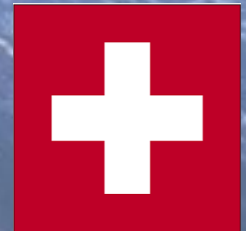




2011 Survey of resource efficiency policies  
in EEA member and cooperating countries

COUNTRY PROFILE:

# Switzerland



Country information on resource efficiency policies,  
instruments, objectives, targets and indicators,  
institutional setup in place and knowledge gaps

August 2011

This country profile is based on information provided by Marie-Amélie Ardiot (NRC SCP), Michael Hügi (NRC Waste) and Silvia Ruprecht-Martignoli and Josef Kaenzig (NRC Environment and Economy) from the Swiss Federal Office for the Environment FOEN. The information is current as of August 2011.

This country profile was prepared as part of the EEA-ETC/SCP 2011 survey of resource efficiency policies, which aims to collect, analyze and disseminate information about national experience in the development and implementation of resource efficiency policies in EEA member and collaborating countries. The work resulted in the following outcomes:

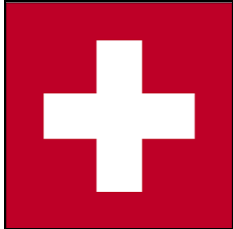
- **Short 'country profiles' (this document)** - self assessments prepared by countries, describing the current status of resource efficiency policies, including key strategies and action plans, policy objectives, instruments, targets and indicators used, institutional setup and information needs.
- **Summary report** - prepared by the EEA and ETC/SCP, the report reflects on trends, similarities and differences in policy responses, showcases selected policy initiatives from member countries and identifies information needs and knowledge gaps.
- A session on resource efficiency policies during the 2011 EIONET workshop to discuss further needs and to facilitate information sharing and experience exchange among EIONET members.

More information about resource efficiency policies, including an analytical report "Resource efficiency in Europe" and thirty one country profiles, can be found at:

<http://www.eea.europa.eu/resource-efficiency>

# 1. Resource use in Switzerland – facts and figures

## 1.1 General facts and figures about the country



Source:  
<https://www.cia.gov/library/publications/the-world-factbook/index.html>

Population (projected inhabitants for 2010) [1]	7,785,806
Percent of total EEA-32	1.33%
Surface area (km <sup>2</sup> ) [2]	41,277
Percent of total EEA-32	0.73%
GDP at market prices – Purchasing Power Standard – Current Prices (Million Euro, 2009) [3]	263,461.4
Percent of total EEA-32 (minus Liechtenstein)	2.02%
GDP per capita in Purchasing Power Standards (PPS) [4]	144
EU27=100 (2009)	
Urban population (rate of pop., 2009) [5]	73.5%
Main economic sectors and their share in total GDP (2009 est.) [2]	
Agriculture	1.3%
Industry	27.5%
Services (2010 estimation)	71.2%
EU accession date [6]	-

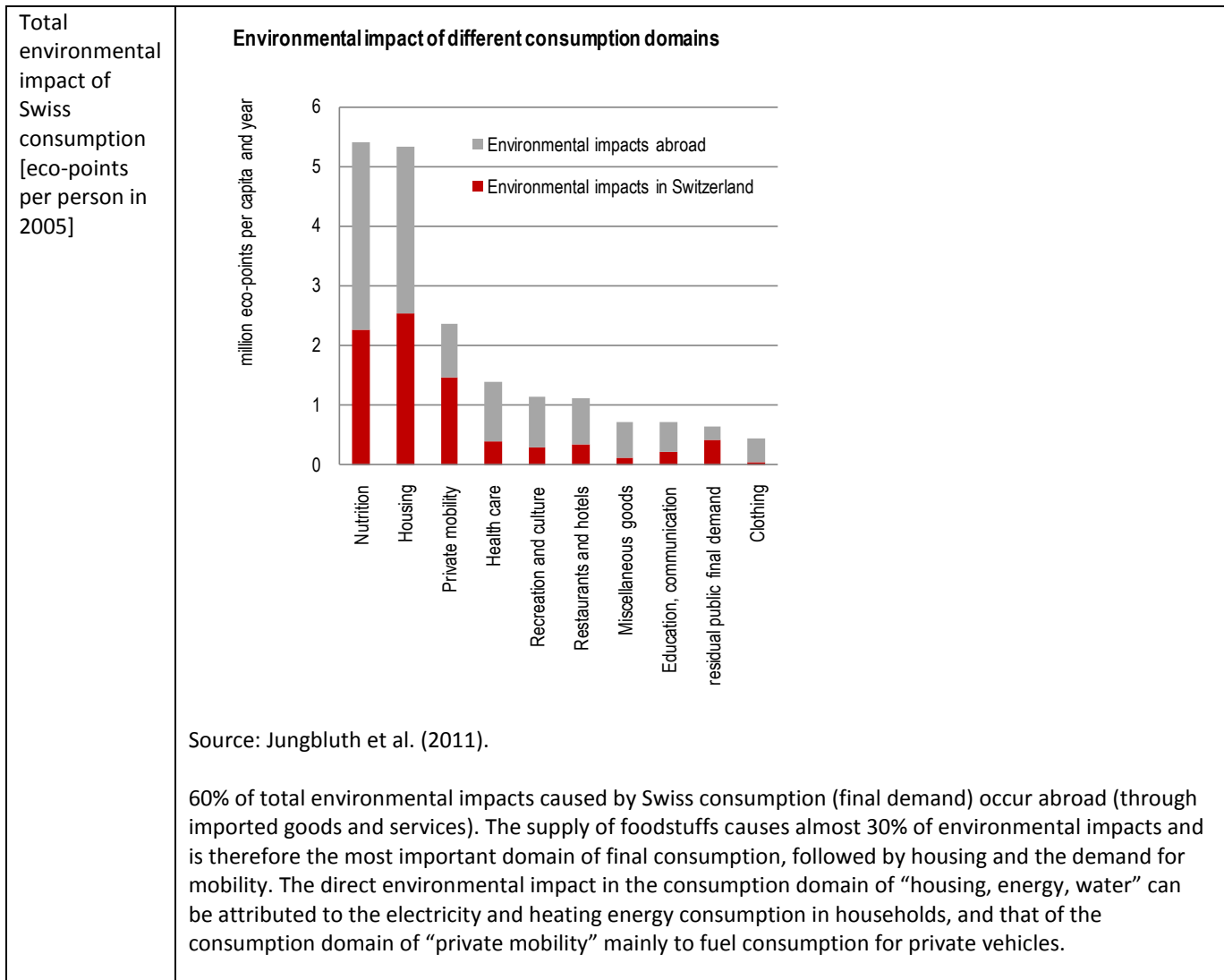
Additional relevant background information on Switzerland (and on 37 other EEA member and cooperating countries) can be found at the SOER2010 website:

<http://www.eea.europa.eu/soer/countries/ch>

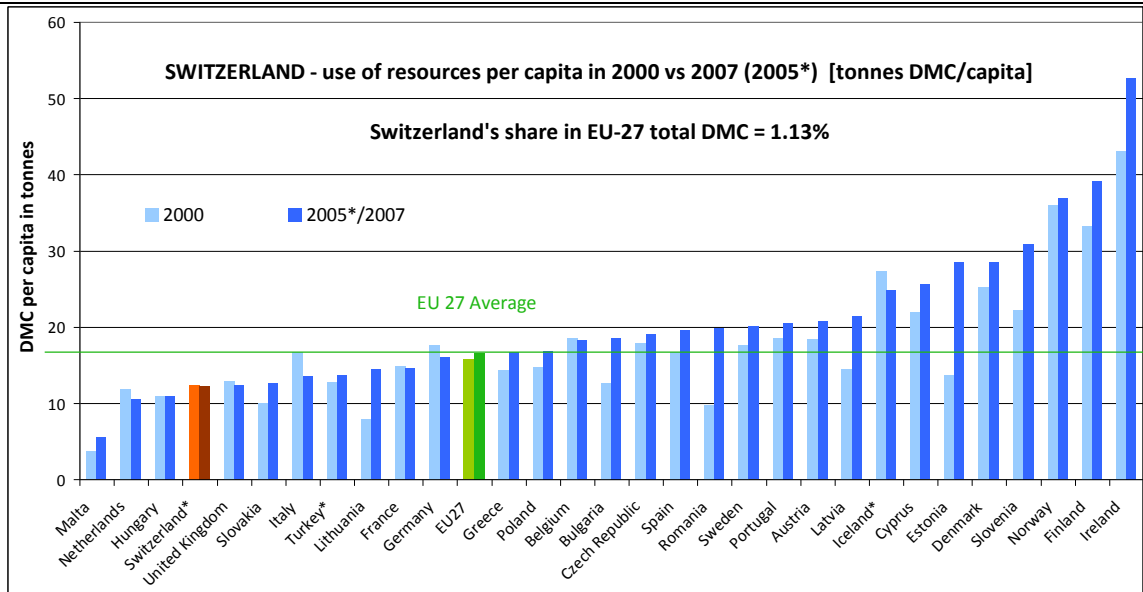
Factsheet on national waste policies for Switzerland is available at:

[http://scp.eionet.europa.eu/facts/factsheets\\_waste/2009\\_edition/factsheet?country=CH](http://scp.eionet.europa.eu/facts/factsheets_waste/2009_edition/factsheet?country=CH)

## 1.2 Facts and figures on resource efficiency for Switzerland



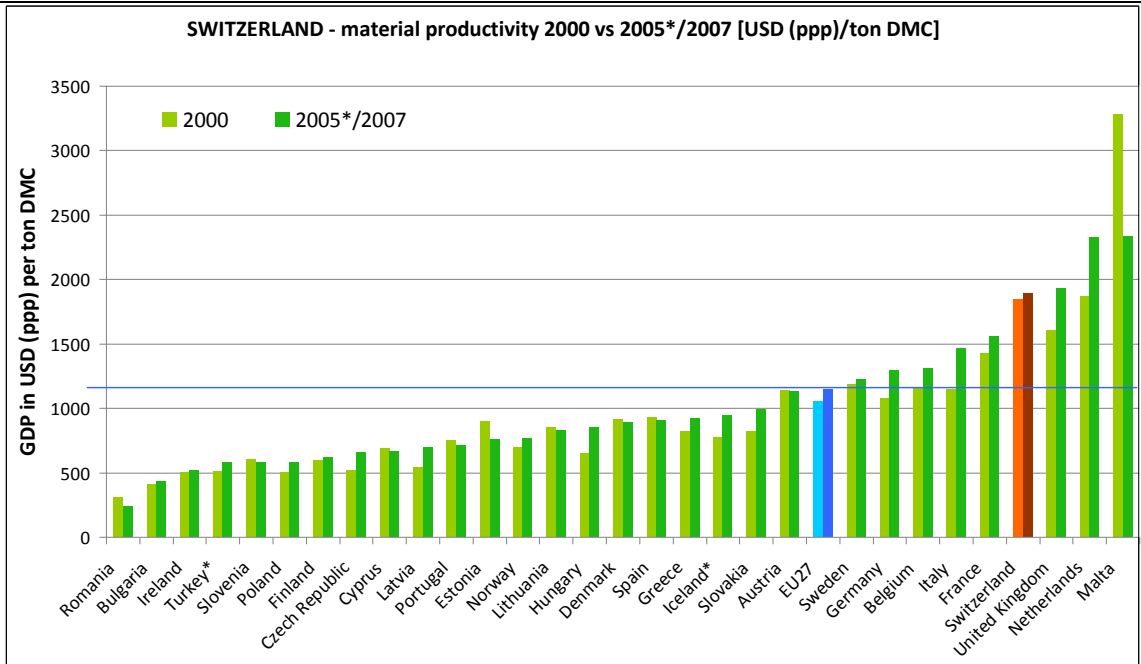
Use of resources per capita 2000 and 2007 [tonnes DMC/capita]



Source: Eurostat, OECD & Total Economics Database

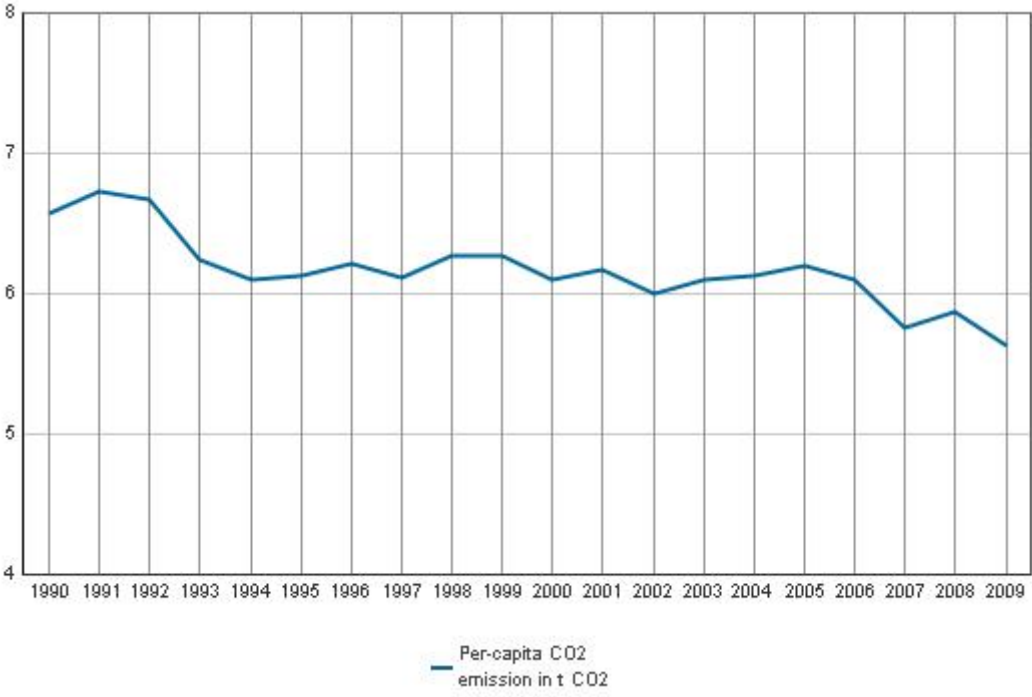
Comparison of the Domestic Material Consumption (DMC) between Switzerland (red) and all other EU-countries and -member states (blue). Switzerland finds itself amongst countries with the lowest use of resources per capita and lies below the EU 27 average (green). Reasons: inter alia, highly specialized infrastructure, highly efficient industrial and technological processes, relatively small construction- and agriculture-sector. Note that tonnes of material consumption is a very rough indicator for resource consumption. A comprehensive measure of environmental impacts should also include resource consumption abroad (due to imports) and the environmental impact of harmful emissions on human health and ecosystem quality.

Material productivity 2000 and 2007 [USD ppp/ton DMC]



Source: Eurostat & OECD

Comparison of the material productivity between Switzerland (red) and all other EU-countries and -member states (green). Switzerland finds itself amongst countries with the greatest material productivity and lies above the EU 27 average (blue). Reasons: inter alia, specialized high-tech industry and infrastructure. Note that the high material productivity of Switzerland is mainly due to its high share of service industries. 60% of total environmental impacts caused by Swiss consumption (final demand) occur abroad (through imported goods and services).

<p>Greenhouse gas emissions 1990-2011</p>	<p style="text-align: center;"><b>Per-capita CO<sub>2</sub> emissions</b></p>  <p style="text-align: center;">— Per-capita CO<sub>2</sub> emission in t CO<sub>2</sub></p> <p>Source: Federal Office for the Environment; Federal Statistical Office</p> <p>Carbon dioxide (CO<sub>2</sub>) accounts for 85% of Switzerland's total greenhouse gas emissions. It is generated when fossil fuels such as coal, oil and gas are burnt. Around 44% of CO<sub>2</sub> emissions are generated by the combustion of transport fuels (gasoline, diesel oil), while the remaining 56% result from the use of heating/process fuels (heating oil, natural gas) in private households, commerce and industry. The per-capita CO<sub>2</sub> emissions indicator permits a simple comparison of the average emissions in different countries, irrespective of the overall population figure. Per-capita emissions can also provide a reference for setting reduction targets (such as a long-term target of 1 tonne CO<sub>2</sub> per-capita worldwide).</p>
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## 2. Evolution and main forces for the development of resource efficiency policies

Consumption and production have strong consequences for resource use, with impacts on the environment, and risks and chances for economic development (depletion of resources, sustainable development, decoupling). Resource efficiency policies are necessary to maintain a reasonable exploitation rate of renewable and non-renewable resources, thus enabling sustainable economic development and diminishing environmental pollution. From a geopolitical perspective, resource efficiency policies help to reduce the dependence of Switzerland on imports of energy and other primary resources.

## 3. Overall policy approach for resource efficiency

### Environmental policy is resource policy

Natural resources are limited. Often already overexploited, their use continues to intensify. The aim of Swiss environmental policy is to ensure that natural resources are maintained over the long term and continue to be available to future generations. The Federal Office for the Environment (FOEN) contributes in four key areas. At national level, it is responsible for protecting the population against natural hazards. It protects the environment and human health by reducing the adverse effects of pollutants, noxious substances and noise. It works to preserve and promote biological and landscape diversity as well as natural production factors such as wood or touristic landscapes. Finally, the FOEN is responsible for Switzerland's international environmental policy. The [FOEN](#) in brief.

### Greening the economy

Efficient technologies, processes and products need to be harnessed to minimize environmental impacts. The use of natural resources in consumption and production has to be reduced to a sustainable level while simultaneously strengthening competitiveness. Acting on behalf of the Swiss Federal Council, the [Green Economy Program](#), launched in October 2010, delivers the fundamentals for putting the Swiss economy on a resource efficiency track. This work includes enhancing the setting for Cleantech innovation and increasing resource efficiency in the Internet and Communications Technologies (ICT) field. Moreover, the FOEN generates standardized, internationally coordinated tools by which to assess natural resource consumption and the environmental impacts of products and services, thus improving transparency for consumers. The Green Economy Program also contains an ecological reform of the fiscal system and the integration of resource exploitation and efficiency measures into economic impact assessments, as well as research work for environmental indicators to complement GDP (see chapter 6). [http://www.bafu.admin.ch/publikationen/publikation/01611/index.html?lang=en&show\\_kat=/publikationen](http://www.bafu.admin.ch/publikationen/publikation/01611/index.html?lang=en&show_kat=/publikationen)

The **Swiss Cleantech Masterplan (SCMP)**, as part of the Green Economy Program, is the official federal strategy for resource efficiency and renewable energy. It is due to be approved by the Federal Council in September 2011 and implemented in the years 2012-2014. Cleantech includes



both the environmental and energy sectors, specifically measurement technology, resource efficiency, water and waste management, recycling, energy efficiency, renewable energy and electricity storage. The Masterplan contains a vision that “Switzerland will reduce its consumption of resources to environmentally sustainable levels (footprint “one”). Switzerland wants to become a leading location for business and innovation in the Cleantech sector. In doing so, Switzerland will set the pace for the efficient and economic use of resources”.

Four objectives were set, to be reached by 2020:

- objective 1: leading position in Cleantech research,
- objective 2: considerable progress in knowledge and technology transfer,
- objective 3: leading position in Cleantech products and services,
- objective 4: Cleantech stands for Swiss quality.

To reach these objectives, 18 measures have been agreed at federal level, encompassing measures to strengthen education and research, technology transfer, the pioneer function of state in its purchasing policy, the support for an eco-innovation park and leading model projects, the elaboration of a resource strategy for rare earths, including new recycling technologies, and regulative progress to eliminate obstacles for the use of clean technologies.

<http://www.cleantech.admin.ch>

<http://www.cleantech.admin.ch/cleantech/index.html?lang=en>

### **Consumption**

Switzerland is working on a series of measures to promote ecologically sound consumption. According to the Green Economy Program of the Federal Council (October 2010), the improvement of environmental production information, mainly in food and construction sectors, is particularly important here (improvement of the ecological transparency of the market). For this purpose, quality requirements and recommendations for the analysis and evaluation of products and for the communication of the results will be compiled. The consumption of “green” products should be promoted not only through improved environmental product information, but also through sustainable procurement practices by federal government, cantons and municipalities, and through awareness raising amongst consumers (communication activities).

### **Energy Strategy 2050**

The Federal Council intends to continue to safeguard Switzerland’s high level of energy security without nuclear energy in the medium term. That was the decision taken at the special meeting of the Federal Council on 25 May 2011. Existing nuclear power plants should be decommissioned at the end of their operational lifespan and not be replaced by new nuclear power plants. In order to ensure the security of supply, the Federal Council, as part of its new [Energy Strategy 2050](#), is placing emphasis on increased energy savings (energy efficiency), the expansion of hydropower and new renewable energies, and, if necessary, on fossil fuel based electricity production (cogeneration facilities, gas-fired combined-cycle power plants) and imports. Furthermore, Switzerland’s power grid should be expanded without delay and energy research strengthened.

**Sustainable Development Strategy**

Since 1997, the Federal Council has operated a Sustainable Development Strategy (SDS) as the basis for performing its constitutional task of sustainable development in Switzerland. Alongside the federal policy guidelines, the current strategy also includes an action plan for the duration of the current legislative period (2008-2011). To make the Administration's work more transparent, a technical report provides insight into implementation activities carried out under the action plan. The [Sustainable Development Strategy](#) 2008-2011 has been evaluated and is currently being renewed for the period 2012-2015. [Renewal of the Sustainable Development Strategy](#).

## 4. Strategies or action plans to improve resource efficiency for individual economic sectors, products or product groups

### Settlement and transport policies

The Federal Council's 1996 Swiss Planning Policy Guidelines are committed explicitly to honouring the sustainability principle. At their heart is the concept of a networked system of urban and rural areas with compact, space-saving settlements. Mobility is the backbone and key determinant of spatial development. Sustainable transport means meeting the mobility needs of the population and the economy and providing appropriate access to individual districts, while reducing the associated harmful effects on humans and the environment. However, soil and landscape are under pressure in Switzerland. Soil sealing as well as urban sprawl are key challenges. Currently, the Swiss Parliament is working on amendments to the relevant law in order to promote sustainable spatial development.

### Buildings

Buildings program: In order to increase the energy efficiency of buildings and to promote the use of renewable energies in the building sector, CHF 200 million of the revenues from the CO<sub>2</sub> levy on heating fuels have been earmarked for this purpose. The funds for the building program are split between two sub-programs: two thirds are dedicated to refurbishing existing buildings, and up to one third is used to subsidize renewable heating systems, use of waste heat, and services engineering. The promotion of renewable energies is co-financed by the cantons.

<http://www.bafu.admin.ch/klima/00493/09555/index.html?lang=de>

### Energy

- For the Energy Strategy 2050 see chapter 3.
- Action plan for energy efficiency: Two action plans for energy efficiency and the use of renewable energy were approved by the Federal Council on 21 February 2008. These action plans set out to reduce the consumption of fossil fuels by 20% by 2020 in line with the declared climate objectives, to increase the proportion of renewable energy to overall energy consumption by 50%, and to limit the increase in electricity consumption to a maximum of 5% between 2010 and 2020. From 2020 onwards, the objective is to stabilize electricity consumption.
- The SwissEnergy program: Efforts to curb growing energy consumption and to promote renewable energy have been sustained and increased since 1990, when the national program "Energy2000" was launched in the wake of the introduction of the energy article in the Federal Constitution. In 2001, the Federal Council launched the successor program "SwissEnergy", in line with the Energy Act and the CO<sub>2</sub> Act that came into force in 1999 and 2000, respectively. Running from 2001 to 2010 and managed by the Swiss Federal Office for Energy (FOE), it represents the main policy instrument aimed at increasing energy efficiency and use of renewable energy in order to reduce CO<sub>2</sub> emissions and the dependence on fossil fuels. The program consists of a wide array of projects, most of them voluntary. The projects are normally run in close cooperation between the FOE, cantons, municipalities, industry and environmental and consumer associations.

<http://www.bfe.admin.ch/themen/00526/00529/index.html?lang=en>

### **Sustainable public procurement**

Government (the Confederation, cantons, municipalities) purchases goods and services worth about CHF 32 billion every year. This huge potential should be fully exploited so as to set a good example, to spend taxpayer's money responsibly and to steer the market in the direction of better products and services, using fewer resources, causing less environmental impact during the total life cycle and contributing to human well-being and social justice. The recommendation of the Federal Procurement Commission published in 2010 shows how these goals can be reached by integrating sustainable development criteria into the procurement process. As it is widely accepted that sustainable public procurement contributes to the development of greener and cleaner technologies, the Federal Council foresees in its Cleantech Masterplan that public procurement activities should be strengthened in order to further clean technologies and innovation (See Cleantech Masterplan).

<http://www.bbl.admin.ch/bkb/02617/02632/index.html?lang=de>

<http://www.bafu.admin.ch/produkte/02076/index.html?lang=en>

### **Resource efficient ICT**

In the context of the Green Economy Program the strategy for a resource efficient ICT will be concretized. On behalf of the Confederation, the following two studies were carried out by the Swiss Federal Laboratories for Materials Science and Technology (EMPA) on the mass flow and environmental impact of Internet services and use, as well as of electrical and electronic devices:

- Mass flow and environmental impact analysis "Internet Switzerland":  
<http://www.bafu.admin.ch/abfall/10743/index.html?lang=de&download=NHZLpZeg7t,lnp6l0N TU042l2Z6ln1acy4Zn4Z2qZpnO2YUq2Z76gpJCGeXx4gWym162epYbg2c JjKbNoKSn6A-->
- Mass flow of electrical and electronic devices:  
<http://www.bafu.admin.ch/abfall/10743/index.html?lang=de&download=NHZLpZeg7t,lnp6l0N TU042l2Z6ln1acy4Zn4Z2qZpnO2YUq2Z76gpJCGeXx5fmym162epYbg2c JjKbNoKSn6A-->

### **Climate**

The centerpiece of Swiss climate policy is the CO<sub>2</sub> Act that came into force in May 2000. It aims to reduce the emissions of the most important greenhouse gas, CO<sub>2</sub>. With the CO<sub>2</sub> law, Switzerland intends to reduce CO<sub>2</sub> emissions between 2008 and 2012 by an average of 10% (compared to 1990). The CO<sub>2</sub> Act gives priority to voluntary measures. A CO<sub>2</sub> levy is to be introduced if the effect of voluntary measures is insufficient to reach the targets based on projections of emissions. The proceeds from the CO<sub>2</sub> levy are refunded to the Swiss population and businesses. In 2005, the Federal Council proposed a CO<sub>2</sub> levy on heating and process fuels to Parliament and accepted the oil importers' initiative to levy a "climate cent" on transport fuels to fund offset projects rather than introducing a CO<sub>2</sub> levy also on transport fuels.

Within the CO<sub>2</sub> Act, the Federal Council is obliged to propose further reduction targets beyond 2012. To this end, the Federal Council put forward a policy proposal for parliamentary discussion in August 2009. The proposal of the Federal Council aimed at a reduction of total greenhouse gas emissions of 20% (where possible 30%) by 2020 with at least half of the reduction needing to occur within Switzerland. The Federal Council aims at a long-term reduction target of 1-1.5 t CO<sub>2</sub>

eq. per capita by 2100, which would translate into a reduction in total greenhouse gas emissions of 70-85% compared to 1990 emission levels.

Even though the discussions of the revision of the CO<sub>2</sub> Act beyond 2012 are still ongoing, the Parliament has tightened the emission reduction target: a reduction of total greenhouse gas emissions of 20% by 2020 needs to be achieved domestically. Additionally, the Federal Council has received the authority to tighten the reduction target by another 20%, with three quarters of this additional percentage able to be achieved with measures abroad. The adoption of the revised CO<sub>2</sub> Act in Parliament is expected in late 2011.

<http://www.bafu.admin.ch/klima/00493/00494/index.html?lang=de>

### **Biodiversity**

Biodiversity is essential for services of ecosystems. To maintain biodiversity in the long term, the FOEN is currently developing a National Biodiversity Strategy on behalf of the Federal Council. This strategy will be presented to Parliament in 2011. There are four main goals in the strategy, two of which are linked to resource efficiency: 'sustainable use of resources' and 'legally protected priority zones for biodiversity conservation shall be designated, and linked with each other'.

<http://www.bafu.admin.ch/biodiversitaet/10372/10395/index.html?lang=de>

### **Agriculture**

The Confederation wants to improve the use of natural resources in agriculture. The target areas are resources needed for agricultural production, such as nitrogen, phosphorus and energy, the optimization of plant protection, the enhanced protection and sustainable use of soil, and the maintenance of biological diversity in agriculture and the countryside. Since 1998 all farms have had to fulfill a defined ecological minimum standard corresponding to the Cross Compliance in the EU. Thus, agricultural pressures on environment and biodiversity have been reduced. However, nitrogen and phosphorus surpluses, ammonia emissions and pesticide use are still too high, and quantitative and qualitative deficits remain in the biodiversity management. Therefore, the Swiss Federal Council is planning a substantial reform of the system of direct payments for 2014. The reform aims at improving the efficiency of the agricultural programs in order to better achieve the economic and ecological targets.

<http://www.blw.admin.ch/themen/00364/index.html?lang=de>

### **Waste**

There will be a change of paradigm: until now, the waste management policy mainly focused on control of waste treatment emissions. In future, closing the product cycles by improved recycling techniques and product design will contribute to the protection of primary resources.

An efficiency analysis was commissioned by the FOEN Board to assess the 1986-2004 waste policy of the Confederation and define the main axes of the future waste management policy. A principal aspect of the future strategy covers the sustainable use of resources.

<http://www.bafu.admin.ch/publikationen/publikation/00011/index.html?lang=de&download=NHZLpZig7t,lnp6i0NTU042l2Z6ln1acy4Zn4Z2qZpnO2Yuq2Z6gpJCGdnt3f2ym162dpYbUzd,Gpd6emK2Oz9aGodetmqaN19XI2ldvoaCVZ,s-.pdf>

**Wood and forests**

The Action Plan Wood aims at ensuring that wood from Swiss forests represents sustainable and efficient resource use. The implementation of the Action Plan is a shared responsibility of the federal government, the cantons and the forest and timber industry. The Action Plan focuses on seven thematic priorities and is continually evolving. To avoid distortions of competition, the program focuses on pre-competitive and operational areas.

<http://www.bafu.admin.ch/aktionsplan-holz/index.html?lang=de>

**Air quality**

The Strategy on Air Quality Management (“Luftreinhaltekonzept”) was adopted by the Federal Council in 1985 and approved by Parliament. This Strategy was updated in 1999 and in 2009 with objectives on health and ecosystem protection and a set of control measures to be implemented by 2020. It shows clearly that the targets of air quality policy will have to be addressed with a stronger commitment in the framework of different sectoral policies, especially transport and agriculture. Climate policy is also set to yield important pollutant emission reductions. In some cases, however, there are negative side-effects which need to be managed and minimized, for instance increased emissions of particulate matter from small biomass combustion installations. On the other hand, air quality policy will also yield important benefits for climate change. The mitigation of short-lived climate forcers, especially black carbon (BC) and ozone (as well as the ozone precursors NO<sub>x</sub>, NMVOC, CH<sub>4</sub> and CO) would help to achieve the long-term objective of limiting the global temperature increase to less than 2°C.

From the Swiss perspective, the most important air pollutants are particulate matter (including black carbon), ozone, nitrogen dioxide and ammonia. Important sources to be focused on with more stringent regulations include small combustion installations (especially biomass combustion), non-road mobile machinery and key measures for ammonia abatement in agriculture (e.g. covering of slurry storage, low-emission spreading of manure). Switzerland stresses the importance of having internationally binding emission limit values based on Best Available Techniques for the most relevant source categories (Cleantech development, support and implementation).

**Water quality**

Water quality in Swiss and many European water bodies has considerably improved over recent decades. The nutrient loads have been significantly reduced by expanding and upgrading municipal wastewater infrastructure (sewers, stormwater tanks and wastewater treatment plants) and direct inputs of pollutants from industry have been reduced by implementing Best Available Techniques. However, the input of organic trace contaminants through municipal drainage and diffuse inputs continues to present a water quality challenge. Measures at selected municipal wastewater treatment plants (WWTP) are intended to reduce the release of micropollutants (medicines and chemicals) into the aquatic environment in order to protect drinking water resources and aquatic flora and fauna. Currently, a national Swiss funding solution based on a polluter-pays-principle is being drawn up and the legislation required for planning and funding the measures will be established. The bill and the necessary legislation is being prepared in collaboration with various partners.

There is a **Federal Economic Growth Policy** report for 2008-2011. Climate policy is mentioned as an important instrument for avoiding negative effects on growth, but there is no focus on resource efficiency or access to resources.

<http://www.seco.admin.ch/themen/00374/00459/00460/index.html?lang=de>

## 5. Individual types of resources identified as priority for national or sector-specific resource efficiency policies

The following types of environmental resources are crucial for Switzerland and thus are considered a priority for national or sector-specific resource efficiency policies:

- **Climate stability:** Climate stability is key for the preservation of human health, the security of people (e.g. from avalanches, floods, and other risks), as well as the protection of infrastructure and the preservation of ecosystems. Swiss winter tourism is especially vulnerable to climate change.
- **Energy resources:** Switzerland is rich in hydropower resources and has a potential for the use of solar, wood and wind energy. On the other hand, fossil energy resources have to be imported.
- **Soil and landscape:** Soil and landscape are key for agricultural production, tourism and the quality of life for the resident population.
- **Biodiversity:** Biodiversity, the diversity of species, genes and habitats, is key for the so-called ecosystem services, such as clean air or potable water. Today, biodiversity is in danger, both in Switzerland and worldwide, due to overuse of resources, loss of habitats and pollution. The FOEN is drawing up a National Biodiversity Strategy in order to halt this negative trend.
- **Forests/wood:** The use and management of forest resources, with all their multifunctional aspects, has been based for more than 100 years on strict forest legislation that emphasizes sustainability and close-to-nature forest management. Forests cover over 30% of the total area of Switzerland and include important protective forests in mountainous regions. Presently, the government is amending the national forest policy for the period to 2020.

## 6. Strategic objectives, targets and indicators for resource efficiency

The long-term goal of the **Green Economy Program** is resource efficiency and reduction of natural resource use in consumption and production to a sustainable level while boosting competitiveness. Six working fields have been defined for the coming years, contributing to reaching the goal of resource efficiency:

- clean (green) technologies (Cleantech Masterplan),
- increasing resource efficiency in the ICT field (energy consumption, dangerous wastes, rare metals),
- improving environmental product information for consumers to ensure it is true and fair,
- ecological revision of the fiscal system,

- enhanced welfare measurement encompassing environmental information to complement GDP,
- assessment of the impact of new legislation on resource use and efficiency.

At the end of 2012, a report on the green economy is due to be submitted to the Federal Council in which new measures and fields of action will be proposed.

<http://www.news.admin.ch/NSBSubscriber/message/attachments/20804.pdf>

<http://www.bafu.admin.ch/wirtschaft/00517/11301/index.html?lang=en>

**Footprint “one”:** The vision of the Cleantech Masterplan (2011) is to reduce the consumption of resources to environmentally sustainable levels (footprint “one”). Today, Switzerland’s footprint is more than twice its global resource capacity. In a study recently published (Junbgluth et al. 2011, [www.bafu.admin.ch/uw-1111-e](http://www.bafu.admin.ch/uw-1111-e)), the overall environmental impact of consumption and production has been estimated, including the total life cycle of products and trade statistics in order to take account of the environmental pressure abroad, caused by Swiss final demand through imports (see below).

**Long-term climate goals:** The Federal Council aims at a long-term reduction target of 1-1.5 t CO<sub>2</sub> eq. per capita by 2100, which would translate into a reduction in total greenhouse gas emissions of 70-85% compared to 1990 levels. As an intermediate target, by 2050 greenhouse gas emissions are to be reduced by at least 50-85%.

**Energy Strategy 2050:** In spring 2011 Switzerland’s government agreed on a new energy strategy including a nuclear phase-out by 2035. In order to ensure the security of energy supply, the Federal Council, as part of its new Energy Strategy 2050, is placing emphasis on increased energy savings (energy efficiency), the expansion of hydropower and new renewable energies. In order to finance the necessary additional measures, the Federal Council will study the possibility of introducing an incentive tax or ‘energy cent’.

**Soil and landscape:** The federal Sustainable Development Strategy for 2008–2011 proposes that total built-up area in Switzerland should stabilize at 400 m<sup>2</sup> per head of population.<sup>1</sup> In its landscape strategy the FOEN has set two main objectives: (1) to develop landscape ensuring its unique characteristics and (2) to promote a better understanding of landscape services and thereby contribute to its long-term protection.

**Biodiversity:** The Swiss federal government defined the long-term goals for its National Biodiversity Strategy as of July 2009. The main aim is the long-term conservation of biodiversity and the ecosystem services it provides – that is rich biodiversity resilient to change. The strategy rests on the following principles: designation, conservation and interconnection of sufficient areas in which biodiversity is a priority, the sustainable use of resources, the increased recognition of the economic value of biodiversity, and the assumption of greater responsibility for global biodiversity by Switzerland.

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<sup>1</sup> <http://www.are.admin.ch/themen/nachhaltig/00262/00528/index.html?lang=en>



### Forests / wood

In Switzerland, forest areas are very strictly protected. The forest and wood policy focuses on biodiversity targets, protection from natural hazards and sustainable wood production. According to Article 1, the Federal Act on Forests is intended to conserve the forest in terms of area and spatial distribution; protect the forest as a near-natural community; ensure that the forest can fulfill its functions, in particular its protective, social and economic functions (forest functions); and promote and maintain the forestry sector. It is furthermore intended to contribute to the protection of human life and important material assets against avalanches, landslides, erosion and rockfall (natural events). According to Article 3 of the Act, forest area should not be reduced. In practice, forest area in Switzerland has increased in the last ten years at a rate of 0.5% annually.

### Indicators

The necessity of greening welfare measurement – complementing GDP by indicators for environmental, social and economical progress – is identified on the national and the international level.

In Switzerland, there are two exhaustive systems of indicators concerning the environment and sustainable development, which give a basis for indicators on policy and resource efficiency:

- the FOEN applies 22 sets with a total of 170 indicators to monitor the state of the environment: <http://www.bafu.admin.ch/umwelt/indikatorenen/index.html?lang=en>
- MONET is a system of indicators for sustainable development based on 17 key indicators (6 directly related to resource use) allowing a constant monitoring: <http://www.bfs.admin.ch/bfs/portal/en/index/themen/21/02/01.html>

Existing specific indicators on resource efficiency policy are:

#### *Indicators on environmental pressures (pollution and resource use)*

The current ecological footprint of Switzerland is too high. If the footprint of all citizens of the world were as high as the footprint of Switzerland, we would need more than two planets.

An in-depth study on global environmental impacts caused by Swiss consumption and production combined Environmentally Extended Input-Output Analysis, trade statistics and Life Cycle Assessment (Junbgluth et al. 2011, [www.bafu.admin.ch/uw-1111-e](http://www.bafu.admin.ch/uw-1111-e)). It revealed that 60% of environmental impacts that are caused by final demand occur abroad as a result of imported goods and services. The most important area of consumption is nutrition, accounting for about 30% of total impacts, followed by housing and mobility of private households.

When concentrating on specific emissions, greenhouse gas emissions and CO<sub>2</sub> emissions are important indicators (see figure in chapter 1). While direct emissions of greenhouse gases are 7.8 t of CO<sub>2</sub> eq. per capita, the total greenhouse gases caused by Swiss consumption amounts to about 12 t CO<sub>2</sub> eq. per capita.

Further important indicators are:

- total energy consumption per person,

- new renewable energies (see <http://www.bafu.admin.ch/umwelt/indikatoren/08557/08574/index.html?lang=en>),
- built-up area (total and per capita),
- number of persons affected by noise,
- particulate matter emissions (see <http://www.bafu.admin.ch/umwelt/indikatoren/08588/08675/index.html?lang=en>).

#### *Indicators on ecosystem services and on the natural asset base*

An inventory of ecosystem goods and services has been drawn up and given indicators for the first time in Switzerland (Staub et al. 2011, [www.bafu.admin.ch/uw-1102-e](http://www.bafu.admin.ch/uw-1102-e)). 23 final ecosystem services have been identified as relevant for Switzerland and have been assigned 46 indicators. These indicators are now being implemented step by step for national reporting, for measuring objectives of environmental policy and for communication with various target groups.

Examples of indicators already available on ecosystem services and the natural asset base are:

- fertile soil for agricultural use. Between 1985 and 1997, the agricultural area in Switzerland decreased by approximately 30,400 ha, which is equivalent to a relative decline of 2.9%.
- timber. Since 1985, the standing volume of hardwood species has increased by over 10% and that of softwood species has decreased by around 1%. In 2006, the total standing volume (living and dead trees and bushes) was 427 million m<sup>3</sup>, which corresponds to a national average of 365 m<sup>3</sup>/ha.

Other indicators on ecosystem services and the natural asset base are in development. Examples are:

- indicators on protective forests,
- indicators on the natural supply of ground and surface water usable as drinking and processing water,
- indicators on pollination services,
- indicators on the availability and accessibility of green/recreational spaces,
- indicators on identification of the Swiss resident population with the natural world. This indicator can be interpreted as a measure for the chance to develop a sense of place through attractive and characteristic landscapes. This is an important aspect of the environmental dimension of quality of life.

#### *Indicators on economic opportunities and green jobs*

According to a study commissioned by Basler und Partner, green markets account for 116,000 jobs, or 260,000 jobs when including Cleantech, and grow faster than the average economy.

## 7. The institutional setup for the development and implementation of resource efficiency policies

The Swiss public administration consists of seven Departments with their corresponding Offices. For the successful enhancement of resource efficiency, good collaboration is essential between the Departments and the Offices as well as with national and international stakeholders from science, economy and politics.

The Green Economy Program and the Cleantech Masterplan are excellent examples of successful collaborations between Departments: both were jointly prepared by the Federal Department of the Environment, Transport, Energy and Communications (DETEC) and the Federal Department of Economic Affairs (FDEA), in close collaboration with several Offices. For the Cleantech Masterplan, close collaboration took place between the Federal Office for Professional Education and Technology (OPET), the State Secretariat for Economic Affairs (SECO), the FOE and the FOEN.

The following Swiss Federal Departments and Offices are responsible for the development and implementation of resource efficiency policies:

Federal Department of the Environment, Transport, Energy and Communications (DETEC)

- Federal Office for the Environment (FOEN): responsible for environment protection and preservation of natural resources
- Federal Office for Energy (FOE): responsible for energy management, including strategies for energy efficiency
- Federal Office for Spatial Development (ARE): responsible for sustainable development in Switzerland

Federal Department of Economic Affairs (FDEA)

- State Secretariat for Economic Affairs (SECO): responsible for questions related to trade and environment
- Federal Office for Agriculture (FOAG): responsible for agriculture, including ecological agricultural practices

Federal Department of Finance (FDF)

- Federal Finance Administration (FFA): responsible for ecological tax reform
- Federal Tax Administration (FTA): responsible for ecological tax reform

## 8. Selected policy instruments or initiatives on resource efficiency presented in more detail

The Swiss Federal Council agreed on a national Green Economy Program. This plan identifies six areas of action: a Cleantech Masterplan, an increase in resource efficiency in the information and communication technology sector, better information on the environmental impacts of products, the integration of environmental information into the measurement of welfare, an ecological tax reform and the assessment of the impacts of new legislation on resource use and efficiency.

Switzerland is of the view that a green economy should lead to a sustainable use of natural resources, create opportunities for growth and create green jobs. The green economy is not a new concept. Measures already implemented in Switzerland that lead to a green economy include the CO<sub>2</sub> tax or the tax on Volatile Organic Compounds. Furthermore, Switzerland supports sustainable consumption and production in developing countries through its economic cooperation and development program.

Nevertheless, more effort is needed and political commitment is necessary to mainstream the environmental ideas into economic activities. A global approach for a green economy should foster a global change in economic behavior as well as allow for a change in the enabling environment for a green economy.

Switzerland is of the view that governments must play an active role in fostering the change towards a green economy through the creation of the framework conditions. The private sector has to play a crucial role through the actual implementation of green growth while changing the way natural resources are used for consumption and production. Furthermore, an important share of the financing for this change has to be borne by the private sector.

## 9. Topics of interest and information needs for follow-up work

- Beyond GDP: indicators measuring the overall environmental impact of consumption and production.
- Improving of recycling of plastics, mainly of industrial waste.
- Studies on recycling of rare technical metals from electronic waste.
- Trade and environment: countries can greatly influence the use of natural resources by their trade policies. Switzerland promotes this vision in its respective instruments for trade and investments. In order to adequately assess the resource situation when negotiating with trade or investment partners, resource specific trade information is crucial. It is of great importance to have in-depth knowledge on the ecological impacts of resource exploitation and use in the country of origin. Only with resource specific trade information can country specific circumstances be adequately taken into account and the environmental situation assessed accordingly.

- Nutrition: Switzerland is interested in (1) the results of Life Cycle Assessments (LCAs) in the food sector (LCAs should be performed according to ISO 14040ff), (2) life cycle inventories and data for food (especially site-specific data) for completion of the internationally used ecoinvent database, (3) experiences of other countries with the development of environmental product information or of product rules for the ecological assessment of food products, and (4) examples of successful collaborations between public authorities and the retail sector.
  
- Improved environmental criteria for biofuels: additional information is not in fact needed because activities of the EU and of individual member countries in this area are very well documented.
  
- Consumption and ecological transparency of the market: results of EU studies concerning the environmental footprint of products, and experiences of individual member countries with the development of environmental product information are of interest.
  
- Renewable energy and grids: at the heart of Europe, Switzerland is a vital cross-border hub. Around 23% of Europe's electricity flows through Switzerland. Electricity will be increasingly produced sustainably and from renewable energies, which will bring new and different challenges for Europe's transmission systems. Switzerland also has an active role to play in Europe regarding the European grids of the future. To ensure the security of Switzerland's electricity supply in the coming decades, the grids must be expanded and upgraded over the next ten years; smart grids will also play an important role in the future for the efficient use of electricity.
  
- Moreover, Switzerland would welcome a continuative report with a cross-section analysis of scarcity, economy and environment.

## 10. References

### 10.1 Facts and figures about the country

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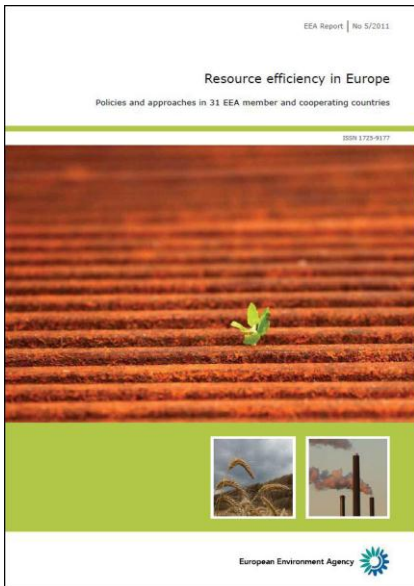
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# Resource efficiency in Europe

## Policies and approaches in 31 EEA member and cooperating countries

Further information about resource efficiency policies, including the analytical report and thirty-one detailed country profiles, are available on the EEA website:

<http://www.eea.europa.eu/resource-efficiency>

### Selected examples of resource efficiency policies, instruments or targets presented in the thirty one detailed country profiles

