regulation 2092/91 has set these standards which products have to fulfil in order to be promoted as eco-products.

The Commission has established its own logo, which, however, hasn’t gained too much importance so far. Beside the EU eco-label a broad variety of other eco-labels exist and are used in a national context, or internationally. Each label is in the hand of a certification organisation. Some ask for fulfillment of the EU minimum criteria only, some are more ambitious. Some are ruled by single organisations, some by a cooperation of market actors; others are under governmental control.

One of the most important components in signalling to consumers that a product is produced organically is the use of common or umbrella organic labels, which are either governmental backed, or run nationally by an umbrella organisation of organic agriculture movements. These labels can be used as umbrella labels, allowing other—more ambiguous—labels to appear next to them on the products. This kind of label signals that the common national criterions for organic food production are fulfilled. It
is important that criteria and logo are agreed upon among the major market actors and that they are available in most food stores. Clear recognition is a prerequisite if organic products are to escape from niche product status. In about half of the European countries such a common seal exists; in most cases it is owned by the government, in some cases both governmentally and organisationally run labels exist.

Table 5-18 Organic labels in Europe

<table>
<thead>
<tr>
<th>Country</th>
<th>Governmental Label</th>
<th>Other umbrella label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>AMA Bio-Gütesiegel (1994)</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td></td>
<td>BIOGARANITE</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>KEZ</td>
<td>Pro-Bio</td>
</tr>
<tr>
<td>Denmark</td>
<td>Statskontrolleret Økologisk (1990)</td>
<td>Landsforeningen Økologisk Jordbrug</td>
</tr>
<tr>
<td>Estonia</td>
<td>Mahemärk (1999)</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>Sun-Label</td>
<td>Ladybird</td>
</tr>
<tr>
<td>France</td>
<td>AB Logo (1985)</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>BIO-Siegel (2001)</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>BIOAGRO</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>EKO</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>Rolnictwo Ekologiczne (EU Label) (2004)³</td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>Ekołoško³</td>
<td>BODAR</td>
</tr>
<tr>
<td>Sweden</td>
<td>KRAV</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>Agricultura ecológica</td>
<td>Vida Sana</td>
</tr>
</tbody>
</table>

Source (Hamm and Gronefeld 2004); ³ (Organic Europe 2008)

Usage of the umbrella logo has to be open to all producers and products fulfilling the criteria, and the respective products receive certification from the authorised certification organisation. It is important that this process is communicated to the consumers of organic products in order to ensure consumer confidence. This is particularly important in justifying high price premiums that would otherwise make purchasing organic food seem a dubious prospect.

Besides these umbrella labels manifold labels of single companies or producer organisations exist. Even if they dominate a market—like the label of the Soil Association in UK—they are one private label among others.

In Germany, a variety of private labels exists, which used to lead to substantial confusion and mistrust among consumers. At the beginning of this century general market share of organic products was still rather low in Germany compared to neighbouring countries like Denmark or Austria. Specified organic food markets held the highest market share of organic products sold. A label developed and introduced by the control marketing agency for agricultural products and by the German umbrella organisation for the organic agricultural movement raised little interest among the market actors and poor recognition among consumers.

In 2001 a new government label was introduced: the “Bio-Siegel” replaced the old one. Relevant market actors were involved in the process and the launch of the logo was well supported by public advertising campaigns. This induced a breakthrough on the mass market. Most of the private labels are still on the product, but now they are accompanied by the umbrella logo allowing recognition and confidence for the consumers.
The old umbrella logo was used on 1% of organic products and thus had a consumer recognition of 2%. The new label already achieved a recognition rate of 10% among consumers in the first year of its introduction. Until 2006 the recognition rate increased to nearly 70% (Information Resources Inc. 2007). Along with it, market penetration increased. At the end of 2007 about 43000 products were using the label. Within this process the sales rate of organic products more than doubled (BLE 2007).

What can be learned from the German example is that a common logo is of vital importance to help consumers in their decision-making process. Yet, it is a first step only which is clearly demonstrated by the following French case: Already in 1985 France introduced the first national logo in Europe, the AB-Agriculture Biologique Logo. But since no major commercial player took initiative to use the logo and promote organic products the organic market in France still has to leave the niche.

This points to the fact that it is of similar if not of higher importance that relevant market actors join the effort. The involvement of common food stores is required in order to reach the broad mass of consumers. It is mainly the market actors who can induce pull effects for organic products, like a powerful supply chain introducing an organic brand sealed with the national logo.

In general, countries with advanced organic markets are characterised by the important role of general food stores as sales channels for organic products. This is for two reasons. First, barriers for consumers to buy organic are reduced if they find organic products in their habitual environment and they do not have to make additional ways to specialised organic food shops.

Second, in countries where general food shops are very active in the marketing of organic food, consumer price premiums are usually lower than in those countries where organic food shops or direct sales provide the main sales channels. In Denmark and Austria—leading countries in the market share by volume of organic products—consumer price premiums for many products are 20% lower than the weighted EU average. One contributing factor is lower distribution costs: it is cheaper to transport larger volumes of organic products, together with conventional products, to bigger distribution centres and on to major retailers, than it is to transport small volumes to many small organic food shops (Hamm and Gronefeld 2004).

### 5.7.2 Evaluation of national organic food labels

It is still virtually impossible to obtain accurate data about the organic market from official statistics. EISfOM, the European Information System for Organic Markets is still under construction. As long as no annual market figures are available it will be difficult to estimate environmental effects of increased consumption of organic food. Even then it will very likely be too difficult to calculate the influence of a specific incentive like the attention and recognition effect of an umbrella logo.

### Verifying evaluation results with general indicators

Table 5-19 Organic share of total turnover in the food market (2001)

<table>
<thead>
<tr>
<th>Country</th>
<th>Organic share of total turnover in the food market (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>2.4</td>
</tr>
</tbody>
</table>

58
Belgium 1,0
Czech Republic 0,1
Denmark 3,5
Estonia 0,2
Finland 1,0
France 0,7
Germany 2,1
Greece 0,2
Ireland 0,5
Italy 0,7
Luxembourg 1,0
Netherlands 1,2
Poland 0,1
Sweden 1,7
United Kingdom 0,9

To estimate at least some tendencies of the relation between umbrella logo and market share we have to rely on data from 2001 collected within the EU project OMIaRD, Organic Marketing Initiatives and Rural Development. This study confirms: most of the countries with a high market share by volume for organic products indeed have a common national label and consumer recognition of this label was usually high. Good examples are Denmark and Sweden where more than 90% of all consumers recognise the label for organic products.

Table 5-20 Evaluation of national label of food from organic farming

<table>
<thead>
<tr>
<th>National label for organic farming</th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness</th>
<th>User value</th>
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<tbody>
<tr>
<td></td>
<td>+</td>
<td>?</td>
<td>?</td>
<td>+</td>
<td>?</td>
<td>+++</td>
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5.7.3 Public procurement of organic food

Public procurement of organic food has become an appealing instrument to increase the sale of organic products in many (Western) European countries and the idea that the public should lead the way as a role model and buy organic has derived political support (Mikkelsen 2006).

Still, this insight has grown slowly compared to other public procurement issues, despite the fact that food accounts for 10% to 20% of the public purchase volume. In countries where organic procurement takes place, it has contributed positively to the development of the organic sector. In cities like Copenhagen, Malmö, Rome, London, and Paris public procurement schemes are emerging, aiming at building on the sustainability issue in food procurement contracts and thus underpinning the importance of public procurement in a political consumerism context (Mikkelsen, Vitterso et al. 2007).

Using organic products in public canteens fulfils a double function: It supports organic farming on the one hand and can increase acceptability among consumers on the other
hand. Also, the first EU action plan for organic food and farming aims at promoting the purchase of organic food, especially in public canteens.

An overview of Green Public Procurement in Europe showed that 46% of tender documents for catering in public canteens referred to environmental criterions. The homepage of the European Commission on Green Public Procurement recommends:

purchasing organizations could focus their attention on: increasing the percentage of food from organic agriculture related to the total amount of purchased food, or a few organic agricultural products, such as coffee, milk, meat, and extend the number of products over time.

(Bouwer and et al. 2006)

Three examples can illustrate possibilities and challenges:

The City of Ferrara (population 133000), situated in Northern Italy began purchasing organic food for municipal canteens in 1994. As a first step it was decided to concentrate on organic packaged (rather than fresh) food, as these products were less perishable, in greater supply and not much more expensive than the conventional alternatives of, for instance, pasta, rice, canned tomatoes, flour. After a successful first year the initiative was extended to all kindergartens and nurseries for the period of 1995-1998. A special call for tender was published in 1998 on “foodstuff supply to the canteens of municipal nursery and kindergarten schools”. By 2000, 50% of food served in these canteens was organic. Since then Ferrara has extended its sustainable procurement activities. As one of the results, 90% of all the meals served in the city’s nurseries, kindergartens and compulsory schools, is currently organic (Procura+ 2008).

The City of Malmö with their public organic food program intends to change the impact of food on the climate. School meals are offered by Malmö School Restaurants, a division of the City organisation, based on established public guidelines. Cooking, distribution and serving of six million portions per year or 35000 portions per day is catered by 12 large-scale kitchens distributing to 71 serving units with a turnover of more than 5.4 million € a year. The Environment Department has mandated school Restaurants to initiate a project shaping a model for serving 100% organic food in all school canteens by 2012. Rebuilding of the kitchen was needed to get started. The next step was to change menus to use organic products and identify the suppliers of organic food. In this project the new menus were to be reorganised according to nutritional balance with less meat and more vegetables. Most organic products are sold raw, which is one of the obstacles for the kitchen staff.

This is illustrated in an example from Denmark where large-scale foodservice has proven to be quite difficult as it involves highly complex planning, procurement and processing procedures. In Copenhagen, four hospitals and a large number of other types of institutions have changed their food supply towards organic. Copenhagen County in 1995 granted 250000ECU for the transition of food service operations towards organic food. The focus was set on basic high-volume foods. A special difficulty that emerged was the fact that organic supply does not cope with large demands. Either small producers cannot cope with the task alone or small package units are produced to meet household size demands. Also pre-prepared organic food is missing, so that routines in the canteens have to be adapted. Thus, buying and serving organic requires more than just a change of the product (substitution), namely changes in kitchen routine (conversation). The latter approach involves changes in the structural conditions, including processing and purchasing. It requires involvement of a number of stakeholders and players carrying out a realistic planning and step-by-step introduction.
Among others, financial support should take into account to fund additional staff, not the demand for more expensive products only (Mikkelsen, Kristensen et al. 2006a).

The lessons learned from the organic conversion clearly shows that implementation of organic food in the public food system is not a question of simple replacement of conventional food products with organic ones. Instead, it is a complicated process of change involving a number of stakeholders who have to share a common vision of how the outcome of the procurement policy should be. Experience shows that monitoring is needed at all levels (Mikkelsen 2006).

Further on, organic food is of increasing interest for school catering. A recent project iPOPY, “innovative Public Organic food Procurement for Youth” analyses similarities and differences in providing a healthy meal for school children and develops lessons to learn.

In Italy providing meals to the children that stay at school a long tradition and now about 4.3 million meals a day are served in public schools. While the history of school catering service followed the waves of “food security” in the 1970s and “food safety” in the 1980s “food quality” is now frequently introducing organic and typical products in the menus. Additionally an increasing interest by the organic producer in school catering market has been registered in the last years (Bocchi, Spigarolo et al. 2008).

In Finland there are no totally organic school meal systems running on continuous basis. Typical products are peeled potatoes, carrots, onions, rutabagas, cucumbers, berries, rhubarb, eggs, fish and meat as well as organic milk, bread and pies. Organic ingredients are also closely connected with local food, which has relatively strong political support in Finland. To make the variation in the use of organic and local organic food more understandable, a large number of municipalities organise organic or local organic meal days or weeks, whereby the whole meal or nearly all the ingredients are organic or local and organic. The practice is feasible for central kitchens, which organise the meal preparation well beforehand, adapting menues to available ingredients (Mikkola 2008).

Also in Denmark dietary concerns have had a growing interest. Many parents have experienced unsatisfactory school lunches, and so this has also become an issue in the public political debate. Several private-public partnerships have been developed into new food concepts among others pedagogically coupling between the food and the teaching. Again the municipality of Copenhagen has the most comprehensive, partly organic lunch meal system of all municipalities in Denmark. In Copenhagen partly organic food is delivered to all public schools and the goal is to reach a point where 75% of the products used are organic. However, compared to concerns about ensuring healthy food for children, concerns for the environment take up very little place in the public debate (Hansen, Schmidt et al. 2008).

5.7.4 Evaluation of public procurement of organic food

Environmental evaluation

Life-cycle analysis of all environmental impacts demonstrates considerable environmental benefits of organic production. ICLEI calculated if all European public authorities bought 100% organic meat, wheat and milk, this would compensate, for example, the eutrophication impact on European soils and waters of a city with more than 3.5 million inhabitants. Further, it would compensate for the CO₂ emissions of
nearly 600000 inhabitants, while the procurement of regional (within 100 km) rather than European or non-European food would compensate for just over 100000 inhabitants (Procura+ 2007).

A number of studies point to the fact that implementing organic food systems seems to have significant effects on the food service organisations’ readiness for change. Implementing organic food in public foodservice might be a quite complicated organisational process but can lead to positive consequences and spin-offs. In Denmark, one third of the institutions and nearly half of the Danish municipalities have been involved in organic conversation. Due to this the organic trend might have important implications for the innovative power of large scale institutional food service sectors (Mikkelsen, Kristensen et al. 2006a).

Beside the positive direct of organic food demand for the environment and the indirect effects on changing market structures also side effects on public health can be observed. Results from a quantitative study in a Danish worksite catering showed a strong correlation between caterers’ ‘greenness’ and the nutritional quality of the menu options offered. Green caterers had healthier options in their menus than non-green caterers, which is likely to result in improved nutritional quality of the diets of end consumers. The reason for this may partly be the increased service training efforts that green caterers practice in order to be able to implement organic foods successfully. It may also be associated with the fact that the price premiums and availability of the organic products forces caterers to serve menus with higher amounts of root and non-green leafy vegetables, pulses and seasonal vegetables (Mikkelsen, Kristensen et al. 2006a).

**Economic evaluation**

European markets for organic products are growing rapidly, but the market information available in most European countries is woefully inadequate. Often only very basic data such as certified organic holdings and land area are reported, and sometimes not even individual crop areas or livestock numbers. Important market data, such as the amount of production, consumption, international trade or producer and consumer prices, do not exist in most European countries. In some European countries there are only rough estimates of the levels of production and consumption (Rippin, Vitulano et al. 2006).

However, a comparison of life-cycle costs of selected green and non-green products in public procurement showed that in general the green version is more expensive than the non-green version. Nevertheless, for some products the absolute price differences per serving are quite low and the share of the purchasing costs of the raw product at the total costs or selling prices of the end product (dish or serving) are mostly below 10% for both the green and the non-green versions. The sales prices in canteens thus do not reflect the real price difference resulting from higher purchasing costs for the raw product. In general, the price difference between organic and non-organic dishes is much higher than necessary, even in cases where other cost elements like water and energy or personnel costs remain the same. Such a high price difference, however, is counterproductive with regard to fostering the demand of products made from organic ingredients (Rüdenauer, Dross et al. 2007).
The same indicator used to verify the importance of a common national logo for organic products can be used in the context of public procurement. The instrument was also chosen to increase the overall market for organic products.

**Verifying evaluation results with general indicators**

Table 5-21 Organic share of total turnover in the food market (2001)

<table>
<thead>
<tr>
<th>Country</th>
<th>Organic share of total turnover in the food market (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>2.4</td>
</tr>
<tr>
<td>Belgium</td>
<td>1.0</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>0.1</td>
</tr>
<tr>
<td>Denmark</td>
<td>3.5</td>
</tr>
<tr>
<td>Estonia</td>
<td>0.2</td>
</tr>
<tr>
<td>Finland</td>
<td>1.0</td>
</tr>
<tr>
<td>France</td>
<td>0.7</td>
</tr>
<tr>
<td>Germany</td>
<td>2.1</td>
</tr>
<tr>
<td>Greece</td>
<td>0.2</td>
</tr>
<tr>
<td>Ireland</td>
<td>0.5</td>
</tr>
<tr>
<td>Italy</td>
<td>0.7</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>1.0</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1.2</td>
</tr>
<tr>
<td>Poland</td>
<td>0.1</td>
</tr>
<tr>
<td>Sweden</td>
<td>1.7</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.9</td>
</tr>
</tbody>
</table>

(Hamm and Gronefeld 2004)

In Italy, neither the long-lasting example of Ferrara not increasing catering of organic products in school meals seem to push the general market share of organic products too much. On the other hand, it can be seen again that Denmark, as a country with a high share of organic products in public catering, is ranking high in the turnover on the food market. However, the question which influence is stronger—the logo, the public demand or even a third one like the high availability in general food shops—can hardly be answered and it might be a combination of all of them.

Table 5-22 Evaluation public procurement of organic food

<table>
<thead>
<tr>
<th></th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness</th>
<th>User value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public procurement of organic food</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
### 5.8 Integrated review evaluation results

<table>
<thead>
<tr>
<th>Type of Instrument</th>
<th>Environmental</th>
<th>Economic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Relevance</td>
<td>Impact</td>
</tr>
</tbody>
</table>

#### Crosscutting

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness and employment</th>
<th>User value</th>
</tr>
</thead>
<tbody>
<tr>
<td>35-h working week</td>
<td>++</td>
<td>+/-</td>
<td>-</td>
<td>+</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>CO₂ taxes</td>
<td>ME</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+/-</td>
<td>+</td>
</tr>
<tr>
<td>Sustainability weeks</td>
<td>VI</td>
<td>+</td>
<td>-</td>
<td>?</td>
<td>+</td>
<td>++</td>
</tr>
</tbody>
</table>

#### Housing

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness and employment</th>
<th>User value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum requirements for existing buildings</td>
<td>MA</td>
<td>+++</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Financial incentives for energy saving investments in existing buildings</td>
<td>VE</td>
<td>+++</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td>++</td>
</tr>
</tbody>
</table>

#### Electricity use

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness and employment</th>
<th>User value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed-in tariffs for electricity from renewable sources</td>
<td>ME</td>
<td>+</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Energy labelling</td>
<td>MI</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Mobility

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness and employment</th>
<th>User value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third-payer support for public transport</td>
<td>VE</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+/-</td>
<td></td>
</tr>
<tr>
<td>Congestion charges</td>
<td>ME</td>
<td>++</td>
<td>+++</td>
<td>+/-</td>
<td>+</td>
<td>++/-</td>
</tr>
<tr>
<td>Eco-driving programme</td>
<td>VA</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td></td>
<td>++</td>
</tr>
</tbody>
</table>

#### Food

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Relevance</th>
<th>Impact</th>
<th>Side effect</th>
<th>Cost effectiveness</th>
<th>Competitiveness and employment</th>
<th>User value</th>
</tr>
</thead>
<tbody>
<tr>
<td>National label for organic farming</td>
<td>VI</td>
<td>+</td>
<td>?</td>
<td>+</td>
<td></td>
<td>++</td>
</tr>
<tr>
<td>Public procurement of organic food</td>
<td>VA</td>
<td>+</td>
<td>++</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
6 Critical factors for implementation of policy instruments

6.1 Mandatory administrative

6.1.1 General drivers and barriers

Drivers
The main driver to set in force mandatory administrative instruments in the field of sustainable consumption and production is the need to respond to threads for the life and health of citizens. They are usually applied in cases which can not be left to voluntary agreements or market negotiations. Accordingly lots of mandatory administrative instruments deal with hazardous substances. Mandatory administrative instruments present the most secure way to get rid of products and of production processes harming individuals or society in general. Mandatory administrative instruments provide clear measures and allow clear target setting. With increasing awareness for sustainability also energy and resource related targets are attracted with mandatory administrative instruments.

Barriers
Several barriers can hinder the success of mandatory administrative instruments. Legislative procedures in general take a while before a law is finally set in force. Additionally, bans or standards are elements of negotiations between legislative decision makers and different lobby groups. This can weaken the strength of the instrument. A final weakness presents the implementation of the mandatory administrative instruments. The best instrument may fail if no implementation instances are established including a sufficient financial equipment, or if control does not take place.

6.1.2 Lesson learned from the case study

Two of the analysed case studies reflect on mandatory administrative instruments.
- The 35h working week
- The minimum requirements for existing buildings

The 35h working week
The main driver for applying this instrument in France was to reduce unemployment. So if at all its relation to sustainability is more from the social aspect than from an ecological. Still in general, the instrument is expected to influence ecological aspects as far as they are related to consumption in general. Introduction of this measure increased the status of non-commercially related activities.

The minimum requirements for existing buildings
The minimum requirements for existing building are received as an important driver to induce changes in the consumption cluster. Two main reasons are given for that. First with the minimum requirements quantitative targets are introduced. This is a crucial aspect for assessing target achievement.
Second, the instrument intervenes on the market in so far as well-adapted regulations develop forces to effectively phase out inefficient technologies. Fixing standards or targets sends clear and easily understandable signals to the different actors in the market.

The beneficial effects of minimum standards do not appear via the standard setting alone. What makes them work is implementation. Two critical factors can figure out as barriers. First house owners must have further incentives to go for refurbishment. Only if renovation is considered by the house owners anyway, the minimum standard how to do it effectively come in force. Second barrier is a proper implementation control. So, beyond standard setting, implementation control is a necessary accompanying step.

Finally the case confirms regulations are not the most flexible instruments. So as a critical factor appear to regular evaluate and update the standard to encourage constant improvement of the market actors.

6.1.3 Application in the consumption clusters

Mandatory administrative instruments for the purpose of sustainable consumption are used in a different degree in the different consumption areas. In general they can be observed more often in those fields where standardisation is a common instrument already.

**Housing**
The minimum requirements for new buildings and in some countries for existing ones are the most mentioned in the country surveys. They include standards for the heating system and the warm water supply systems.

**Electricity**
Some countries report about minimum energy efficiency requirements also for specific household appliances, to ensure that appliances and equipment consuming a great deal of energy do not appear on the market.

**Mobility**
The set of instruments in the area of mobility appears a bit broader. Some countries have established environmental zones, where individual motorized mobility is restricted in various ways. These restrictions range from specific technical requirements cars must fulfill to enter the zone (,Feinstaub, catalysator) via speed reduction to total banns of motorized mobility.

A further administrative instrument broadly adopted is a regular inspection requirement where cars are not only checked according to safety aspects but in an increasing way also to their environmental performance.

Finally the environmental impact of fuel is influenced via regulation. Some countries define a specific share of bio fuels to be added to all kinds of fuels, instead of leaving the demand for bio fuels to individual decision making at the petrol stations offering bio fuels explicitly.

**Food**
Specific sustainability related administrative instruments are less common in the food sector. Here regulation is concentrated on food safety, aiming to protect consumers’
health and their economic interests, less on environmental aspects. What is considered as an administrative task in some cases is certification, standardization, and inspection. As soon as products from organic farming are labelled for a broader market these instruments have to be established to control the quality of agricultural products produced by organic farming. While certification, standardization, inspection can in fact may be provided by specialized accredited organizations they are in many countries under the auspices of the responsible ministry to ensure trust and confidence.

6.2 Voluntary administrative

6.2.1 General drivers and barriers

Driver
In the chapter on voluntary administrative instruments we have concentrated on how far administrations themselves follow sustainable consumption requirements. Several reasons are given why to decide on a green/sustainable public procurement. Three general considerations drive such decisions. The first take into account direct effects on the environment like avoiding adverse environmental impacts arising on the government estate and in the supply chain by, for example reducing waste and emissions and making more efficient use of public resources through reduced energy consumption and reduced packaging.

The second considers the power public households have on the market. Public procurement represents a significant share of market volume. Thus, purchasing sustainable products induce relevant incentives on the market. With a consequent demand for more sustainable products or services, new technologies, or more efficient provision structures are supported to develop faster and on a more secure monetary basis. This additionally may help to reduce the price of environmentally superior products. With increasing demand of sustainable procurement for public households prices can fall to a level making the sustainable option attractive for a broader range of private households, too. Even beyond that price effect the greening of the market can further on appear through a range of other mechanisms. For example, barriers of availability are reduced for household consumers.

As third driver the importance of giving a good example is taken into account. Political or administrative decision makers may like to set signals to their citizens as potential voters, documenting activity and trustability in terms of ecological behavior.

Barriers
Several barriers hinder a broader implementation of green public procurement so far. Purchase criteria in public procurement guidelines often do not foresee or even not allow to specifically asking for sustainability criteria. The price component dominates decision making. In several cases the more sustainable option is more difficult to get and so requires additional efforts of the purchasing department.

The activities reported in the survey mainly refer to initiatives on the local or regional level. This indicates that scope for actors is available to a limited extend. Whether they are used in a creative way or the hindrances are highlighted seem to depend on the
engagement of the relevant decision makers within the communities or regional administration.

6.2.2 Lesson learned from the case study

One of the analysed case studies reflect on voluntary administrative instruments

The public procurement of organic food
What we learned from this case is a general openness of public consumers to environmental criteria. 46% of tender documents for catering in public canteens referred to environmental criteria. But this was not necessarily a demand for organic food but e.g. requirements of energy and water saving or the use of cleaning products.

Still the barriers in this field are manifold, often beyond those of e.g. the purchase of energy saving equipments. The general hindrance that the green version of a product is more expensive than the non green version is found to be true for organic food, even if the price difference for a dish sold is higher than necessary according to the factual additional costs. Different to the expectation that public demand increase the market option for green products it is found in this case that supply does not cope with the large volume of similar products public caterers demand. Additionally buying and serving organic requires more effort than solely substitution of equal products just from different production conditions. It needs changes in the structural conditions, including processing and purchasing. Regarding to that financial support for conversion should take into account as well to fund additional staff.

In the end, a successful implementation of organic food in public canteens needs the involvement of all relevant stakeholders developing a common understanding and vision.

6.2.3 Application in the consumption clusters

A general observation in this field is that green public procurement is based on information provision. The survey listed various guidelines and web based information, less concrete examples what is done indeed. This fits well to the voluntary character of this instrument. As a second weak point the products considered as important in the public procurement guidelines do not necessarily fall into the categories of the dominant consumption clusters. They mostly refer to eco- labelled products like cleaning products or recycled (toilet) papers. In so far they present the typical time lag between public awareness on ecological necessities and the scientific (and partly political) state of the art. The following can be summarised for the relevant domains.

Housing
A majority of recommendations are made to purchase energy saving office equipment. Some consider electricity from renewable energy sources. Neither the production of renewable energy on public roofs nor consequent renovations of existing public buildings according to energy efficiency requirements seem to be an aspect.

Mobility
Mobility is a broadly neglected aspect in public purchasing. Only Sweden refers to a regulation calling for 25 % environmentally friendly vehicles in the public car fleet.
Some examples are given on case studies with public transportation based on alternative fuels. Those examples have demonstration character only and are not part of broader recommendation.

Food.
The examples given in the case study can be found in various other countries, too. Organic products are mentioned in public procurement recommendations. Additional aspects are regional products to reduce transportation and fair traded products.

Economic instruments

Drivers to set in force economic instruments are manifold. On the very basic level it can be stated with the raise of taxes, fees etc governments increase their income while subsidies, tax release and other financial support for natural or legal subjects decrease the state income.

Purpose to establish environmental or sustainability taxes are to set positive or negative financial incentives to channel relevant behavior. This includes incentives to switch from using one product to another.

Economic instruments allow greater flexibility for market actors. Among others they can help to reduce the costs of raising environmental performance. In case of environmental taxes or fees part of the revenue can be used to facilitate the desired changes in behavior.

6.3 Mandatory economic

6.3.1 General drivers and barriers

Drivers

A main driver to establish economic incentives on the market is to channel demand from environmental damaging products and services to better performing alternatives. One end of the approach is to phase out worse alternatives through taxes, fees or charges which additionally can be increased permanently. The other end is to make good alternatives cheaper via tax reduction, exclusion from charges or subsidies. Both drivers in fact assist products or services with better environmental performance to find its position in the market. Strongest environmental effects of taxes are found where substitutes are already available, or where new technology has assisted in curbing pollution. In principle literature see a number of advantages of taxes over other instruments. In particular, a tax is expected to be a more efficient method than a legal regulation.

Barriers

The barriers strongly depend on the market power of main market players. The capacity to organize awareness and lobbying activities for market alternatives influences the degree in with economic instruments are established.
6.3.2 Lesson learned from the case study

Three of the analysed case studies reflect on mandatory economic instruments
- The CO$_2$ taxes
- The feed-in tariffs for electricity from renewable sources
- The congestion charges

The CO$_2$ taxes
Experience form different countries show, that a strong driver for CO$_2$ taxes is a general interest to raise taxes to increase the general budget. This, at the same time is an important critical factor for the success of such an instrument. CO$_2$ taxation either need a clear reduction on other taxes (e.g. on labor) or should compensate consumers in other areas. Beside that remark taxes provide the most practical solution to influence CO$_2$ intensive consumption, especially considering the rather small amounts of emission per household as economic entity. A possible alternative were tradable permits for households. Still they would require higher costs and effective measures of control would be difficult to apply. As barrier for the effectiveness of the instrument appears the tendency to allow expectations for high energy using industries.

The feed-in tariffs for electricity from renewable sources
The minimum prices fixed in the case of feed in tariffs are an exception from the general description given above in so far as they do not touch on the public budget. Neither payment nor revenue goes in here but is solely handled between the partners on the market. Beyond this difference the intention to support specific technologies stays the same.

From the political side a main driver to decide for fixed minimum prices is the circumstance of relatively minor regulatory and administrative costs. Once the prices are defined market actors will ensure the prices are paid.

As success factors developed: technology-specific tariffs on a sufficiently high level; a decrease for new contracts over time to enforce technological learning and; a stepped tariff design.

a critical factor is the adequate setting of prices. If it is not clear by what criteria the relative differences in the tariffs across technologies are motivated credibility on the market might be weakened.

For the market actors the duration time of the guaranteed price for the electricity produced are an important driver to invest in renewable energy plants as this reduces the risk of the investment.

An expected barrier for feed in tariffs rising from economic theory is that they are suspected not to fulfill the desired amount of renewables in a timely manner. This assumption is proved wrong. Reality shows that in the case of wind power e.g. the largest increase has taken place in countries with feed in systems. Even more, minimum price systems are proven to be more efficient than quota systems when defining cost efficiency in terms of achieving objectives at the lowest cost.

The congestion charges
The main driving forces for choosing the economic instrument of charges is to find a balance between traffic reduction in inner cities and the generation of public income to support public transportation or other kinds of infrastructure like bicycle lanes etc.
Further driving forces are to care for a better environment and improvements of the city environment.

As critical success factor the measure has to create positive incentives to dispense with individual car such as car share schemes, park and ride provision, cycle ways and bike loans.

The experiences from the case studies confirm the expectations. Both result in significantly reduced traffic congestion, improved bus and taxi service, and generate substantial revenues. Especially the revenues give a clear advantage to charges compared to a simple ban of individual motorizes traffic in specific areas.

Critical factors are implicit social and distribution effects. This tendency of un-equity has to be kept in mind when designing compensation methods. The best balancing effect was found if revenues are explicitly used for improving public transport. This benefits low-income groups the most. If revenues are used for tax cuts it benefits high-income groups.

As an additional factor in the Swedish case the health benefit was calculated to be about three times higher than the benefit that would have been gained via an increase in fuel prices.

6.3.3 Application in the consumption clusters

**Housing**
Housing and energy are most in the focus of governments when it comes to economic instruments for sustainable consumption. Fuel, energy or CO$_2$ emissions are subject of taxes in most countries. Beside the emission oriented taxes as described in our case study also energy input is a frequent target, whether directly as fuel or in terms of electricity. An additional upcoming economic instrument is emissions trading schemes. To date they are not applied for consumers but under discussion.

**Mobility**
Also around mobility ecological motivated economic instruments are manifold. A reason may lay in the general habit to put transportation under state regulated economic lead. Influence on fuel prices, vehicles purchase and maintenance prices are common habit in nearly all countries. This seems to lower the barrier to define ecological considerations as criteria for taxes and fees but also for exemption of environmentally friendly alternatives from taxation or to award subsidies for them.

**Food**
Sustainability related economic instruments are hardly being found in the food sector.

6.4 Voluntary economic

6.4.1 General drivers and barriers

**Drivers**
The driver to establish economic instruments consumer and other actors can apply for is to set monetary incentives supporting positive environmental investments. In most cases this means to support innovation and better technologies.

**Barriers**

The main barrier is how to generate enough funds so demand can cope with increasing awareness and interest from the consumer side. A further critical element is to formulate the criteria for financial support and subsidies in an easy and understandable way.

### 6.4.2 Lessons learned from the case studies

Two of the analysed case studies reflect on voluntary economic instruments

- The financial incentives for energy saving in existing buildings
- The third payer support for public transport

**Financial incentives for energy saving in existing buildings**

The financial support for energy saving investments in existing buildings is a typical measure to accompany regulatory requirements. It set the incentive to consider those renovation activities which are regulated via administration.

The main success factor in ecological terms is to link the financial incentives to an ecological target. The higher the energy saving the higher is the subsidy.

Several factors are identified as critical for the acceptance of incentive: the design of grants has to calculate duration time for payback adequate to the money saved through energy conservation measures. Sufficient and clear information is needed to convince potential investors. Also the practical subsidy granting procedure needs to be kept as simple as possible.

Finally equity aspects have to be considered in the design of the measure as reduction of income tax may create a social incoherence.

**Third payer support for public transport**

Drivers to establish this instrument have to be analyzed for two actors involved. For the government important criteria are the reduction of congestions and related health, noise and other environmental aspects. Further aspect can be to support the public transport system and to reduce parking areas in valuable urban areas.

For the companies involved mostly the reduced need to provide parking space are the driver.

As main barrier developed bureaucratic procedures which can be found in more or less complicated ways in different countries. In fact in some countries () the third payer support is established even without intervention of the government, in Germany e.g. just in cooperation between companies employees and the local transport organization.

As the examples in the case study show, the most critical factor is to really set an incentive for a modal shift. Just to support those who already commuted with public modes of transport can hardly be seen as sufficient.

### 6.4.3 Application in the consumption clusters

**Housing**
As laid out above the domain of housing and energy is a major target of taxes, but as well they see a remarkable amount of subsidies and incentives for e.g. grants to reduce energy in multi-storey buildings, modernization measures in existing buildings and “passive houses”, domestic natural gas equipment, small-scale applications of renewable energy sources, or energy services, refund of refurbishing works, repair schemes for older properties, financing of the building envelope improvement, internal technical systems, local sources and distribution networks. All those targets for economic support are mentioned in the analyzed survey. Even more support is mentioned there in form of supported research programs to develop technical solutions for the energy problems in this area.

Beside the environmental affect quite a few of these measures are also considered regarding their occupational effect in the construction and heating construction branch.

**Mobility**

The boarder is a bit floating between administrative and voluntary economic instruments in the case of mobility. Giving the example of individually owed cars running on alternative fuels tax reduction will come automatically with the purchase of the car. This makes it different from support in the case of energy renovation of existing buildings where the public support has to be applied for. So brief to say the considerations made on mobility in the chapter above are valid here, too.

**Food**

In some countries incentives are given for the conversion towards organic farming or sustainable livestock.

**Informative instruments**

6.5 **Mandatory informative**

6.5.1 **General drivers and barriers**

**Drivers**

The main driver to establish mandatory information provision is to enable comparison. A significant amount of these mandatory information is established on the European level. One kind of mandatory information are mandatory indicators for regular reporting which allow comparison over time, or between countries or companies. Another are mandatory labels to compare environmental performance of different products.

A different kind of mandatory information provision is awareness raising through obligatory education and special training. This way general insight on environmentally interconnections shall be made common knowledge within a society – or at least the relevant actors in a specific field.

**Barriers**

A general barrier for the success of information provision is the limited capacity and willingness of consumers and other social agents to apply the information in an adequate way (see also voluntary informational instruments). A specific relevant barrier
on mandatory required information is some resistance e.g. of companies (or countries) to establish information tools that allow benchmarking procedures.

6.5.2 Lesson learned from the case studies
Two of the analysed case studies reflect on mandatory informative instruments
- The energy labelling
- The eco driving programs

Energy Labelling
As success factor for the energy label on appliances is recognised that it is simple enough to meet the needs of the general customer on one hand while on the other it provides enough complementary information to satisfy individual consumers’ different information needs. Briefly said it labels positive as well as negative environmental consequences.

Several further measures accompanied the label as instrument for decision making in the British case:
A-rating products are offered from well-known brands, a proper retailer stock policy, shops presented well labelled products more visible and even a specific price support to reduce price differentials.
How much of the increase is due to the informational instrument “energy labelling” is difficult to estimate.
A general barrier to keep in mind for mandatory labelling scheme is the fact that they are still recognized as obstacles to free trade.

Eco Driving Programm
Driver for establishing eco driving programs – and here especially to incorporate information and training on eco-driving in the driving school curricula – is motivated in the early habitulising of energy efficient driving styles.

Further intentional side effects are economic gains (reduction of costs for fuel, maintenance costs), increased safety and comfort, and a reduction of local emissions and noise.
The results from the analyzed cases show, that beyond training further motivation to keep the habit is needed to achieve low fuel consumption.

6.5.3 Application in the consumption clusters

Housing
Due to EU regulation a mandatory tool in this consumption cluster is the disclosure information on electricity which has to be provided with the electricity bill. Established by EU regulation already but not applied in every country so far is the energy performance information on new or refurbished houses.

Mobility
Similar to white appliances also cars to purchase have to carry information on their energy performance.

Food
Some mandatory information exists in the food domain only for the origin of meat products. On request consumers can trace back the country of birth, breeding and slaughter of animals their meat is from.

6.6 Voluntary informative

6.6.1 General drivers and barriers

The explicit driver for informative instruments is to promote positive attitudes for environmental issues and to assist individuals and households to make environmentally sound purchasing decisions.

Barriers

As popular informative instruments are their success face a couple of barriers. One of them is the information dilemma, the wealth of (competing) environmental information. The critical factor is less the quantity of the information than the quality. Too many green claims compete for attention leaving questions about their reliability and too much good intentioned environmental information stay effectless as it is not at the right time, not at the right place and not speaking the same convincing language as other product information - like advertising - does. This has to be kept in mind to gain success.

Further on, it is found that success is limited to the so-called “easy choices”. This explains the successes of many recycling schemes and the problems encountered by persuading consumers to use public transport instead of a private car.

Finally information work best where a lack of information in itself is a significant barrier to people changing their behavior. Which is quite often not the case but pure assess to costly adequate alternatives respectively easy access and heavy marketing for unsustainable options.

6.6.2 Lesson learned from the case studies

Two of the analysed case studies reflect on voluntary informative instruments.
- The sustainability weeks
- The national label for organic farming

National Label for organic farming

Main driver to establish a national label for organic farming is to harmonize information and build trust among consumers. Criteria and logo should be agreed among the major commercial player and open to all producers and products fulfilling the criteria. Certification has to come from the authorized certification organization to ensure consumer confidence. Fulfillments of these critical factors on one hand help to ensure available of the labeled products in most general food shops. Barriers for consumers to buy organic are reduced if they find organic products in their habitual environment and to not have to make additional ways to specialized organic food shops.

Sustainability weeks

Driving force for the establishment of the Austrian Sustainable Weeks is to raise consumer awareness among the general public, and thus to enhance the sale of
sustainable products. Several factors play together forming the success of this measure. The common trademark for the weeks is designed to be an eye-catcher only and is neither meant to replace nor to check on other existing labels. The weeks take place in an annual timeslot not competing with other major marketing activities (Christmas, Easter, Sale). Finally, here as well as with the national organic label, market actors were involved in the development of the measures in due time.

6.6.3 Application in the consumption clusters

The examples of voluntary informational instruments are manifold in each of the consumption areas. Therefore we give up trying to provide a short summary of main aspects as it either would be still too long or had to be too subjective in its choice.
7 Conclusions

Recommendation for improvements and extending good practice

(Preliminary) list of findings during the elaboration of chapter 5. to be used as input to WP 6
References

Pan-European database for applied ex-post Cost-Effectiveness Analyses (PANACEA), http://www.ecologic.de/projekte/3ea/panacea/index.php


Ragwitz, M., G. Resch, et al. (2007). Monitoring and evaluation of policy instruments to support renewable electricity in EU Member States, BMU Funding Report 203 41 112.


Annex 1

Policy instrument

This basic list of policy instruments is distilled from the EU inventory on Sustainable Consumption and Production. It was gathered in 2004 in preparation for the First European Roundtable on Sustainable Consumption and Production in Ostend in November 2004. It represents the largest collection of policy instruments so far representing the broadest outreach of countries. We are aware much more examples could be listed alone the examples of informational instruments are countless. On the other hand single projects might be outdated meanwhile. The instruments listed here are a selection, estimated to be the most worth mentioning from those reporting to the survey.

The list throws an interesting light on the different approaches in the different countries what sustainable consumption policies are. The general picture is dominated by informational instruments with less emphasis on mandatory or economic instruments.

However, the general types of instrument are representative and provide the basis for clustering the policy instruments.

Selection and clustering of the inventory

- Policy tools that have been used are being used or will be used for the promotion of SCP by the national/federal or regional governments as mentioned in the Oostende country reports
- In addition, it takes up SCP related policies and strategies
- However, the mere implementation of EU directives has not been included as it cannot be considered as self-initiated action by the country/region even though it would have been mentioned
- As a model for organising the information, an analysis model developed for the SCOPE2 project has been utilised (Description of Work FP6 Proposal No. 044256: SCOPE2, p. 9)
- For each country, only the information provided in the report itself has been analysed. Thus, the general principle is that the internet sources and other sources of additional information have not been consulted when making the analysis. Here, the idea is that the report writers are entrusted in taking up what is relevant and what is not in each country case. On the other hand, if the information in the reports has been biased or incomprehensive, it might have affected the analysis.
- In some cases it has not been evident what kind of policy instruments the presented actions really are and whether there has really been any involvement of the national/federal or regional governments in designing or implementing the tool. These tools have all been listed as under the title “Unclear case”

How some tricky empirical cases have been solved here?

- Categorising the research projects/initiatives/investments has been complicated at times as knowledge production might be an end in itself or, alternatively, a part of a development process of another policy tool -> In this analysis: If the goal is to generate information in broader sense, the measure has been considered informative
tool -> If it has been more about the R&D of a concrete product then the research project can be seen as investment in the production chain = economic instrument -> On the other hand, if the research is about developing a set of policy tools, e.g. public procurement, then the measure is categorised as the policy tool - to be developed - would be categorised (in this case public procurement = economic instrument)
- Categorising the new institutional arrangements has also been difficult as institutions might support certain types of policy tools -> In this analysis: If the main purpose is to deliver information = informative tool -> If the main purpose is to deliver financial resources = economic tool etc -> However, problems arise when the institution is having multiple tasks such as WRAP in UK -> Thus, it is worth considering to add the category of institutional tools in the matrix
- Another group that has been tricky to categorise has been indicators that could be seen as analytical tools. Here, they have been categorised as informative tools.

1) Structured list of instruments

Policies and Strategies

National Sustainable Development Strategies
all countries

Further general environmental strategies
Action Plan for Environmental Technology (S)
National Environmental Protection Strategy (PL)

Strategies on Sustainable Consumption and Production
National Program on SCP (FIN)
National Dialog on SCP (D)
Action Plan on Sustainable Consumption (S)
Framework for Sustainable Consumption and Production (UK)
Roundtable on Sustainable Consumption (UK)
Program of changing production and consumption patterns in the economy sector (PL)

CO₂ and energy related strategies
Eco-efficiency Action Program (A)
Climate strategy (DK)
Guidelines of the National Energy Policy (PL)
Strategy for Development of the Renewable Energy Sector (PL)
Advisory program on energy efficiency and renewable energy sources (SLO)

Environmental education strategies
National Environmental Education Strategy (PL)

Market based strategies
Green Tax Reform (S)
Market Transformation Program (UK)

Product based strategies
National IPP-strategy (FIN)

Waste strategies
Waste Implementation Program (UK,)
Waste Strategy (DK, IRE)

Others
Strategy to limit noise from traffic (DK)
Government’s strategy for health and the environment (DK)

Administrative instruments

Mandatory administrative

Overarching regulation
Framework Law on Product Standards (B)
Env. Protection Act (harmful env. products; energy efficiency) (FIN)

Hazardous substances
Phase out of products and goods containing chemicals with particularly problematic effects on health and the environment (DK)
Inspection requirements for traffic related particles in the air (DK)
Packaging return system for hazardous substances (PL)
Reduce Impacts on harmful subsidies (S)

Energy/CO2 related instruments
Thermal standards in new buildings (FIN, D, SLO, UK)
Requirements on share of renewable energies in electricity production (GR)
Quantitative targets for the share of bio-fuel in fuel (PL)
Individual measuring for heating in apartment blocks (SLO)
Minimum requirements for energy efficiency of appliances (SLO)
CO2 Emission trading (S)

Waste
Extended Producer responsibility (take back schemes) on packaging waste, waste paper,
Operational programs of different waste products (SLO)
tyres, construction waste (FIN)

Traffic
Expansion of fixed-track transport (GR)

Voluntary administrative

Green Procurement

Commitments
Agreement and commitments of local and regional authorities to implement green procurement (DK, FIN, F)
Environmental specifications in supply contracts for the civil service (IRL)
National programme (NL)
Fixed share of environmental adapted vehicles (S)
Commitments on green procurement policies and implementation plan (DK)

Information
Training Programmes for buyers (A, D, F)
Web based sustainable procurement guide (B, D, FIN, F, S)
Handbook and guidelines (DK, D, FIN, IRL)
Consultation service to integrate environmental aspects in public calls for tenders (I)

Evaluation
Review of green procurement activities (UK)

Others
Voluntary agreements with industry and public sector on energy conservation (FIN)
Voluntary agreement on energy conservation in residential buildings (FIN)
Business internal system to collect packaging waste (Green Dot) (D)
Control system for eco certified farmers (PL)

Economic instruments

Mandatory economic
Eco-taxes

Hazardous substances
- Batteries (B; DK)
- Chemicals (DK)
- Chlorinated solvents (DK)
- Sulphur (SO₂) (DK, S)
- Pesticides (S)

Waste
- Beverage packages (FIN)
- Disposable cameras (B)
- Waste (DK; FIN, NL, SLO)

Energy
- CO₂ (FIN, SLO, S)
- Energy (DK; FIN, D, NL, S)
- Fuel (FIN, NL)

Transport
- Transport (DK)

Water
- Ground and drinking water (NL)
- Wastewater (DK)
Charges and tariffs

**Water**
- Waste water (DK, GR, I)
- Waste management (I)
- Surface and Groundwater (PL)
- Illegal water consumption (PL)

- Nitrogen oxide (S)

**Waste**
- Batteries (S)

**Transport**
- Congestions (S)

Mandatory deposits
- Packages of hazardous substances (PL)
- Deposit for one way beverages (D)

Subsidies and incentives

**Energy**
- Grants to reduce energy in multi-storey buildings (FIN)
- Modernisation measures in existing buildings and “passive houses” (D)
- Natural gas co-generation plants (GR)
- Domestic natural gas equipment (GR)
- Small-scale applications of renewable energy sources (GR)
- Combined heat-power generation (SLO)
- Energy services (SLO)

**Waste**
- Subsidy scheme for investments on waste prevention

**Agriculture**
- Sustainable livestock, organic farming (SLO)

**Transport**
- Tax reduction for environmentally adapted cars (S)
- Tax exemptions for renewable fuels (S)

Minimum prices
Feed in of electricity from renewable sources into the grid (D)

Voluntary economic

Research Programmes (to support technical solutions)

**General**
- Strategic research programmes to support SD (DK)
- Socio-ecological research (D)
- Strategic planning and innovative solutions to environmental problems (IRL)
Energy related
Renewable energy sources and energy efficiency (E)
Hydrogen fuel cell technologies (I)
Case studies on eco-design (F)
Solar floor heating program (EU funded) (F)

Support through earmarked budgets from taxes, charges or funds

Hazardous products
Reduction of emissions from heavy vehicles (DK)

Energy related
Thermomodernisation (PL)
Efficient energy use and use of renewable sources of energy (SLO)
Energy reviews feasibility studies and energy plans for municipalities (SLO)

Water
Preservation of abounded water wells (SLO)

Others
Co-financing Local Agenda 21 processes (I)
‘Ad hoc’ account for tourism credited with VAT receipts from hotels, heritage sites, and restaurants (M)
Tax compensation for investment in green funds (NL)
Improving tourism infrastructure (M)

Informational instruments

Mandatory informational

Required from administrative bodies
Report on the state of environment (I)

Required from business
Green accounts of enterprises with activities important for the environment (DK)

Voluntary informational

Information directly provided by governments and administrative bodies

Research programmes (to increase understanding and information)
“Sustainable Production and Consumption Patterns” (B)
Env. Cluster Research Program incl. Projects on SCP (FIN)
Federal organic farming scheme (incl. label) (D)
Corporate Social Responsibility (NL)

Studies
‘Sustainable development’ label as a voluntary policy instrument (B)
Tourism Carrying Capacity (M)
Benchmark method for consumer products and services (NL)
Removal of harmful subsidies (S)
Furthering Lifecycle considerations through integrated product policy (S)
Sustainable household (S)

Information centre
Exhibition “Planet to live in or throw away” (B)
Support and Information Centre on the Prevention of Waste (B)
Information Centre for Environment & Health (DK)
Mobile informative and educational centre (Energy Bus) (PL)

Labels
General
Nordic Swan (DK)
EU Flower (DK)
Eco Label scheme (GR, M)

Agriculture
Eco Label for agricultural products (FIN)
Appellation Origine Controle (F)
Bio-Siegel (D)

Tourism
Eco Label for Tourism (A)

Labour
Social label for goods and services produced in the respect of the 8 ILO conventions on labour (B)

Certification Schemes
Agriculture
Non-genetically modified agriculture products (GR)
Aquaculture products (GR)

Energy
Energy efficient buildings (SLO)
Electric cables (GR)
Electric household appliances (GR, SLO)
Electricity from renewable sources (S)

Housing
Environmentally friendly construction materials, systems and devices (GR)
Sanitary appliances (GR)

Tourism
Tourist services and a certification for Agrotourism (GR)

Others
Environmentally friendly nurseries/schools (PL, SLO)

Media Campaigns
Waste Awareness Media Campaign (IRL)
Multimedia campaign on environmental labelling (PL)
Stimulating national debate on consumption patterns (UK)

Print
Newsletter, brochures, etc
Newspaper on waste minimisation and SCP (B)
Waste Communications Strategy (IRL)

Reports
Bi-annual report on Sustainable Development containing information on SCP (B)
Energy Saving Report (DK)
“Making Markets Work for Environmental Policies” (DK)
Sustainability indicators concluding SCP related issues (GR, M)

Indicators
Annually updated comprehensive set of indicators (DK)
Set of SD indicators (FIN)

Education material
Sustainable Building Tool (GR)
Youth version of the national environment report (I)
Forestry education programme (E)

Electronic media
Web based guide for eco-products (FIN)
Easy access to information on new legislation (M)

Others
Eco-Breakfasts for key industry groups (M)

Information provided by civil society (partly funded by public organisations)

Information centre
Service centre for material efficiency (FIN)
National knowledge centre on Corporate Social Responsibility (NL)
Information Point on sustainable consumption (NL)
Environmental Information Centre (SLO)

Labels
VISIT (European initiative for eco-labels and sustainable tourism) (A)
Scheme of environmental product information (DK)
Blue Angle (D)
Viabano-tourism label (D)
Label on tourism services (GR)
Label on bed mattresses (GR)

Print media
Newsletter, brochures, etc
Clever Travelling Manual (A)
Guidelines on energy efficiency in buildings (M)

**Education material**
Education kit about energy, food and environmental friendly housekeeping (B)
Cartoon character promoting environmental issues (M)

**Reports**

**Studies**
Analytical tool for the evaluation of (sustainable) products and services (A)

**Electronic media**
Online Shopping Guide (A)
Eco-friendly Products Guide (schools, local authorities and administrative entities) (B)
Data base “Label online” (D)
Website for consumer advice (S)
Assess to CSR learning and development opportunities (UK)

**Projects**
Futuro – Sustainable Pricing (A)
Puzzle for waste prevention (B)
School projects on Agenda 21 activities (D, M)
Promotion and marketing concepts for FairTrade products (D)
Sustainable shopping basket (D)

**Awards**
Award most energy efficient company, project and energy manager (SLO)
Award for school projects on water protection (SLO)
Awards to cities for waste prevention programs (E)
Annual Reporting Award (FIN)

**Others**
Voluntary agreement on advertising (adverts verification bureau, BVP) (F)
Public awareness raising by Consumers Organizations (GR)

**Institutional settings**

**Permanent**
National green procurement network (FIN)
National Consumers Council (GR)
Network on Environmental Information (GR)
National Council for the implementation of eco labels (GR)
Standardization, inspection and certification authority on organic agricultural and animal products (GR)
Network of Eco-counselling Offices (H)
Environmental Information Service (IRL)
Network of Environmental Education Centres (I)
Covenants: negotiated agreements to shared responsibility by different actors (NL)
Group for Environmental Education (PL)
Pioneers Group -best practice forum of sectoral organisations (UK)
Energy Saving Trust (UK)

Projects
Eco-efficiency clearing house (A)
Factor10, Information point for eco-design (B)
Stakeholder based product panels (financially and administrative supported) (DK, FIN)
Verification programme for sustainability reports (H)
Sustainability Rating methodology (H)
2) The country cases

Austria

Policies and strategies:
- The Austrian Strategy for Sustainable Development
- Eco-efficiency Action Programme

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<th>Mandatory instruments</th>
<th>Voluntary instruments</th>
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<td>Administrative</td>
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<td>Green Procurement: Training programme for buyers</td>
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<td>Economic</td>
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<td>- “INES” analytical tool for the evaluation of (sustainable) products and services</td>
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<td>Informative</td>
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<td>- Eco-efficiency clearing house project</td>
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<td>- “Futuro” research and lobbying project for sustainable pricing</td>
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<td>- Tourism eco-label created by the Austrian Ministry for Agriculture, Forestry, Environment and Water Management</td>
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<td>- Online Shopping Guide</td>
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<td>- “Clever Travelling” manual for tourists</td>
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<td>- VISIT promotion of Ecolabels and sustainable tourism development.</td>
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Belgium

Policies and strategies:
- Sustainable development strategy (1997)
- An action plan to reduce accidents at work (PHARAON) (2004) by the Belgian federal government
- Flemish Mobility Plan

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- In the Flanders Region, electronic eco-friendly products guide for schools, local authorities and administrative entities |
| **Economic** | - Ecotax on disposable cameras: the ecotax rate is 7.44 euros per unit but an exemption is granted if at least 80% of the weight of the cameras collected through photographic labs is reused and recycled.
- Ecotax on batteries: unless they are used in some specified appliances, batteries are liable to an ecotax of 0.50 euro per battery. An exemption is granted to the seller participating in a collection scheme, provided at least 65% of the total weight of the batteries sold annually is collected and processed in a way that is both ecologically justified and economically feasible. | - In Flanders, subsidy scheme for investments on waste prevention |
| **Informative** | | - Social label for goods and services produced in the respect of the 8 ILO conventions on labour approved by the Belgian federal government (2002)
- Brussels Region newspaper on waste minimisation and SCP |
- the Brussels Region double exhibition, called “Planet to live in or throw away”
- The pilot project “puzzle for waste prevention” in the Walloon Region of Belgium and different EU countries
- In the Flanders Region, education kit about energy, food and environmental friendly housekeeping for the socio-cultural (non-formal) education centres
- In the Flanders Region, MOS (Milieuzorg Op School / Environmental Care at Schools) helps schools to develop their own environmental care system
- On federal level, a report on sustainable development (incl. Sustainable consumption) published each two years.
- Research programme on “Sustainable Production and Consumption patterns”
- Financing is given to a research project to develop a ‘sustainable development’ label as a voluntary policy instrument
- Factor10, Flemish information point for eco-design
- In Flanders, Support and Information Centre on the Prevention of Waste (STIP)
Denmark

Policies and strategies:
- Climate strategy for Danish reduction commitments in the Kyoto Protocol (2003)
- Rural Districts Programme for MVJ (agro-environmental schemes) and organic farming have been developed so that they become more flexible and attractive for farmers (2002-2003)
- Danish National Forest Programme (2002)
- The Government has published a strategy to limit noise from traffic (2003)
- The Danish Government has set the goal that by 2020 no products or goods should be on the market that contains chemicals having particularly problematic effects on health and the environment.

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| Administrative     | - In order to reduce the traffic-related content of particles in the air, stricter requirements for inspection have been included  
                      - Environmental Protection Act commits Governmental institutions to prepare a green procurement policy and draw up an action plan for its implementation  
                      - Product Panels initiated by the Danish EPA with invited participants from the entire value chain of a specific product group, chairpersons and financed secretarial assistance  
                      - Voluntary agreement of local and regional authorities to implement green procurement policies  
                      - Handbook on 50 guidelines for green purchasing of different products and services  
                      - Guidelines for public procurement of tropical wood | - Almost 6 per cent of public investment in research and development contains a significant environment element. The Danish government has initiated a number of strategic research programmes to support prioritised initiatives in the Johannesburg Plan.  
                      - In order to reduce the content of particles in the air, the Danish government has earmarked DKK 15 million |
improvements. The strongest environmental effects have been seen where substitutes are available, or where new technology has assisted in curbing pollution. Examples are taxes on sulphur, on nickel-cadmium batteries and on chlorinated solvents. And it has been the case for the difference in taxes on leaded and unleaded petrol.
- In Denmark, water consumption by households fell by more than one quarter in the period 1989-2001. At the same time the price of water rose by as much as 150%. The price of water is composed of a water supply tax (41%), VAT (20%), variable water taxes (12%), green taxes, (14%), variable taxes (9%) fixed wastewater charge (2%) and a state wastewater tax (2%).
- Danish SO2 emissions were reduced by 24% in the period 1995-1997. Within a few weeks of the implementation of the SO2 tax, the sulphur content of fuel gas oil and heavy fuel was reduced from 0.2% to 0.05% and by a third for coal.
- Danish Government has supported the development of a scheme for environmental product declarations.
- The Danish EPA has by January 2003 established a LCA-centre in Denmark. The purpose of the centre is to promote product-oriented environmental strategies in private companies by assisting them in implementing life cycle thinking.
- The Nordic swan and the EU-flower are the two official eco-labels in Denmark.
- The Danish Information Centre for Environment &
Health is an independent information centre on environment, health and consumption issues. The information centre is funded by the Danish Ministry of the Environment. It is open for private persons, associations, environmental and consumer organisations as well as private enterprises.

- A comprehensive set of indicators related to the Sustainable Development Strategy was published in an Indicator report in August 2002, prior to the World Summit on Sustainable Development in Johannesburg. The indicators are updated annually.

### Institutional Settings

Panel for professional green procurement

### Influencing the international policies:

- In the mid-term evaluation of the EU Common Agricultural Policy, Denmark has worked for market orientation of EU agricultural policy
- The Danish government ratified the Stockholm Convention on Persistent Organic Pollutants in 2003 and is working on the ratification of the Rotterdam Convention on export and import of hazardous chemicals. Denmark is thus helping exert pressure on other countries to ratify so that the conventions may enter into force as soon as possible.
- The Danish government supports the development of a global chemical strategy

\textsuperscript{22} http://www.mst.dk/udgiv/Publications/2003/87-7972-852-9/html/default_eng.htm
Finland

Policies and strategies:
- National Programme on Sustainable Production and Consumption (2005)
- National IPP-strategy (2001)
- In 2004 the Finnish Ministry of Trade and Industry adopted a new definition of policy concerning the promotion of corporate social responsibility

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<td>Administrative</td>
<td>- The Finnish Environmental Protection Act, based on Integrated Pollution Prevention directive, came into force on 1.3. 2000. Under this act local authorities have new possibilities to control and limit the use of products causing harmful environmental impacts and to encourage energy-efficiency. - Extended producer responsibility tries to encourage prevention of harmful environmental impacts at the design stage of products by allowing consumers to bring back end-of-life products free of charge. In Finland, the extended producer responsible is one of the key concepts of product policy. The Government has based decisions on packaging waste, waste paper, tyres and construction waste on this principle. These decisions, however, only cover recycling and reclamation targets and regulations on supervision; operators are free to create their own recycling systems and to distribute the possible costs among themselves. - In the Finnish building sector Ministry of the Environment has set stricter thermal norms on indoor climate and ventilation to reduce energy consumption in new buildings. It is estimated that this decree</td>
<td>- The Finnish Ministry of Trade and Industry has made voluntary agreements with industry and public sector on energy conservation. - The Ministry of Environment and the Finnish Environment Institute initiated the foundation of a Product Panel for textiles. - Voluntary agreement on energy conservation in residential buildings is implemented to gain reduced energy and water consumption and GHG’s (CO\textsubscript{2}). Agreements are made between the Housing and Construction Association (ASRA) and Ministry of the Environment and Ministry of Trade and Industry. - The Finnish Ministry of the Environment has also committed to green its own purchasing and has challenged other administration to green their procurement. - Several Finnish towns and cities together with government institutions have made commitments to make their procurements more environmentally friendly and sustainable. Two cities, Pori and Jyväskylä, have launched a national green procurement network for Finnish municipalities. - The Finnish Ministry of Trade and Industry has published recommendations for energy efficiency in public</td>
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<td><strong>Economic</strong></td>
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<td>- Energy, fuels and waste have constituted the most significant economic instrument and taxation target. Environmentally linked and energy taxes already generate more than 10 per cent of the Government’s budget total. - Finland was the first country to introduce a CO₂ tax in 1990. Source fuels for heating and transport continued to be taxed. - The waste tax has been in force in Finland since 1996 in order to decrease the volume of municipal waste. There is no differentiation of the rate depending on the quality of waste. The tax is restricted to municipal landfills. Private landfills, such as industrial waste dumps, are excluded from the tax system. The rate is 23€ per tonne and will be raised to 30€ per tonne as from January 2005. - Production and consumption of beverage packages in Finland are guided by taxes and pledges. Exemption from the packaging tax or a lower tax can be obtained only if the package is a part of the pledge-based return system.</td>
<td>- The Environmental Cluster Research Program administrated by the Finnish Ministry of the Environment will also include a number of research projects on sustainable production and consumption patterns. - There has been an annual</td>
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reporting award for social and environmental reports since 1996.
- The Finnish Consumer Agency has on the web-site “The Eco-buyer’s guide”
- There has been a plan on establishing an organization to promote efficient use and saving of natural resources and raw materials and eco-efficiency. The working title of this organization is “Service Centre for Material Efficiency”.
- The Nordic environmental label, the Nordic Swan, and the EU environmental label are employed in Finland
- “Luomu” eco-labelling scheme applies to agricultural products produced organically under the supervision of Finnish authorities, according to conditions set in EU regulations on organic agricultural production
- A national set of sustainable development indicators was published in 2000, and it includes indicators for consumption.
## France

**Policies and Strategies:**
National Sustainable Development Strategy

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</table>
| **Administrative** | - Identified goal of the NSDS is to encourage companies to commit themselves to voluntary agreements.  
- several cities incorporates environment and ethics into public contracts or commit themselves to use a fixed share of renewable energy. | |
| **Economic** | - Law on New Economic Regulations - Article 116 compels the companies that are quoted on the Stock Exchange to report on their actions in the social and environmental fields. A complementary decree requires companies to give details on emissions to the air, water and soil that have a serious effect on the environment, in particular greenhouse gases, and toxic or radioactive substances. As a result several rating companies have emerged on this new market. | - ADEME\(^23\) has published ten case-studies on French companies which integrated an eco-design approach to their products.  
- The Adverts Verification Bureau (BVP) has drafted voluntary rules of self-discipline in advertising with respect to sustainable development or to corporate social and environmental responsibility.  
- Urban Community in Dunkirk is offering eco-responsible purchases training programs to the local authorities.  
- A site was created specifically to inform administrations and training programmes are organized.  
Apellations of Protected Origin (terroir) provides labelling in the food sector but also to sustainable tourism arts and crafts and cultural goods. |

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\(^{23}\) ADEME: Agence de l'Environnement et de la Maîtrise de l'Energie (French Environment and Energy Management Agency) an industrial and commercial public agency, under the joint supervision of French Ministries for Ecology, Sustainable Development and Spatial Planning (MEDAD) and for Higher Education and Research.
Unclear cases
(unclear whether the government has a role):

Many NGO’s are active in promoting sustainable production and consumption, e.g. Comité 21, WWF, Consodurable
Evaluation of the environmental impact of Carrefour shopping bags (also unclear regarding the outcome)
### Germany

**Policies and Strategies:**

National Strategy for Sustainable Development

National process on sustainable consumption and production (SCP)

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<tr>
<td><strong>Administrative</strong></td>
<td>- every new house built in Germany has to apply the low energy house standard</td>
<td>- The German model example for extended producer responsibility is the Packaging Ordinance. The system organises the collection, sorting and recycling of packaging waste in Germany with the support of about 400 waste management partners. In order to obtain the right to print the Green Dot trade mark on their packaging, licensees must pay a licence fee based on the polluter-pays principle (depending on the number of packaging items, their weight and materials used). - German Federal Environmental Agency started the publication of the Handbook of green public procurement in 1999. It forms the baseline for a web-based information portal.</td>
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<tr>
<td><strong>Economic</strong></td>
<td>- Ecological Tax Reform in Germany has imposed increasing energy tax rates for the years 1999-2003. In order to ensure revenue neutrality these increases have been offset by reducing contributions to pension funds. Overall about 2% of the revenues of total taxes and social security contributions were shifted from the production factor labour on to the production factor energy/environment. - The Renewable Energy Sources Act provides for the connection to the general power grid of plants producing electricity from renewable energies and from mine gas on</td>
<td>- Supporting an interdisciplinary approach and research networks (1) actions in society towards sustainability (2) sustainability concepts for industry and economy (3) sustainability concepts for regions (4) concepts for the sustainable use of natural resources. - 360 Mio.€ support system for modernisation measures in heating systems, house electricity and in the building itself and for the use of renewable energy systems. Further support for the building of so-called “passive houses” which only use 15kW per square meter per year for</td>
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the territory of the Federal Republic of Germany including its exclusive economic zone. The act also provides for the priority purchase, transmission and payment of the electricity by the system operators as well as for a nation-wide compensation scheme for the electricity purchased and paid for. - Deposit on one-way beverage containers was implemented.

### Informative

- Contest “Schulträger 21”: New ideas for environmental education organized by the German Foundation for Environmental Education (DGU) and sponsored by the BMU/UBA supports municipalities and counties which involve their schools particularly intensively in the implementation of the local Agenda 21, thereby propelling local sustainable development.
- Environmentally friendly and healthy school start (Friends of the Earth, Karstadt Warenhaus AG, Federal Environmental Agency (UBA)).
- The German ecolabel “Blue Angel” co-operation among all stakeholders and a wide range of applications safeguards the high performance of this instrument within environmental and consumer protection policies.
- German Verbraucher Initiative e. V. build up a virtual platform on a broad range of labelling activities in Germany and Europe. The consumer gets information on the institutional setting and the procedures, which stand behind every label.
- The German Federal Ministry for the Environment, Nature Conservation and Nuclear
Safety and the Federal Environmental Agency sponsored a range of projects that promote fair trade of ecologically produced products from less developed countries:

1. Information platform on the web (www.eco-fair.de)
2. New international TransFair label
3. Marketing strategy for the promotion of fair trade products - “Sustainable Shopping Basket” informs the consumers about the opportunities and benefits of sustainable consumption and provides behavioural recommendations.

- Nation-wide survey on environmental awareness and behaviour in Germany every two years.
- Federal Organic Farming Scheme (Bundesprogramm Ökolandbau) launches a medium- to long-term Action Program on Organic Farming focuses on training, educational and general information measures as well as the promotion of research and the development of new technologies and practical implementation of the acquired insights.
- Sponsoring network of regional initiatives which strengthen regional economies. The objective of the project is to promote these initiatives through publicity and lobbying and to improve political conditions via exchange of contacts, expert forum and for representation of interests.
- Viabono – a label for environmentally sound tourist services. All catalogues of criteria cover the areas waste, energy, water noise, mobility, nature and landscape,
architecture and settlement structure, information, wellbeing of tourists, regional economic cycles and environmental management.
### Greece

**Policies and Strategies:**
National Strategy for Sustainable Development

"Environmentally Sound Technologies in Greece: Progress of Research and Technology, Economic and Social Impacts" Study to be used as a framework for action on SCP

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| **Administrative** | - Commitment to increase share of Renewable Energy Sources in electricity production to 20.1% by 2010. Policy directions, under implementation:  
  - The development and expansion of public transport infrastructure, emphasizing on fixed-track transport systems (railways, subway, tram), and the upgrading of the road network, in urban and rural areas, in order to address traffic congestion and to improve road safety. | |
| **Economic**      | - Price disincentives curbing excessive water waste in the Athens area.  
  - Env. Tax on mineral oils, with exemptions on RES and bio-fuels.  
  - subsidies for the construction of natural gas co-generation plants, and for the introduction of natural gas in operating units of the secondary sector, subsidized by national and EU funds.  
  - domestic natural gas equipment deductible from the taxable income of natural and legal persons.  
  - Subsidies on small-scale applications of Renewable Energy Sources in rural areas. | |
| **Informative**   | - The Greek National Network for Environmental Information recording and assessment of | - For the implementation of the Eco Label Regulation a Greek National Council has |
information related to various environmental issues towards national level, European Environmental Agency and the public.
- Report on sustainability indicators including SCP related issues
- Implementation of an awareness raising campaign and the creation of the necessary infrastructure builds the solid waste management policy.

been established. Product groups are tourist services and the bed mattresses industry.
- A standardization, inspection and certification authority grants a single label for the acknowledgement of the Greek organic agricultural and animal products and controls the trade and distribution of organic agricultural and animal products.
- A “Certification Regulation for non-genetically modified agriculture products” has also been developed.
- Certification of aquaculture products based on Optional National Standards regarding the Management Systems and Quality assurance.
- Eco Label scheme for tourist services and a certification for Agrotourism.
Share of environmentally friendly tourism in total tourist accommodation (hotels and rooms-to-let) is 3%.
- “Sustainable Building 2000”; tool for consumers interested in purchasing environmentally friendly construction materials, systems and devices (paints, central heating systems, solar panels, photovoltaic systems, water treatment systems, light bulbs, isolation materials etc) provided by the Ministry of the Environment and the Interdisciplinary Institute of Environmental Research (INIER).
- ELOT has developed and implements certification schemes in the following sectors: electric household appliances, electric cables, steel for reinforced steel, asbestos- cement, ceramic
- Actions of Consumers Organizations working on consumers protection and raising public awareness are reinforced and in some cases financed by the Greek Government.

Institutional
Greek legislation on consumers’ protection (1994) provides for the creation of the National Consumers Council (NCC) consisting of 19 members, representing mainly consumers’ and the co-operative movement, as well as commerce and industry.

Implementation of EU policies
Agricultural policy is shaped within the CAP framework; the implementation of the agro-environmental regulation 2078/92 still limited (in 2004).
Promotion of alternative fuels in accordance with the relevant EU Directives.

Influencing the international policies
Host of the Second Expert Meeting on Sustainable Public Procurement (2003)
**Hungary**  
**Policies and Strategies:**  
Network for Sustainable Consumption and Production

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- reports to Corporate Social Responsibility CSR published by enterprises having Hungarian headquarter.  
- KÖVET-INEM Hungária, the Hungarian Association for Environmental Management worked out a verification programme of the Hungarian environmental or sustainability reports with strong transparency and participatory elements.  
- Sustainability Rating methodology, to put the firms performance on a scale of 1-5, from the 3 dimensions of corporate sustainability (economic, environmental, social).  
- The Hungarian Network of Eco-counselling Offices (NGO) - operating, developing the network of eco-counselling offices  
- running a co-ordination office  
- publishing brochures, booklets  
- organizing training for the eco-counsellors on specific topics, such as waste management, air protection, communication skills etc.  
- co-operating with Eco-counselling Europe on specific projects, such as Solar energy in Hungary, experience exchanges etc.  
- Cleaner Production Centre has
launched a series of publications. It informs different stakeholders of new advances and methodologies in environmental protection and provides bases for the annual conferences.
### Ireland

**Policies and Strategies:**

Sustainable Development: A Strategy for Ireland  
Making Ireland’s Development Sustainable: Review, Assessment and Future Action

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| **Administrative** |                       | - Arrangements for the co-ordination and promotion of more environmentally friendly procurement through environmental specifications in supply contracts for the civil service.  
- The Irish Department of Finance has prepared guidelines on Environmental Considerations in Public Procurement. |
| **Economic**       | - Extensive investment in waste infrastructure.  
- Environmental R&D program for strategic planning and to develop innovative solutions to environmental problems. | |
| **Informative**    |                       | - A Waste Awareness Media Campaign, a strong, creative, high quality multi-media campaign, designed to raise awareness of the need to address waste and to get people at home and at work to prevent, reduce, re-use, and, recycle or compost their waste and ultimately to reduce quantities for final disposal.  
- A Waste Communications Strategy address general issues, public concerns, information needs, misunderstandings / misconceptions of waste and the measures required to deal with waste in an integrated way. The communications strategy will complement the extensive investment in waste infrastructure.  
- ENFO – the Irish Environmental Information Service, is a public service which |
provides easy access to wide-ranging and authoritative information on the environment, incl. sustainable development. ENFO collects and maintains up-to-date information on all aspects of the environment and sustainable development and makes it readily available to anybody who wants it. ENFO services include:

- a range of information leaflets/fact sheets/posters on a wide variety of environmental topics
- a query answering service, by post, phone, or e-mail
- reference Library with books, journals, reports, microfiche, computer databases, US EPA reports, online access to the Barbour Index and Murdoch's Irish Law Companion (for Act's and SI's)
- video lending for schools and environmental groups
- teaching resource pack lending for teachers
- exhibitions and exhibition lending for any interested groups
- group visits, talks and activity trail for visiting schools and other groups of all ages
- a Children's Club with periodic postings of games, puzzles, colouring pictures, newsletter, etc
**Italy**

**Policies and Strategies:**
- The National Strategy for Sustainable Development
- The Economic And Social Council for Environmental Policies
- Local Agenda 21
- Sustainability of Structural Funds

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<td>- Definition in order to “green” the public procurement of goods and services. It foresees that the Ministry for the Environment is consulted on the draft “calls for tender” of various administrations in order to ensure that environmental aspects are appropriately integrated.</td>
<td></td>
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<tr>
<td><strong>Economic</strong></td>
<td>- Concerning costs recovery of environmental services, actions are taken in the field of <em>water and waste management</em> to shift the charge from a tax-based system to a <em>tariff-based system</em>, which takes into account the amount of water used/waste produced, and related environmental degradation.</td>
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<td>- Voluntary LA21 supported financially by the Ministry for the Environment by a periodical call for tender (public notices). Co-financing of projects for the starting and strengthening of Local Agenda 21 processes (local sustainable development plans) promoted by Municipalities, Provinces, other local public authorities.</td>
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<td>- Economic measures to promote sustainability are foreseen in Italy in various fields. <em>Incentives</em> include public contribution for covering the cost to install solar heat power or photovoltaic plants.</td>
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<td>- The Italian Ministry of Environment promotes and co-funds (18 millions euro up to 50 millions) a broad programme for <em>research and development on hydrogen/fuel cell technologies</em>.</td>
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<td><strong>Informative</strong></td>
<td>- The Italian Ministry for the Environment, as established by the Institutional Law</td>
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<td>- A network of local “Environmental Education Centres” has been established in</td>
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24 [www.minambiente.it/Sito/cvri/cvri.htm](http://www.minambiente.it/Sito/cvri/cvri.htm)

25 [www.minambiente.it/Sito/settori_azione/iar/FontiRinnovabili/programmi/elenco_programmi.asp](http://www.minambiente.it/Sito/settori_azione/iar/FontiRinnovabili/programmi/elenco_programmi.asp)
(L349/1986) and in accordance with the Aarhus Convention, publishes every two years a national report on the state of environment (RSA).

Italy in the framework of the “National System for Environmental Information, Training and Education” (INFEA). The centres mainly focus on promoting public awareness, they address various categories of learners, comprising people of different ages. Some projects are carried out within or in collaboration with schools.

- Many regional and local institutions also follow the (RSA) example. In 2002 an ad hoc version for children of the national report, named RSA Junior, has been produced for schools, aiming at promoting the environment-related knowledge in all its complexity.

Unclear cases
Beside public policies:
A CSR Management Framework has been defined in the Q-RES project, which can be adopted by any company or public organisation willing to manage fairly and efficiently its relationships with stakeholders. The projects aim at the development of quality management standard, certifiable by independent third parties.

Demo Projekt
In Italy, in the framework of a broader ENEA’s (research centre) R&D programme on solar thermo-dynamic source, the “Archimede” pilot project in Sicily, jointly elaborated with ENEL (electric energy provider), foresees the use of an innovative technology to accumulate the heat derived from solar plants and make it always deliverable. The renewable energy so provided is used to increase the power the thermo-electric plant of that area, and is able to cover the need of 20000 inhabitants.

26 www.minambiente.it/SVS/infea/infea.htm
27 www.minambiente.it/Sito/pubblicazioni/Collana_RSA/RSA_junior/RSAjunior_indice.asp
28 http://www.qres.it.
### Malta
#### Policies and Strategies:

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<td><strong>Administrative</strong></td>
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<td>- Assistance to local authorities scheme called ‘Landscaping for a Greener Surroundings’</td>
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<td><strong>Economic</strong></td>
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<td>- Earmarked fund to channel government’s tourism-derived revenues into improving tourism infrastructure and the environment; more focused management of finances is being proposed in the tourism sector, through the creation of an 'ad hoc' account for tourism which will be credited with VAT receipts from hotels and restaurants as well as from revenues from heritage sites. Funds credited to this account will be allocated, amongst others, towards capital projects related to the development and enhancement of tourism products. Maltese Housing Authority initiatives.</td>
</tr>
<tr>
<td><strong>Informative</strong></td>
<td></td>
<td>- Series of “Eco-Breakfasts” as part of campaign to target key industry groups about the new legislation arising from the transposition of the EU environmental Acquis. - An Agenda 21/Eco Schools project aims to empower school children to participate, act and be responsible for their school’s environment in line with Local Agenda 21 principles. - The Malta Environment and Planning Authority website provides user-friendly provision of GIS-based environmental information, - The Environment section has been re-designed with the look-</td>
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29 [www.mepa.org.mt](http://www.mepa.org.mt)
in feel of the organization's portal and now has up-to-date legislation, including Government and Legal notices, supplementary guidance and publications relating to the Environment.
- Maltese cartoon character Xummiemu to promote environmental education amongst children.
- Environmental indicators ‘Malta at a Glance’, and the Sustainability Indicators – Malta Observatory. The work was disseminated through a book, an interactive compact disc, a press conference, and a fast-paced 25-minute video.
- Guidelines on energy efficiency in buildings.
- Eco-certification scheme
- Tourism Carrying Capacity Study:
The Netherlands

Policies and strategies:
- National Environmental Policy Plan (NEPP4)
- An annual environmental outlook
- The Netherlands developed national and international action plans for sustainable development after the Johannesburg summit
- The government follows a general policy based on a report by the Social and Economic Council, Corporate Social Responsibility: A Dutch Approach.

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<td>- Negotiated agreements (covenants) to develop shared responsibility by the different actors for environmental goals, integration of environmental media and achievement of national targets set in National Environmental Policy Plans.</td>
<td>- National programme on GPP</td>
</tr>
<tr>
<td>Economic</td>
<td>- Since 1995 a specific tax, based on the negative impact on the environment, was introduced in the Netherlands: the environmental tax act. The tax is charged on the use of groundwater and drinking water, the dump of waste, the use of fuels and energy.</td>
<td>- As from 1995 Dutch citizens have the possibility to invest in green funds, set up to finance environment friendly projects. The extra profitable factor is a tax compensation that improves the returns. Green financing is only permitted if the project has a green certificate issued by the Ministry of Environment.</td>
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<tr>
<td>Informative</td>
<td>- In the Netherlands, since 1999 about 250 companies are obliged by law to produce an annual environmental report. An environmental report consists of two reports, one for government and one for the public.</td>
<td>- The Dutch government is stimulating the voluntary publishing of sustainable or CSR reports by companies, based on the philosophy of the triple P (people, planet, profit) by promoting, for instance, the GRI system. The development of a national CSR knowledge centre. Financial support of a CSR university research programme. A Dutch national independent information point on sustainable consumption, the foundation “Milieu Centraal”, is established and financially supported by government. 400 companies make their</td>
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environmental report as part of the agreements in the environmental covenants.
- The government financially supported a project of the national consumer union Consumentenbond to develop a “best sustainable buy” benchmark method (triple P) for consumer products and services.

### Poland

**Policies and Strategies:**
Strategy of changing production and consumption patterns to favor the implementation of sustainable development principles.

Program of changing production and consumption patterns in the economy sector 2004 – 2012

National Environmental Policy 2003 – 2006 including the long time perspective for 2007 – 2010,

National Environmental Protection Strategy 2000-2006

National Ecological Development

National Waste Management Plan

Guidelines of the National Energy Policy until 2020

Programme of the introduction of a competitive electrical power market in Poland

Strategy for Development of the Renewable Energy Sector

National Environmental Education Strategy

The Guidelines on the Principles and Scope of Inclusion of Environmental Protection Issues in Sectoral Programmes

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<td><strong>Administrative</strong></td>
<td>- The <em>Bio fuels Act</em> of 2\textsuperscript{nd} October 2003 provides instruments for the promotion of use of bio fuels which goes beyond the Community’s initiatives. Due to its provisions bio components shall be added to all kinds of fuels. The minimal share of the bio components will be</td>
<td>- There are several labeling systems for agricultural produce obtained with ecological methods in Poland. The most known and widely recognized on the national market, is a logo of the „Ecoland“ Ecological Food Producers Association. The right to use this sign is restricted to producers, processing entities and sellers who meet the requirements set in</td>
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- The packaging return system for specified hazardous substances was introduced in Poland in 1998. It aims at collecting scattered used packagings which are contaminated by hazardous substances. The system is regulated by the Act of 11 May 2001 on packaging and packaging waste.

- Producers and importers of hazardous substances are obliged to establish a deposit for separate packaging at 10 to 30% of the included substance price. Then sellers of hazardous substances must ask its users to pay the deposit. Having used the product, users should return the packaging and packaging waste, receiving the deposit in return.

- Charges for usage of surface and ground water and for discharging waste to water or soil (increased on the basis of Water Law Act of July 18th, 2001).

- Charges for illegal water consumption and for exceeding the limits on pollutant discharges.

- The Thermomodernisation Fund has been created under The Thermomodernisation Act, and it is aimed at financing of the building envelope improvement, internal technical systems, local sources and distribution networks.

- The amount of thermomodernisation bonus may not exceed 25% of the total investment costs.

- Energy bus

  In the period of 2003 – 2005 the National Energy Conservation Agency (Polish KAPE), in collaboration with German partners, is running a nationwide campaign named “Energy Bus”. The bus operates as a mobile

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30 www.kape.gov.pl
31 www.autobus-energetyczny.pl
informative and educational centre and it is going to visit at least 100-150 local communities during 11 regional campaigns.

- Nationwide programme for environmentally friendly nursery/schools
- The „Eco-sign” certification is based on the environment and health requirements set by the „Eco-sign” Committee, consisted of representatives from the governmental bodies, non governmental organisations working in the environmental protection field, as well as producers, consumers and banks.
- The National Multimedia Campaign aimed to promote environmental labeling was launched in July 2004, by The Foundation for Social Communication in collaboration with Polish Responsible Business Forum and the Office for Competition and Consumer Protection.32 „Buy responsibly” Campaign is run by the Polish Green Network (PGN) – a group of environmental organisations undertaking nationwide actions33. PGN provides comprehensive consumers information34. Among PGN partners there is „The Third World and We” Fair Trade Association founded in 2003 to promote the ethical consumption and business activities35.

Institutional

In December 2003, the multisectoral Group for Environmental Education was established as an assistance body of the Prime Minister. Members of the Group are designated, i.a. by ministers for economy, infrastructure, agriculture and the environment. One of its main tasks is to update and coordinate the implementation of the Executive Programme of the National

32 www.zieloneznaki.pl
33 www.zielonasiec.pl
34 www.ekokonsument.pl
35 www.sprawiedliwyhandel.org
Environmental Education Strategy. Some of the sustainable consumption and production aspects are included in the school extra curricula activities and aim to develop attitudes and abilities to make more environmentally preferable purchasing choices.
**Slovenia**

**Policies and Strategies:**
- Environmental Protection Act
- National Environmental Action Programme– NEAP

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| **Administrative** | - regulations and standards (thermal insulation and ventilation for buildings, cost-sharing for heating apartment buildings, minimum requirements for energy efficiency of appliances, energy ratings for household appliances).  
- Operational programmes: on waste disposal, management of hazardous waste, municipal waste collection, of packaging, of waste oils, of batteries and accumulators, of PCB/PCT, asbestos, building waste, of used end-of-life tyres, on the management of electric and electronic equipment, of end-of-life vehicles. | |
| **Economic** | - tax on CO₂ emissions and the tax on waste disposal.  
- Financial incentives (subsidies, favourable loans, relief and remission of income tax and excise on CHP generation, favourable electricity prices from qualified producers, capital investments), incentives for providing energy services (contractual guarantee of energy savings and energy supply).  
- The principle of third party financing (TPF), or the contractual reduction of energy costs on the basis of the implementation and funding of measures to reduce energy consumption or to improve the efficiency of energy supply, has been introduced(?) in Slovenia.  
- environmental protection | - Partnership approach »Water Wells« to preserve abounded water wells and as such to conserve water sources has established a fund, in which it deposits 50 tolars from each litre of environmentally friendly product sold. Funds were intended for cleaning up and sanitations of the Karst caves and abysses (Slovenia has over 7,000 Karst caves) and also for restoration of the local abandoned wells. In 2005 there were 8 local wells restored.  
- The Slovenian Agency for Energy Efficiency and Renewable Energy – AURE (within MESP) ([www.aure.si](http://www.aure.si)) earmarked approximately 463 million tolars (SIT) in 2004 for financial incentives for investments in efficient energy use and the use of renewable sources of energy. The financial |
| Policy: waste water tax, water abstraction charges, CO2 tax, landfill tax, tax on used end of life vehicles, tax on lubricants. | - Earmarked funds of wastewater tax (legislation adopted in 1996) have financed substantial share of building wastewater collection and treatment facilities. Good experiences gained with wastewater tax exemptions have been used as well when adopting landfill tax regulation as well as tax on CO2 emissions. Earmarked funds of landfill tax exemptions (from 2002 on) have been used to finance waste management facilities and source.  
- Tax on use of lubricant oil and liquids, Tax on end-of-life vehicles partly earmarked to finance governmental public service of dismantling end-of-life vehicles. Amendment to Law on excise duties that the Slovenian government has adopted in June 2003 exempted bio fuels of paying excise duties.  
- Tax on CO2 emissions has been adopted already back in 1996, and has been revised in 2002 and 2005, when introducing obligation to conclude voluntary agreements with industry. It represents one of the major instruments for CO2 emissions reduction. Intensified actions to implement scheme for emission trading started already in 2004, National allocation plan for the period 2005 to 2007. Allowances free of charge to operators of installations where activities that cause green house gas emissions are carried out. |
|---|---|
| Incentives were used to support the following investments in 2004:  
- investments in raising the energy efficiency of older apartment buildings were made by 272 households  
- use of renewable sources of energy  
- use of woody biomass by households  
- use of renewable sources of energy by companies and the public sector  
- use of woody biomass by companies and the public sector. | - Ministry earmarks financial incentives for energy reviews and feasibility studies at companies and institutions and energy plans for municipalities.  
- Slovenian Agri-Environmental Programme: subsidies have been submitted, the greater part for sustainable livestock, organic farming and Alpine pasture. |

**Informative**

- State of the Environment
- Grants with recognitions and
<table>
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<tr>
<th>Report on the basis of Article 75 of the Environmental Protection Act. Environmental Indicators in accordance with the Article 106 of the Environmental protection Act. The implementation of energy efficiency programmes for consumers by energy distribution companies (defined by Article 67 of the Energy Act), pursuant to which suppliers of electricity, natural gas or heat are preparing programmes to encourage consumers to use energy more efficiently.</th>
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<tr>
<td>awards the most energy efficient company, energy efficient project and the best energy manager in order to stimulate energy efficient systems and investments in energy efficiency in general.</td>
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<td>- System of energy certificate for energy efficient buildings.</td>
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<td>- »Eco School as a way of life«: school as whole can take part together with parents and representatives of the local community. Seven steps are to be reached in two years before the school gain an international eco flag. Each year exhibition of the best projects.</td>
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<td>- National competition in the field of water protection and conservation: The Water Detective is action, research, literate and artist project for children within they research the water environment and raise awareness among themselves and general public about the importance and care for the healthy water and water consumption. The best 15 schools get awards.</td>
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<td>- Establishment of the environmental information centre to provide and assure environmental information and data, giving green advises, raise public awareness on environmental issues, inform about best practices and demonstration projects etc.</td>
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<tr>
<td>- Ministry has a regular ENSVET advisory programme, which aims to provide advice and general information and awareness for the public about efficient energy use and the use of renewable energy sources (RES).</td>
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<td>- Labelling of the energy rating of household appliances</td>
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Unclear cases

NGO Activities: first Fair Trade shop has been opened in Ljubljana, Slovenia. This new Fair Trade premise also serves as place of cultural exchange events with low developed countries of the origin of the goods, and there is also being held environmental education seminars, exhibitions, workshops, etc.
Spain
Policies and Strategies:

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<tr>
<th>Policy instruments</th>
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<th>Voluntary instruments</th>
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<tr>
<td>Administrative</td>
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<tr>
<td>Economic</td>
<td>- Development of projects based on renewable energy sources and the promotion of energy efficiency were favoured by third party financing, a financing instrument that has been successfully adapted by the Institute for Energy Diversification and Saving to the features of the Spanish market.</td>
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<td>Informative</td>
<td>- Multi-media forestry education programme to foster a wider knowledge of forests and their products. The programme is targeted at teachers who wish to raise awareness among their students of the important role that forests play. - The Spanish “Sustainable Tourist Municipality” Project provides know-how for managing the environmental implications of a tourist. - Green Flag-Sustainable City Award For waste prevention programs in cities. - Promotion of hot water solar panels</td>
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36 [www.edufores.com](http://www.edufores.com)
**Sweden**

**Policies and strategies:**
- Report “Towards Greener Products” (2002), a basis for further development of the Integrated Product Policy
- The Ministry of Agriculture/consumer unit will develop an action plan on Sustainable Consumption
- The Swedish Parliament adopted fifteen national environmental quality objectives, the majority of which are to be attained by the year 2020 (in the case of Reduced Climate Impact, by 2050 as a first step). Subsequently, in a series of decisions, Parliament has laid down 71 interim targets. The interim targets are in most cases to be reached by 2010. (1999)
- A strategy for more efficient energy use and transport
- A strategy for non-toxic and resource-efficient cyclical systems, including an integrated product policy. → The life-cycle strategy: a guide to attaining Sweden’s environmental objectives
- A strategy for the management of land, water and the built environment

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<td><strong>Administrative</strong></td>
<td>- Structural funds are more stringently regulated in Sweden than prescribed by the EU regulation so as to reduce the impact of harmful subsidies.</td>
<td>- At least 25 percent of vehicles bought by the government shall be environmentally adapted vehicles.</td>
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<td>- In 2001 was published the EKU-tool, an internet-based guideline for purchasers. The tool contains proposals for procurement criteria for about 75 product groups, is continuously updated and the aim is to broaden its use to all kinds of professional purchasers</td>
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<tr>
<td><strong>Economic</strong></td>
<td>- A large set of different environment taxes and charges is used in order to include the societal cost of production and consumption to the environment in prices, e.g. carbon dioxide tax, energy tax, sulphur tax, pesticide tax, nitrogen oxide charge, battery charge, gravel tax etc. The Budget Bill for 2001 introduced green tax reform for the period 2001-2010 amounting to SEK 30</td>
<td>- Subsidies are used in order to promote the use of environmentally less harmful substances, e.g. biofuels used in heat production are exempt from carbon dioxide tax and emission allowances and biofuels used as propellants are exempt from energy and carbon dioxide tax.</td>
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<td>- The Swedish Environmental Protection Agency has initiated a project on knowledge building for public purchasers, top managers and politicians.</td>
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- New economic instruments for SCP have been introduced and are planned. Examples of the new instruments are green certificates to promote production of electricity from renewable resources, carbon dioxide emissions trading and congestion charges.  
- The perquisite taxation for environmentally adapted cars has been lowered, e.g. for cars powered by alcohol or gases other than lpg, or electrical and hybrid cars. Another possibility is to change the benefit rates for company cars as well as differentiate it according to the fuel efficiency of the cars.

| Informative | - Environmental Product Declaration, EPD  
- Studies have been commissioned to identify all harmful subsidies in Sweden and to propose measures to remove such subsidies.  
- “FLIPP - Furthering Lifecycle considerations through integrated product policy” research project funded by the EPA of Sweden (2003 – 2008)  
- “SHARP – Sustainable household” research project funded by the EPA of Sweden (2003 – 2008)  
- Exchange of information and know-how about ”best practices” is encouraged in the Swedish Commission Action Plan for Environmental Technology (ETAP).  
- The Swedish Consumer Agency has a web site with more than 300 advices on |
| Environment and consumption including “Buyer’s guide”, “Electricity guide”, ”Energy calculator” |  |
**United Kingdom**

**Policies and strategies:**
- The UK Sustainable Development Strategy (1999) -> a new strategy and indicators for 2005 onwards
- Market Transformation Programme (MTP)
- The UK Waste Implementation Programme\(^\text{16}\) (WIP) responds to the package of strategic measures recommended by the Strategy Unit (SU) report "Waste Not Want Not" (2002)

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<td><strong>Administrative</strong></td>
<td>- Revision of the Building Regulations to raise standards for energy efficiency in new buildings and refurbishments</td>
<td>- Collaborative projects involving particular product chains or sectors as pilots to explore practical application of the SCP approach</td>
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<td>- Setting up a Roundtable on Sustainable Consumption</td>
<td>- In March 2000, DTI and DEFRA (UK) established the Pioneers Group, a best practice forum of sectoral organisations, to accelerate the development and implementation of sectoral sustainability strategies. Seven sectoral associations have now published sustainability strategies.</td>
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<td>- A wide-ranging review of the scope for Government procurement activity to contribute directly to progress on sustainable development.</td>
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<td><strong>Economic</strong></td>
<td>- Increased funding for renewables capital grants.</td>
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<td><strong>Informative</strong></td>
<td>- Stimulating a national debate on patterns of consumption</td>
<td>- Creating a website providing access to details of the range of</td>
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<td></td>
<td>- A project to assess the robustness and gaps of the evidence base of theories and views vis-à-vis sustainable household consumption.</td>
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\(^{16}\) [http://www.defra.gov.uk/environment/waste/wip/]
| Learning and development opportunities on CSR setting up of a CSR Academy |
| - A Pioneers Group (a best practice forum of sectoral organisations) web site \(^{12}\) strategy and reporting toolkits and a self-assessment guide.  |
| - The Energy Saving Trust (EST) (1992) was established to address the damaging effects of climate change. It is a non-profit organisation funded by government and the private sector that focuses on delivering practical solutions for households, small firms and the road transport sector. Its Energy Efficiency Helpline and a website which give practical information to householders.  |
| - The Carbon Trust \(^{14}\) is an independent company funded by government whose role is to help the UK move to a low carbon economy by helping business and the public sector reduce carbon emissions.  |

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\(^{12}\) [http://www.pioneersgroup.co.uk/](http://www.pioneersgroup.co.uk/)

\(^{14}\) [http://www.thecarbontrust.co.uk/carbontrust/](http://www.thecarbontrust.co.uk/carbontrust/)