

21

Sustainable Development, regional and international Disparities

1248-1200

Sustainable Development Report 2012



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Sustainable Development Report 2012

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Introduction

Background: 20 Years of Sustainable Development

2012 will be the 20th anniversary of the UN Conference on Environment and Development (Earth Summit), which was held in Rio de Janeiro in 1992. In 1992, *Agenda 21* (Action Plan for the 21st Century) provided the basis for implementing a sustainable development policy. Sustainable development was defined in the Brundtland Report in 1987: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UN 1987). The Brundtland Report adds two elements to this definition which are considered to be fundamental: prioritising the basic needs of individuals (especially the most disadvantaged) and taking due account of the capacity limits of our environment. The strategy sketched out in 1992 was reaffirmed during the "Rio+10" Summit in Johannesburg in 2002 with the adoption of an action plan and a declaration. In 2002, the relationship between globalisation and sustainable development was also emphasised and the United Nations' Millennium Development Goals were included in the sustainable development objectives. In 2012, a new global conference on sustainable development ("Rio +20") will take place in Rio de Janeiro to take stock of what has been done since 1992. The key topics of the conference are "green economy in the context of sustainable development and poverty eradication" and "institutional framework for sustainable development".

By adopting Agenda 21 and the Rio Declaration in 1992, Switzerland made a commitment to sustainable development. The implementation of this policy took concrete form in 1997 with the Federal Council's "Sustainable Development Strategy", which has been periodically revised and whose most recent version includes an

action plan for the 2012–2015 legislative period. Sustainable development has also been enshrined in the Federal Constitution since 1999 (Arts. 2 and 73). "It [the Swiss Confederation] shall promote the common welfare, the sustainable development, internal cohesion, and cultural diversity of the country".¹

Purpose and objective of the Sustainable Development Report 2012

On behalf of the Federal Statistical Office, the Federal Office for Spatial Development, the Federal Office for the Environment and the Swiss Agency for Development and Cooperation, this statistical sustainability report takes stock in the year of the "Rio+20" conference on the basis of the Swiss system of indicators, the monitoring of sustainable development MONET. The goal is to provide an overview of sustainable development in Switzerland² over the past 20 years and to present the monitoring system developed in Switzerland to measure sustainable development as an example of "good practice".

Definition of sustainable development

Switzerland's concept of sustainable development – with three qualitative objectives of social solidarity, environmental responsibility and economic efficiency – is based on the Brundtland Report's definition. The three qualitative objectives are all of equal importance, i.e. in the long term none of the environmental, economic and social goals may be reached at the expense of either of the other two goals.

¹ SR 101, Federal Constitution of the Swiss Confederation of 18 April 1999, Art. 2.

² In relation to the three qualitative objectives as well as space and time (Figure 1).

Figure 1 shows the challenges of sustainable development based on the Brundtland definition and the three qualitative objectives:

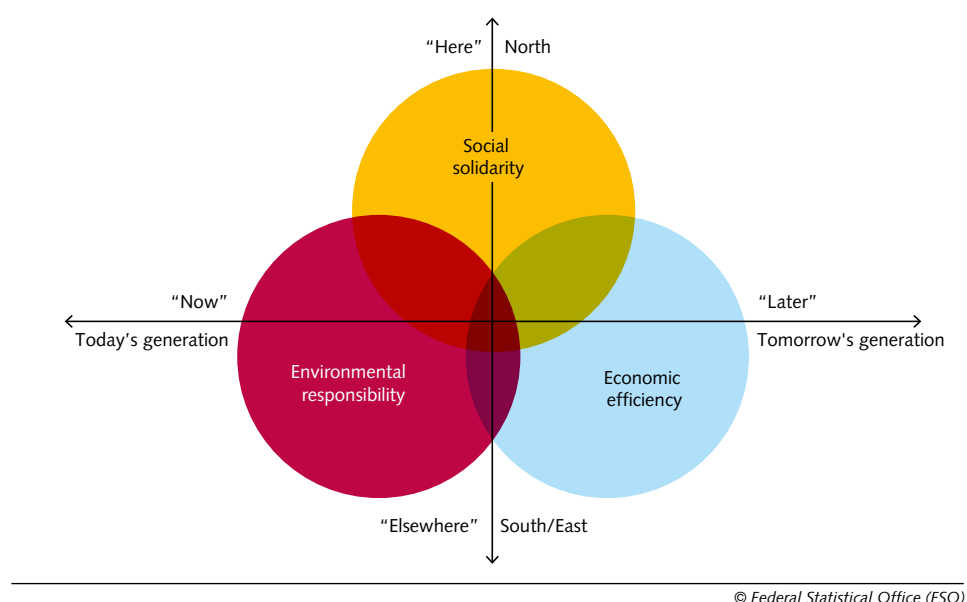
- ensuring the *quality of life* of the present generation (meeting needs “now” and “here” as well as “elsewhere” in the world),
- conserving resources for future generations (preserving the capital stock for “later”),
- giving due account to intra- and inter-generational equity³ (between “here” and “elsewhere” as well as between “now” and “later”).

Measuring sustainable development

A measuring instrument is needed to monitor sustainable development. The importance of a monitoring mechanism was already recognised at the Rio Conference of 1992. Therefore, chapter 40 of Agenda 21 calls for the development of a system of meaningful and internationally coordinated indicators which would make it possible to assess progress made so far towards sustainable development. The action plan adopted in 2002 as part of the Swiss Federal Council's Sustainable Development Strategy also contains a measure that spells out the need for an

Challenges of sustainable development

Figure 1



³ Equity is a term with cultural connotations which leaves considerable room for interpretation and which depends on the moral values of a society and can vary from one region to another. Unlike equality, which can be clearly defined, it is not possible to establish generally accepted equity objectives (on this topic, see: FSO/SAEFL/ARE 2003, p. 13)

indicator-based measurement system. This demand was met: since 2003, the MONET Indicator System (*Monitoring der Nachhaltigen Entwicklung* or Monitoring of Sustainable Development)⁴ has provided an overview of sustainable development in Switzerland taking into account the three qualitative objectives as well as time (“now” and “later”) and space (“here” and “elsewhere”) (Figure 1). Each of the approximately 75 indicators illustrates a different facet of sustainable development and contributes to an overall picture of sustainable development in Switzerland. Thanks to the utilisation of a typology of indicators, the way the facets are measured is defined. A combination of several facets allows a more balanced assessment of a particular issue or topic than a single indicator. The following example illustrates the use of this typology for the topic of education. Human capital as a resource for the next generation (“later”) is shown with the indicator “Reading skills of 15-year-olds”. The distribution of this resource within the present generation (“now”) is measured with the indicator “Reading skills of 15-year-olds by socio-economic background”, while the flow indicator “Participation in further education” is seen as a contribution to (investment in) human capital.

The indicator system is based on a clearly defined methodological background consisting of a frame of reference, the above-named typology and a set of rules and criteria for the selection of indicators. The system was developed with the participation of about 100 specialists from the federal administration, the scientific community, regions and cities, as well as civil society (→ Chapter 2.4).

Structure of the Report

The report is divided into two parts. Part I presents Switzerland’s sustainable development in the last 20 years: What developments have been observed since Rio 1992? Do the indicators show whether or not we are moving towards sustainability? A summary at the beginning of Part I provides an overview of the trends. It is divided into four key sustainable development issues (→ Chapter 2.5):

- How well do we live today (meeting needs)?
- How well are resources distributed (fairness)?
- What are we leaving behind for our children (preservation of resources)?
- How efficiently are we using our natural resources (decoupling)?

These questions also constitute the connecting thread of the subsequent analysis. The analysed indicators were selected based on their ability to provide an answer or partial answer to the questions listed above. The analysis is divided into the twelve themes of sustainable development (→ Chapter 2.5).

Part II presents the methodological background of the MONET indicator system as well as further developments of the system as Switzerland’s “good practice” for measuring sustainable development.

Whether or not the development of the indicators in Part I leads to sustainability is based on the clearly defined frame of reference of the indicator system and is represented by means of summarising symbols. The direction in which the indicators are developing is compared with the 45 principles of sustainable development (→ Appendix) and the challenges of the Federal Council’s Sustainable Development Strategy.⁵ The principles indicate the direction sustainable development should take in the form of specific demands. They are based on the definition of sustainable development, the three qualitative objectives (Figure 1) and on the relevant reference documents from the Swiss federal administration⁶ (Berger-Schmitt, Noll 2000). The period from 1992 – i.e. from the first Earth Summit on Sustainable Development in Rio de Janeiro – to the most recent measurement is

⁴ MONET is a joint project of the Federal Statistical Office (FSO), the Federal Department for Spatial Development (ARE), the Federal Office for the Environment (FOEN) and the Swiss Agency for Development and Cooperation (SDC)

⁵ Swiss Federal Council 2012: Sustainable Development Strategy 2012–15

⁶ DETEC 1999: Departementsstrategie UVEK [Departmental Strategy of the Department for the Environment, Transport, Energy and Communications]. Bern; Rat für Nachhaltige Entwicklung/Arbeitsgruppe Indikatoren/Kriterien, Stellungnahme zum Bericht “Indikatoren der Nachhaltigkeit” von BFS und BUWAL [Council for Sustainable Development/Indicators/Criteria Working Group, Opinion on the “Sustainable Development Report”]. Bern 1999 (unpublished)

considered for the assessment of the trends. The analysed time series is highlighted in colour in the graphs (→ Chapter 2.5). Each of the twelve themes is accompanied by a section that explains the theme's relationship to sustainable development based on the principles. Terms that are explained in the glossary are italicised. In addition, each chapter is accompanied by a summary table.

In order to conduct a broad-based analysis of sustainable development for this report, besides the indicators described in the twelve themes, all other indicators of the MONET system (all graphs are shown in this report) and other sources of information were used in addition. This additional information helps to describe the observed trends. These are reports and analyses on the Swiss context as well as statistics and indicator systems relevant to sustainable development.

The sustainable development monitoring system is not based on causal links. Therefore, it does not make it possible to draw conclusions about interactions between the indicators. However, reference was made in the text to indicators or statistical information that can provide additional information or insights.

Part I

Is Switzerland on the path to sustainable development? Analysis of observed trends since Rio 1992

This first part of the report presents the main developments observed in Switzerland, grouped according to twelve themes of sustainable development. This statistical analysis, based on a range of indicators accompanied by additional information, illustrates part of the many and sometimes contradictory aspects and developments of sustainable development. For these reasons, it does not make it possible to determine unequivocally whether Switzerland is on the path to sustainable development.

Summary

Sustainable development is defined as development that meets the needs of the present ("now", "here" and "elsewhere") without compromising the ability of future generations to meet their needs ("later", "here" and "elsewhere"). Are we on the path to sustainable development? What changes can we observe since the Rio

Agreements in 1992? The indicators of the MONET system, which cover four key sustainable development questions and are broken down according to the assessment of their trend, provide a comprehensive and synthetic response to these questions. Thus, these indicators, which are spread across all the chapters in Part I, provide a cross-sectional overview of sustainable development.




Explanations

The four questions arise from key sustainable development processes that are explained in Chapter 2.5 "How to communicate it?"




Each MONET system indicator is accompanied by three symbols (see table below). The first describes the targeted trend according to the objectives of sustainable development. These objectives are principles of sustainable development, the challenges of the Federal Council's Strategy and quantified objectives with set deadlines. The second describes the observed trend based on the trend calculated for the period under analysis, generally since 1992 (the year of the Rio

Agreements), or since the date of the first survey if it was conducted after 1992, until the last value available. The third is derived from a comparison of the first two and makes it possible to assess the observed trend. The observed trend is positive if it corresponds to the targeted trend, negative if the opposite is the case and unchanged if its change in trend ranges between +3% and -3%. The aim of this method of presenting indicators is to provide a synthetic overview of each indicator. It also makes it possible to provide a summary presentation of groups of indicators. The method is described in detail in Chapter 2.5 "How to communicate it?".







Symbols illustrating targeted trends

 Growth  Decrease  Stabilisation























Symbols illustrating observed trends

 Growth  Decrease  No marked change (observed change below 3% and above -3%)

Symbols assessing observed trend in relation to targeted trend

- ✓ Positive (towards sustainability: observed trend = targeted trend, e.g.  or )
- ✗ Negative (moving away from sustainability: observed trend ≠ targeted trend, e.g.  or )
- ≈ Unchanged (no marked change, e.g.  or )

Meeting needs – How well do we live today?

	Targeted trend	Observed trend	Assessment	Chapter
Suicide rate			✓	1.1
Life expectancy in good health			✓	1.2
Mental wellbeing			✓	1.2
Health-relevant behaviour: physical exercise			✓	1.2
Equivalent disposable income			≈	1.1
Life satisfaction			≈	1.1
Violent offences			✗	1.1
Housing costs			✗	1.1
Overweight			✗	1.2
Unemployment rate based on ILO			✗	1.7
Persons affected by noise			✗	1.10

Fairness – How well are resources distributed?

	Targeted trend	Observed trend	Assessment	Chapter
Women in the National Council	↗	↗	✓	1.3
Share of foreigners among the young who leave school early	↘	↘	✓	1.3
Disparity in reading skills depending on socio-economic background	↘	↘	✓	1.3
Official development assistance	↗	↗	✓	1.4
Remittances by migrants	↗	↗	✓	1.4
Direct investments in developing countries	↗	↗	✓	1.4
Duty-free imports from developing countries	↗	↗	✓	1.4
Wage gap between men and women	↘	↘	✓	1.7
Share of women in total number of employees in managerial positions	↗	↗	✓	1.7
Inequality of income distribution	↘	→	≈	1.3
Official Development Assistance to least developed countries	↗	→	≈	1.4
Fair trade	↗	→	≈	1.9
Disparity in internet use	↘	↗	✗	1.5
Youth unemployment rate based on ILO	↘	↗	✗	1.7
Energy dependency	↘	↗	✗	1.11
Ecological footprint	↘	↗	✗	1.12

Decoupling – How efficiently are we using our natural resources?

	Targeted trend	Observed trend	Assessment	Chapter
Labour productivity	↗	↗	✓	1.8
Material intensity	↘	↘	✓	1.9
Waste recycling	↗	↗	✓	1.9
Consumption of organic products	↗	↗	✓	1.9
Share of public transport in total passenger transport	↗	↗	✓	1.10
CO ₂ intensity of individual motorised transport	↘	↘	✓	1.10
Energy intensity	↘	↘	✓	1.11
CO ₂ intensity	↘	↘	✓	1.11
Renewable energy	↗	↗	✓	1.11
Landscape fragmentation	↘	→	≈	1.12
Intensity of freight transport	↘	↗	✗	1.10
Share of rail in freight transport	↗	↘	✗	1.10
Per-capita settlement area	→	↗	✗	1.12

Preservation of resources – What are we leaving behind for our children?

	Targeted trend	Observed trend	Assessment	Chapter
Reading skills of 15-year-olds	↗	↗	✓	1.5
Human resources in science and technology	↗	↗	✓	1.6
Patent applications	↗	↗	✓	1.6
Expenditure on research and development	↗	↗	✓	1.6
Investment to GDP ratio	↗	↗	✓	1.8
Final energy consumption per capita	↘	↘	✓	1.11
Phosphorus content in lakes	↘	↘	✓	1.12
Particulate matter concentration	↘	↘	✓	1.12
Ozone concentration	↘	↘	✓	1.12
Ecological quality of forests	↗	↗	✓	1.12
Breeding bird populations	↗	↗	✓	1.12
Participation in further education	↗	→	≈	1.5
Level of public debt	↘	→	≈	1.8
Final energy consumption in transport	↘	→	≈	1.10
Greenhouse gas emissions	↘	→	≈	1.11
CO ₂ emissions	↘	→	≈	1.11
Voluntary work	↗	↘	✗	1.3
Early school leavers	↘	↗	✗	1.5
Municipal waste	↘	↗	✗	1.9
Total material requirement	↘	↗	✗	1.9
Material requirement abroad for imports	↘	↗	✗	1.9
Take-offs and landings	↘	↗	✗	1.10
Settlement area	↗	↗	✗	1.12

1.1 Living conditions

Living conditions in Switzerland are high overall as well as compared with other countries. But the level of disposable income has not changed in recent years and 15% of the population are *at risk of poverty*. The high level of life satisfaction has also remained constant. Convictions for serious violent crimes are on the rise.

One of the principles of sustainable development is that every member of society is entitled to a dignified life. This includes meeting basic needs for security, housing and food. But above and beyond these basic needs, appropriate scope for the satisfaction of material and non-material requirements, such as satisfaction and happiness in life, also has to be created.

Equivalised disposable income has not changed significantly

Meeting basic material needs is important for sustainable development. This requires sufficient income. The average monthly *disposable income* per person, at 2008 prices (*equivalent income*), remained at the same level and was CHF 4152 in 2008. (G 1.1). The distribution of incomes (→ Social Cohesion chapter) is also important for sustainable development: in 2009 almost 15% of the population living in Switzerland were at risk of poverty (FSO 2010a).

Life satisfaction remains high

Meeting non-material basic needs such as life satisfaction and happiness is a key objective of sustainable development. Overall, the population of Switzerland shows a high level of life satisfaction. In 2010, 75% of the population aged 16 and over were generally very satisfied with their life (G 1.2). If the results are broken down by nationality, 78% of Swiss citizens have a high level of satisfaction, compared with 66% of the foreign resident population. 82% of 16–17 year olds and 81% of persons aged 65 and over have a high level of satisfaction. When life satisfaction is broken down by level of education, 72% of adults with a compulsory school qualification and 78% of adults with a tertiary level degree are very satisfied. When the results for life satisfaction are broken down by income groups, 66% of people with an income of under CHF 32,134 are very satisfied,

compared with 82% of people with an income of over CHF 70,906. In the income categories in between, the percentage of people who describe themselves as very satisfied is greater the higher their income. Among the unemployed (based on ILO), the percentage of people who are very satisfied is 41%.⁷

Convictions for serious violent crimes are on the rise

Physical security is a basic need. During the period analysed⁸ convictions for serious violent offences (by year of conviction) rose by 51% (G 1.3). In 2009, 39.6% of the 227 convictions for serious violent offences were convictions for rape, 28.2% for grievous bodily harm, 21.6% for homicide, and 10.6% for violent robbery and hostage-taking.⁹ The increase in the number of convictions may reflect the evolution of violent crime. This development may, however, also be linked to changes in penal law (e.g. domestic violence has been a criminal offence prosecuted ex officio since 2004) and to changes in people's propensity to report criminal acts. A growing awareness of the problem may have increased individuals' willingness to report these crimes.

The level of living conditions is high compared with other countries

In international comparison, the living conditions of the Swiss population are high measured by income and life satisfaction. In terms of disposable income, Switzerland ranks in the upper echelon compared with other OECD countries. The share of people in Switzerland who are at risk of poverty (at-risk-of-poverty rate) was slightly below the EU-27 average in 2010.¹⁰ In 2010, 8.1% of the population in the EU-27 was affected by serious *material*

⁷ www.bfs.admin.ch >> Thèmes >> 20 - Situation économique et sociale de la population >> Niveau de vie, situation sociale et pauvreté (only available in French and German)

⁸ The period analysed is specified for each indicator in the table at the end of this chapter

⁹ www.bfs.admin.ch >> Topics >> Crime, criminal justice

¹⁰ <http://epp.eurostat.ec.europa.eu> >> Table Code: tsdsc230

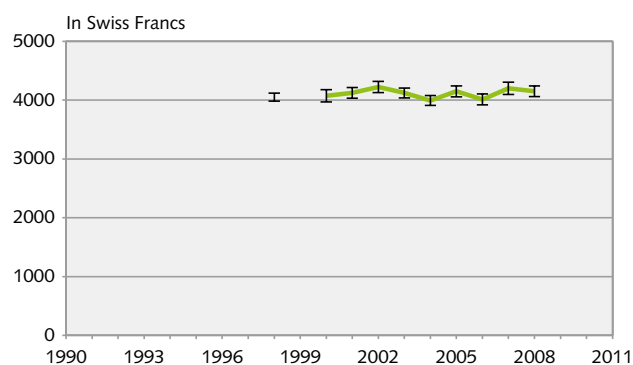
deprivation, compared with 1.7% in Switzerland (EU-15: 5.2%).¹¹ In a comparison of life satisfaction, Switzerland ranked 5th among OECD countries in 2006 (after Denmark, Finland, the Netherlands and Norway). However, in the majority of OECD countries, life satisfaction

increased more than in Switzerland between 2000 and 2006 (OECD 2009). Comparisons of physical safety with other countries are only possible to a limited extent, because the legislation and jurisprudence upon which the statistics are based are not internationally comparable.

Equivalent disposable income

Mean equivalent disposable income at prices of 2008

G 1.1



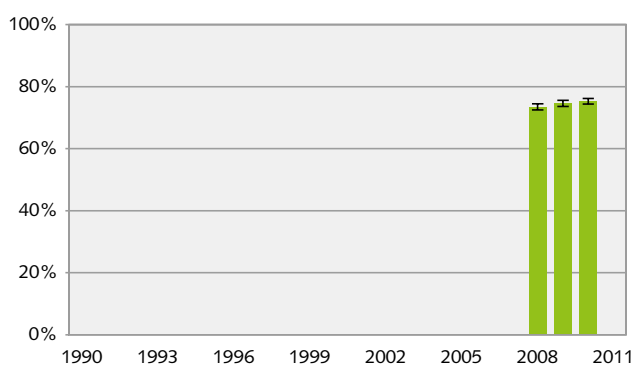
Source: Federal Statistical Office, Household Budget Survey

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Life satisfaction

Share of the population aged 16 and over with a high degree of satisfaction

G 1.2



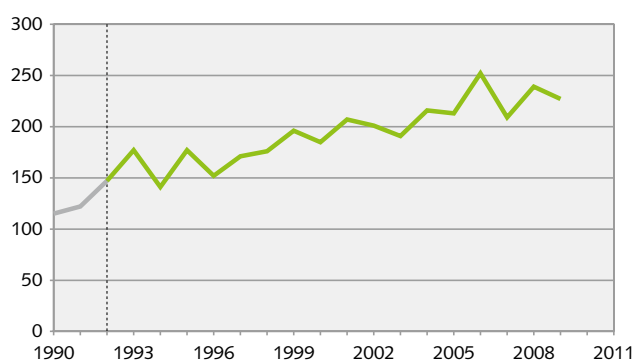
Source: Federal Statistical Office

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Violent offences

Convictions for completed offences (homicide, rape, grievous bodily harm, violent robbery and hostage-taking)

G 1.3



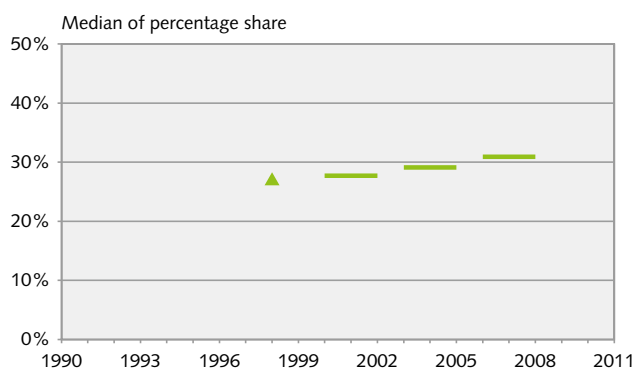
Source: Federal Statistical Office

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Housing costs

Share of housing costs (incl. service and utility charges) in disposable income of households with the lowest incomes (lowest income quintile)

G 1.4



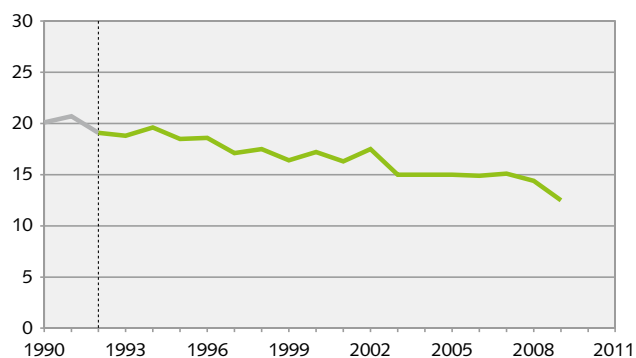
Source: Federal Statistical Office

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¹¹ <http://epp.eurostat.ec.europa.eu> >> Table Code: tsdsc270

Suicide rate

Suicides per 100,000 inhabitants

G 1.5

Source: Federal Statistical Office

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T1.1 Documentation on indicator trends

Graph	Targeted trend	Objectives ^a	Period under analysis	Change in %	Observed trend ^b	Assessment	Comments
G 1.1	↗	2a/2c SDS Nr. 4	2000–2002 2006–2008	-0.5%	→	≈	
G 1.2	↗	3a	2008 2010	+2.6%	→	≈	
G 1.3	↘	2a/2b SDS Nr. 5	1991–1993 2007–2009	+51.3%	↗	✗	
G 1.4	↘	2c/4b	1998 2006/08	+13.6%	↗	✗	
G 1.5	↘	2b/3b	1991–1993 2007–2009	-28.3%	↘	✓	

^a Sustainable development principles, challenges of the sustainable development strategy (SDS) or quantified and dated objectives.^b The trend is interpreted as relevant if it exceeds a $\pm 3\%$ threshold. Exceptions are documented in the "Comments" column.

1.2 Health

Life expectancy in good health is rising steadily. It is higher in Switzerland than in other European countries. But health risks such as excess weight are also on the rise. Socio-economic factors such as education and income have an influence on health.

People's state of health has a major influence on their quality of life and is an important factor as regards economic efficiency. This is why the protection and promotion of health are accorded high priority in sustainable development. Both physical and mental health are significant in this context.

Life expectancy in good health is rising

Good physical health is important for sustainable development. The *life expectancy* in good health provides information about the general health of the population and about years of life in potential good health as a sign of *quality of life*. In Switzerland, life expectancy in good health has risen since 1992 (G 2.1). Among men it is somewhat lower, but the gap between theirs and women's has narrowed: in 2007, newborn boys could expect almost the same life expectancy in good health as girls. Life expectancy in good health is rising faster than overall life expectancy.¹² Rising life expectancy depends on the one hand on improvements in the social, economic and health situation, particularly of pensioners, and on the other hand it is also attributable to advances in medicine, particularly the treatment and rehabilitation of (chronic) diseases.

The Swiss population can expect an ever-longer life expectancy in good health, but it also has to bear the costs for it. Thus, the health expenditure to *gross domestic product* (GDP) ratio has been rising since 1992 (G 2.2).

A growing number of people are overweight

Health promotion is a key objective of sustainable development. Despite a longer life expectancy in good health, there are also factors, such as diet and lifestyle habits, which can have a negative effect on health: excess weight is an indication of a lack of physical activity or an unbalanced diet, which is exacerbated by social changes and new working conditions. Excess weight causes chronic diseases and increases the risk of a number of diseases, such as metabolic diseases (e.g. *type 2 diabetes*) and cardiovascular disorders.

The share of the Swiss population aged 15 or over with excess weight (*Body Mass Index (BMI)* of 25 or more) has increased by 23% since 1992, though the increase has been lower in the past 10 years than in the years prior to that (G 2.3). This is partly related to the fact that since 1997, people have been somewhat more physically active (G 2.4). Older people are more frequently overweight than young people and more men are overweight than women: in 2007 almost half of men and nearly a third of women were overweight (FSO 2010b). Socio-economic factors also play an important role. Thus, people with a compulsory school qualification are more likely to be overweight than people with a tertiary level degree.¹³

¹² www.bfs.admin.ch >> Topics >> Population >> Components of population change

¹³ www.bfs.admin.ch >> Topics >> Health >> Health of the population >> Factors influencing health

The Swiss population lives longer in good health than the European population

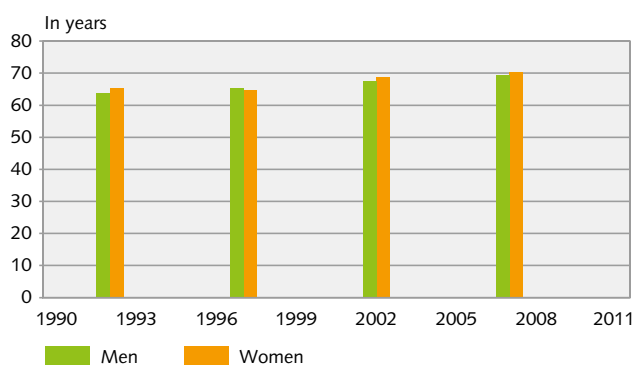
Compared with other European countries (*EU-27*), in 2008 Swiss women and men had a higher life expectancy in good health than the European average. Life expectancy in good health is rising in other European countries, as it is in Switzerland. Fewer people are

overweight in Switzerland than in the European average (47%).¹⁴ Health expenditure is relatively high in Switzerland: with a health expenditure of 11.4% of GDP, Switzerland ranked 6th, together with Canada, among OECD countries in 2009. Switzerland ranked third, after the United States and Norway, in terms of health expenditure per person in 2009.¹⁵

Life expectancy in good health

Life expectancy at birth

G 2.1



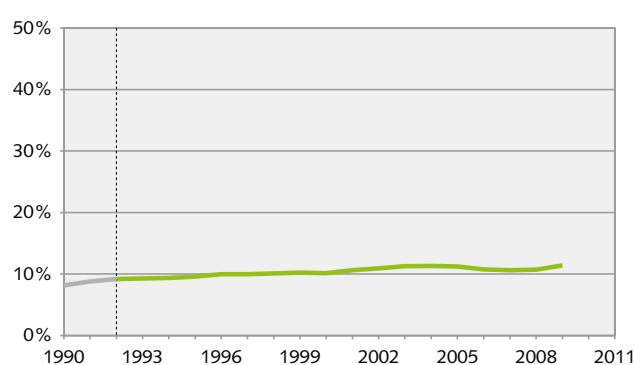
Source: Federal Statistical Office

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Health system costs

Share in gross domestic product

G 2.2



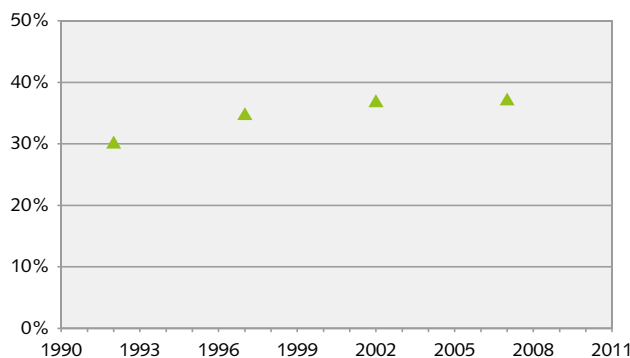
Source: Federal Statistical Office

© FSO

Overweight

Share of the population aged 15 and over who are overweight (BMI of 25 or more)

G 2.3



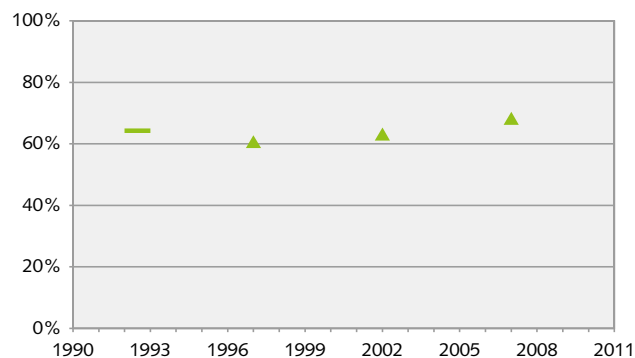
Source: Federal Statistical Office

© FSO

Health-relevant behaviour: physical exercise

Share of persons who do physical exercise at least once per week to the point of working up a sweat

G 2.4



Source: Federal Statistical Office

© FSO

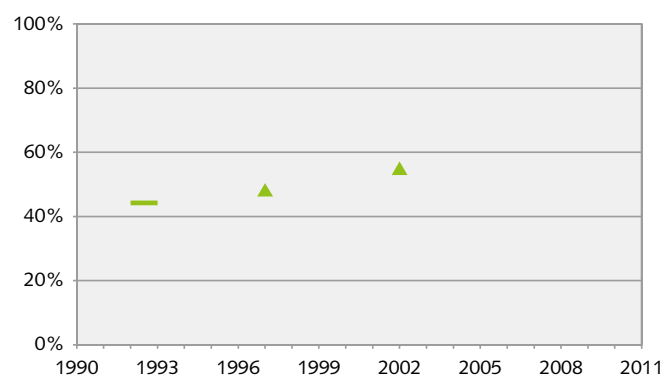
¹⁴ <http://epp.eurostat.ec.europa.eu> >> Table Code: hlth_ls_bmia

¹⁵ OECD.StatExtracts: <http://stats.oecd.org> >> Health >> Health Expenditure and Financing

Mental health

Share of the resident population aged 15 and over enjoying "good" mental health

G 2.5



Source: Federal Statistical Office

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T 1.2 Documentation on indicator trends

Graph	Targeted trend	Objectives ^a	Period under analysis	Change in %	Observed trend ^b	Assessment	Comments
G 2.1	↗	2b SDS Nr. 7	1992 2007	W: +7.7% M: +8.6%	↗	✓	Synthesis of trends observed for women (W) and men (M) ^c
G 2.2	→	SDS Nr. 7	1991–1993 2007–2009	+20.1%	↗	✗	
G 2.3	↘	2b SDS Nr. 7	1992 2007	+23.1%	↗	✗	
G 2.4	↗	2b SDS Nr. 7	1992/93 2007	+6.2%	↗	✓	
G 2.5	↗	2b/3a SDS Nr. 7	1992/93 2002	+24.4%	↗	✓	

^a Sustainable development principles, challenges of the sustainable development strategy (SDS) or quantified and dated objectives.

^b The trend is interpreted as relevant if it exceeds a $\pm 3\%$ threshold. Exceptions are documented in the "Comments" column.

^c The change in % of each variable is synthesised with a single value (-1 for a negative assessment, 0 for an unchanged assessment without marked change and +1 for a positive assessment). These values are then added up and the results determine the general trend for this indicator.

1.3 Social cohesion

Income distribution is subject to little change. The inequalities between men and women are narrowing. Women are more involved in politics nowadays, but are less well represented than men at almost all political levels. In the field of education, there are differences between population groups in terms of opportunities and social integration.

Acting in solidarity is a fundamental requirement if a society is to be capable of functioning and surviving. For this reason, sustainable development places special emphasis on promoting social cohesion and on the participation of all social groups and regions in economic, political and social life. The principle of "equal rights and equal opportunities" is a key factor here.

Inequalities in income distribution remain

An equitable distribution of resources¹⁶, such as income, is a key objective of sustainable development. The distribution of equivalised disposable income, measured by the ratio of the median equivalised income of the richest 20% of the population to the median equivalised income of the poorest 20%, has remained at the same level since 2000.¹⁷ In 2008, the richest 20% earned 4.3 times as much as the poorest 20% (G 3.1). This ratio cannot show disparities that may occur in the three middle quintiles of the population or within the richest or poorest 20%.

The share of women in the National Council is increasing

Gender equality is, as a reflection of equal rights and opportunities, a key objective of sustainable development. The share of women in Parliament is an indication of society's willingness to achieve gender equality. Swiss women have been able to vote or stand for election at the federal level since 1971. Between 1991 and 2007, the share of women in the *National Council* rose steadily from 18% to almost 30%, and it remained at this level following the last elections in 2011 (G 3.2). The largest increase took place during the National Council elections in 1995 and 2007. The increase in the number of women in the National Council is a reflection of women's greater

participation in political life in general. The share of women in electoral lists has been about a third since 1995 (Seitz 2008). Men still have a higher statistical probability of being elected than women.

Disparities are still found in the field of education

Equal opportunities for all social groups are important for a sustainable educational system. Children and young people with a disadvantaged educational background ought to enjoy the same educational opportunities as everyone else. In practice, however, an individual's socio-economic status or family background can affect his or her educational chances. The differences in young people's reading skills depending on their parents' socio-economic status have narrowed slightly since the first PISA (Program for International Student Assessment) study in 2000. But there is still a gap: for example, in 2009, 93% of 15-year-olds from families in the highest socio-economic category achieved good reading scores, compared with 71% of 15-year-olds from families in the lowest socio-economic category.

Since 1996, the share of 18-24-year-olds who do not have a post-compulsory school qualification has ranged between 6% and 10%. The Swiss Conference of Cantonal Ministers of Education (EDK), employers' associations, trade unions and the federal government have set themselves the goal of reducing the share of 25-year-olds who only have a compulsory school qualification to under 5% by 2020 (G 5.6 Chapter 1.5). Major differences remain between young people of Swiss and foreign nationality (G 3.4). Although the share of foreign early school leavers has declined since 2003, four times more foreign than Swiss young people did not pursue any post-compulsory school education in 2010. People who leave school early increase their risk of finding themselves in a precarious employment situation or being unemployed and will consequently be less likely to meet their needs and preserve their assets in the future.

¹⁶ See note 3, page 6

¹⁷ Using a confidence interval of 95%

In terms of social cohesion Switzerland ranks in the middle in European comparison

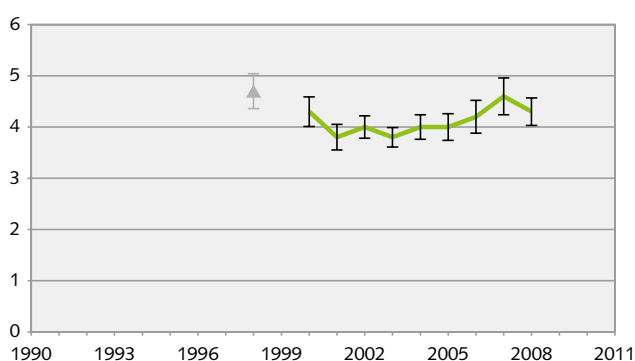
The inequality of income distribution is smaller in Switzerland than in the EU or OECD average. In 2010, the richest 20% of the population in the EU-27 countries had a disposable income five times higher than the poorest 20%¹⁸; the comparable value in Switzerland was 4.5.¹⁹ Switzerland ranks in the middle in comparison with other OECD countries.²⁰ As regards gender equality, the share of women in the Swiss National Council (almost 30%) is below the average of national parliaments in the EU-27 countries (35%). The share of women in northern European National parliaments is approximately 40%. Lower shares than in Switzerland are found, for example, in Italy (21%), France (19%) and Ireland (15%).²¹

Both in the OECD as a whole and in Switzerland, reading skills have changed only slightly since PISA 2000. The comparison with Scandinavian and certain East Asian countries in particular shows that Switzerland is not among the top-ranking countries. But Switzerland does rank above the OECD average (Consortium PISA, 2010). The share of early school leavers is 8% in Switzerland, which is relatively low in European comparison. In the EU-27, the share was 14% in 2010 and, unlike in Switzerland, it is constantly decreasing.²²

Inequality of income distribution

Ratio of the average equivalised disposable income of the richest 20% of the population to the corresponding average of the poorest 20% of the population

G 3.1



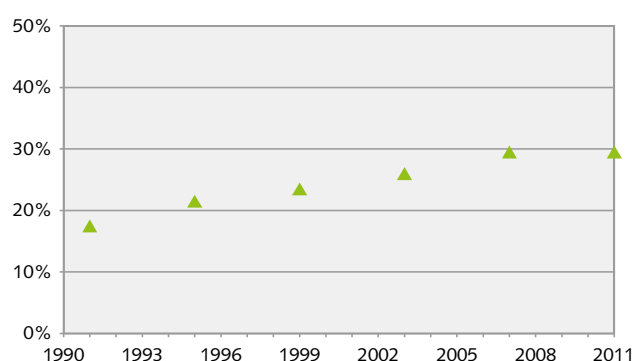
Source: Federal Statistical Office, Household Budget Survey

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Women in the National Council

Share of women as a percentage of all elected National Councillors

G 3.2



Source: Federal Statistical Office

© FSO

¹⁸ <http://epp.eurostat.ec.europa.eu> >> Table Code: tessi180

¹⁹ For the international comparison, the data are drawn from the SILC survey; the data for the time series of the "Inequality of income distribution" indicator (G 3.1) are taken from the Household Budget Survey (HBS)

²⁰ OECD.StatExtracts: <http://stats.oecd.org> >> Social and Welfare Statistics >> Social Protection

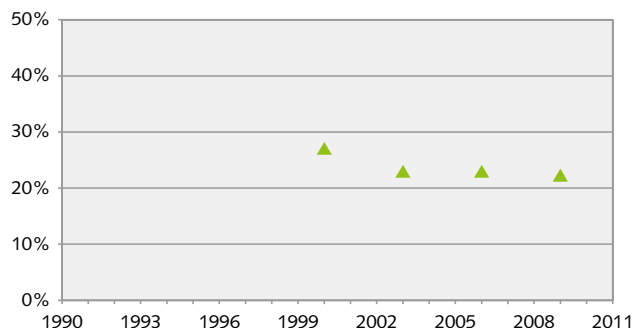
²¹ Inter-Parliamentary Union (IPU): <http://www.ipu.org/wmn-f/classif.htm> (as of 30.11.2011)

²² <http://epp.eurostat.ec.europa.eu> >> Table Code: tsisc060

Reading skills of 15-year-olds by socio-economic background

Gap between young persons aged 15 with high socio-economic and those with low socio-economic status who reach at least reading skill level 2 of 6¹

G 3.3



¹ 2009: change in the skills profiles

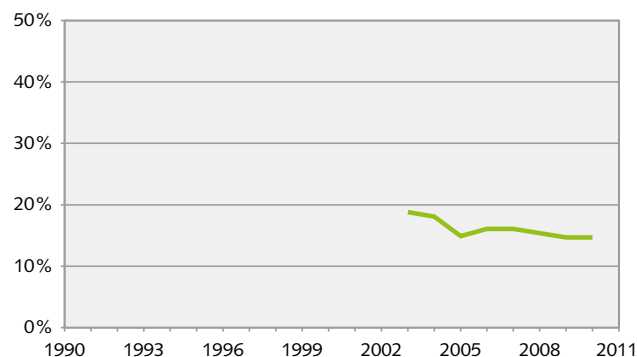
Sources: Consortium PISA.ch, Federal Statistical Office

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Early school leavers by citizenship

Gap between young persons aged 18–24 of foreign and Swiss nationality without post-compulsory education and who are no longer in education

G 3.4



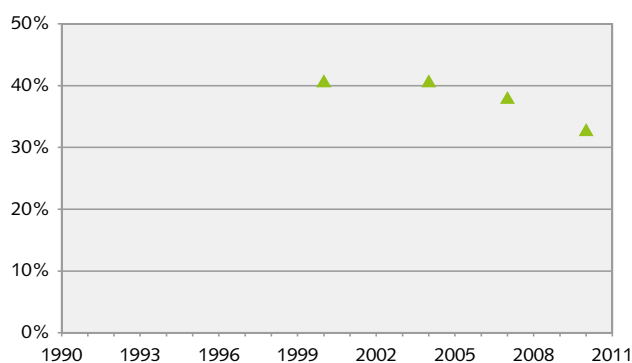
Source: Federal Statistical Office

© FSO

Voluntary work

Share of persons who do voluntary work in the permanent resident population aged 15 and over

G 3.5



Source: Federal Statistical Office

© FSO

T1.3 Documentation on indicator trends

Graph	Targeted trend	Objectives ^a	Period under analysis	Change in %	Observed trend ^b	Assessment	Comments
G 3.1	↘	4b SDS Nr. 6	2000–2002 2006–2008	+7.9%	→	≈	Assessment irrelevant as the observed trend lies within the confidence interval
G 3.2	↗	4a/4b/4c/5b	1991 2011	+68.6%	↗	✓	
G 3.3	↘	4b/4c	2000 2009	-17.8%	↘	✓	
G 3.4	↘	4a/4b/4c/ 7a/7c SDS Nr. 6	2003–2005 2008–2010	-13.5%	↘	✓	
G 3.5	↗	5b	2000 2010	-19.4%	↘	✗	

^a Sustainable development principles, challenges of the sustainable development strategy (SDS) or quantified and dated objectives.

^b The trend is interpreted as relevant if it exceeds a ±3% threshold. Exceptions are documented in the "Comments" column.

1.4 International Cooperation

Official development assistance and remittances from migrants living in Switzerland to their countries of origin are on the rise. *Foreign direct investments* by Swiss companies in developing countries are also increasing. The relative share of development assistance that flows to the poorest countries has remained at the same level in the last twenty years.

The global fight against poverty and a just distribution of the use of global resources are central aims of sustainable development. All members of the world community should participate in solving global problems. World trade should be commensurate with social justice and with the careful management of environmental resources and should not detract from the satisfaction of the needs of populations in other countries. The peaceful coexistence of peoples and nations and respect for human rights should be promoted.

Official development assistance is increasing

Poverty reduction in developing countries and in poorer countries in particular is a cornerstone of sustainable development. The level of official development assistance shows how much money Switzerland is willing to spend to reduce poverty. The share of official development assistance in *gross national income* (GNI) remained fairly stable in the 1990s. In 1992, to mark the 700th anniversary of the Swiss Confederation, the contributions were increased on a one-time basis to 0.45% of GNI. A rising trend can be observed from 2003, with a maximum value of 0.45% in 2009. In 2010, official development assistance dropped to 0.41% (G 4.1). In the spring of 2011, Switzerland decided for the first time to increase official development assistance to 0.50% of GNI during the 2011–2012 period. The additional funds made available are being used in particular for climate protection and water resource management in developing countries.²³

Between 1992 and 2010, the share of official development assistance in GNI to the *least developed countries* (LDC) remained at the same level (G 4.2). The relatively high value in 2009 is partly related to an increase in bilateral assistance to LDCs. This increase is also associated with debt relief measures for Togo (SDC/SECO 2010). In 2010, the share of official development assistance to the LDCs amounted to 0.10% (SDC/SECO 2011).

A survey of the population's attitude towards development assistance conducted on a regular basis shows that the proportion of people who would like an increase in development assistance has grown since 1999 (G 4.3).

The level of official development assistance is no indication of the effectiveness of development assistance nor of the commitment of NGOs and the private sector.

The share of multilateral treaties that are coming into force is fluctuating

Multilateral *treaties* are a key instrument to solve global problems and can therefore contribute to sustainable development. They are decided on an international level and subsequently ratified and implemented by the individual States. The share of multilateral treaties that have come into force is an indicator of the extent to which Switzerland is fulfilling its responsibility to implement international agreements. The share of internationally concluded multilateral treaties that have entered into force in Switzerland has fluctuated since 1992. The share increased until the late 1990s (84% in 1999) and began to decline again from the year 2005, to 71% in 2009 (G 4.4). In recent decades, Switzerland has ratified the principal human rights treaties. Among other efforts, Switzerland is committed to strengthening the UN Environment Programme (UNEP) and the Global Environment Fund as central pillars of the international environmental

²³ www.deza.admin.ch >> About SDC >> Facts and figures >> Swiss official development assistance (ODA) >> The increase in public development aid

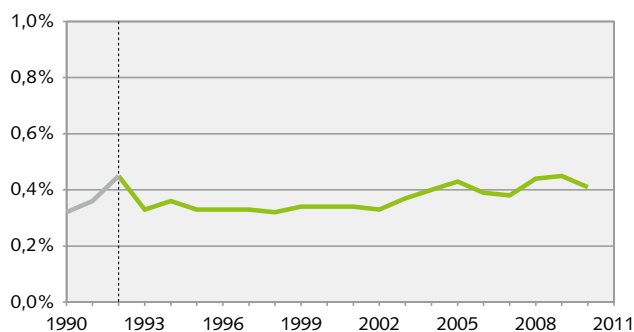
regime. In 2010, 5.6% of multilateral official development assistance went directly to various environmental organisations.²⁴ An additional 3.4% was earmarked for organisations with a strong environmental focus.²⁵ The

largest share (approximately 60%) flowed to international financial institutions and cannot be broken down by thematic area (SDC/SECO 2011).

Official Development Assistance

In proportion to Gross National Income
(previously Gross National Product)

G 4.1



2008 and 2009: provisional; 2010: estimate

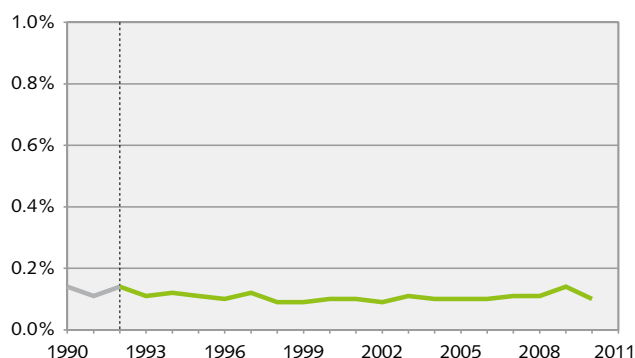
Sources: Swiss Agency for Development and Cooperation,
State Secretariat for Economic Affairs

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Official Development Assistance to least developed countries

Swiss' Official development assistance to least developed countries as percentage of gross national income

G 4.2



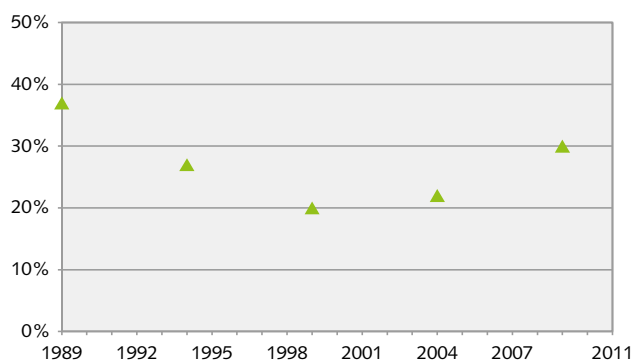
Source: Swiss Agency for Development and Cooperation

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Attitude towards development assistance

Share of persons eligible to vote who would like to increase official development assistance

G 4.3



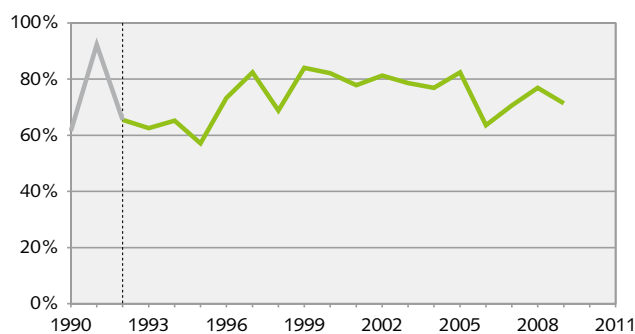
Source: gfs.bern

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Multilateral treaties

Share of multilateral treaties that have come into force in Switzerland (in the year treaty is concluded or in a following year) in the total of treaties concluded in one year

G 4.4



State: 2011.09.14

Source: Federal Department of Foreign Affairs

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²⁴ United Nations Environment Programme (UNEP) and the Global Environment Fund (GEF)

²⁵ International Fund for Agricultural Development (IFAD) and Consultative Group on International Agricultural Research (CGIAR)

Direct investments in developing countries are increasing

Poverty in developing countries can also be combated by means of direct investments by foreign enterprises, including Swiss enterprises. Direct investments not only help to integrate new markets; they can also contribute to job creation and the transfer of technology and management know-how in the target countries. Approximately 50% of all foreign direct investments by Swiss enterprises in 2010 went to developing countries. Since 1993, such investments have increased more than 15-fold (G 4.5). In 2010, enterprises invested more than CHF 18 billion in middle-income developing countries, but 70 times less in low-income developing countries (CHF 262 million).

Total direct investments in developing countries were eight times higher than official assistance in 2010 (CHF 2.4 billion) (SDC/SECO 2011). The level of direct investments does not allow any conclusions to be drawn about the social and environmental impact domestically or abroad of the opening up of a market. Foreign direct investments can result in a major loss of profits at the domestic level. Another negative impact can be that the country receiving investment becomes dependent on foreign money flows. To date, it has not been possible to establish a comprehensive multilateral legal framework, particularly with regard to human rights and environmental standards abroad.

Remittances by migrants are increasing

A life free of poverty in Switzerland and abroad is important for sustainable development. Remittances by migrants to their countries of origin can contribute to reducing poverty, improving living conditions and achieving a more equitable distribution of wealth in these countries. In Switzerland, such remittances increased from approximately CHF 3 billion in 1992 to approximately 5.4 billion in 2010. Since 2000 in particular, remittances have risen sharply, but they declined between 2009 and 2010 as a

result of the economic crisis (G 4.6). This increase is attributable to economic liberalisation and rising levels of migration, particularly of higher qualified and better paid workers, as well as to an improved method to collect data on such remittances. A significant portion of these funds goes to people in Switzerland's neighbouring countries. Worldwide, remittances amount to more than three times the total volume of official development assistance and often provide an important source of income for the poor (Worldbank 2011). But the indicator does not allow any conclusions to be drawn about possible negative effects: for example, external sources of funds can hamper the development of a local independent economy, encourage the emigration of skilled workers and take the pressure off the local government to implement economic and social reforms.

Switzerland's development assistance rate does not reach the target of 0.7% of gross national income set by the UN

In 2010, Switzerland's expenditure on development assistance amounted to 0.41% of GNI and fell below the average of the member countries of the OECD Development Assistance Committee (0.49%) as well as below the 0.7% demanded by the UN. The highest contributions are made by Norway (1.10%), Luxembourg (1.09%), Sweden (0.97%) and Denmark (0.90%) (SDC/SECO 2011).

The UN requires from the industrialised countries that they increase development assistance to the least developed countries from 0.15% to 0.20% of GNI by 2010. Switzerland reached 0.14% in 2009. In 2009, high levels of development assistance to the poorest countries were registered by Luxembourg (0.39%), Sweden (0.34%), Denmark (0.34%) and Norway (0.33%).²⁶

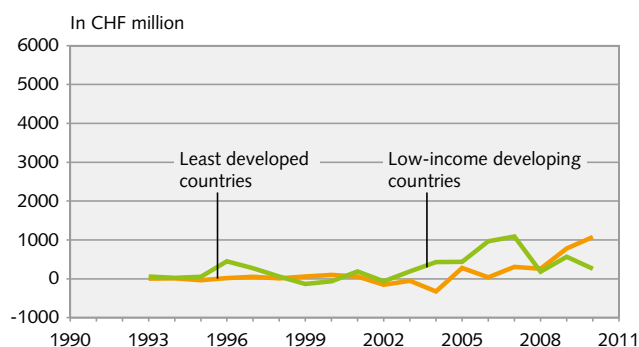
World Bank statistics on remittances by migrants to their countries of origin show that Switzerland ranks third among the sender countries (Worldbank 2011).

²⁶ UN Millennium Development Goals Indicators: <http://mdgs.un.org/unsd/mdg/Data.aspx>

Direct investments in developing countries

Switzerland's capital exports, by countries' income categories¹

G 4.5



¹ Country groups according to OECD/DAC

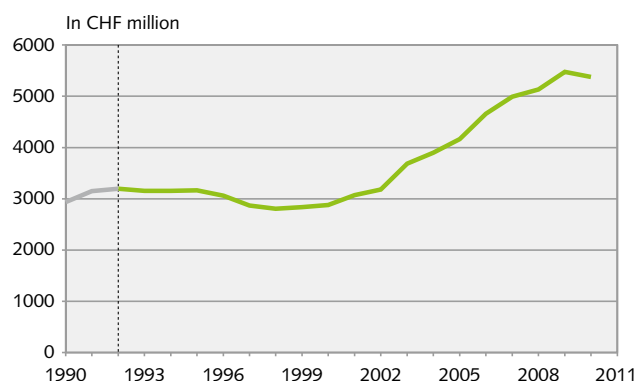
Source: Swiss National Bank

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Remittances by migrants

Total of official private remittances from migrant workers in Switzerland to their countries of origin

G 4.6



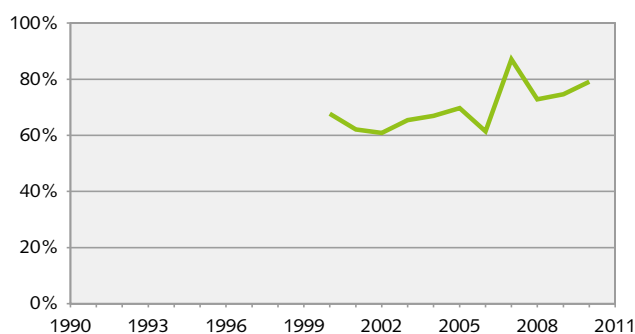
Source: World Bank

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Duty-free imports from developing countries

Share of duty-free imports in total value of imports from the least developed countries¹

G 4.7

















¹ Country groups according to OECD/DAC

Source: Federal Customs Administration

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T 1.4 Documentation on indicator trends

Graph	Targeted trend	Objectives ^a	Period under analysis	Change in %	Observed trend ^b	Assessment	Comments
G 4.1		6a SDS Nr. 8	1991–1993 2008–2010	+14.1%		✓	
G 4.2		6a SDS Nr. 8	1991–1993 2008–2010	-3.2%		≈	No negative assessment as the GNI has grown strongly in 2009 and 2010 and the ODA has increased in absolute terms
G 4.3		6a	1989 2009	-18.9%		≈	No marked change due to the “U” form of the curve
G 4.4		1a/2c/6b/14a/ 14b/15a/15b SDS Nr. 8	1991–1993 2007–2009	-0.6%		≈	
G 4.5		4b/14b	1993–1995 2008–2010	LIC: +662.1% LDC: +9583.0%		✓	Synthesis of trends observed in developing countries with low-income economies (LIC) and the least developed countries (LDC) ^c
G 4.6		2c	1991–1993 2008–2010	+68.3%		✓	
G 4.7		8/14b	2000–2002 2008–2010	+18.8%		✓	

^a Sustainable development principles, challenges of the sustainable development strategy (SDS) or quantified and dated objectives.

^b The trend is interpreted as relevant if it exceeds a ±3% threshold. Exceptions are documented in the “Comments” column.

^c The change in % of each variable is synthesised with a single value (-1 for a negative assessment, 0 for an unchanged assessment without marked change and +1 for a positive assessment). These values are then added up and the results determine the general trend for this indicator.

1.5 Education and culture

Reading literacy and participation in further education courses have remained at a high level in international comparison in recent years. Nevertheless, almost 17% of young people have no more than rudimentary reading skills. In terms of reading skills, early school leaving, participation in continuing education, internet use and cultural activities, there continue to be differences depending on socio-economic status.

Sustainable development should maintain and develop human capital. Everyone ought to be given access to an adequate basic education as well as continuing education. Access to information, e.g. through the internet, and the use of such information is of central importance for social integration and the exercise of political rights. Sustainable development also includes guaranteeing cultural diversity and maintaining the socio-cultural heritage.

The reading skills of 15-year-olds are improving

The preservation and qualitative improvement of human capital, i.e. knowledge and skills, are important for sustainable development. Knowledge is an indispensable resource for an innovative and productive society as well as a key to personal development. Adequate reading skills are important for professional success and to cope with everyday life. Reading skills have improved in Switzerland since the first PISA study in 2000. The share of 15-year-olds who attained at least level 2 was 80% in 2000 and 83% in 2009 (G 5.1). This group is composed of pupils who can solve basic, medium-difficulty or difficult reading tasks (Consortium PISA.ch 2010). The remaining 17% of youngsters have at best rudimentary reading skills.

The share of 20-74-year-olds in the resident population who attend continuing education courses remained largely unchanged at 38% between 1996 and 2008 (G 5.2). If participation in continuing education courses is broken down by *educational level* in 2008, a number of differences can be found: 16% of people with no more than a compulsory education qualification attend continuing education courses, compared with 51% of people with a tertiary-level degree.²⁷ Continuing education includes seminars, lectures, workshops and private lessons. Continuing education helps people understand changes in our society and enables them to cope better with change.

There are persistent differences in reading literacy, early school leaving (→ Social Cohesion chapter) and participation in continuing education between people of different socio-economic status and nationality.

Differences remain in internet use

Access to information and the use of such information is of central importance for social integration and the exercise of political rights. In terms of sustainable development it is therefore important that every member of society have access to the internet, which is an important source for obtaining information. The share of people who use the internet several times a week has risen from 7% in 1997 to 77% in 2010.²⁸ The share of frequent internet users varies depending on income. In 2010, 95% of persons in the highest income group were in the circle of frequent internet users, compared with 42% in the lowest income group (G 5.3). Some segments of the population use the internet only rarely or never.

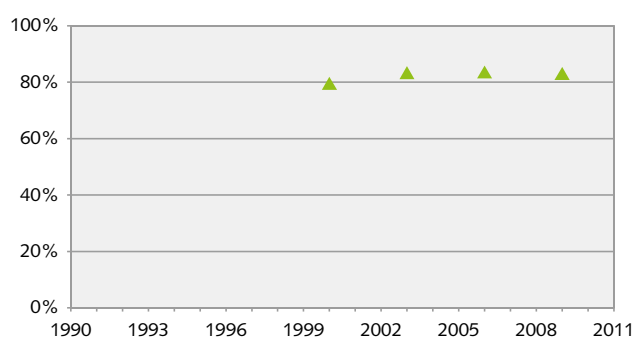
²⁷ www.bfs.admin.ch >> Thèmes >> 15 - Education, science >> Formation continue (only available in French and German)

²⁸ www.bfs.admin.ch >> Thèmes >> 16 - Culture, médias, société de l'information, sport >> Société de l'information (only available in French and German)

Reading skills of 15-year-olds

Share of 15-year-olds reaching at least reading skills level 2 (scale <1 to 6¹)

G 5.1



¹ 2009: change in the skills profiles

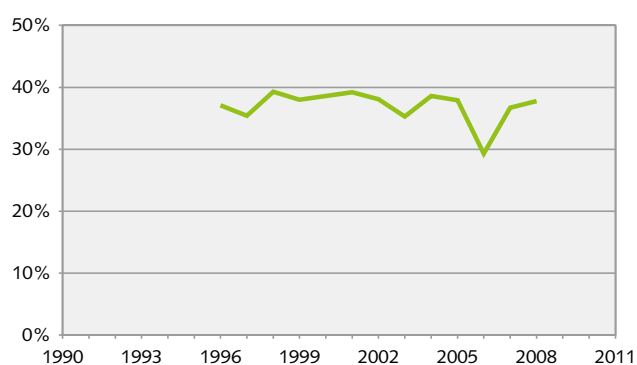
Sources: Consortium PISA.ch, Federal Statistical Office

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Participation in further education

Share of 20–74-year-olds who attend further education courses

G 5.2



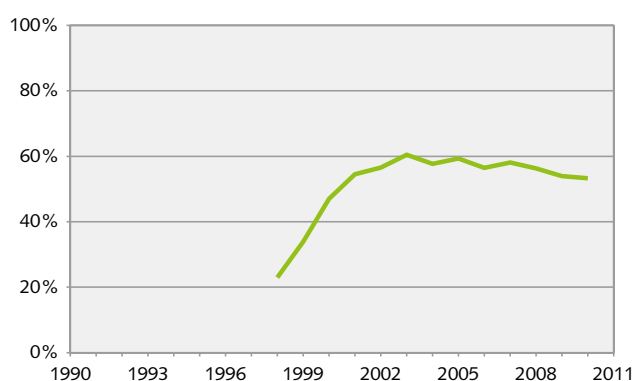
Source: Federal Statistical Office

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Internet use by income group

Gap between regular users (several times per week) aged 14 and over who have a monthly income of more than CHF 9999 and those whose income is less than CHF 4000

G 5.3



Half-yearly figures (average from April to September and from October to March)

Sources: MA-Net, Net-Matrix-Base

© FSO

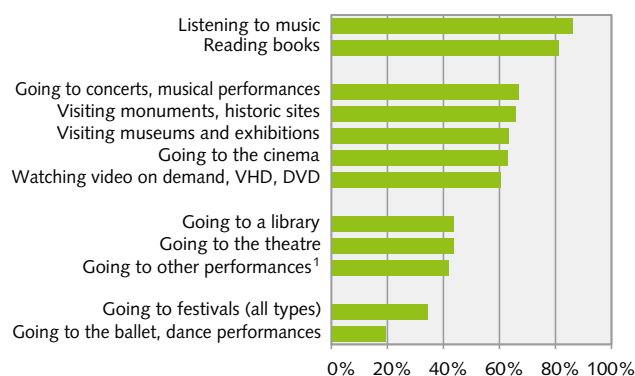
Cultural activities contribute to the development of social capital

The long-term preservation and expansion of collective knowledge and the socio-cultural heritage are key objectives of sustainable development. Taking part in *cultural activities* can contribute to cultural diversity and social participation. In 2008, the most popular cultural activity was listening to music, followed by reading books. Concerts, historic sites, museums and cinemas (two-thirds of the population) were also frequently visited (G 5.4). Personal engagement in cultural activities also contributes to an individual's cultural development and to the preservation of cultural capital. The most popular activities were photography on the one hand and drawing/painting on the other, which were practised by about a quarter of the population, respectively. Just under 20% played a musical instrument (G 5.5). Participation in cultural activities depends heavily on an individual's personal background, i.e. on his or her educational level or *household* income. For example, 82% of people aged 25 or over with a tertiary level degree visit museums, compared with 32% of people with a lower secondary level qualification (FSO 2011a).

Participation in cultural activities

Share of the population aged 15 and over who participated in following activities in 2008

G 5.4



¹ Variety, circus, light and sound shows etc.

Source: Federal Statistical Office

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The communes, the cantons and the Confederation provide financial assistance to promote the diversity of cultural life. Urban centres make the highest contribution in this respect. Public spending on culture increased from CHF 1.7 billion to CHF 2.2 billion between 1992 and 2007. But in relation to *GDP* it has been declining again since its peak level in 2001 (which was related to the Swiss national exhibition Expo 02) (FSO 2010c).

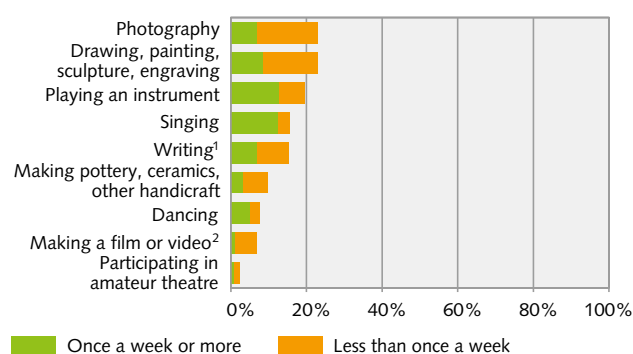
The Swiss population is keener on continuing education than its European neighbours

The average reading literacy of 15-year-olds in Switzerland is above the OECD average. In global comparison, Switzerland is behind countries such as China, Korea, Finland and Canada, but ahead of its neighbouring countries Italy and Austria (Consortium PISA.ch 2010). As regards participation in continuing education, Switzerland is among the top-ranking countries, along with Denmark, Iceland, Sweden and Finland. In 2010, on average approximately 9% of the European population (EU-27) aged between 25 and 64 attended continuing education courses, compared with 31% in Switzerland.²⁹

Own cultural activities

Share of the population aged 15 and over who carried out these activities on an amateur basis in 2008

G 5.5



¹ Poems, short stories etc.

² All media

Source: Federal Statistical Office

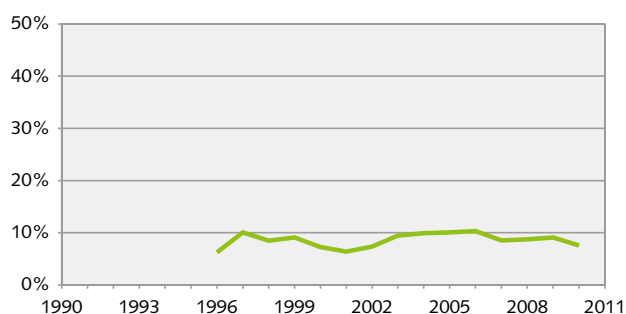
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²⁹ <http://epp.eurostat.ec.europa.eu> >> Table Code: tsdsc440

Early school leavers

Share of 18–24-year-olds who are no longer in an educational programme and who have at most a compulsory school qualification

G 5.6



Interruption in the time series: as of 2010 a continuous survey (quarterly survey), revision of questionnaire

Source: Federal Statistical Office

© FSO

T1.5 Documentation on indicator trends

Graph	Targeted trend	Objectives ^a	Period under analysis	Change in %	Observed trend ^b	Assessment	Comments
G 5.1	↗	7a/7c/7d SDS Nr. 10	2000 2009	+4.4%	↗	✓	
G 5.2	↗	7a/7c/10a/ 10b	1996 2008	+2.0%	→	≈	Calculation without initial and final averages due to incomparable values in 2006 and 2009
G 5.3	↘	4b/4c/5b/7b	1998–2000 2008–2010	+57.5%	↗	✗	
G 5.4							No time series for this indicator
G 5.5							No time series for this indicator
G 5.6	↘	7a SDS Nr. 10 Assessment of trend according to a quantified objective with a set deadline	1996 2010	+21.3%	↗	✗	Objective of the Swiss Conference of Cantonal Ministers of Education: 95% of 25 year-olds with an upper secondary level qualification by 2020

^a Sustainable development principles, challenges of the sustainable development strategy (SDS) or quantified and dated objectives.

^b The trend is interpreted as relevant if it exceeds a $\pm 3\%$ threshold. Exceptions are documented in the "Comments" column.

1.6 Research and technology

Total expenditure on *research and development* (R & D) has increased. Switzerland thus ranks in the top tier of the most innovative countries. This growth has been accompanied by an 85% increase in science and technology personnel. However, it is unclear whether these increases meet the objectives of sustainable development in qualitative terms.

Research, development and technology are regarded as important motors for a society's innovative activity and competitiveness. It follows that they are important conditions for the maintenance of economic efficiency. Sustainable development also calls for productive and human resources to be maintained and qualitatively improved.

R&D expenditures are increasing and undergoing structural change

Investments in research and development help to create conditions favourable to innovation and hence to a country's competitiveness. R&D contributes to the emergence of new technologies and processes that make possible a reduction of environmental pressure from our consumption and production patterns as well as a more rational use of resources. The share of R&D expenditures in *GDP* increased by 16% during the period analysed³⁰, to 3% of GDP in 2008 (G 6.1). This represents more than CHF 16 billion, an increase of nearly 80% in absolute terms (at current prices).³¹ However, full information on the domains and effectiveness of R&D expenditures is unavailable. Consequently, it is not possible to make a qualitative assessment of the extent to which these expenditures meet sustainable development objectives.

An analysis of R&D expenditure patterns over the 1996–2008 period shows that while investments fluctuated, the share of personnel-related expenditures (-6%) decreased whereas other current expenditures, for example expenditures related to the purchase of materials, office supplies and electricity, increased (+11%). A decline in the share of funds invested in *basic and applied research* (-11% and -1%, respectively) coupled with an increase in investment in the industrial application of R&D (+10%) was also observed (FSO 2010d).

R&D activities are concentrated in certain parts of the country. Thus, in 2008 more than 60% of *intramural R&D expenditures* made by enterprises were concentrated in the Lake Geneva and North-western Switzerland regions, corresponding to slightly more than a quarter of the land area and a little less than a third of the total population (FSO/Economiesuisse 2010). This concentration is a reflection of the regional distribution of industry and can lead to regional disparities in economic competitiveness and the labour market.

Human resources in science and technology (S&T) are increasing

Quantitative and qualitative growth of productive and human resources requires good education and training opportunities as well as an availability of jobs to enable the implementation of the acquired knowledge. The share of persons trained and employed in the S&T sector in the total employed population represents the number of people who work in the creation, dissemination and application of knowledge in all scientific fields. The absolute number of such persons grew by more than 85% between 1993 and 2010 (+70% between 1996 and 2008) (G 6.2). The observed increase was coupled with an increase in the number of *full time equivalent jobs* (FTE) in R&D (+24% between 1996 and 2008).³¹ It is, however, not clear whether these people's professional activities actually meet the objectives of sustainable development.

People in the labour force and research in the fields of the human and social sciences also play an important role in sustainable development, particularly through the observation and interpretation of changes and paradigm shifts in our society. Indeed, the abandonment of nuclear energy and the development of the green economy are indications of changes in the entire socio-economic system.

³⁰ The period analysed is specified for each indicator in the table at the end of this chapter

³¹ www.bfs.admin.ch >> Thèmes >> 15 - Education, science >> Science et technologie (only available in French and German)

The increase in R&D jobs is partly due to a 41% increase in the number of technical and support staff (in FTE) between 2000 and 2008, accompanied by a 4% decrease in the number of research staff (in FTE) during the same period (FSO 2010d). This trend was parallel to the declining importance of basic and applied research mentioned above.

Switzerland is among the most innovative countries

In international comparison, Switzerland was among the top-ranked countries in the European Innovation Scoreboard in 2009, which was based on an aggregation of 29 indicators (PRO INNO Europe 2010). In terms of the share of R&D expenditure in GDP, Switzerland ranks above the average of *EU-27* countries (1.8% in 2008) but below certain countries such as Finland and Sweden (more than 3.5%).³¹

However, compared with the other countries, Switzerland has lost ground in the field of clean technology (cleantech).³² Indeed, over the last decade, Switzerland's share of cleantech patent applications as well as its market share in this field have decreased worldwide. National strategies (Green Economy and Cleantech Masterplan) as well as international strategies (OECD Green Growth Strategy) support the efforts undertaken in Switzerland to strengthen competitiveness in the field of R&D and in the development of clean technologies (OPET 2010).

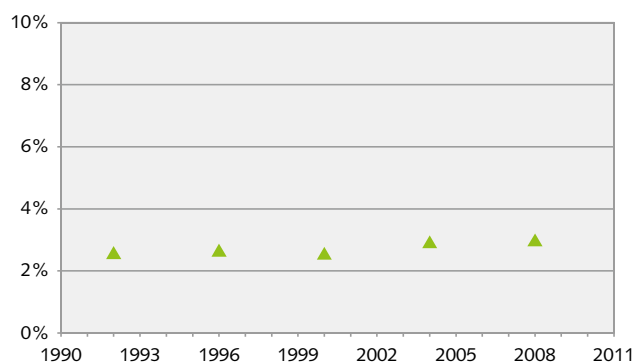
Switzerland is below the European average as regards the share of researchers in total R&D personnel (41% in Switzerland compared with 61% in the *EU-25* in 2008).³¹ This position may be partly attributable to the structural changes in R&D expenditures and personnel.

³² The clean technology field is not defined by official statistics. The data below come from estimates made by the Federal Office for Professional Education and Technology (OPET)

Expenditure on Research and Development

Share in gross domestic product

G 6.1



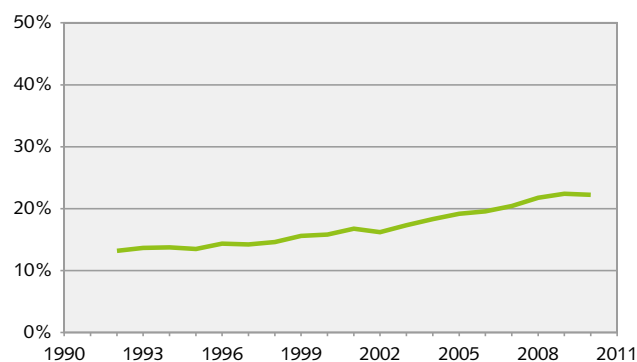
Source: Federal Statistical Office

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Human resources in science and technology

Share of persons educated and active in science and technology in relation to total working population

G 6.2



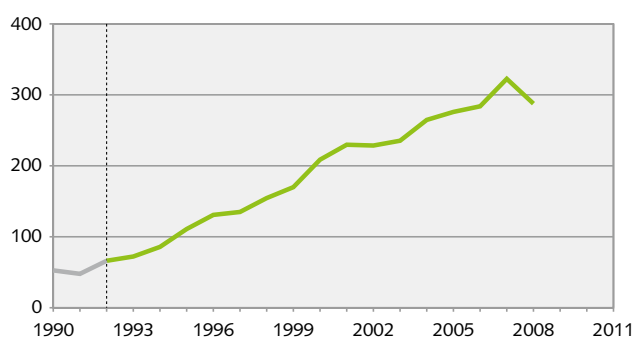
Source: Federal Statistical Office

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Patent applications

Patents pending according to the Patent Cooperation Treaty (PCT) from inventors resident in Switzerland, per million inhabitants

G 6.3



2008: provisional

Source: Organisation for Economic Cooperation and Development (OECD)

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T 1.6 Documentation on indicator trends

Graph	Targeted trend	Objectives ^a	Period under analysis	Change in %	Observed trend ^b	Assessment	Comments
G 6.1	↗	7a/10b/10c SDS Nr. 10	1992 2008	+15.8%	↗	✓	
G 6.2	↗	7a/10b SDS Nr. 10	1992–1994 2008–2010	+63.5%	↗	✓	
G 6.3	↗	10a/10b/10c SDS Nr. 10	1991–1993 2006–2008	+379.5%	↗	✓	

^a Sustainable development principles, challenges of the sustainable development strategy (SDS) or quantified and dated objectives.

^b The trend is interpreted as relevant if it exceeds a $\pm 3\%$ threshold. Exceptions are documented in the "Comments" column.

1.7 Work

Unemployment has increased since 1992. But in international comparison, Switzerland has low *unemployment rates based on ILO*. Although the wage gap between women and men has narrowed, women's salaries remain on average a fifth lower than men's.

As part of sustainable development, people who want to be gainfully employed should be able to find reasonable work from which they can support themselves. Also, an adequate supply of labour is a requirement for an economy that is able to perform efficiently. Everyone should have equal opportunities on the labour market and disadvantaged groups should be integrated. For the preservation and development of human capital, it is imperative that younger generations be well integrated in the labour market.

The unemployment rate based on ILO is rising

Having the possibility of earning one's own livelihood and participating in the labour market are – particularly for the younger generation – important prerequisites for sustainable development. Between 1992 and 2010, the unemployment rate based on ILO rose from 2.8% to 4.2% and the youth unemployment rate from 4.5% to 7.2% (G 7.1, G 7.2). Upward trends in the unemployment rate and in the youth unemployment rate are subject to temporal fluctuations, which usually trail the development of the economy. Young people aged between 15 and 24 are at greater risk of unemployment. Young adults are generally particularly affected by economic crises, but are often unemployed for short time periods (FSO/SECO 2011). The higher unemployment rate of this age group is attributable to a lack of work experience, more frequent job changes and the fact that companies tend to favour employees who have already been working for them. Lack of educational qualifications and training often also makes integration in the labour market more difficult, as there is a gap between skills demanded and skills available (SECO/OPET 2005).

There are regional differences in the unemployment rate. In 2010, the Lake Geneva region had an unemployment rate of 6%; above the national average. In Central and Eastern Switzerland, on the other hand, it was well under 4%.³³ Regions with a high proportion of export-oriented companies are usually subject to greater fluctuations.

The wage gap between women and men is narrowing

Gender equality is, as a reflection of equal opportunity and rights, a key objective of sustainable development. In Switzerland, women's *salaries* are on average about one-fifth lower than men's (G 7.3). About 60% of the wage differences are attributable to structural factors: women have, on average, lower educational qualifications than men, work in sectors that pay lower wages, are under-represented in managerial positions, and have a lower average age and less professional experience. But the remaining 40% of the wage differences cannot be explained by structural factors and are consequently attributable to discriminatory reasons. This discriminatory portion of the wage gap varies from one economic sector to another. The wage gap is narrowest in the banking and insurance sectors and in the IT field. Moreover, in the public sector, the discriminatory portion of the wage gap is smaller than in the private sector (BASS 2010).

³³ www.bfs.admin.ch >> Topics >> Employment and income >> Unemployment and vacancies

In international comparison, Switzerland has a low unemployment rate based on ILO

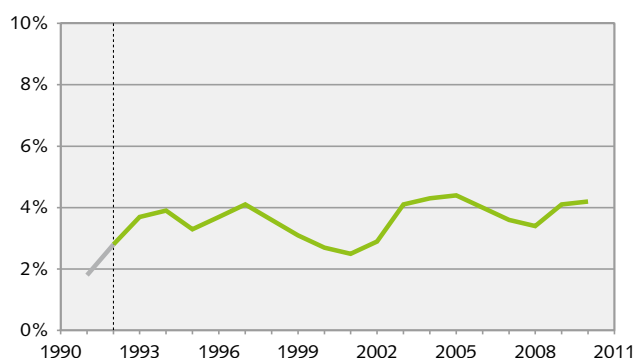
The unemployment rate based on ILO is markedly lower in Switzerland than in most OECD countries. Switzerland also stands out from other OECD countries with respect to the youth unemployment rate: in 2010, it was 7% in Switzerland, compared with an OECD average of 17%.³⁴ In international comparison, the Swiss population has a high labour market participation rate; at the European level, Switzerland registers the highest labour market

participation rate, along with Iceland and Norway. This is among other factors attributable to the fact that in Switzerland many women engage in gainful employment, but for the most part on a part-time basis (FSO 2011b). Consequently, when women's participation in the labour market is converted into full-time equivalents, Switzerland only ranks in the lower middle of the OECD countries.³⁵ In international comparison, Switzerland has a relatively high proportion of long-term unemployed.³⁶

Unemployment rate based on ILO

Percentage of unemployed in relation to total working population

G 7.1



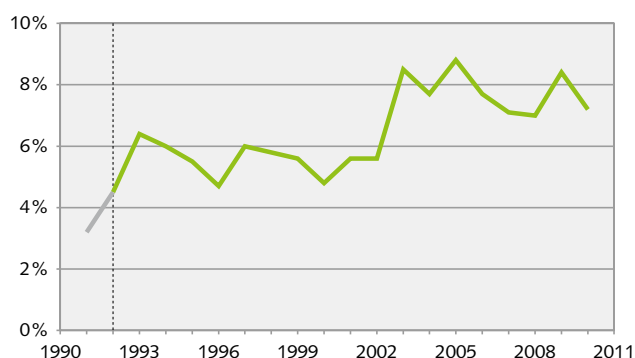
Source: Federal Statistical Office

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Youth unemployment rate based on ILO

Share of unemployed in the 15–24-year-olds economically active population

G 7.2



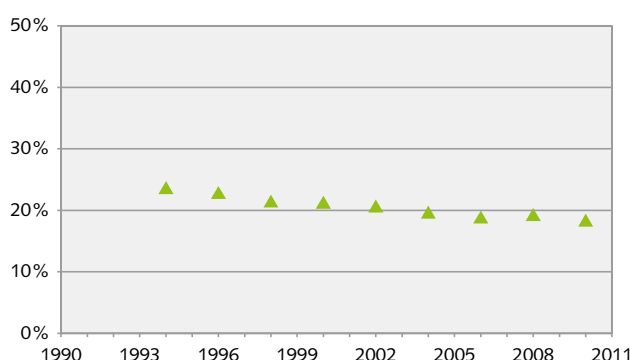
Source: Federal Statistical Office

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Wage gap between men and women

Wage gap between men and women as a percentage of men's monthly gross wage

G 7.3



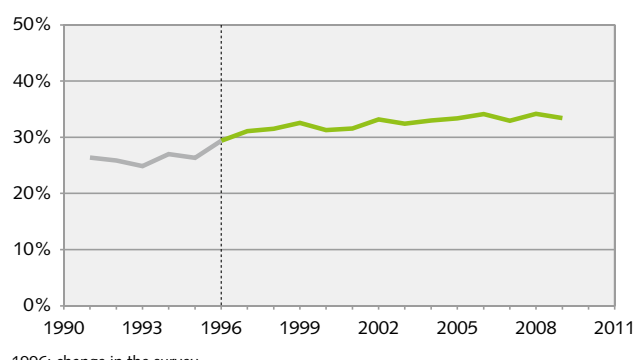
Source: Federal Statistical Office

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Professional position by gender

Share of women in total number of employees in managerial positions

G 7.4



1996: change in the survey

Source: Federal Statistical Office

© FSO

³⁴ OECD.StatExtracts: <http://stats.oecd.org> >> Labour >> Labour Force Statistics >> LFS by sex and age

³⁵ OECD.StatExtracts: <http://stats.oecd.org> >> Labour >> Labour Force Statistics >> Full-time Part-time employment

³⁶ OECD.StatExtracts: <http://stats.oecd.org> >> Labour >> Labour Force Statistics >> Unemployment by duration

T 1.7 Documentation on indicator trends

Graph	Targeted trend	Objectives ^a	Period under analysis	Change in %	Observed trend ^b	Assessment	Comments
G 7.1	↘	2a/2c/4c/13	1991–1993 2008–2010	+41.0%	↗	✗	
G 7.2	↘	2a/2c/4c/7d/ 13	1991–1993 2008–2010	+60.3%	↗	✗	
G 7.3	↘	4a/4b SDS Nr. 6	1994 2010	-22.5%	↘	✓	
G 7.4	↗	4a/4b	1996–1998 2007–2009	+9.3%	↗	✓	

^a Sustainable development principles, challenges of the sustainable development strategy (SDS) or quantified and dated objectives.

^b The trend is interpreted as relevant if it exceeds a ±3% threshold. Exceptions are documented in the “Comments” column.

1.8 Economic system

Productivity per hour worked is increasing. The public debt ratio rose in the 1990s, but as a result of the introduction of a debt brake, it has been reduced again to the level of 1992. Environment-related taxes have risen in relation to total tax revenues.

To ensure that the population's basic requirements are met in the long term, an economy that is capable of performing efficiently is needed. This also entails promoting innovation and competitiveness. When the market mechanism fails, the state should primarily intervene with market instruments. Sustainable development also requires that public-sector debt be incurred only to the extent that it does not jeopardise the capability of future generations to meet individual and social needs or make investments.

Labour productivity is increasing

The maintenance of economic efficiency is an integral part of sustainable development. *Labour productivity* measures the price-adjusted output (*gross domestic product*) per hour actually worked. An increase in productivity over an extended period can, by means of redistributive measures, lead to an increase in a country's incomes and living standards. In Switzerland, the labour productivity index (base 1991=100) increased by 21 percentage points during the period analysed³⁷ (G 8.1). GDP growth (+32%) was higher than the growth in hours worked (+9%).³⁸ The increase in labour productivity is attributable to the qualifications of employees, the exploitation of economies of scale (increasing volumes by concentrating production in a few locations) as well as to production technologies which can lower the labour intensity through increased use of capital, energy and materials (FSO 2008). The growth of labour productivity by sector (based on the number of *full-time equivalent* employees) was not uniform between 1997 and 2009 (at previous year prices, reference year 2000). Thus, the telecommunications branch and the chemical industry registered the strongest growth, while the other branches showed in some cases declining productivity.³⁸

After a rise, the debt ratio is again at the level of 1992

Ensuring future generations' capacity to act is a key objective of sustainable development. To this end, it is important to keep the level of indebtedness of the present generation to a level that can be borne by future generations. Following a rise in the *public debt ratio* in the 1990s, the ratio stabilised again in the early years of the new millennium. Since 2003, it has been decreasing again. In 2010, the debt ratio was 38%, reaching the level of 1992 (G 8.2). By far the largest share of public debt is at the federal level (>50%), followed by the cantons and communes, which account for a quarter and a fifth of total debt (FFA 2011). The marked decrease in the public debt ratio is attributable in particular to the debt brake that was introduced in 2003. Most cantons have adopted the debt brake rules. The debt brake requires that expenditures be linked to receipts when budgeting (FDF 2010). Debt can also contribute to sustainable development, e.g. in the form of forward-looking investments in education and research.

Revenues from environmentally related taxes are increasing

The long-term conservation of natural resources is a cornerstone of sustainable development. *Environmentally related taxes* can serve as a corrective to achieve more sustainable pricing by making environmentally damaging goods or behaviour more expensive. The incentive effect of such taxes helps to curb the current (and future) consumption of resources and therefore serves the purpose of capital conservation. The relative share of environmentally related taxes in total revenue from taxes and social contributions was 7% in 2010 (G 8.3). By far the largest revenue sources are energy and transport taxes,

³⁷ The period analysed is specified for each indicator in the table at the end of this chapter

³⁸ www.bfs.admin.ch >> Thèmes >> 4 - Economie nationale >> Productivité (only available in French and German)

e.g. the mineral oil tax. Taxes on resources and emissions, e.g. the CO₂ incentive tax on fuels, account for less than 10% of environmentally-related taxes. Absolute revenues from environmental taxes have increased steadily to more than CHF 11 billion.³⁹ This increase is equally attributable to higher environmental tax rates and to a growth in environmentally damaging activities or a higher consumption of polluting goods. For this reason, an assessment of observed trend is dispensed with here.

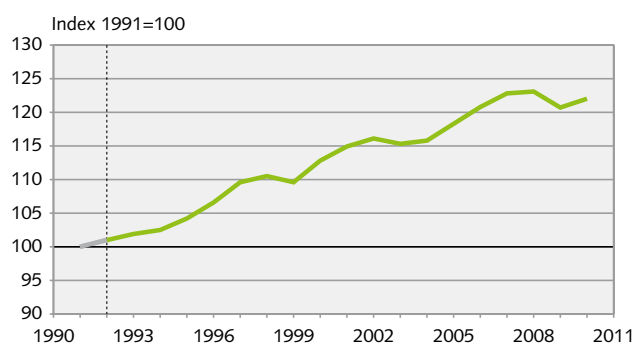
Switzerland has one of the lowest debt ratios in Europe

In European comparison, labour productivity increased more in the EU-27 average than in Switzerland.⁴⁰ The increase in labour productivity was particularly high in the new EU member states. A European comparison of government debt shows that Switzerland has a relatively low debt ratio. The difference to most other countries in the EU has been increased by the effects of financial crisis (FDF 2010). A comparison of individual taxes shows that in the Scandinavian countries in particular CO₂ taxes were already introduced in the 1990s. In Switzerland there has been a CO₂ incentive tax on fuels since 2008 and Switzerland's integration into the European emissions trading system still lies ahead.

Labour productivity

Productivity trend by hours worked

G 8.1



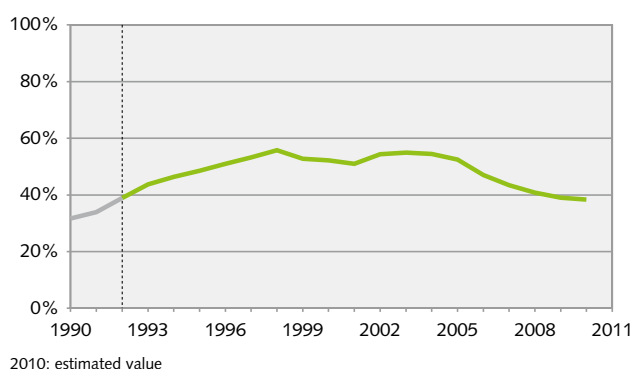
Source: Federal Statistical Office

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Level of public debt

Gross debt of Confederation, cantons and municipalities (without social insurances) in relation to gross domestic product

G 8.2



Source: Federal Finance Administration

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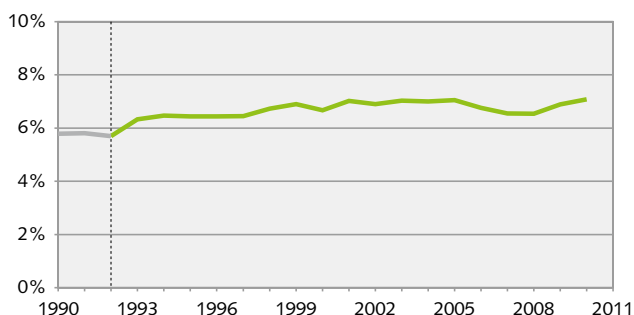
³⁹ www.bfs.admin.ch >> Thèmes >> 2 - Espace, environnement >> Comptabilité environnementale (only available in French and German)

⁴⁰ <http://epp.eurostat.ec.europa.eu> >> Table Code: tsdec310

Environmentally-related taxes

In proportion to total revenues from taxes and social contributions¹

G 8.3



¹ According to ESA95 – European System of Accounts 95
2010: provisional

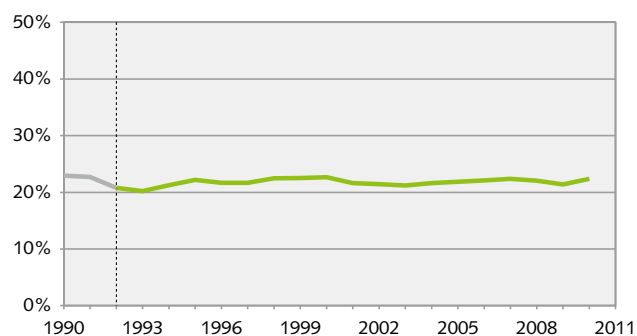
Source: Federal Statistical Office

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Investment to GDP ratio

Gross investments in relation to gross domestic product

G 8.4



2009 and 2010: provisional

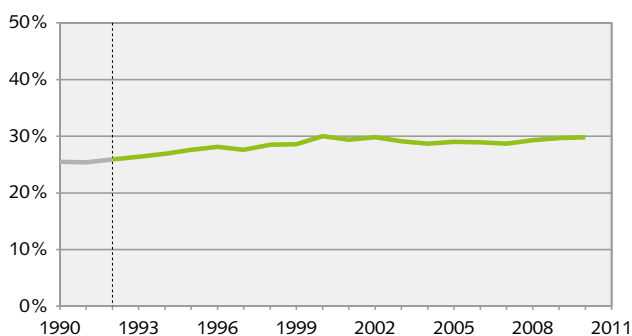
Source: Federal Statistical Office

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Public sector fiscal revenue rate

Revenues from taxes and compulsory social security contributions in proportion to gross domestic product

G 8.5



2010: estimated value

Source: Federal Finance Administration

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T1.8 Documentation on indicator trends

Graph	Targeted trend	Objectives ^a	Period under analysis	Change in %	Observed trend ^b	Assessment	Comments
G 8.1	↗	10a	1991–1993 2008–2010	+20.8%	↗	✓	
G 8.2	↘	10d SDS Nr. 9	1991–1993 2008–2010	+1.5%	→	≈	
G 8.3		SDS Nr. 9	1991–1993 2008–2010	+15.0%	↗		
G 8.4	↗	10a	1991–1993 2008–2010	+3.3%	↗	✓	
G 8.5	↘	10b SDS Nr. 9	1991–1993 2008–2010	+14.2%	↗	✗	

^a Sustainable development principles, challenges of the sustainable development strategy (SDS) or quantified and dated objectives.

^b The trend is interpreted as relevant if it exceeds a ±3% threshold. Exceptions are documented in the "Comments" column.

1.9 Production and consumption

The use of materials to meet the needs of production and consumption is increasing, generating an increase in waste. This change is however accompanied by an increase in waste recycling rate. The increase in spending on organic products reflects a change in consumption patterns.

Sustainable production and consumption patterns should be as environmentally compatible and socially just as possible. This includes efficient use of resources and whenever possible the avoidance of waste production.

Material intensity is decreasing

The increase in the production of goods implies higher pressure on natural resources. With a view to sustainable development, economic productivity should therefore be preserved or increased while consumption of materials should be reduced. Material intensity shows the mass of materials extracted, used and moved, both in Switzerland and abroad, to obtain one franc of *added value* in our country. A decrease in intensity indicates that a *decoupling* takes place between the consumption of materials and economic activity. Material intensity dropped by 6% during the period analysed (G 9.1).⁴¹ Growth in total material requirement between 1992 and 2009 (+22% to reach 330 million tonnes in 2009) was slower than growth in real GDP (+28%). This means that a relative decoupling took place during this period. The variations observed were mainly caused by fluctuation in activities in the construction sector – a major consumer of Swiss raw materials – and the importation of metals where extraction requires significant transport of materials abroad (FSO 2007).

Consumption of materials is ever more dependent on foreign countries

An economic system that is globalising involves relocation abroad of part of the production process and related adverse environmental impact. A closer analysis of the material needs therefore shows that imports and the *hidden flows* associated with them rose by more than 30% between 1992 and 2009 (G 9.2). This change reflects dependence on non-Swiss resources. Furthermore, the share of finished products in imports increased by 36% between 1992 and 2009⁴² showing, among other things, that part of the production process had moved abroad.

The quantity of waste is increasing

The production and consumption of goods and services which respect the environment are core factors of sustainable development. Reducing the production of waste can therefore limit or prevent the consumption of resources. The production of *urban waste* saw an increase of 34% over the period analysed (G 9.3), reaching almost 5.6 million tonnes or 706 kg per person in 2010.⁴³ The decrease in life-span of consumer products, over-packaging and more frequent use of pre-cooked products contribute to this rise.

Hazardous waste, potentially dangerous and toxic, is mainly produced by industry. Its production reached approximately 1.8 million tonnes in 2010.⁴⁴ Treatment, disposal and export of this waste must be carried out according to the provisions of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

⁴¹ The period analysed is specified for each indicator in the table at the end of this chapter

⁴² www.bfs.admin.ch >> Thèmes >> 2 - Espace, environnement >> Comptabilité environnementale (only available in French and German)

⁴³ www.bafu.admin.ch >> Environmental state >> Indicators >> Waste management

⁴⁴ www.bafu.admin.ch >> Topics >> Waste >> Publications >> Statistics

The proportion of waste collected for recycling is also increasing

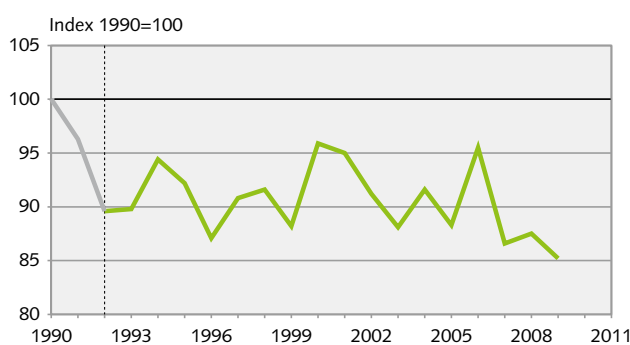
Recycling can reduce the pressure on resources and the environment by reintegrating materials into the production circuit. It can however lead to a qualitative devaluation of materials. The urban *waste collection rate* for recycling went from just over 30% in 1992 to approximately 50% in 2010 (G 9.4). Measures introduced using

the 'polluter-pays' principle and an improvement in the methods of waste collection (recycling centre, possibility of separated waste collection) have led to consumers changing their habits, encouraging them to separate their waste. Waste which is not collected separately is disposed of in waste incineration plants which conform to strict environmental standards.

Material intensity

Total Material Requirement (TMR) to gross domestic product ratio

G 9.1



2009: provisional

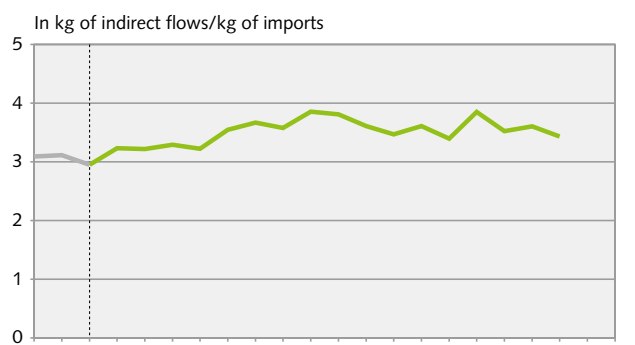
Source: Federal Statistical Office

© FSO

Material requirement abroad for imports to Switzerland

Ratio between indirect flows associated with imports and imports

G 9.2



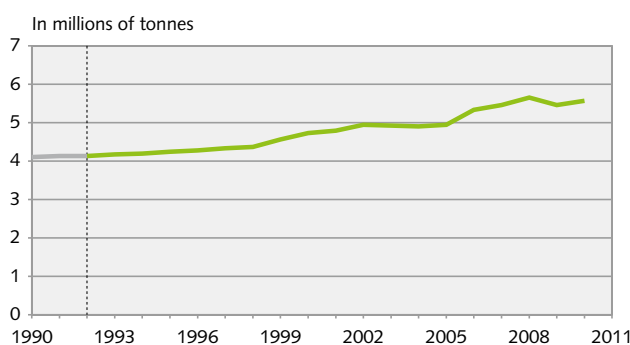
Source: Federal Statistical Office

© FSO

Total municipal waste produced

Including recycling

G 9.3



As of 2004 excluding imported waste

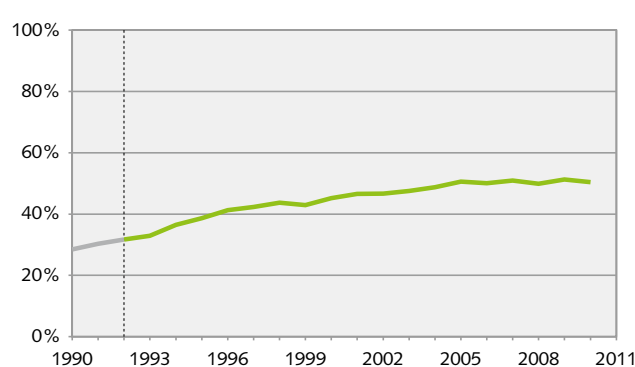
Source: Federal Office for the Environment

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Waste recycling rate

Share in weight of separately collected waste in total weight of municipal waste

G 9.4



Source: Federal Office for the Environment

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Consumption of organic products has increased

Consumption of local products and products which have originated from *organic farming* and *fair trade*, which meet certain conditions relating to the respect for the environment and social equity, can contribute to sustainability. Between 1998 and 2003, the share of *household* spending on organic products went from 4% to 6% (G 9.5). Since then, the share of organic products has remained at around 6%. This proportion spent by households shows consumers' willingness to choose ecological products, even though they may be motivated by reasons other than just environmental concerns, such as health, for example.

The sale of fair trade products illustrates how important social equity is when consumers make choices. For example, approximately 1000 tonnes of fair trade coffee ("Max Havelaar" brand) are sold per year (G 9.6). There has been no increase in this quantity since 1992. This represents approximately 5% of the market share of coffee sold in retail outlets.⁴⁵

Sorting of waste: Switzerland is one of the best European countries

In 2009, urban waste production per capita was 27% lower in the European Union (EU-27) than in Switzerland. However, the share of waste collected for recycling was 50% higher in Switzerland than in the European Union.⁴⁶

Consumption of resources is rising in both Switzerland and in the European Union. European countries are also becoming more and more dependent on resources provided by foreign countries. The total quantity of materials imported into the EU-27 (non-European imports) rose by more than 25% between 2000 and 2007 (Eurostat 2011a).

The questions relating to sustainable production and consumption are core issues in Europe, as one of the three priorities of the 2020 EU strategy shows; it aims at reducing the intensity with which resources are used and consumed as well as decoupling economic growth from the use of resources.⁴⁷

⁴⁵ Max Havelaar Foundation (Switzerland): <http://www.maxhavelaar.ch>

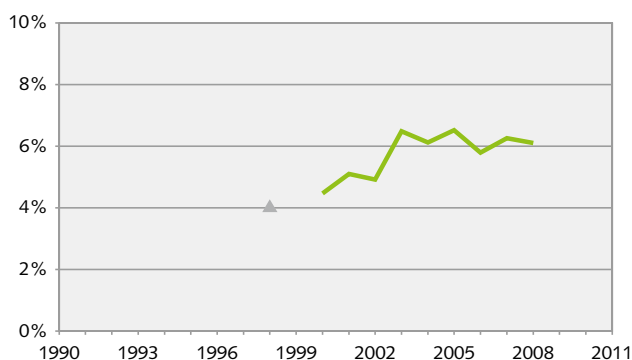
⁴⁶ <http://epp.eurostat.ec.europa.eu> >> Table Code: tsdpc240

⁴⁷ European Commission. Europe 2020: <http://ec.europa.eu/europe2020>

Consumption of organic products

Share of spending on organic products in total household expenditure on food and drinks

G 9.5



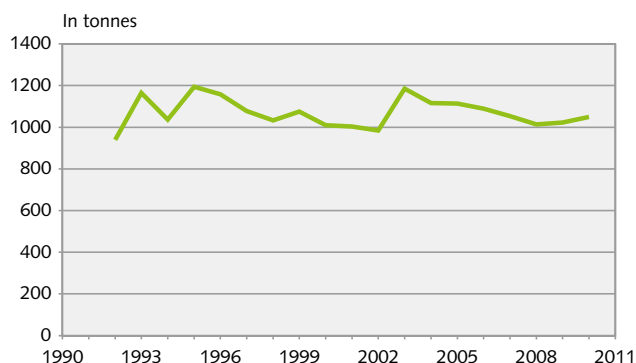
Source: Federal Statistical Office

© FSO

Fair Trade

Sales of certified Max Havelaar coffee

G 9.6

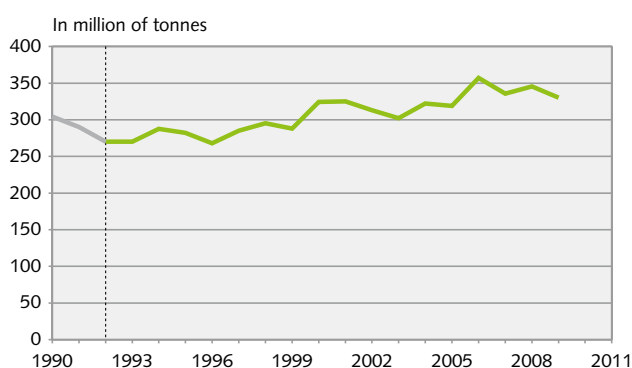


Source: Max Havelaar Foundation (Switzerland)

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Total material requirement

G 9.7



Source: Federal Statistical Office

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T1.9 Documentation on indicator trends

Graph	Targeted trend	Objectives ^a	Period under analysis	Change in %	Observed trend ^b	Assessment	Comments
G 9.1	↘	10a/12a/12b/15a SDS Nr. 4	1991–1993 2007–2009	-5.9%	↘	✓	
G 9.2	↘	12a/12b/14a	1991–1993 2007–2009	+19.9%	↗	✗	
G 9.3	↘	12a/12b/17a/17b SDS Nr. 4	1991–1993 2008–2010	+34.2%	↗	✗	
G 9.4	↗	12a/12b/16a/16b	1991–1993 2008–2010	+59.9%	↗	✓	
G 9.5	↗	12b SDS Nr. 4	2000–2002 2006–2008	+25.2%	↗	✓	
G 9.6	↗	6a/12b SDS Nr. 8	1992–1994 2008–2010	-1.8%	→	≈	
G 9.7	↘	12a/15a SDS Nr. 4	1991–1993 2007–2009	+21.8%	↗	✗	

^a Sustainable development principles, challenges of the sustainable development strategy (SDS) or quantified and dated objectives.

^b The trend is interpreted as relevant if it exceeds a $\pm 3\%$ threshold. Exceptions are documented in the "Comments" column.

1.10 Mobility and transport

Mobility is continually increasing. Likewise, more and more goods are transported over longer and longer distances. A modal shift can be seen towards public transport. The share of rail and public transport in total land transport is bigger in Switzerland than in other European countries.

A sustainable transport system guarantees all groups of the population and all parts of the country access to mobility. It makes possible an efficient functioning of the economy and maintains environmental pollution and the use of non-renewable resources at a minimum level.

The share of public transport in people's mobility is increasing

Mobility is one of the fundamental needs of a human being. The choice of mode of transport has an influence on levels of pollutant emissions which are harmful to people's health, on greenhouse gas emissions and on noise pollution. In this context, using *public transport* and *soft mobility* is favourable to sustainable development. During the analysed period⁴⁸, the share of public transport in *transport performance* of passengers by road and rail increased by 23% to exceed one fifth of the total in 2010 (G 10.1). At the same time, total passenger transport performance increased by 15%.⁴⁹ The main reasons for this increase are population growth and changes in lifestyle which lead to longer distances between the home, the workplace, places of leisure and places of consumption. In 2005, leisure activities represented the most important reason for travel (45% of average daily distances), followed by work and education (27%) and shopping (11%) (FSO 2010e).

In 2010, the passenger car stock reached 4.1 million. Since 1992, this stock has risen by 32%.⁵⁰ On a daily basis, the car is the most used mode of transport. In 2005, two thirds of average daily distances were travelled by car whereas less than 20% were by train (FSO 2010e). Nearly 70% of transport-generated CO₂ emissions are therefore due to passenger vehicles compared with 0.2% for rail traffic. Passenger and freight transport are also one of the main causes of emissions of particulate matter and nitrous oxides (FOEN/FSO 2011). During the day, road noise disturbs 1.2 million people compared with 70,000 for rail (passenger and freight transport); during the night, road noise pollution affects 700,000 people and rail noise 145,000 people (FOEN 2009).

As for soft mobility, it remains marginal in terms of distances covered (4% of annual distances) (FSO 2010e). On the other hand, people walk an average of 35 minutes per day and this mode of transport represents the largest proportion of the number of journeys made (45%).⁵¹

⁴⁸ The period analysed is specified for each indicator in the table at the end of this chapter

⁴⁹ www.bfs.admin.ch >> Thèmes >> 11 - Mobilité et transports >> Prestations de transport (only available in French and German)

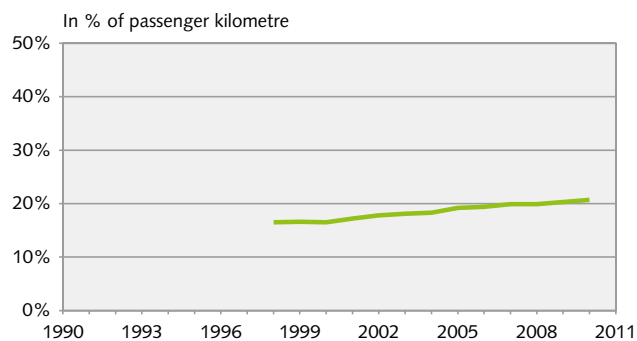
⁵⁰ www.bfs.admin.ch >> Topics >> Mobility and Transport >> Transport infrastructure and vehicles

⁵¹ www.bfs.admin.ch >> Thèmes >> 11 - Mobilité et transports >> Comportement de la population en matière de transports >> Mobilité-microrecensements (only available in French and German)

Modal split in passenger transport

Share of public transport in total passenger transport by road and rail

G 10.1



2008, 2009 and 2010: provisional

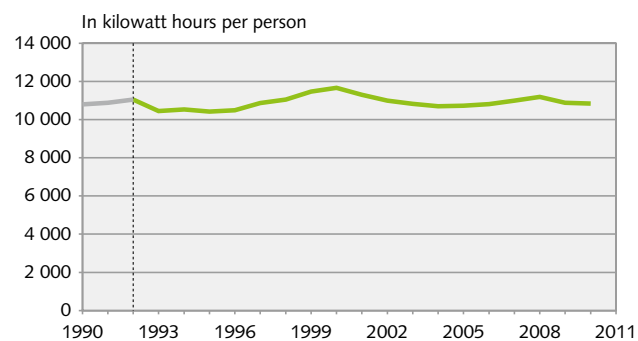
Source: Federal Statistical Office

© FSO

Final energy consumption in transport per person

Final energy consumption of all public and private passenger and freight traffic

G 10.2



2010: change in methodology for the Population Statistics

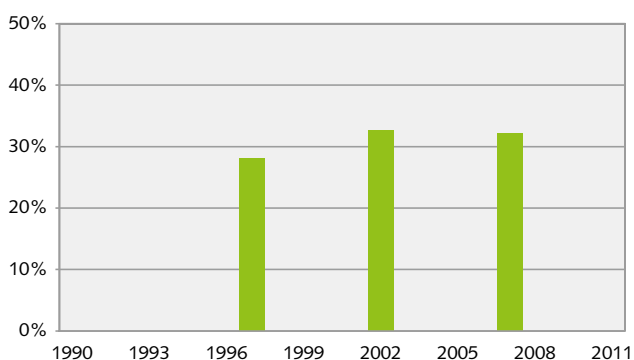
Sources: Federal Office of Energy, Federal Statistical Office

© FSO

Persons affected by noise

Share of the population who report that they are regularly disturbed by traffic noise at home (car, train and aircraft noise)

G 10.3



Source: Federal Statistical Office

© FSO

Freight transport is growing faster than the economy

Freight transport is essential for the proper functioning of an economy based on division of labour. However, freight transport causes pollution in the same way as passenger transport. It is in keeping with sustainable development to satisfy the economy's needs and foster the creation of wealth without increasing freight transport. Intensity of freight transport, i.e. *tonne-kilometres* in relation to the creation of *added value* illustrates this aim. During the analysed period, this intensity grew by over 10%. Its increase was sharpest between 1996 and 2001. The value has fallen since 2006 (G 10.4).

Since 1992 freight transportation performance has increased by almost 40%, reaching 27 billion tonne-kilometres in 2009.⁴⁹ The *GDP* increased by just below 30% during this period.⁵² There was therefore no *decoupling* between freight transport and the production of added value. It should be pointed out that the data do not take into consideration journeys made abroad for importing products, as opposed to the transit of goods through the country which is accounted for even though it only creates a small added value in Switzerland.

Freight transport by road is predominant in Switzerland, accounting for approximately 60% of transport performance. Despite maximum weight limits for road transport vehicles being raised in 2001 (from 28 to 34 tonnes) and in 2005 (to 40 tonnes), rail has maintained a share of some 40% since 1992 (G 10.5). This stability mainly arises from the Performance-related Heavy Vehicle Fee (HVF) introduced in 2001 which enabled rail transport to remain competitive (FSO 2010e). As for transalpine freight transport, both the HVF and the current development of the New Railway Link through the Alps (NEAT) have helped prevent the drop in the share of rail to the benefit of road transport. In 2009, 61% of transalpine freight transport was carried by rail.⁵³

In Switzerland, the share of public transport in total passenger transport and the share of rail in freight transport are bigger than in Europe

In the *EU-27*, public transport represented nearly 17% of passenger transportation performance in 2008⁵⁴ and almost 18% was attributable to rail for freight transport.⁵⁵ In Switzerland these shares were 21% and 39% respectively.⁴⁹ In other Alpine countries such as France and Austria, the share of rail in transalpine freight transport in 2009 (12% and 32% respectively) was also lower than in Switzerland where it reached 61%.⁵³

⁵² www.bfs.admin.ch >> Topics >> National economy >> National accounts >> Gross Domestic Product

⁵³ www.bfs.admin.ch >> Thèmes >> 11 - Mobilité et transports >> Thèmes transversaux >> Trafic transalpin et transfrontalier (only available in French and German)

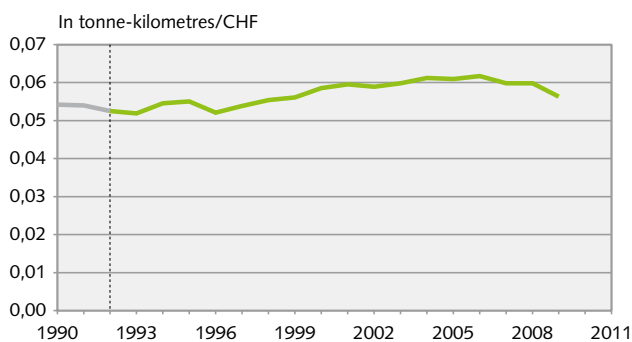
⁵⁴ <http://epp.eurostat.ec.europa.eu> >> Table Code: tsdtr210

⁵⁵ <http://epp.eurostat.ec.europa.eu> >> Table Code: tsdtr220

Intensity of freight transport

Performance of freight transport (road and rail) in relation to gross domestic product at previous year's prices with reference year 2000

G 10.4



2009: provisional

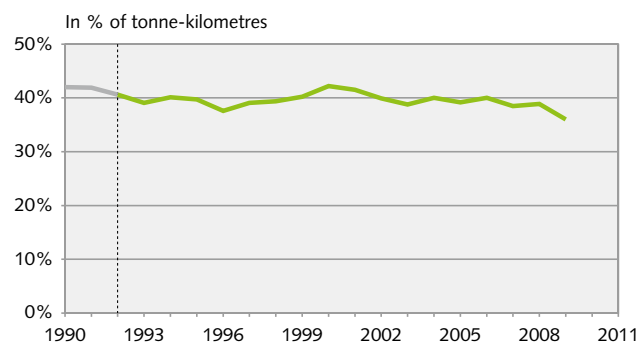
Source: Federal Statistical Office

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Modal split in freight transport

Share of rail freight transport in total rail and road transport

G 10.5



2009: provisional

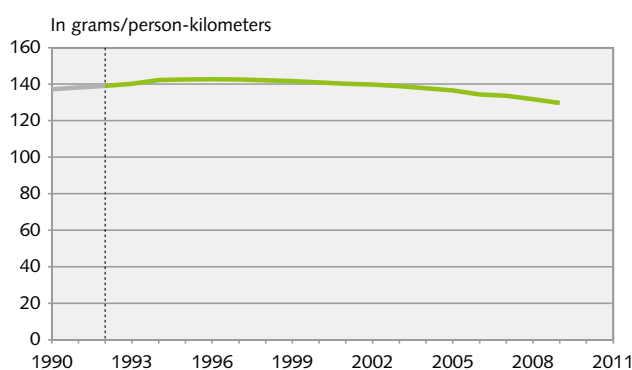
Source: Federal Statistical Office

© FSO

CO₂ intensity of motorised individual traffic

CO₂ emissions in relation to traffic performance

G 10.6



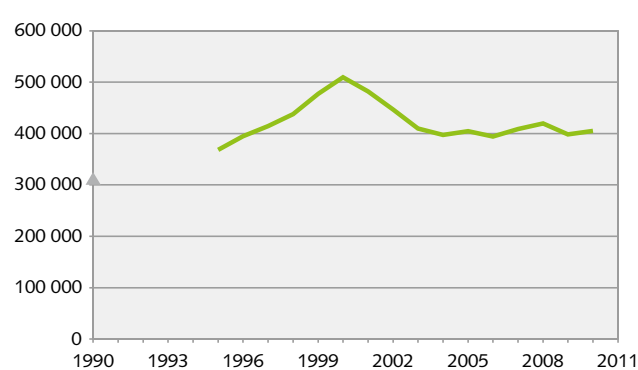
Sources: Federal Office for the Environment, Federal Statistical Office

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Take-offs and landings

Number of scheduled airline and charter flight take-offs and landings in the three national airports

G 10.7



Sources: Federal Office of Civil Aviation, Federal Statistical Office

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T 1.10 Documentation on indicator trends

Graph	Targeted trend	Objectives ^a	Period under analysis	Change in %	Observed trend ^b	Assessment	Comments
G 10.1	↗	16b/17a SDS Nr. 3	1998–2000 2008–2010	+22.7%	↗	✓	
G 10.2	↘	16b/17b SDS Nr. 2	1991–1993 2008–2010	+1.6%	→	≈	
G 10.3	↘	2b/3a SDS Nr. 3	1997 2007	+14.5%	↗	✗	
G 10.4	↘	10a/12a/ 16b/17a SDS Nr. 3	1991–1993 2007–2009	+11.1%	↗	✗	
G 10.5	↗	12a/16b/17a	1991–1993 2007–2009	-6.8%	↘	✗	
G 10.6	↘	12b/17a/18c SDS Nr. 1	1991–1993 2007–2009	-5.3%	↘	✓	
G 10.7	↘	16a/16b/17a	1995–1997 2008–2010	+3.8%	↗	✗	

^a Sustainable development principles, challenges of the sustainable development strategy (SDS) or quantified and dated objectives.

^b The trend is interpreted as relevant if it exceeds a $\pm 3\%$ threshold. Exceptions are documented in the "Comments" column.

1.11 Energy and climate

Global energy consumption is increasing as is the share of renewable energy sources being used. Final energy consumption per capita is declining. Trends in greenhouse gas emissions mean that it is not currently possible for Switzerland to fulfil its commitments under the Kyoto Protocol.

For the supply of energy to be consistent with the goals of sustainable development, the level of use of non-renewable resources should be kept below that of the development potential of renewable sources. It is also important to prevent severe or irreversible environmental damage caused in particular because of the emission of greenhouse gases.

Energy consumption per capita is decreasing

Energy is one of the vital resources for the functioning of our society and for satisfying many material needs. However, its production and consumption have an impact on natural resources and the environment. *Final energy consumption* per capita decreased by more than 4% during the period analysed⁵⁶, rising to more than 32,000 KWh in 2010 (G 11.1). Fluctuations were mainly due to winter weather conditions and the economic situation. Grey energy – energy used abroad to manufacture and transport imported goods – is not considered here. The average energy used per capita, including all types of energy, is 6500W, which is beyond the aims of a “2000W society”.⁵⁷

However, total final energy consumption increased by almost 9% between 1992 and 2010 (SFOE 2011a). This rise is due among other things to a growth of 13% in the population during this period, an increase of 24% in distances travelled by private road vehicles between 1992 and 2010⁵⁸ and an increase of 13% in living space

per person between 1990 and 2000.⁵⁹ Final energy consumption grew more slowly than *GDP* during the period analysed. Energy intensity, i.e. energy consumed to produce one Swiss franc of *added value*, decreased by 18% (G 11.2).

The energy supply depends on imported non-renewable resources

Switzerland depends heavily on non-renewable energy resources from abroad. Imports (import surplus) covered nearly 80% of gross energy consumption in 2010 (G 11.3). This mainly involved the import of petroleum products (44%), gas (11%) and nuclear fuels (24%) (SFOE 2011a).

The share of renewable energies is increasing

Most energy is produced from non-renewable raw materials which are finite: crude oil, petroleum products, natural gas, nuclear fuels and solid fuels. One of the goals of sustainable development is to conserve these energy sources and replace them by *renewable energy* sources. During the period analysed, the share of renewable energy sources in final energy consumption rose by more than 16% to 19% in 2010 (G 11.4); consumption of these energy sources was parallel in growth to total final consumption.

In 2010, almost two thirds of consumed final renewable energy came from hydroelectric power stations. The remainder was shared between the combustion of biomass (approximately 20%), the generation of new energy from renewable waste, environmental heat, solar energy, biofuels and wind power (almost 15%) (SFOE 2011b).

⁵⁶ The period analysed is specified for each indicator in the table at the end of this chapter

⁵⁷ <http://www.2000watt.ch> >> 2000 Watt Society

⁵⁸ www.bfs.admin.ch >> Thèmes >> 11 - Mobilité et transports >> Utilisation des véhicules et de l'infrastructure (only available in French and German)

⁵⁹ www.bfs.admin.ch >> Thèmes >> 02 - Espace, environnement >> Système d'indicateurs de l'environnement (only available in French and German)

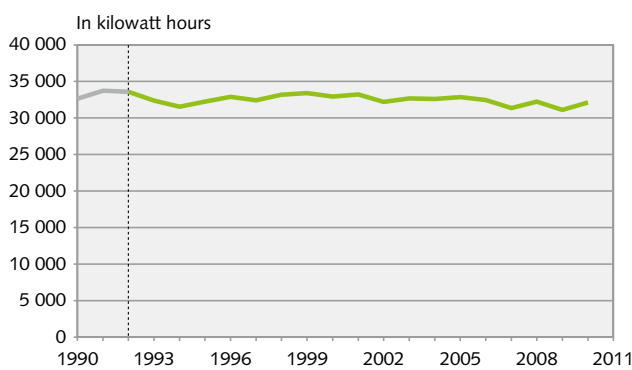
Domestic production of new renewable energy sources such as solar energy, wind power, geothermal energy, biofuels and biogas more than tripled between 1992 and 2010. This increase is almost twenty times higher than the increase in production by hydroelectric power stations. However, the quantity produced remains nearly ten times lower than that produced by hydroelectric plants (SFOE 2011a).

The SwissEnergy programme targeted a 1% (+500 GWh) increase in the production of renewable electricity and a 3% (+3000 GWh) increase in renewable heat between 2000 and 2010; these aims were exceeded by 10% and 48% respectively (SFOE 2011b).

The Federal Council has decided to progressively abandon nuclear energy, increase energy efficiency and develop both hydroelectric power and new renewable energy sources. However, the impact of renewable energy production such as hydroelectric power or wind power on water bodies⁶⁰ and landscapes should be borne in mind (SFOE/FOEN/ARE 2010). Furthermore, since energy is required to produce photovoltaic cells, manufacture wind turbines and drive heat pumps, these types of installation reduce their energy efficiency.

Final energy consumption per capita

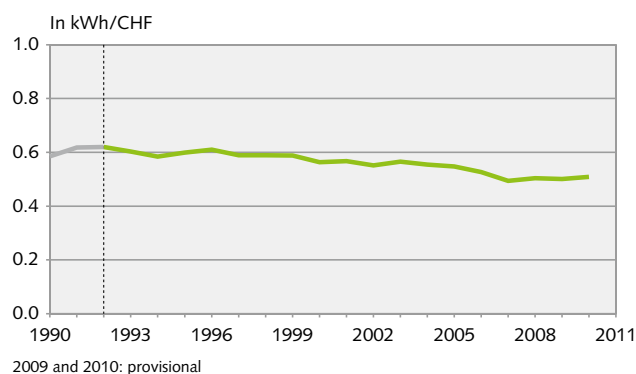
G 11.1



Energy intensity

Final energy consumption in relation to gross domestic product at constant 2000 prices

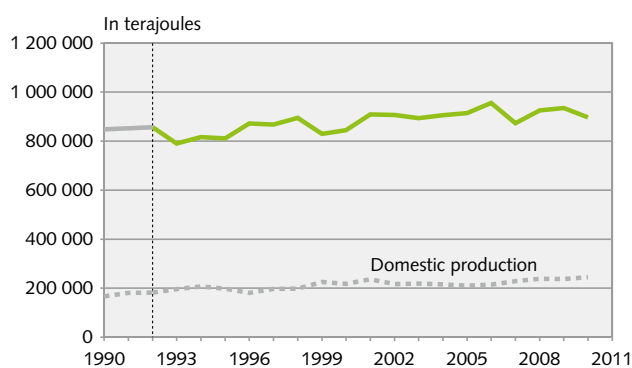
G 11.2



Energy dependency

Import surplus of energy and nuclear fuels

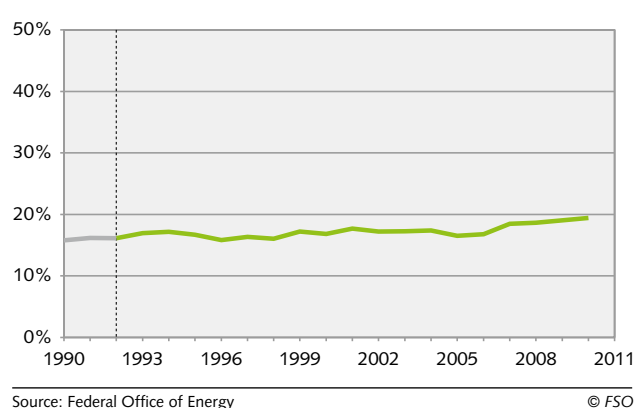
G 11.3



Renewable energies

Share in final energy consumption

G 11.4



⁶⁰ www.environnement-suisse.ch >> Thèmes >> Protection des eaux >> Renaturation >> Débits résiduels (only available in French and German)

Switzerland has not yet reached its goals in terms of greenhouse gas reduction

The *greenhouse effect* is a natural phenomenon but its fragile balance is upset by greenhouse gases produced by man, especially through the combustion of *fossil fuels for heating or for transport*. In addition there are emissions from deforestation, combustion of wood, industrial processes, agriculture and waste recycling. Between 1990 (reference year in the Kyoto Protocol) and 2009, greenhouse gas emissions decreased by 1.8%. This change does not correspond to the goal which Switzerland set itself under the Kyoto Protocol, i.e. a reduction of 8% between 1990 and the average for the period 2008–2012 (G 11.5). By combining CO₂ emission certificates and the effects of *carbon sinks*, Switzerland's reduction in emissions reached 6.8% in 2009, but this still fell short of the target value (FOEN 2011).

CO₂ intensity decreased by nearly a quarter during the period analysed, indicating *decoupling* between CO₂ emissions and the production of added value (G 11.6). Analysis of greenhouse gas emissions by economic actors shows that the share of *household* emissions in 2005 was approximately 40% as opposed to 60% for the economy. The share of transport in total household emissions reached 44% in 2005 and has increased by more than 10% since 1990.⁶¹ This is due to the increase in mobility of people and the population growth (FSO 2009). For the economy, the share of transport in total emissions is smaller and represented just over 20% in 2005 with zero growth in 15 years.⁶¹

Current knowledge indicates that natural causes cannot be the only explanation for the rise in temperatures observed in Switzerland over the last two decades: more than 1.1°C on average between the last five years and the average value for the period 1961–1990. It also

seems to be a result of global greenhouse gas emissions.⁶² Climatic warming is a global phenomenon and one of the most visible consequences in Switzerland is the melting of Alpine glaciers. The results of these climatic changes are potentially important but still difficult to quantify for the population (health and exposure to risks), the economy (agricultural production, tourism and infrastructures) and nature (water and change in biodiversity) (FOEN 2007).

The European Union is reducing its greenhouse gas emissions more than Switzerland

As is the case in Switzerland, energy consumption increased in the EU-27 (approximately 4% of gross energy consumption between 1992 and 2009 as opposed to 11% in Switzerland).⁶³ The share of renewable energy sources in final consumption in Switzerland is, however, nearly twice as high as in the EU-27.⁶⁴ The importance of hydroelectric power partly explains these results.

The decrease in greenhouse gas emissions in our country (-1.8% between 1990 and 2009) is smaller than the decrease registered by the EU-15 (-13%).⁶⁵ Part of this decline in the EU is the result of a decrease in energy-intensive industrial activities, such as steel-making (Eurostat 2011b).

The effects of climatic change may be more significant in Switzerland because of the Alpine topography. The increase in temperatures since 1900 has been more than one and a half times greater in Switzerland than in all of the land areas in the northern hemisphere (FOEN 2007).

⁶¹ www.bfs.admin.ch >> Thèmes >> 02 - Espace, environnement >> Comptabilité environnementale (only available in French and German)

⁶² www.meteosuisse.admin.ch >> Climate >> Climate today >> Trends in Switzerland

⁶³ <http://epp.eurostat.ec.europa.eu> >> Table Code: tsdcc320

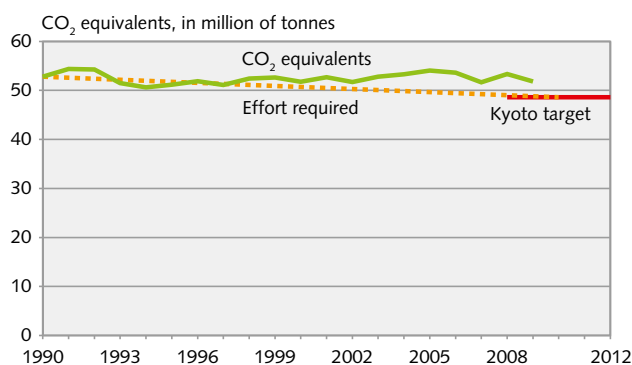
⁶⁴ <http://epp.eurostat.ec.europa.eu> >> Table Code: tsdcc110

⁶⁵ <http://epp.eurostat.ec.europa.eu> >> Table Code: tsdcc210

Greenhouse gas emissions

Movement towards target value of Kyoto Protocol for 2008–2012

G 11.5



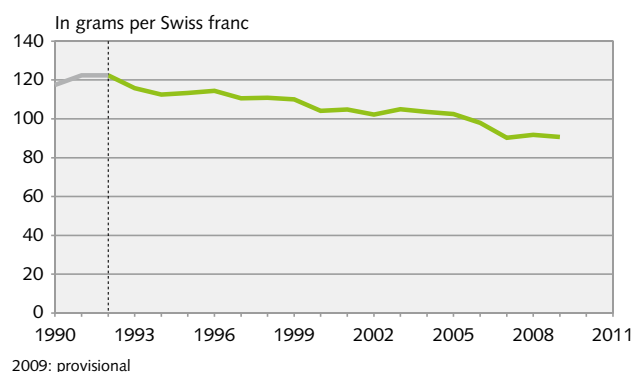
Source: Federal Office for the Environment

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CO₂ Intensity

CO₂ emissions in relation to gross domestic product at previous year's prices with reference year 2000

G 11.6

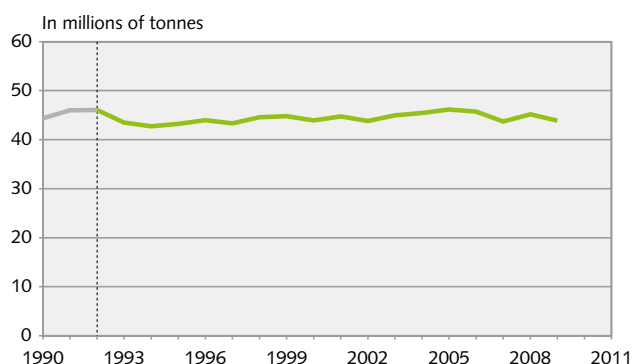


Sources: Federal Office for the Environment, Federal Statistical Office

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CO₂ emissions

G 11.7



Source: Federal Office for the Environment

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T1.11 Documentation on indicator trends

Graph	Targeted trend	Objectives ^a	Period under analysis	Change in %	Observed trend ^b	Assessment	Comments
G 11.1	↘	12b/16b/17a SDS Nr. 2	1991–1993 2008–2010	-4.3%	↘	✓	
G 11.2	↘	12b/15a/16b/ 17a/19 SDS Nr. 2	1991–1993 2008–2010	-17.8%	↘	✓	
G 11.3	↘	12b/14a/16b/ 17a	1991–1993 2008–2010	+10.3%	↗	✗	
G 11.4	↗	15a/16b/17a/ 18c SDS Nr. 2	1991–1993 2008–2010	+16.1%	↗	✓	
G 11.5	↘	SDS Nr. 1 Assessment of trend according to a quantified objective with a set deadline	1990 2009	-1.8%	→	≈	Kyoto Protocol objective to reduce green house gases emissions by 8% between 1990 and the average 2008–2012
G 11.6	↘	12a/12b/17a/ 18c SDS Nr. 1	1991–1993 2007–2009	-24.4%	↘	✓	
G 11.7	↘	17a/18c SDS Nr. 1	1991–1993 2007–2009	-2.1%	→	≈	

^a Sustainable development principles, challenges of the sustainable development strategy (SDS) or quantified and dated objectives.

^b The trend is interpreted as relevant if it exceeds a $\pm 3\%$ threshold. Exceptions are documented in the "Comments" column.

1.12 Natural resources

There is continued pressure on land and biodiversity. The quality of water in lakes has improved although there is still some uncertainty as to the effects of micropollutants. Air quality has also improved. However, particular weather conditions can cause threshold values to be exceeded.

The natural foundations of life, biodiversity and the quality of ecosystems should be maintained in the long term. Fertile soils, good-quality water and clean air are vital for the well-being of present and future generations.

Built-up areas are increasing to the detriment of farmland

Soil is an essential resource for human, animal and plant life. It is a limited and non-renewable resource. In a country like Switzerland, where the usable area is limited by the land's topographical features, sound management of soil is crucial. According to results available in 2011 for almost 76% of the territory, *settlement and urban areas* have increased by 24% in 24 years (G 12.1). This growth, which reached 13% during the first half of the period, did however later drop to 9%. Almost 90% happened at the expense of agricultural land. Agricultural land has decreased on average by 17.5 km² per year during the last 24 years (FSO 2010f). In 2009, over 1.6 million buildings were used for housing. The number of buildings has increased by more than 10% in 10 years. Nearly three quarters of buildings constructed since 2000 are individual houses (FSO 2011c). This expansion in real estate and the surface area it covers is partly due to population growth and changes in *household* structures.

Chemical pollution of the soil can damage its fertility and put humans' and animals' health at risk. Moreover, it harms the many organisms living in it. During the period 2000–2004, almost 20% of national soil monitoring sites showed at least one instance of an indicative value for *heavy metals* being exceeded.⁶⁶ Approximately 4000 *contaminated sites* affected by industrial and artisanal activities also need cleaning as they are dangerous to humans and the environment.⁶⁷

The quality of water in lakes has improved

Water is one of the resources vital for living organisms and human health. The quality of water and its respectful management are paramount for sustainable development. Water bodies are particularly exposed to environmental damage as they receive direct discharges from agriculture, industry and households. An excess of nutrients in lakes can lead to their eutrophication i.e. by generating an oxygen deficit and producing toxic substances. Such conditions affect organisms living in the water. Phosphorus from industry, households and agriculture contributes to this phenomenon. Since 1992 its presence in lakes has dropped thanks to the use of phosphates being prohibited in laundry detergents, an improvement in techniques in wastewater treatment plants and generally more environmentally-aware farming (G 12.2).

⁶⁶ www.bfs.admin.ch >> Thèmes >> 02 - Espace, environnement >> Système d'indicateurs de l'environnement (only available in French and German)

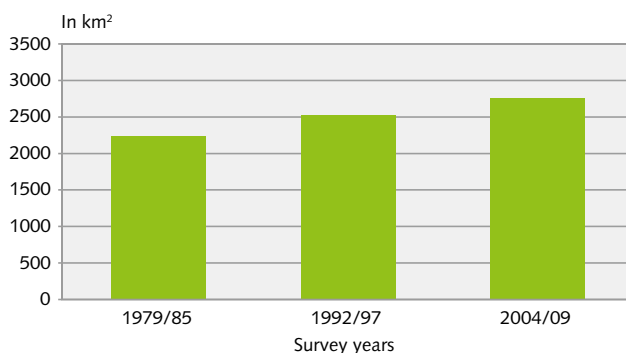
⁶⁷ www.bafu.admin.ch >> Topics >> Contaminated sites

Nitrate, which comes principally from fertilizers used in agriculture, can affect the quality of groundwater representing almost 80% of drinking water resources.⁶⁸ In 2009, the threshold value of 25 mg/l was exceeded in 17% of the 531 groundwater monitoring sites (G 12.3).

Settlement area

Building areas, industrial and commercial areas, special urban areas, recreation facilities, parks and transportation areas

G 12.1



2004/09: provisional

Source: Federal Statistical Office

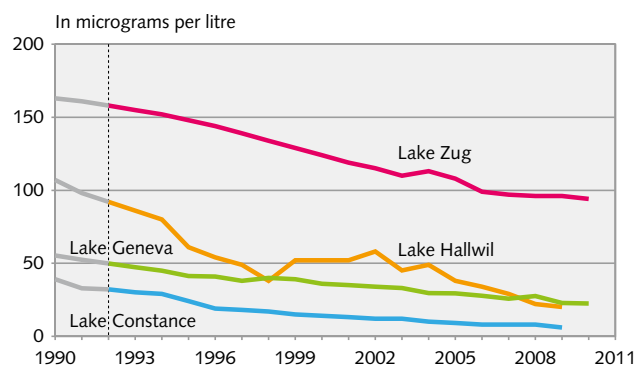
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Other forms of pollution such as pollution from micropollutants produced by households, agriculture and industry, are more and more frequently detected in water but little is yet known about their impact, especially on aquatic fauna and flora. Micropollutants are contained in many everyday products (medicines, detergents, cosmetics, etc.) and plant protection products.⁶⁹

Phosphorus content in selected lakes

Total phosphorus (annual average values)

G 12.2



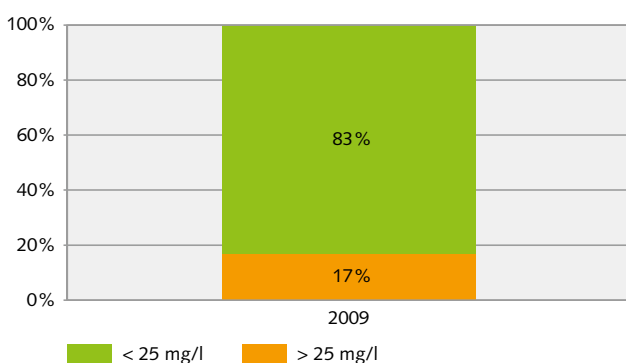
Source: Federal Office for the Environment

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Nitrate concentrations in groundwater

Share of measuring stations with exceedances of nitrate (25mg/l)

G 12.3



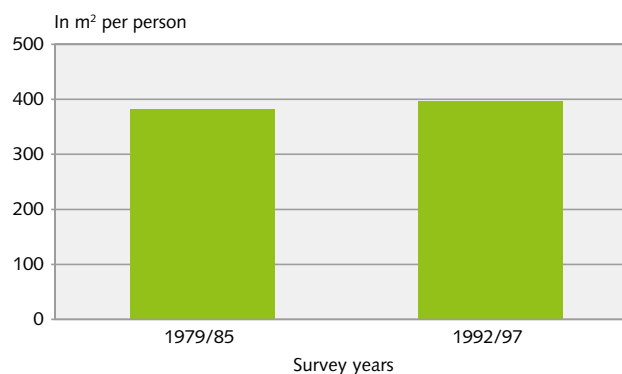
Source: Federal Office for the Environment

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Per-capita settlement area

Building areas, industrial and commercial areas, special urban areas, recreation facilities, parks and transportation areas

G 12.4



Source: Federal Statistical Office

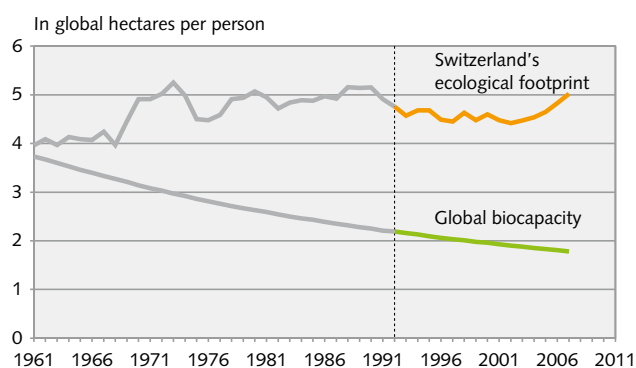
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⁶⁸ www.bafu.admin.ch >> Topics >> Groundwater

⁶⁹ www.bafu.admin.ch >> Topics >> Water Protection >> Micropollutants

Switzerland's ecological footprint in comparison to global biocapacity

G 12.5



Source: Global Footprint Network

© FSO

Air quality has improved; the threshold values are however sometimes exceeded

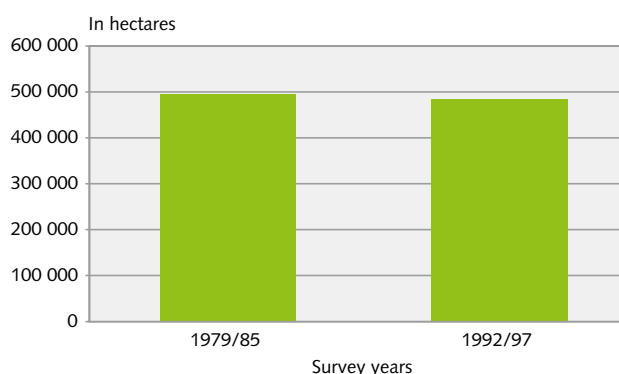
Clean air is vital for our well-being and health. Preserving it is consistent with sustainable development. Air pollutants, such as ozone and particulate matter (*PM10*), can cause respiratory illnesses, cardiovascular diseases and increase the risk of cancer. They can also have repercussions on ecosystems. Since 1997, average yearly concentrations of *PM10* have decreased by approximately 30% in all zones (G 12.7). This improvement is due, among other things, to legal provisions governing heating, industrial installations and motor vehicles (FOEN 2010a). The threshold values are however regularly exceeded, notably when there are particular weather events, such as stable high pressure during the winter. The same applies to ozone during the summer: during periods of intense sunlight, hourly immission limits are exceeded (G 12.8). Air pollution causes between 3000 and 4000 premature deaths per year.⁷⁰

⁷⁰ <http://www.bafu.admin.ch> >> Environmental state >> Environmental status reports >> Air quality

Land suitable for cultivation

Potential area for cultivation

G 12.6



Source: Federal Statistical Office

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The number of breeding birds is increasing although biodiversity is still under pressure

Biodiversity is the result of a long evolution. Preserving and passing on this heritage to future generations is a central aim of sustainable development. Populations of breeding birds are a pertinent measure of a region's biodiversity. The number of these populations rose by 7% during the period analysed⁷¹ despite annual variations (G 12.9).

For breeding birds in agricultural areas and wetlands, however, the situation worsened, as it did for species on the *Red List*, which have declined by approximately 20% since 1992. Overall, 40% of breeding bird populations are threatened (FOEN 2010b). Over the past 150 years, 244 animal and plant species have died out in Switzerland. Furthermore, almost a third of plant, animal and mushroom species listed and studied are threatened.⁷²

Landscape fragmentation, partly due to the construction of transport infrastructures, has consequences for biodiversity: animals are less able to move from one place to another and their reproduction is impeded. Fragmentation is measured by the number of "meshes" per 1000 km² created by the transport network. Since 1980, this density has remained stable at around 3.5 meshes per 1000 km² (G 12.10).

⁷¹ The period analysed is specified for each indicator in the table at the end of this chapter

⁷² <http://www.biodiversitymonitoring.ch> >> Data >> Indicator "Z5"

Switzerland shows trends similar to the rest of Europe

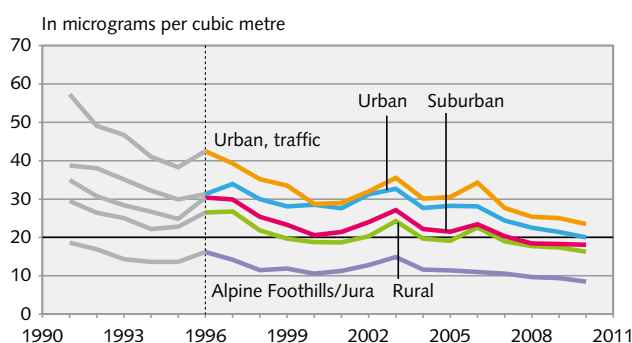
In European Environment Agency (EEA) member countries, the growth in built-up areas also occurs at the expense of agricultural land and, to a lesser extent, forests. Between 2000 and 2006, more than 75% of new built-up areas were constructed on arable land or pasture and approximately 15% on forest land.⁷³

At the European level, measures have been taken to reduce water and air pollution. For example, phosphorus concentration levels in European lakes are also showing a downward trend (EEA 2010).

Populations of breeding birds in Europe have been stable since 2000 after a sharp drop in the first half of the 1990s.⁷⁴ The EEA also considers biodiversity to be threatened (EEA 2010).

Particulate matter concentration

PM 10 concentration, annual average values¹ (prior to 1997 calculation based on total suspended particles TSP) **G 12.7**



¹ Limit value in Switzerland: annual mean 20 mg/m³

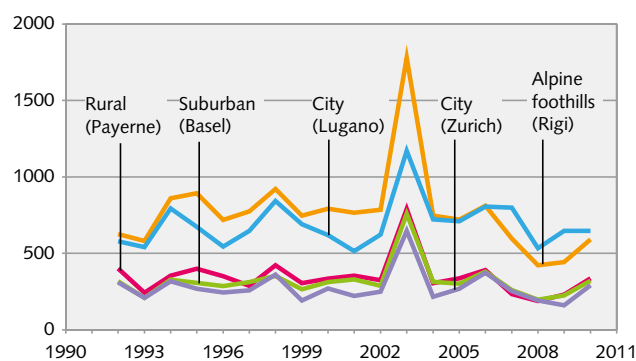
Source: Federal Office for the Environment

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Ozone concentration

Number of exceedances (hourly averages)

G 12.8



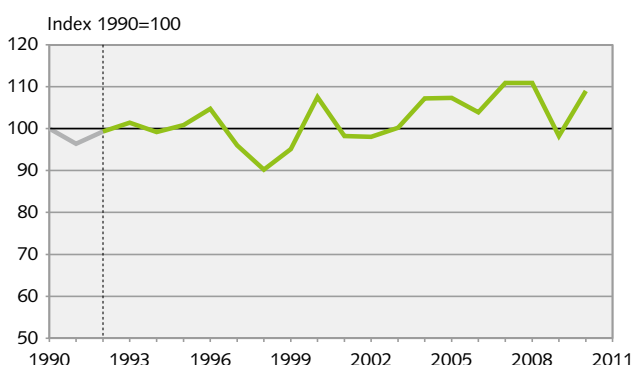
Source: Federal Office for the Environment

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Populations of breeding birds

Trend of bird species that regularly breed in Switzerland (171 species)

G 12.9



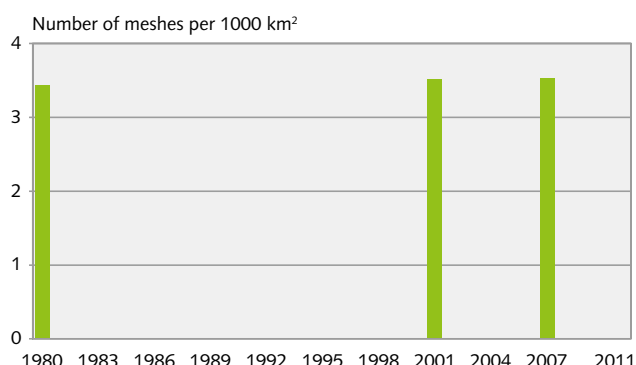
Source: Swiss Ornithological Institute Sempach

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Fragmentation of the countryside

Actual mesh density, taking into account 1st and 2nd class roads

G 12.10



Source: Federal Office for the Environment

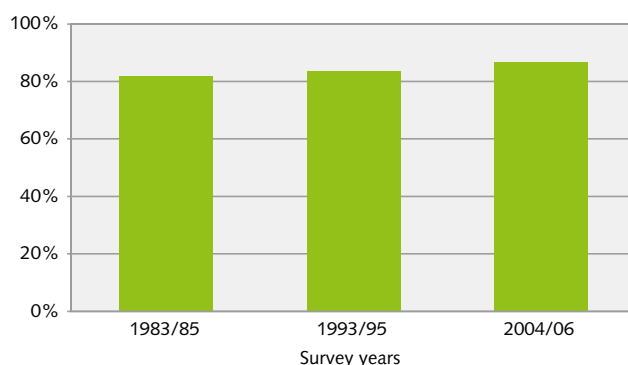
© FSO

⁷³ <http://www.eea.europa.eu>

⁷⁴ <http://epp.eurostat.ec.europa.eu> >> Table Code: tsdnr100

Ecological quality of forests

Share of forest area with medium and high biotope value **G 12.11**



Source: Swiss Federal Institute for Forest, Snow and Landscape Research

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T 1.12 Documentation on indicator trends

Graph	Targeted trend	Objectives ^a	Period under analysis	Change in %	Observed trend ^b	Assessment	Comments
G 12.1	→	16b/20 SDS Nr. 3	1979/85 2004/09	+23.6%	↗	✗	
G 12.2	↘	17a SDS Nr. 5	1991–1993 2007–2009	Z: -39.0% H: -74.3% G: -49.1% C: -76.9%	↘	✓	Synthesis of trends observed for the 4 lakes: lake Zug (Z), lake Hallwil (H), lake Geneva (G), lake Constance (C) ^c
G 12.3							No time series for this indicator
G 12.4	→	16b/20	1979/85 1992/97	+3.9%	↗	✗	
G 12.5	↘	4b/15a/16a/ 16b/17a	1991–1993 2005–2007	+18.3%	↗	✗	
G 12.6	↗	15a/16b/20	1979/85 1992/97	-2.1%	→	≈	
G 12.7	↘	2b/17a SDS Nr. 5	1997–1999 2008–2010	UT: -31.6% U: -30.5% S: -30.4% R: -24.6% AJ: -26.6%	↘	✓	Synthesis of trends observed for the 5 zones: urban, traffic (UT), urban (U), suburban (S), rural (R), Alpine Foothills/Jura (AJ) ^c
G 12.8	↘	2b/17a	1991–1993 2008–2010	L: -8.0% R: -22.1% P: -31.1% B: -3.0% Z: +1.4%	↘	✓	Synthesis of trends observed for the 5 zones: Lugano (L), Rigi (R), Payerne (P), Basel (B), Zurich (Z) ^c
G 12.9	↗	15b SDS Nr. 5	1991–1993 2008–2010	+7.1%	↗	✓	
G 12.10	↘	15b/20 SDS Nr. 5	1980 2007	+3.0%	→	≈	
G 12.11	↗	18a/19 SDS Nr. 5	1983/85 2004/06	+6.0%	↗	✓	

^a Sustainable development principles, challenges of the sustainable development strategy (SDS) or quantified and dated objectives.

^b The trend is interpreted as relevant if it exceeds a $\pm 3\%$ threshold. Exceptions are documented in the "Comments" column.

^c The change in % of each variable is synthesised with a single value (-1 for a negative assessment, 0 for an unchanged assessment without marked change and +1 for a positive assessment). These values are then added up and the results determine the general trend for this indicator.

Part II

Measuring sustainable development, methods and tools

The conference "Rio+20" (→ Introduction) is an opportunity to assess progress made in implementing sustainable development, including its measurement. This second part of the "Sustainable Development Report 2012" shows changes over the last twenty years and the current status of the measure of sustainable development in Switzerland: what were its foundations and what are they today? What exactly do we measure and using which tools? What actors were and are implicated? How should we communicate about such a complex subject? The following chapters try to answer questions such as these. The last chapter broadens the perspective on links between measuring sustainable development and recent initiatives such as the UN Green Economy approach, the European Union's "GDP and beyond" initiative and the Stiglitz-Sen-Fitoussi Report (Stiglitz, Sen, Fitoussi 2009), which reflect, among other things, current thinking among policymakers.⁷⁵

⁷⁵ Notably postulates by Stadler (10.3897) and Girod (11.3724)

2.1 Measuring sustainable development

Measuring sustainable development is one of the tools essential to its implementation, as stated in Chapter 40 of *Agenda 21*. Indicators of sustainable development “provide solid bases for decision-making at all levels and contribute to a self-regulating sustainability of integrated environment and development systems” (*Agenda 21*, Chapter 40, paragraph 40.4).

The first initiatives aiming to set up indicator systems for sustainable development in Switzerland emerged towards the end of the 1990s. Several of them concentrated on a particular aspect of sustainable development, for example road infrastructure projects (Federal Roads Office NISTRA system). Some cantons and cities in Switzerland have also launched initiatives to measure sustainable development which have then been grouped together by the Federal Office for Spatial Development (ARE) in a joint project between the Confederation, the cantons and the towns, entitled the “Cercle Indicateurs”.⁷⁶

A pilot survey carried out jointly by the FSO and the SAEFL (now FOEN) and published in 1999 (FSO/SAEFL 2000) took the first steps towards a system of indicators of sustainable development at the federal level. The experience gained in a joint project between a statistical office and a policy office showed how important it was to have a clear distribution of roles and competencies so that the requirements of official statistics could be met.

The need to create a system of indicators of sustainable development in Switzerland was expressed several times at the beginning of the millennium, particularly in a motion submitted to the National Council asking for a “system of indicators of sustainability and of reduction in geographical and social disparities” (Motion 00.3225)⁷⁷ as well as in the Federal Council’s “Sustainable Development Strategy 2002” (Federal Council 2002, Measure 21: “Monitoring of Sustainable Development”).

To meet these needs, in 2000 the FSO and the SAEFL launched the MONET⁷⁸ project. In the same year, the new Federal Office for Spatial Development joined the project. The aims of the project were formulated as follows (FSO/SAEFL/ARE 2004):

- The prime objective is to set up an operational system of indicators of sustainable development. This system should facilitate the measurement, documentation and description of progress in Switzerland, as well as its position in relation to other countries, from the point of view of the social, economic and ecological aspects of sustainable development.
- It should be designed to provide information for the general public, political players and the Federal Administration. By helping to publicise the objectives of sustainable development, the system will constitute an instrument for creating awareness among the population.
- This system will be transparent, open and evolutionary. It will help to set up links with sectoral, regional and local systems of indicators of sustainable development.

From the very beginning, the system of indicators of sustainable development was conceived and designed as a system for the long-term monitoring of sustainable development in its social, economic and environmental dimensions, and not for the controlling or the assessment of a policy programme or strategy. Monitoring includes the collection, analysis and presentation of information with the aim of tracking the evolution of a particular domain or field of activity of a public authority or society in a methodical manner, in the long run, so as to detect problematic changes early (Wachter 2010). These indicators, which essentially describe the evolution of society’s broad objectives, are not designed for drawing direct conclusions about the efficiency of measures taken by the players involved (e.g. policy-makers, individuals, businesses) for policy management purposes (Feller-Länzlinger et al. 2010, p.34).

⁷⁶ At the beginning of 2012 19 cantons (out of 26) and 17 towns were participating to the Cercle Indicateurs (www.are.admin.ch >> Topics >> Sustainable development >> Measuring Sustainability)

⁷⁷ http://www.parlament.ch/f/suche/pages/geschaefte.aspx?gesch_id=20003225

⁷⁸ Acronym for “monitoring of sustainable development” in German

The challenge consisted in measuring an ambiguous and normative concept while taking into account the requirements of official statistics (FSO/CORSTAT 2007), notably transparency, independence and accessibility, and the diverging interests and expectations of future users. Towards the end of the 1990s, under the auspices of the International Institute for Sustainable Development, practitioners and researchers in the field of measuring sustainable development elaborated the Bellagio principles (Hardi, Zdan 1997). These principles also constituted a solid foundation for constructing the system of indicators and for its subsequent developments; they specifically define the conditions for developing sustainable development indicators, in particular:

- a clear vision of sustainable development and objectives which define this vision,
- taking account of all the important domains (social, ecological and economic aspects),
- choice of adequate time frames,
- a reference system enabling links to be made between the chosen indicators and the vision of sustainable development,

- a limited number of indicators,
- comparison of indicators with reference values (target values, thresholds and directions to follow),
- the participation of the main groups involved,
- continual development of the system,
- the creation of the institutional means required to produce, maintain and document the indicators.

These requirements and principles have guided all work towards constructing the sustainable development monitoring system: definition of frame of reference (→ Chapter 2.2) and systemic structure (→ Chapter 2.3), participatory processes (→ Chapter 2.4), later developments and communication (→ Chapters 2.2 and 2.5).

The MONET system became available online in 2003 and at the time included more than 120 indicators. Nine years later, having meanwhile been subject to revision and supplemented with indicators illustrating the global dimension of sustainable development (→ Chapter 2.2), it comprises nearly 75 indicators, which are regularly updated.

2.2 What to measure?

In monitoring sustainable development, what should be measured? Which topics, which issues and therefore which indicators must be included? And how do we know whether what is measured is good or bad for sustainable development?

The definition of sustainable development

The answer to these questions lies in the definition published in the Brundtland Report: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (UN 1987). The Brundtland Report adds two important elements to this definition: prioritising the basic needs of individuals and taking due account of the capacity limits of our environment.

The three qualitative objectives of sustainable development

Other key elements are the three traditional “pillars” of sustainable development which have been well-known since the 1992 Earth Summit (society, the environment and the economy). They have been reformulated into three qualitative objectives:

- social solidarity,
- environmental responsibility,
- economic efficiency.

The three qualitative objectives are all of equal importance. They are linked to each other and dependent on each other. This means that in the long term, none of the environmental, economic and social goals may be reached at the expense of the other goals. The qualitative objectives can be represented using three overlapping circles. The intersections of these circles symbolise the necessity for sustainable development to unify the three sometimes contradictory objectives.

Principles of sustainable development

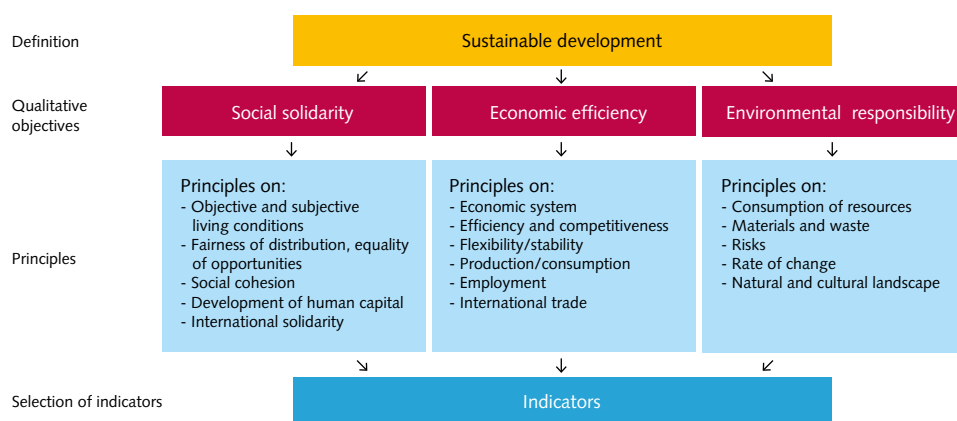
In order to concretise the definition of sustainable development and the qualitative objective and to focus them on specific aspects, 45 principles of sustainable development have been formulated (→ Appendix). These principles are requirements with which the development of the indicators in relation to sustainability can be evaluated. The principles are largely based on the publications and studies from IDARio (Interdepartmental Rio Committee of the Swiss federal administration), the DETEC departmental strategy (DETEC 1999) and the opinion of the Council for Sustainable Development on the pilot study “Sustainable Development in Switzerland. Factors for an indicator system” by the FSO and SAEFL (FSO/SAEFL 2000)⁷⁹ as well as social reports and statistics on living conditions (Berger-Schmitt, Noll 2000). Wherever possible existing principles have been adopted and, if necessary, adapted in terms of language or content.

All the principles have a clear and direct link to the definition of sustainable development and are assigned to one of the three qualitative objectives (Figure 2). For example, principle 3a “Satisfaction and happiness” is assigned to the qualitative objective “Social solidarity”. The link to the definition of sustainable development is as follows: people should be able to cover their needs – both material and non-material.

The principles are independent of space and are stable over time. Because they are valid over the long-term, they do not involve any current measures or solutions, unlike policy strategies which frequently relate to current events and which can change between one legislative period and another.

Frame of reference: What is measured?

Figure 2



© Federal Statistical Office (FSO)

⁷⁹ The Council for Sustainable Development was an extra-parliamentary commission that formed in 1998. It was disbanded in 2000 and its remit was transferred to another extra-parliamentary commission, the Council for Regional Planning (ROR). The opinion mentioned above was not published.

The definitions of sustainable development, the three qualitative objectives and the 45 principles as a frame of reference for the system of indicators

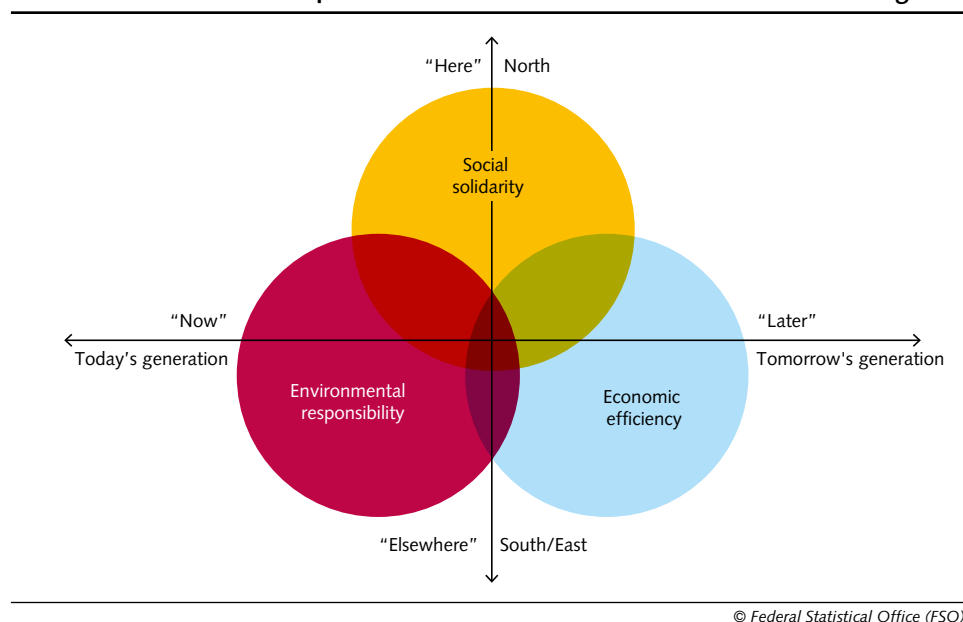
So that the selection of indicators and statements about their development are not random, a clear, systematically structured frame of reference is required. The frame of reference ensures independence, transparency and completeness. The frame of reference of the MONET Indicator System consists of the foundations shown above: the definition of sustainable development, the three qualitative objectives and the 45 principles (Figure 2). With these elements, MONET measures sustainable development following an “integrated”⁸⁰ approach: the well-being of the current generation and fairness of distribution/solidarity over space and time – so “here” and “now”, “later” and “elsewhere” – are the core elements of the concept (Figure 3).

On the basis of the principles, the significance of an indicator of sustainable development can be formulated. In the same way, the indicator can be interpreted and its development in relation to sustainable development assessed as positive, unchanged or negative (→ Chapter 2.5). At the same time, the principles allow for a consistent and transparent selection of indicators: every indicator must relate to at least one principle.

There are two different approaches for measuring sustainable development: the policy-based and the conceptual approach. Switzerland's system of monitoring sustainable development differs from many others in that it is not designed to measure a sustainability policy strategy, rather it observes if and in which areas Switzerland is progressing towards sustainable development (UN 2009, p.39). The selection of indicators is therefore based not on policy guidelines, but on a methodical frame of reference, which is founded on the Brundtland definition, the qualitative objectives and the principles of sustainable development.

The three dimensions of sustainable development are relevant over time and space

Figure 3



⁸⁰ Terminology used in the Working Group on Statistics for Sustainable Development (WGSSD) of the UNECE-OECD-EUROSTAT

The global dimension of sustainable development

With globalisation, the sustainable development of a country can no longer be viewed in isolation. Aspects of inequality and justice, shortage of resources and environmental pollution transcend borders. At the 2002 World Summit on Sustainable Development in Johannesburg, the connection between globalisation and sustainable development was stressed and the UN Millennium Development Goals were integrated into the objective of sustainable development. As the world changes, a system of indicators must also be capable of change. This should happen systematically, not arbitrarily. Thanks to the structure and frame of reference of the MONET system of indicators, new topics can systematically and transparently be integrated. In 2008, the Swiss monitoring of sustainable development was expanded with a set of indicators which measures interactions between Switzerland and other countries, within the aspect of global responsibility and justice. This was done using the above-mentioned frame of reference for the system, the indicator typology and processes for the participatory selection of indicators (→ Chapters 2.3 and 2.4).

The Federal Council's Sustainable Development Strategy

The indicators used to monitor sustainable development in Switzerland are not only used to measure sustainable development in general but also to measure developments in the Federal Council's Sustainable Development Strategy: around 50 of the MONET indicators illustrate the development of the key challenges of the Sustainable Development Strategy. The MONET indicators in the Dashboard of the Federal Council's Sustainable Development Strategy show Switzerland's position for each of the challenges (→ Chapter 2.5).

The political implementation of sustainable development in Switzerland was defined from 1997 in the Sustainable Development Strategy and has since been regularly updated. The Sustainable Development Strategy 2002 includes the requirement of a monitoring system (Measure 21: Monitoring of sustainable development). The Sustainable Development Strategy 2008–2011 contained for the first time indicators from the MONET system which went online in 2003. They are integral parts of the Sustainable Development Strategy. The most recent version of the Sustainable Development Strategy includes an action plan for the legislative period 2012–2015.

2.3 How to measure it?

The reason for a typology

A typology involves defining a group of categories to classify indicators and characteristics to which they should correspond. Standardisation such as this guarantees coherence over time in a monitoring system and facilitates transversal comparisons (Feller-Länzlinger et al. 2010, p.34). Unlike a simple list, a system of indicators is based on a clearly defined structure, provided by two approaches: a thematic approach, made up of the frame of reference which defines "what to measure" (→ Chapter 2.2), and a systemic approach provided by indicator typology, which defines "how to measure it". The combination of these two approaches structures the indicator system in the form of a matrix where the lines show the frame of reference and the columns indicate the typology (Figure 4).

Matrix showing the two approaches to the indicator system

Figure 4

Topics or principles ("what to measure")	Types of indicator ("how to measure")					
					Indicator X	

© Federal Statistical Office (FSO)

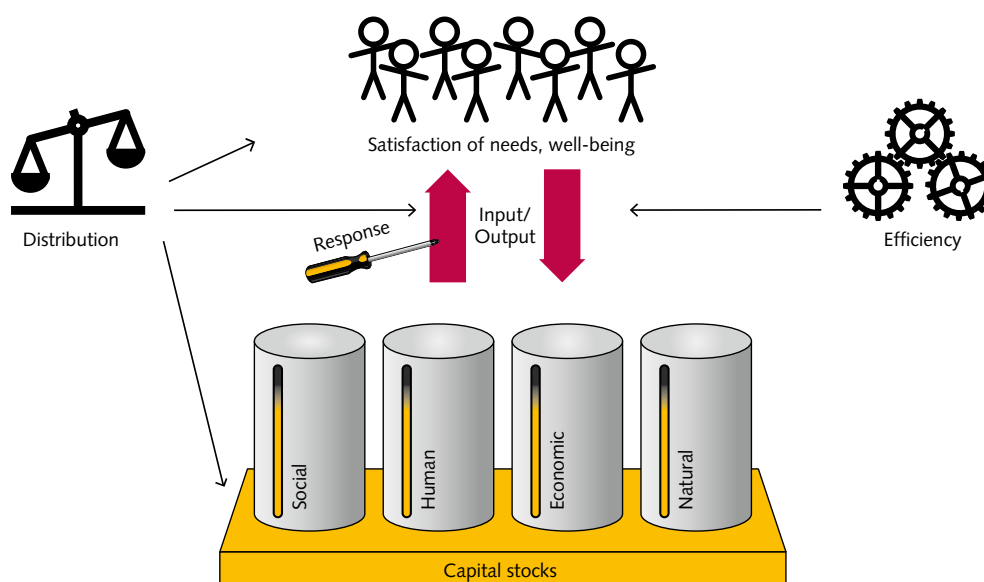
The function of the typology is therefore to ensure the system's internal coherence by predefining the way in which the indicators will measure the objectives of the frame of reference. By attributing several types of indicator to a principle of sustainable development or to a given topic, it is possible to make different statements, i.e. to measure it in different ways, which limits the risk of unilateral or arbitrary interpretation, allowing homogeneous measurement. The use of an indicator typology is a response to requirements made on the monitoring system and to the Bellagio principles.

The MONET typology

The classification of indicators developed for the MONET system is based on a stock/flow approach which represents the dynamics of the processes that are determinant for sustainable development. It includes six elements (Figure 5) derived from the Brundtland definition or which are based on the model "Driving force – Pressure – State – Impact – Response" (DPSIR) (EEA 1999). The DPSIR is commonly used in the field of environmental statistics and by certain sustainable development indicator systems. Unlike DPSIR, the MONET typology is not based on causal links and is not applied solely to the environment but also to social and economic areas.

The MONET typology

Figure 5



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T2.1 Description of the types of indicators

Type of indicator	Principal question	Description of meaning	Examples of indicators
Level (flow)	To what extent are our individual and social needs met?	Extent to which the individual and social needs of the current generation are met (Brundtland definition). "Here" and "now".	Unemployment rate based on ILO Life expectancy in good health Physical security (violent offences)
Capital (stock)	What will we leave to future generations?	Status and potential of human, social, economic capital and of the infrastructure. Illustrates inter-generational solidarity (Brundtland definition). "Later". Corresponds to the capital stock approach (→ Chapter 2.6).	Diversity of species (population of breeding birds) Level of public debt Reading skills of 15-years-olds
Input/Output (flux)	How do we use capital stocks?	Use and appreciation/depreciation of capital. Flow from capital to meet needs or towards capital in the form of investment or waste (sometimes responds more quickly to changed conditions than stocks).	Investment to GDP ratio Final energy consumption Greenhouse gas emissions
Distribution (ratio)	How are resources distributed?	Social disparities, equal opportunities. Illustrates intra-generational solidarity (Brundtland definition). "Here" and "elsewhere".	Wage gap between men and women Inequality of income distribution
Efficiency (ratio)	Do we use resources in an efficient way?	Economic and ecological efficiency. Illustrates decoupling or rational use of resources (describes the qualitative objective "economic efficiency").	Energy intensity Material intensity Intensity of freight transport
Response (flux)	How do we react to the changes observed?	Societal and political measures and attitudes which aim to correct an undesired change.	Consumption of organic products Environment-related taxes

The three indicator types "level", "capital" and "distribution" are directly based on the Brundtland definition and allow development to be measured in accordance with it, without any political constraints. The two types "efficiency" and "response" are means of striving for sustainable development. The first by rational use of resources, founded on the qualitative objective "economic efficiency", the second by policy measures or consumption patterns. This latter indicator type is directly derived from the category "Response" in the DPSIR model. The type "input/output" has no direct link to the definition of sustainable development or with any policy relating to it. Its principal function is to overcome the difficulty in defining and measuring certain capitals. It is in fact easier to measure flows (stock investments and withdrawals) than stock itself. Moreover, flows respond more rapidly to changed conditions (policy measures, circumstances, etc.) than stock.

Uses of the typology

The typology offers a framework for the selection of indicators so as to aid the system's builders and those implicated in the selection process, to take into account the main processes of sustainable development and therefore ensure as complete and neutral a view as possible of the principle or topic being dealt with.

It should however be considered as an ideal model, presenting limits in its practical application. Attributing an indicator to one typology category or another is rarely unambiguous. Furthermore, it is not always possible or even reasonable to find the six types of indicator for one topic. Therefore, instead of a rigid restrictive structure, it should be seen as a premise allowing balance of types of indicator depending on their adequacy in a given context. When using it, it is also necessary to take certain constraints into account, linked to the availability of data, among other things. The typology thus

enables us to decide whether or not to replace one category by another, such as using a flow indicator when it is not possible to measure stock. It also brings to light shortcomings which can be used for future developments of the indicator system (creating new indicators) or of statistical systems (changing existing surveys or launching new surveys) (Hák, Moldan, Dahl 2007, p. 36).

Finally, while the typology is not a means of communication, it makes it possible to extract indicators from the system according to specific questions (T 2.1) thereby forming sub-groups like key indicators, for example (→ Chapter 2.5) or indicators dedicated to monitoring the challenges of the Federal Council's Sustainable Development Strategy (→ Chapter 2.2).

2.4 Who are the players and how have they been involved?

Agenda 21 highlights how important it is that players from different areas participate in the sustainable development processes, especially in Section III "Strengthening the role of major groups". The Bellagio principles for the design of sustainable development indicators (→ Chapter 2.1) specify that such participation is necessary for establishing an indicator system in this field.

From the very first steps towards an indicator system for sustainable development in Switzerland, many players have been involved, for example in hearings further to the pilot study published in 1999 (→ Chapter 2.1). The concerns and wishes of representatives from federal and cantonal authorities, economic, environmental and social organisations, and from the field of science and research were collected. This stage showed, among other things, the importance of neutrality, objectivity and transparency in a sustainable development monitoring system.

Setting up a sustainable development monitoring system using a participative process means defining a set of rules and decision-making competencies appropriate to each stage of its construction. This set of rules, which constitutes in a way "the rules of the game" and is defined before the construction of the system begins, makes it possible to reconcile compliance with the principles listed above and the rights and responsibilities of the players involved, while taking into consideration their expertise, needs and aspirations.

Some twenty representatives from civil society, academic circles and federal and cantonal authorities therefore used their expertise and know-how to contribute first of all to setting up the system's reference framework. Next, over 80 experts from federal authorities

actively took part in the iterative process of choosing indicators; the final decision on the system as a whole and the balance between the topics fell to the FSO's responsibility.

The other elements of the system or construction stages such as the system's structure and ideal size or the ways of presenting and publishing indicators were defined and created under the responsibility of the FSO. The FSO was also responsible for establishing a certain number of criteria for the selection of indicators to ensure that the Bellagio principles were respected. Nearly twenty criteria for the selection of indicators, either mandatory or desirable, were therefore applied. The aim of some criteria was to ensure a link between the indicators and the system's frame of reference, such as the fact that an indicator can only be selected if it can be linked to at least one principle of sustainable development. Other criteria related to how easy it was to use the indicator or to an indicator's validity: for example, each indicator must be based on a broad consensus regarding its relevance and reliability. Finally, the indicators had to satisfy technical criteria, such as using regularly updated data that are readily available or that could be collected at low cost.

All later developments in the indicator system (creating the sub-group of key indicators, extending the system to the global dimension of sustainable development and revising the system) have been implemented in a participative manner, using all or part of the same process used when the monitoring system was set up.

2.5 How to communicate it?

A system of indicators

The system of indicators of sustainable development in Switzerland is based on an elaborate frame of reference and structure, whereas the indicators are designed for a wide audience. Therefore, how are the system's complexity and the simplicity required to communicate the indicators to be balanced?

Firstly, an attractive and intuitive gateway is necessary. This gateway consists of 12 topics (T 2.2) which are meant to be easy for a wide audience to understand and which are similar to the topics used to communicate sustainable development in other contexts. The round 75 indicators of the system are presented in a list structured according to these 12 topics.

Secondly, each indicator is presented in the same way, according to a predefined structure which includes the following elements:

- Significance of the indicator: description of the indicator, link to the sustainable development principle or principles it illustrates – i.e. with the system's frame of reference (→ Chapter 2.2) – mention of any precautions that need to be taken when interpreting data (text).
- Data (graph and Excel file to download).
- Comments on the data: description of the indicator's change and analysis of possible causes (text).
- Assessment of the indicator: description of parameters used to compare the observed change to the desired change (see below).
- Metadata: source of data, definitions, methodological explanations and assessment of the indicator's international comparability (text).

This structure corresponds to the presentation model of indicators commonly used at the FSO. It makes it possible to meet the transparency and reproducibility goals of official statistics.

Thirdly, each indicator is presented in a synthetic way with three symbols condensing the information it provides, giving a summary presentation of the indicator or of a group of indicators (such as the summary of Part I, pages 10 to 12). The first symbol (Figure 6) describes the targeted trend, the second the observed trend during a given period, and the third summarises the first two and indicates if the observed development tends towards sustainable development or not.

Targeted trend is defined by the frame of reference which the indicator is linked to (→ Chapter 2.2). This frame of reference is composed of the principles of sustainable development, the challenges of the Federal Council's Sustainable Development Strategy and quantified objectives with set deadlines. The principles of sustainable development and the Strategy's challenges only indicate the direction sustainability should take (increase or decrease). In the case of a quantified objective with a set deadline, the targeted trend corresponds to the theoretical path to be followed in order to achieve the objective by the set deadline.













Observed trend corresponds to the change in % calculated during the period analysed, i.e. since 1992 (year of the Rio agreements) or the date of the first available value if later than 1992, until the latest available value. The analysed period is documented on each graph. To prevent the calculated rate from being too strongly influenced by the initial and final years' values, for the first year they are replaced by the average of the initial value and the values for the two adjacent years, and for the final year by the average of the values of the last three available years.

T2.2 The 12 topics of sustainable development

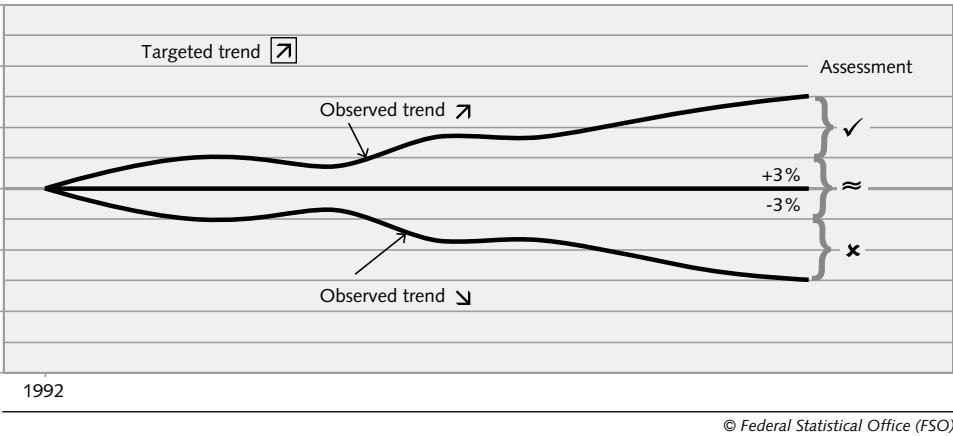
1	Living conditions	7	Work
2	Health	8	Economic system
3	Social cohesion	9	Production and consumption
4	International cooperation	10	Mobility and transport
5	Education and culture	11	Energy and climate
6	Research and technology	12	Natural resources

Symbols used

Figure 6

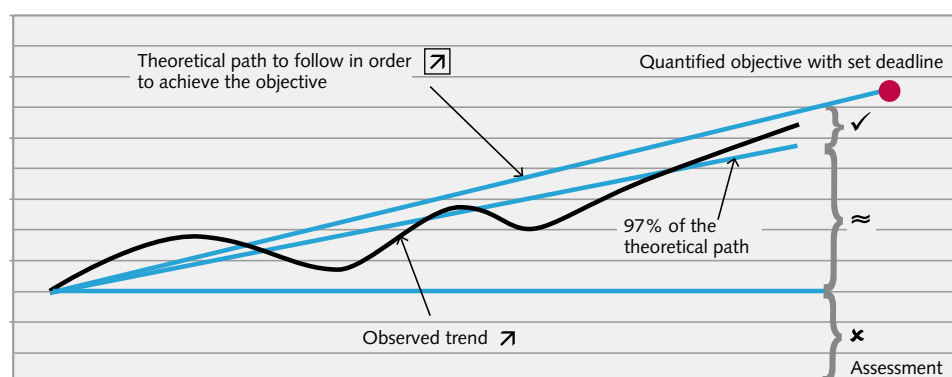
Symbols illustrating targeted trends		
 Growth	 Decrease	 Stabilisation
Symbols illustrating observed trends		
 Growth	 Decrease	 No marked change (observed change below 3% and above -3%)
Symbols assessing observed trend in relation to targeted trend		
✓ Positive (towards sustainability: observed trend = targeted trend, e.g.  or )		
✗ Negative (moving away from sustainability: observed trend ≠ targeted trend, e.g.  or )		
≈ Unchanged (no marked change, e.g.  or )		

Assessment of an indicator without quantified objective with set deadline Figure 7



The targeted trend is compared with the observed trend, making it possible to assess the latter. The observed trend is positive if it corresponds to the targeted trend defined by the principles of sustainable development or by the Strategy's challenges, negative if the opposite is true and unchanged if it is below +3% and above -3% (Figure 7). This threshold is replaced by the indicator's error margin, if it is known.

With a quantified objective with a set deadline (Figure 8), the targeted trend corresponds to the theoretical path to reach the objective by the set deadline. The observed trend is positive if it is above or equal to 97% of the targeted trend. If it is between 97% and 0% of targeted trend, it is unchanged. It is negative if it is below 0%.

Assessment of an indicator with a quantified objective and a set deadline **Figure 8**

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The method used to calculate the change in % and to assess observed trends is described in detail on the internet.⁸¹ It is based on the method used for indicators of sustainable development in the United Kingdom (DEFRA 2009) and on practices developed by Eurostat and the German Federal Statistical Office DESTATIS for indicators of sustainable development linked to quantified objectives with a set deadline (Eurostat 2009 and DESTATIS 2010).

The symbols which condense the indicator's information are used in two different ways. Firstly, they accompany the indicators presented in tables published either on the internet or in printed publications like the Pocket Statistics of sustainable development or the brochure of key indicators. They make it easier to read quickly about an indicator or a group of indicators (see also the summary of Part I). Secondly, they are integrated into the dashboard of sustainable development (see below). This manner of summarising statistical data corresponds to one of the Bellagio principles.

Key indicators

For an audience that has difficulty finding its way among an ever-growing amount of information, a list of dozens of indicators, even if they are structured by topic, is difficult to get to grips with. A sub-group of key indicators extracted from the whole system provides a response to this demand for simple and quickly accessible information.

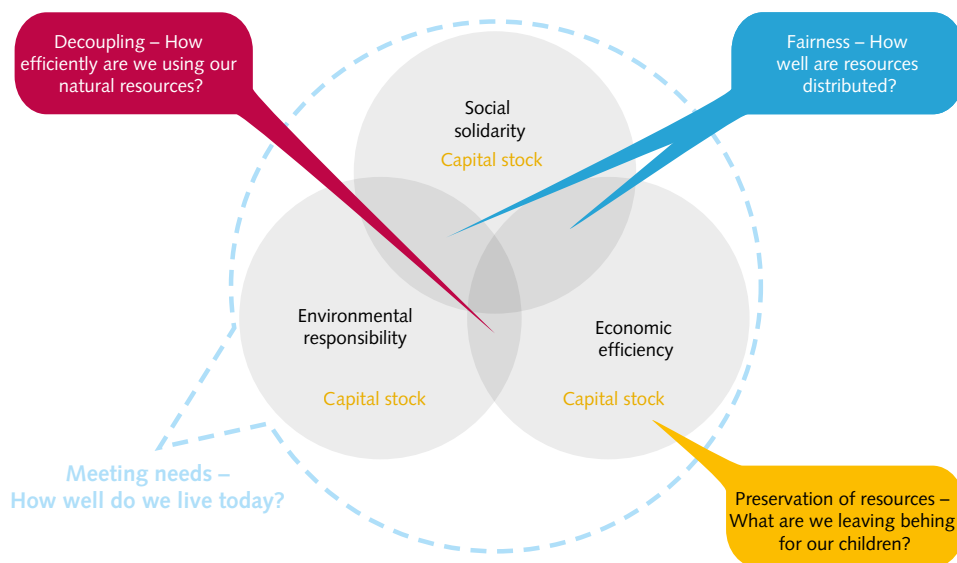
Key indicators are indicators to which a particular importance is given, and therefore the ability to represent a group of indicators. They offer a concise view of Switzerland's position and development on the path to sustainable development, and highlight the critical phases and obstacles along the way.

The selection of key indicators means predefining the "essential" processes of sustainable development. They are derived from the central elements of the Brundtland definition (→ Chapter 2.2): meeting needs, solidarity and preserving capital stock. Decoupling the use of natural resources from economic growth, implicitly included in the qualitative objective "economic efficiency", represents an important fourth process of sustainable development. These processes can be expressed in the form of questions, as illustrated in figure 9.

⁸¹ [>> www.monet.admin.ch](http://www.monet.admin.ch) >> Indicators >> Symbols

The four crucial processes of sustainable development

Figure 9



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The MONET typology (→ Chapter 2.3) allows us to extract from the system the indicators which correspond to the processes presented in Figure 9: only indicators of the type “level”, “capital”, “distribution” and “efficiency” have been retained. The indicators retained were subjected to technical criteria, such as the availability of a sufficiently long time series and a group of experts from the federal administration further reduced the size of the group of extracted indicators to fewer than 20 indicators, at the same time respecting homogenous distribution between the different types and between the three qualitative objectives mentioned above. Input from experts at the end of the procedure ensures an institutional anchor for the process while minimising the risk of bias in the selection of indicators because of the group's composition.

The 16 key indicators arising from this process are communicated using the four questions expressed above.

A sustainable development dashboard

Another way of responding to the demand for simple and rapidly accessible information consists not in selecting sub-groups of indicators but in aggregating information from all the indicators so as to obtain an overview. However, official statistics' requirement for transparency implies being able to conserve as much detail as possible and to allow the user to identify each indicator and its contribution to the global view.

The indicators have different units of measure and cannot therefore be used as such for aggregation. Here, the assessment of indicators (see above), which can be expressed by a value without dimension (-1 for a negative assessment, 0 for an unchanged assessment, +1 for a positive assessment), is crucially important: it is the unit common to all the indicators.

In its current state, the dashboard of sustainable development is based on the 50 indicators of the MONET system which were selected for monitoring the Federal Council's Sustainable Development Strategy (→ Chapter 2.2). The aggregation process is carried out for each of the ten key challenges of the Sustainable Development Strategy: the assessments of each of the five indicators selected for the monitoring of a challenge (-1, 0 or +1) are added up. This addition is shown by moving a cursor over a bar of 11 units in length (-5 to 0 and 0 to +5). The cursor's starting position is 0 (middle of the bar). For each positively assessed indicator the cursor

Aggregation of the challenge «Spatial development and transport»

Figure 10

Indicators:

- Built-up area
- Built-up area per capita
- Modal split of passenger transport
- Persons affected by noise
- Intensity of freight transport



Legend: yellow = neutral (unchanged) (value 0, no cursor movement); red = negative (value -1, movement of the cursor one place to the left); green = positive (value +1, movement of the cursor one place to the right)
Adapted from the dashboard of sustainable development (www.monet.admin.ch)

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moves one place to the right (+1), and for each negatively assessed indicator, it moves one place to the left (-1). If an indicator's trend is unchanged, the cursor does not move. The cursor's final position on the bar corresponds to the sum of assessments for each indicator in a key challenge. The result of the process for the key challenge "Spatial development and transport" is presented in Figure 10 as an example of the above.

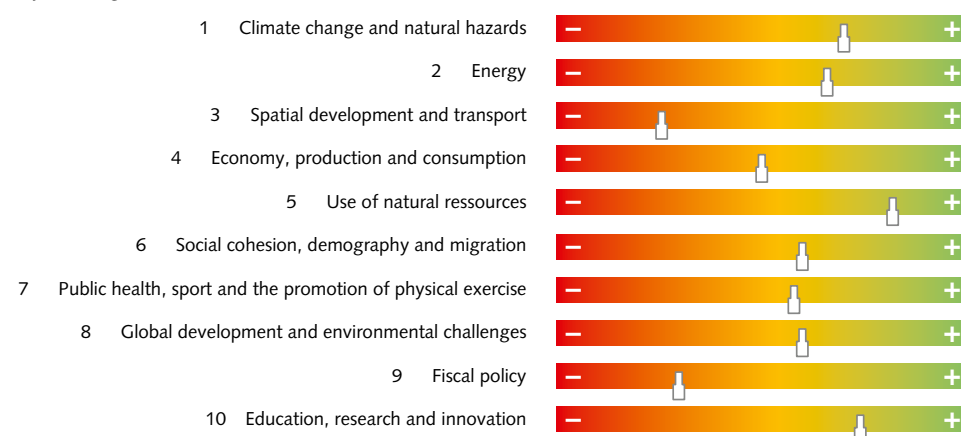
The dashboard of sustainable development gives an overview of the situation by showing the result of the aggregation of each of the ten key challenges (Figure 11).

Conversely, it is possible to find out the details of each indicator by clicking on its title under a challenge (Figure 10). The user can therefore retrace the whole process from the comparison of each indicator's targeted and observed trends to the overall presentation aggregated per challenge. In this way, the process is guaranteed to be transparent.

Overview of the result of aggregation for each of the ten challenges

Figure 11

Key Challenges



Adapted from the dashboard of sustainable development (www.monet.admin.ch)

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2.6 International context

Since the end of the 1990s, several OECD member countries as well as international organisations have begun developing sustainable development indicator systems. Most of these systems are focused on monitoring a national sustainable development strategy which determines, in most cases, its structure and design ("policy-based indicators") (UN 2009). In rare cases, sustainable development indicator systems are built according to a modelling of sustainable development processes ("conceptual framework"). Such a modelling is based either on the measurement of capital stocks ("later") or on an integrated vision of sustainable development ("now" and "later") (UN 2009, p. 29).

The Swiss sustainable development monitoring system is characterised by the fact that it does not aim to monitor a policy strategy but rather to measure sustainable development as a whole (→ Chapters 2.1 and 2.2). The

indicators are not selected according to political considerations but are, instead, the result of a modelling of the principal sustainable development processes ("conceptual framework"). The Swiss system has, accordingly, attracted the interest of other countries' statistical agencies, which have borrowed some of its elements to develop their own systems.

For example, New Zealand has developed a sustainable development monitoring system that borrows the basic elements of the Swiss system. The indicator system was published in 2008 by Statistics New Zealand in "Measuring New Zealand's Progress Using a Sustainable Development Approach".⁸² The Statistical Office of the Principality of Liechtenstein published in 2010 a sustainable development indicator system that borrows, inter alia, the structure and sustainable development principles of the Swiss system.⁸³

2.7 Current context

Sustainable development and its measurement are not and have never been static. New political concerns, new concepts and also new expectations from the players in sustainable development and the users of the related information represent a challenge for monitoring systems such as MONET and for the official statistics from which they are derived.

Policy strategies and current initiatives on the national and international scene involve issues and recommendations that cut across those dealt with in the scope of monitoring sustainable development. Consequently, the aim in this context is to identify the interfaces, delimitations and the possibilities for mutual enrichment. Three distinct types of initiative can be identified:

1. **Policy strategies** offering action plans making it possible to redirect the growth of countries on the path to sustainable development. The UN green economy approach, OECD green growth strategy and the Federal Council's "Green Economy" strategy are examples of this first type of initiative. The scope of the concept of sustainable development covers the scope of action of these strategies, which relate mainly to the qualitative objectives "economic efficiency" and "environmental responsibility" of the monitoring of sustainable development, as well as to the intersection between these qualitative objectives. The monitoring of sustainable development cannot, however, claim to follow up these strategies in detail, as this would require, among other things, the definition of new indicators as well as changes and developments in statistical collection systems.

⁸² http://www.stats.govt.nz/browse_for_stats/environment/sustainable_development.aspx

⁸³ http://www.llv.li/amtsstellen/llv-as-liechtenstein_nachhaltige_entwicklung.htm

2. Initiatives for improving, developing and completing the statistical measurement of growth and progress. The EU initiative “GDP and beyond” and the report of the Commission on the Measurement of Economic Performance and Social Progress (Stiglitz, Sen, Fitoussi 2009) form part of this second category. These initiatives relate to the three qualitative objectives of monitoring sustainable development. Unlike the monitoring system, they focus clearly on the *GDP* which they aim to complement. Switzerland has also decided to commit itself in this direction. One of the six fields of intervention for a green economy decided by the Federal Council in October 2010 envisages complementing GDP by appropriate indicators on social, economic and ecological developments. Recommendations from these initiatives should lead to the production of better data pertaining especially to *quality of life*, measure of capital flows and stock and the distribution of resources according to population groups and regions.

3. International working groups that work towards improving and unifying the measurement of sustainable development. This includes in particular the “Joint UNECE/EUROSTAT/OECD Task Force on Measuring Sustainable Development” (TF-SD) whose work began in 2009 and should finish in 2012. The TF-SD follows up from the report of the “Joint UNECE/Eurostat/OECD Working Group on Statistics for Sustainable Development” (WGSSD) published in 2009 (UN 2009). The TF-SD’s mandate aims at reinforcing the role of capital stocks in the measurement of sustainable development and improving measurement of quality of life from a sustainability perspective. Work carried out to date in Switzerland on the monitoring of sustainable development is perfectly in line with the work done by the TF-SD, both with respect to the integrated vision of sustainable development (“now” and “later”) and to its global dimension (“here” and “elsewhere”). As is the case with the two initiatives mentioned above, the TF-SD’s work will make it possible in the future to develop the measurement of capital flows and stock, thereby improving the quality of the indicators used in monitoring systems.

Bibliography

- BASS 2010:** BÜRO FÜR ARBEITS- UND SOZIALPOLITISCHE STUDIEN (BASS), *Analyse der Löhne von Frauen und Männern anhand der Lohnstrukturhebung 2008*, Bern, 2010
- Berger-Schmitt, Noll 2000:** BERGER-SCHMITT R., NOLL H.-H., *Conceptual Framework and Structure of a European System of Social Indicators*, EuReporting Working Paper N°9, Mannheim, 2000
- Consortium PISA.ch 2010:** CONSORTIUM PISA.CH, *PISA 2009: Les élèves de Suisse en comparaison internationale. Premiers résultats*, Neuchâtel, 2010
- DEFRA 2009:** DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS (DEFRA), *Sustainable development indicators in your pocket 2009*, London, 2009
- DESTATIS 2010:** STATISCHES BUNDESAMT (DESTATIS), *Sustainable development in Germany Indicator Report 2010*, Wiesbaden, 2010
- DETEC 1999:** FEDERAL DEPARTMENT OF THE ENVIRONMENT, TRANSPORT, ENERGY AND COMMUNICATIONS (DETEC), *Stratégie du DETEC*, Bern, 1999
- EEA 1999:** EUROPEAN ENVIRONMENT AGENCY (EEA), *Environmental indicators: Typology and overview*, Technical Report N° 25, Copenhagen, 1999
- EEA 2010:** EUROPEAN ENVIRONMENT AGENCY (EEA) *The European environment. State and outlook 2010: synthesis*, Copenhagen, 2010
- Eurostat 2009:** EUROSTAT, *Sustainable development in the European Union. 2009 monitoring report of the EU sustainable development strategy*, Statistical books, Luxembourg, 2009
- Eurostat 2011a:** EUROSTAT, *Economy-wide material flows: European countries required more materials between 2000 and 2007*, Statistics in Focus 9/2011, Luxembourg, 2011
- Eurostat 2011b:** EUROSTAT, *Sustainable development in the European Union. 2011 monitoring report of the EU sustainable development strategy*, Statistical books, Luxembourg, 2011
- FDF 2010:** FEDERAL DEPARTMENT OF FINANCE (FDF), *The debt brake – a success story*, Bern, 2010
- Federal Council 2002:** SWISS FEDERAL COUNCIL, *Stratégie 2002 pour le développement durable*, Bern, 2002
- Federal Council 2008:** SWISS FEDERAL COUNCIL, *Sustainable Development Strategy: Guidelines and Action Plan 2008–2011*, Bern, 2008
- Feller-Länzlinger et al. 2010:** FELLER-LÄNZLINGER R., HAEFELI U., RIEDER S., BIEBRICHTER M., WEBER K., *Messen, werten, steuern. Indikatoren – Entstehung und Nutzung in der Politik*, TA-SWISS, Bern, 2010
- FFA 2011:** FEDERAL FINANCE ADMINISTRATION (FFA), *Public finance trends: 2009 results and forecasts for 2010–2015*, Basic information, Bern, 2011
- FOEN 2007:** FEDERAL OFFICE FOR THE ENVIRONMENT (FOEN), *Changements climatiques en Suisse. Indicateurs des causes, des effets et des mesures*, State of the environment, Bern, 2007
- FOEN 2009:** FEDERAL OFFICE FOR THE ENVIRONMENT (FOEN), *Noise Pollution in Switzerland. Results of the SonBase National Noise Monitoring Programme*, State of the environment, Bern, 2009
- FOEN 2010a:** FEDERAL OFFICE FOR THE ENVIRONMENT (FOEN), NABEL. *La pollution de l'air 2009*, State of the environment, Bern, 2010
- FOEN 2010b:** FEDERAL OFFICE FOR THE ENVIRONMENT (FOEN), *Red list Breeding Birds (Summary). Threatened species in Switzerland, standing 2010*, The environment in practice, Bern, 2010

- FOEN 2011:** FEDERAL OFFICE FOR THE ENVIRONMENT (FOEN), *Emissions d'après la loi sur le CO₂ et d'après le Protocole de Kyoto*, Bern, 2011
- FOEN/FSO 2011:** FEDERAL OFFICE FOR THE ENVIRONMENT (FOEN), SWISS FEDERAL STATISTICAL OFFICE (FSO), *Environment Switzerland 2011*, Bern/Neuchâtel, 2011
- FSO 2007:** SWISS FEDERAL STATISTICAL OFFICE (FSO), *Flux de matières en Suisse. Consommation de ressources par l'économie suisse entre 1990 et 2005*, Swiss Statistics, Neuchâtel, 2007
- FSO 2008:** SWISS FEDERAL STATISTICAL OFFICE (FSO), *Productivité du travail. Méthodologie et analyse des principaux résultats de 1991 à 2006*, Swiss Statistics, Neuchâtel, 2008
- FSO 2009:** SWISS FEDERAL STATISTICAL OFFICE (FSO), *Material flow accounts - Growth in society's stock of materials*, FSO News, Neuchâtel, 2009
- FSO 2010a:** SWISS FEDERAL STATISTICAL OFFICE (FSO), *Living conditions in Switzerland in 2009. Survey on income and living conditions (SILC)*, Press release, Neuchâtel, 2010
- FSO 2010b:** SWISS FEDERAL STATISTICAL OFFICE (FSO), *Santé et comportement vis-à-vis de la santé en Suisse 2007. Enquête suisse sur la santé*, Swiss Statistics, Neuchâtel, 2010
- FSO 2010c:** SWISS FEDERAL STATISTICAL OFFICE (FSO), *Les dépenses publiques en faveur de la culture en Suisse, 1990-2007. Contributions de la Confédération, des cantons et des communes*, Swiss Statistics, Neuchâtel, 2010
- FSO 2010d:** SWISS FEDERAL STATISTICAL OFFICE (FSO), *R-D suisse en 2008. Efforts soutenus des entreprises privées et des hautes écoles*, Swiss Statistics, Neuchâtel, 2010
- FSO 2010e:** SWISS FEDERAL STATISTICAL OFFICE (FSO), *Mobilité et transports 2010*, Swiss Statistics, Neuchâtel (2010)
- FSO 2010f:** SWISS FEDERAL STATISTICAL OFFICE (FSO), *More settlement area and pasture, less arable land*, Press Release, Neuchâtel (2010)
- FSO 2011a:** SWISS FEDERAL STATISTICAL OFFICE (FSO), *Les pratiques culturelles en Suisse. Analyse approfondie – enquête 2008*, Swiss Statistics, Neuchâtel, 2011
- FSO 2011b:** SWISS FEDERAL STATISTICAL OFFICE (FSO), *Indicateurs du marché du travail 2011*, Swiss Statistics, Neuchâtel, 2011
- FSO 2011c:** SWISS FEDERAL STATISTICAL OFFICE (FSO), *Statistique des bâtiments et des logements 2009. Données structurelles sur les bâtiments et les logements*, Swiss Statistics, Neuchâtel, 2011
- FSO/CORSTAT 2007:** SWISS FEDERAL STATISTICAL OFFICE (FSO), CONFERENCE OF SWISS REGIONAL STATISTICAL OFFICES (CORSTAT), *Charter. Swiss Public Statistics*, Neuchâtel/Bern, 2007
- FSO/Economiesuisse 2010:** SWISS FEDERAL STATISTICAL OFFICE (FSO), Economiesuisse, *"La recherche et le développement dans l'économie privée en Suisse 2008"*, Neuchâtel and Zürich (2010)
- FSO/SAEFL 2000:** SWISS FEDERAL STATISTICAL OFFICE (FSO), SWISS AGENCY FOR THE ENVIRONMENT, FORESTS AND LANDSCAPE (SAEFL), *Sustainable Development in Switzerland. Factors for an indicator system. A pilot study based on the methodology of the United Nations Commission on Sustainable Development (CSD)*, Neuchâtel, 2000
- FSO/SAEFL/ARE 2004:** SWISS FEDERAL STATISTICAL OFFICE (FSO), SWISS AGENCY FOR THE ENVIRONMENT, FORESTS AND LANDSCAPE (SAEFL), FEDERAL OFFICE FOR SPATIAL DEVELOPMENT (ARE), *Monitoring Sustainable Development MONET: Final Report – Methods and Results*, Swiss Statistics, Neuchâtel, 2004
- FSO/SECO 2011:** SWISS FEDERAL STATISTICAL OFFICE (FSO), STATE SECRETARIAT FOR ECONOMIC AFFAIRS (SECO), *Le chômage en Suisse 2010*, Swiss Statistics, Neuchâtel, 2011
- Hák, Moldan, Dahl 2007:** HÁK T., MOLDAN B., DAHL A. L (Ed.), *Sustainability Indicators. A Scientific Assessment*, SCOPE, Washington, 2007
- Hardi, Zdan 1997:** HARDI P., ZDAN T. J., *Assessing Sustainable Development: Principles in Practice*, International Institute for Sustainable Development (IISD), Winnipeg, 1997
- OECD 2009:** ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD), *Society at a Glance 2009. OECD Social Indicators*, Paris, 2009

- OPET 2010:** FEDERAL OFFICE FOR PROFESSIONAL EDUCATION AND TECHNOLOGY (OPET), *Masterplan Cleantech en Suisse*, Bern, 2010
- PRO INNO Europe 2010:** PRO INNO EUROPE, *European Innovation Scoreboard (EIS) 2009*, European Union, 2010
- SDC/SECO 2010:** SWISS AGENCY FOR DEVELOPMENT AND COOPERATION (SDC), STATE SECRETARIAT FOR ECONOMIC AFFAIRS (SECO), *Statistics 2009. Switzerland's international cooperation*, Bern, 2010
- SDC/SECO 2011:** SWISS AGENCY FOR DEVELOPMENT AND COOPERATION (SDC), STATE SECRETARIAT FOR ECONOMIC AFFAIRS (SECO), *Statistics 2010. Switzerland's international cooperation*, Bern, 2011
- SECO/OPET 2005:** STATE SECRETARIAT FOR ECONOMIC AFFAIRS (SECO), FEDERAL OFFICE FOR PROFESSIONAL EDUCATION AND TECHNOLOGY (OPET), *Chômage des jeunes en Suisse: Explications et mesures prises*, Bern, 2005
- Seitz 2008:** SEITZ W., *Les femmes et les élections fédérales de 2007: Les femmes des partis bourgeois en progression. Avec un supplément consacré aux femmes lors des élections dans les parlements et gouvernements cantonaux de 2004 à 2007*, in Questions au féminin 1.2008, Commission fédérale pour les questions féminines, Berne, 2008
- SFOE 2011a:** SWISS FEDERAL OFFICE OF ENERGY (SFOE), *Statistique globale suisse de l'énergie 2010*, Bern, 2011
- SFOE 2011b:** SWISS FEDERAL OFFICE OF ENERGY (SFOE), *Schweizerische Statistik der erneuerbaren Energien. Ausgabe 2010*, Bern, 2011
- SFOE/FOEN/ARE 2010:** SWISS FEDERAL OFFICE OF ENERGY (SFOE), FEDERAL OFFICE FOR THE ENVIRONMENT (FOEN), FEDERAL OFFICE FOR SPATIAL DEVELOPMENT (ARE), *Recommandations pour la planification d'installations éoliennes. Utilisation des instruments de l'aménagement du territoire et critères de sélection des sites*, Ittigen/Bern, 2010
- Stiglitz, Sen, Fitoussi 2009:** STIGLITZ J. E., SEN A., FITOUSSI J.-P., *Report by the Commission on the Measurement of Economic Performance and Social Progress*, 2009
- UN 1987:** UNITED NATIONS (UN), *Report of the World Commission on Environment and Development: Our Common Future*, Geneva, 1987
- UN 2009:** UNITED NATIONS (UN), *Measuring Sustainable Development*, New-York/Geneva, 2009
- Wachter 2010:** WACHTER D.: *Politischer Nutzen von Evaluationen und Monitoring am Beispiel der Schweizer Nachhaltigkeitsstrategie*, In: Steurer R., Trattnigg R. (Ed.): *Nachhaltigkeit regieren: Eine Bilanz zu Governance-Prinzipien und -Praktiken*, München, 2010
- Worldbank 2011:** WORLD BANK, *Migration and Remittances. Factbook 2011. Second Edition*, Washington, 2011

Abbreviations

ARE	Federal Office for Spatial Development
CGIAR	Consultative Group on International Agricultural Research
CO ₂	Carbon dioxide
CORSTAT	Conférence suisse des offices régionaux de statistique (Swiss Conference of Regional Statistical Offices)
DETEC	Federal Department of the Environment, Transport, Energy and Communications
DPSIR	Driving force – Pressure – State – Impact – Response
EDK	Schweizerische Konferenz der Kantonalen Erziehungsdirektoren (Swiss Conference of Cantonal Ministers of Education)
EEA	European Environment Agency
EU	European Union
EUROSTAT	Statistical Office of the European Union
Expo 02	Swiss National Exhibition of 2002
FOEN	Federal Office for the Environment
FSO	Federal Statistical Office
FTE	Full-time equivalent jobs
GDP	Gross domestic product
GEF	Global Environment Fund
GNI	Gross National Income
HVF	Performance-related heavy vehicle fee
IDARio	Interdepartementaler Ausschuss Rio (Interdepartmental Rio Committee)
IFAD	International Fund for Agricultural Development
IISD	International Institute for Sustainable Development
ILO	International Labour Office
LDC	Least Developed Countries
LFS	Labour force status
MONET	Monitoring der Nachhaltigen Entwicklung (Monitoring sustainable development)
NISTRA	Nachhaltigkeits-Indikatoren für Strasseninfrastrukturprojekte (Sustainability indicators for road infrastructure projects)
NEAT	Neue Eisenbahn-Alpentransversale (New Railway Link through the Alps)
OECD	Organisation for Economic Co-operation and Development
PISA	Program for International Student Assessment
PM10	Particulate Matter (fine dust particles with a diameter of < 10 micrometres)
R&D	Research and development
S&T	Science and technology
SAEFL	Swiss Agency for the Environment, Forests and Landscape
SDC	Swiss Agency for Development and Cooperation
SDS	Sustainable Development Strategy
TF-SD	Task Force on Measuring Sustainable Development
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
WGSSD	Working Group on Statistics for Sustainable Development

Units of measurement

GWh	Gigawatt-hour
Kg	Kilogram
KWh	Kilowatt-hour
W	Watt
km ²	Square kilometre
mg/l	Milligram per litre
°C	Celsius degree

Glossary

Added value

Represents the increase in the value of products resulting from the production process. In national accounts, the value added is the balance resulting from production value minus intermediate consumption.

Applied research

Applied research consists of work to use and develop existing knowledge so as to solve specific problems and reach predetermined objectives.

Agenda 21

Agenda 21 is an action plan adopted by 182 countries (including Switzerland) at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992. This conference is also commonly known as the "Earth Summit".

Basic research

Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge without any particular application or use in view.

Body mass index (BMI)

The most commonly used measure to determine excess weight is the body mass index (BMI). The BMI is the relation between weight (in kilograms) and body height (in metres) squared. Despite its limitations (impossible to distinguish between fat and muscle, does not take into consideration factors such as sex, ethnic or national characteristics, etc. when setting limits), this index has the great advantage of making comparisons possible in large populations. The WHO categories, which are very widely used, distinguish between underweight people (BMI lower than 18.5 kg/m²), people whose situation is normal (BMI between 18.5 kg/m² and 24.9 kg/m²), people who are overweight (BMI between 25 kg/m² and 29.9 kg/m²) and those who are obese (BMI over

30 kg/m²). This latter group is itself divided into three sub-groups. While the WHO values apply to people aged between 18 and 65, the Swiss Health Survey also uses these categories for older people. For 15 to 17-year olds, the Kromeyer-Hauschild percentile values are used here so as to specifically take into account young people's physical development.

Carbon dioxide (CO₂)

Colourless, non-flammable gas, present in the air and in mineral sources. Main product of any type of combustion, it is the man-made gas which contributes most to the greenhouse effect.

Carbon sinks

As a result of photosynthesis, trees capture CO₂ from the air and convert it in order to store carbon for long periods of time in wood. Agricultural and forestry activities influence the volume of carbon bound in biomass or emitted by it and therefore can help offset CO₂ emissions.

Contaminated sites

Places where there have been processing plants, accidents or storage, which are polluted by substances, and where it has been proved that the substances can be harmful or unpleasant or that there is a real danger that they could be.

Convictions

This term covers all court judgements based on the penal code, another federal penal law and the military penal code and which result in sanctions (acquittals are not included). Statistics only take into account judgements included on the criminal record; decisions taken after a judgement, such as cancelling a suspended prison sentence, are also taken into consideration, but are not counted as new convictions.

Cultural activities

The word “culture” can refer to anything from a widespread phenomenon to a way of life and belief. Culture here is defined in a narrow sense to refer to places, institutions and events frequented outside the home (going to a concert, the theatre, the cinema, to festivals, visiting cultural heritage sites, etc.) and individual amateur activities (playing a musical instrument, painting, etc.).

Decoupling

Eliminating the link between economic growth and increased use of environmental resources and greater environmental pressures. Decoupling is relative if emissions and the use of resources remain constant or grow more slowly than the economy. If the economy grows despite a reduction in either consumption of resources or emissions, decoupling is absolute.

Disposable income

Disposable income is obtained by deducting the compulsory expenditure from the gross income. This includes social security contributions (contributions to retirement and survivors' pensions and disability benefits, company pension schemes etc.), taxes, health insurance premiums (basic insurance), and regular payments to other households (e.g. maintenance payments).

Educational level

The educational level is based on the highest level of education completed by the respondent. This education has been grouped into one of the five following levels:

- compulsory education (primary school followed by lower secondary level);
- basic vocational training (apprenticeship and vocational Matura);
- general education (academic and specialised Matura, upper secondary specialised school);
- higher vocational education (college of higher vocational education and training and preparation for advanced federal PET diploma examinations such as Advanced Federal PET diplomas and Federal PET diplomas);
- institution of higher education (degrees offered by universities, universities of applied sciences or universities of teacher education).

Environmentally-related taxes

A tax is a compulsory payment to the State without an individual service in return – unlike a charge, where the individual service in return can be, for example, the disposal of waste or waste water. Taxes are environmentally-related if they are levied on a physical unit that has a demonstrably negative impact on the environment (e.g. motor fuels). It is irrelevant in this context whether the tax was created in order to protect the environment, to generate revenues to be used for environmental protection, or for another purpose. The value added tax is excluded from consideration.

Equivalent income

Equivalent income is calculated based on household income. To take into account the different household sizes and composition, the income of each household is divided by an “equivalent value” that converts the household into a one-person household. The equivalent value is obtained by allocating each household member a weighting factor, e.g. 1.0 to the first adult in the household, 0.5 to the others who are aged 14 or over, and 0.3 to children under the age of 14 (these values correspond to the latest OECD equivalence scale, known as the “modified scale”). The sum of these weightings gives the household’s “equivalent value”.

EU-15 (1st January 1995–30th April 2004)

France, Germany, Italy, the Netherlands, Belgium, Luxembourg, Ireland, the United Kingdom, Denmark, Greece, Spain, Portugal, Finland, Sweden and Austria.

EU-25 (1st May 2004–31st December 2006)

France, Germany, Italy, the Netherlands, Belgium, Luxembourg, Ireland, the United Kingdom, Denmark, Greece, Spain, Portugal, Finland, Sweden, Austria, Estonia, Latvia, Lithuania, Poland, the Czech Republic, Slovakia, Hungary, Slovenia, Cyprus and Malta.

EU-27 (as from 1st January 2007)

France, Germany, Italy, the Netherlands, Belgium, Luxembourg, Ireland, the United Kingdom, Denmark, Greece, Spain, Portugal, Finland, Sweden, Austria, Estonia, Latvia, Lithuania, Poland, the Czech Republic, Slovakia, Hungary, Slovenia, Cyprus, Malta, Bulgaria and Romania.

Fair Trade

The term Fair Trade defines a trading partnership, based on dialogue, transparency and respect that seeks greater equity in international trade. It contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalised producers and workers – especially in developing countries.

Final energy consumption

Final consumption is the amount of energy delivered by energy suppliers to energy consumers or taken directly from nature or produced (transformed) by consumers for their own needs.

Foreign direct investments

Foreign direct investments aim to establish a long-term strategic relationship with foreign enterprises. Such investments can result in the opening of a branch office, the establishment of a subsidiary or a merger.

Full-time equivalent jobs

The term “full-time equivalents” refers to a conversion of volume of work (measured in terms of the number of jobs or the number of hours of work) to full-time jobs. The number of full-time equivalents is determined by taking the total number of hours worked and dividing this total by the average number of hours worked in a full-time job.

Greenhouse effect

The greenhouse effect is a result of various gases present in the atmosphere (water vapour, carbon dioxide, methane, nitrous oxide, etc.) which reflect part of the heat emitted by the Earth. The rise in concentration of these greenhouse gases causes warming of the planet's surface.

Gross domestic product (GDP)

The GDP is a measure of a national economy's performance over one year. It measures the value of goods and services produced by the country provided they are not used for producing other goods and services. In other words, it defines the added value. The GDP is calculated at current and constant prices during a given year. At constant prices, the actual economic trend is represented without taking into account the influence of prices.

Gross national income

Gross National Income (GNI) is made up of primary income (income from employment and capital income) per unit in the country. The GNI is the sum of the GDP and the balance of primary income flows with the rest of the world.

Hazardous waste

Waste that needs to be disposed of by means of special technical and organisational measures because of its composition and biological or physico-chemical properties.

Heating fuel

Substance which, in the presence of energy and oxygen, can be combined with oxygen (combustion agent) in a chemical reaction that generates heat.

Heavy metals

Generic name for metals with a density of more than 4.5 g/cm³ (e.g. iron, zinc, copper, manganese, chrome, cadmium, lead, mercury). All these elements can be found naturally in soil, mostly in very small concentrations. They are released into the environment via waste, exhaust gases and wastewater. As they do not decompose, they accumulate and can make their way into the food chain.

Hidden flows (associated with products imported into Switzerland)

Materials used in exporting countries to produce and transport materials or goods to Switzerland, i.e. material flows produced abroad by Swiss economic activity. Flows are calculated based on estimates.

Household

Group of people usually living together, i.e. sharing the same accommodation. A distinction should be made between private households and collective households (homes, hospitals, prisons, boarding schools, etc.). Private households can be grouped into households with one or with several persons. Households with several persons can be divided into family and non-family households. A family household is a private household including at least one family nucleus. A family nucleus comprises either the head of household and spouse, or the head of household without a spouse but with at least one child or with his/her father and/or mother. Among households composed of a couple, a distinction is made between married couples and cohabiting partners whose relationship is analogous but who are not married.

Intramural R&D expenditure

Intramural R&D expenditure covers total expenditure on R&D in a statistical unit or in a sector of the economy, whatever the origin of the funding. It includes current expenditure on R&D personnel (wages, annual wages, related staff costs and miscellaneous benefits such as premiums, holiday pay, contributions to pension funds and other social security payments), other current R&D expenditures (covering, except for amortisations, all costs incurred for purchasing materials, supplies, various equipment which does not form part of capital expenditure, e.g. water, books, laboratory animals, etc., as well as administrative fees and rents) and capital expenditure, i.e. gross investment on R&D (land, buildings, instruments and equipment).

Labour productivity

Labour productivity is the gross value added (GVA) by labour input. It makes it possible to measure labour input efficiency in the production process. On a national scale, labour productivity measures the gross domestic product (GDP) by unit of volume of hours worked.

Least developed countries

The term "least developed countries" (LDC) designates a category of countries created in 1971 by the United Nations (UN), grouping together the least socio-economically developed countries in the world. The UN classifies LDC according to three criteria: average income of the last three years (it must be under \$900 per capita), the Human Assets Index (composite index based on food consumption in calories per day, infant mortality, education and literacy), and the Economic Vulnerability Index (composite index based on the instability of agricultural production and exports, the share of the trade, industrial and services sectors, merchandise export concentration and the size of the national economy).

Life expectancy

Average number of (remaining) years to live, taking into account current mortality rates for the age in question.

Material deprivation

Material deprivation is defined as the absence, for financial reasons, of at least three out of nine elements. The material deprivation indicators at European level are composed of the following: capacity to face an unexpected expense of CHF 2000; capacity to afford one week annual holiday away from home; lack of payments for arrears (mortgage payments or rent, regular bills, car loan payments and other loan repayments); capacity to afford a meal with meat, chicken or fish (or vegetarian equivalent) every second day; capacity to keep home adequately warm; to have a washing machine; to have a colour TV; to have a telephone; to have a personal car.

Motor fuels

Mixture of combustible hydrocarbons in liquid or gaseous form which, mixed with air, powers an internal combustion engine.

National Council

In the Swiss two-chamber system, based on the US system, the National Council represents the people and the Council of States represents the cantons. The two chambers have the same competences; they sit simultaneously but separately. The Federal Assembly (both chambers together) only sits for elections and to address extraordinary issues. The National Council is composed of 200 representatives of the Swiss people, elected every four years. Each canton forms an electoral district (article 149 of the Federal Constitution). The seats are divided between the districts in proportion to their population, but each has at least one seat. Elections are held with a simple majority poll in cantons which have only one seat (UR, OW, NW, GL, AI and, since 2003, AR) and by proportional representation in the 20 cantons which have two or more seats.

Official development assistance

According to the OECD definition, Official Development Assistance (ODA) includes the total of financial flows which: 1. originate in the public sector (Confederation, cantons and communes); 2. aim essentially at facilitating economic and social development of recipient countries; 3. are granted at concessional conditions in the form of grants and low-interest loans; 4. are intended for developing countries or territories as well as the multilateral organisations on the list compiled by the OECD. Bilateral assistance is assistance provided by one partner to another, be it a State or a group of aid associations coordinated on a national or international level. Multilateral assistance refers to joint aid from international organisations, such as the World Bank or the UN, to one or several States. Assistance from the private sector for development in Switzerland is made up of donations from non-governmental aid organisations and Swiss non-profit foundations for projects and programmes carried out in the developing countries.

Organic farming

This is a method of farming which respects nature and the environment as much as possible. The use of chemical or synthetic fertilizers and plant-protection products is prohibited, which is not the case in integrated production. As for livestock, the use of genetically modified organisms and embryo transfer are not authorised. The production and preparation of organic products are regulated by the following principles:

- a. natural cycles and processes are taken into consideration;
- b. the use of additives and synthetic chemicals is avoided;
- c. genetically modified organisms and their derived products are not used, except for veterinary products;
- d. products are not subject to ionising radiation and irradiated products are not used;
- e. the number of productive livestock must be adapted to the utilised agricultural area, whether owned or leased, to be used for the production of farm fertilizers;
- f. productive livestock is kept in organic holdings which meet the requirements laid down in this ordinance for their whole life and fed with foodstuffs for animals obtained according to the rules established in this ordinance.

Ozone (O₃)

Colourless toxic gas with a slightly pungent odour, which forms in the atmosphere from nitrogen oxides and hydrocarbons under the influence of light, mainly in the summer.

PM10

Particulate Matter <10 µm. Dust particles whose diameter is less than 10 micrometres. They can penetrate into the lungs.

Public debt ratio (public finances)

Gross debt in % of the GNP. Public debt comprises current commitments, short, medium and long-term debts and commitments to specific entities.

Public transport

Public transport includes transport services accessible to everyone and which use a timetable (regular journeys) and have certain conditions.

Quality of life

The quality of life of a person (of a population group or of a society) is a multidimensional measure including all of life's important aspects (work, health, financial situation, housing conditions, social integration, etc.) as well as factors which are both objective (living conditions) and subjective (level of satisfaction, attitudes, values).

Red list

List of threatened animal and plant species. Species are divided into several categories depending on how high the threat is.

Renewable energy

Generic term for energy sources which are available in unlimited quantities and whose raw materials do not run out, e.g. hydraulic energy, solar energy, environmental heat, biomass, wind energy, energy produced from household and industrial waste and energy from water treatment plants.

Research and development (R&D)

R&D comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.

Risk of poverty

The at-risk-of-poverty threshold is set, at the European Union level, at 60% of the median equivalised disposable income. Therefore, being at-risk of poverty means having an income significantly below the population as a whole, which is a situation that creates a risk of social exclusion.

Salary

Salary corresponds to remuneration (in cash or in kind) for the work done by a person on another person's behalf under the terms of a written or oral contract. This other person may be a natural person or a corporate identity (business, non-profit-making institution or government department). Thus, the concept of salary does not cover income from self-employed activity on a person's own account. It is customary to make a distinction between gross salary (before deduction of the employee's social security contributions) and net salary (after deductions).

Settlement and urban areas

In land-use statistics, settlement and urban areas include built-up areas, industrial areas, special infrastructure areas (power supply plants, waste disposal and sewage treatment facilities, quarrying or mining sites, landfill areas and building-sites) as well as recreational facilities, parks and transportation zones.

Soft mobility

Travelling on foot or by bicycle.

Tonne-kilometre

Unit of measurement for transporting one tonne over one kilometre.

Transport performance

Sum of kilometres travelled by passengers or freight in one year, measured in passenger-kilometres or tonne-kilometres.

Treaties

A treaty is an international agreement, in principle in written form, between two or more subjects of international law, by which they express their joint will to assume obligations governed by international law, or to waive rights; this agreement is embodied in a single instrument or in two or more related instruments, whatever its particular designation. A fundamental distinction should be made between a bilateral treaty, concluded between two parties, and a multilateral treaty, concluded between more than two parties. Bilateral and multilateral treaties differ essentially in the way in which the agreement is concluded, their entry into force and their management.

Type 2 diabetes

Type 2 diabetes (formerly called non-insulin-dependent or adult-onset diabetes) is caused by the body's ineffective use of insulin. Type 2 diabetes accounts for 90% of people with diabetes around the world. It often results from excess body weight and physical inactivity.

Symptoms can be similar to those of Type 1 diabetes, but are often less marked. As a result, the disease may be diagnosed several years after onset, once complications have already arisen.

Until recently, this type of diabetes was seen only in adults but it is now also occurring in children.

Unemployment rate based on ILO definition

$$\text{Unemployment rate based on ILO definition} = \frac{\text{Unemployed based on ILO}}{\text{Labour force}} \times 100$$

The term “unemployed based on ILO definition” refers to people aged 15–74 who:

- were not gainfully employed during the reference week,
- were actively looking for work during the previous four weeks,
- were available for work.

This definition conforms to the International Labour Office (ILO) recommendations and to the EUROSTAT definition.

Urban waste

Urban waste includes household waste and other similar waste produced by industry or commerce.

Waste collection rate

Mass of waste collected in proportion to the total mass of waste produced. Waste collected is household waste and waste produced by industry collected separately from urban waste for subsequent recycling. This includes glass, paper and cardboard, PET, aluminium tins, household aluminium, tin cans, batteries and organic waste.

Appendix

The 45 principles of sustainable development

Social solidarity		
General principle	1a	Ensuring human rights
	1b	Limited individual freedom
Objective living conditions	2a	Meeting needs
	2b	Promoting health
	2c	Fighting poverty
Subjective living conditions	3a	Satisfaction and happiness
	3b	Development that takes well-being into account
Fairness of distribution, equality of opportunity	4a	Ban on discrimination
	4b	Equal opportunities and fair distribution of wealth
	4c	Integration of the less fortunate
Strengthening of social cohesion	5a	Intercultural and interpersonal understanding
	5b	Social and political participation
International solidarity	6a	Development cooperation
	6b	Promoting peace and democracy
Development and maintenance of human capital	7a	Development of human capital
	7b	Access to information and freedom of opinion
	7c	Encouraging learning
	7d	Child-friendly environment
Economic efficiency		
General principle	8	Economic order in favour of the communal good
Economic system	9a	Market as economic order
	9b	Genuine costs and principle of polluter-pays
	9c	Market intervention that conforms to the system
Efficiency and competitiveness	10a	Promotion of economic efficiency
	10b	Economic order that favours innovation and competition
	10c	Promotion of research
	10d	Limited public debt
Flexibility and stability	11a	Predictability of changes in the system
	11b	Socially compatible rate of change
Production and consumption of goods and services	12a	Ecologically acceptable production
	12b	Ecologically and socially acceptable consumption
	12c	Transparent business reporting for consumers
Employment	13	Employment that is morally worthwhile and provides a decent living
International trade	14a	Environmentally and socially acceptable world trade
	14b	World trade from which all parties can profit
Environmental responsibility		
General principle	15a	Preservation of natural resources
	15b	Preservation of biodiversity
Consumption of resources	16a	Limits for consumption of renewable resources
	16b	Limits for consumption of non-renewable resources
Materials and wastes	17a	Limits for degradable waste and toxins
	17b	Avoidance of non-degradable toxins
Risks	18a	Ecological compensation
	18b	Minimisation of ecological risks
	18c	Caution in the case of uncertainty
Rate of change	19	Taking into consideration the time needed for natural processes
Natural and agricultural landscape	20	Acceptable natural and agricultural landscapes

FSO Publications

The Federal Statistical Office (FSO) is the central and official purveyor of statistical information to the Swiss Government. It is officially mandated to supply this information to a wide range of users.

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Sustainable Development

The FSO publishes a system of indicators online which are updated on a regular basis:
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>> Tableau de bord (only available in French and German)

The latest FSO publications in this area:

– Sustainable Development. Pocket Statistics 2012, Neuchâtel 2012, free,
Order Nr.: 737-1200

– Sustainable Development – A Brief Guide 2010. 16 key indicators to measure
progress, Neuchâtel 2011, free, Order Nr.: 737-1001

Extensive information about sustainable development policy in Switzerland is available
at www.are.admin.ch/sustainabledevelopment

This publication shows where Switzerland is on the path to sustainable development by means of the Monitoring Sustainable Development (MONET) indicators, which are divided into twelve themes.

Published on the occasion of the “Rio+20” Summit, this report reviews the changes Switzerland has experienced in terms of sustainable development since the Earth Summit was held in Rio in 1992.

In its second part, the report outlines a series of methods and tools to measure sustainable development and provides examples of good practices in this area.

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