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Country Market Statement: Switzerland

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1 General economic trends

Developments from 2008 to mid-2009

Switzerland withstood the most serious collapse in the global economy since the Second World War relatively well until the second half of 2008. There was a clear increase in value added in the construction sector. After three very good years, industrial business development slowed down. In late 2008, the crisis experienced by Switzerland's most important foreign trade partners, in particular Germany, had a growing impact on export-oriented sectors and businesses. Domestically-oriented sectors such as retail trade and the construction sector, in particular residential building and the civil engineering sector which is occupied with long-term infrastructure projects, remained largely unaffected by the effects of the economic crisis and shore up the domestic economy. Whereas the major financial institutions that were active in the USA and were involved in the tax dispute with the USA suffered a loss in confidence and the withdrawal of customer deposits, the smaller financial institutes that focus on the domestic market reported comparatively good results. Overall, the most negative signals for economic development in Switzerland originated from the significantly reduced value added in the financial sector.

Outlook

The decline has been decelerating since mid-2009. A considerable number of export-oriented Swiss businesses have noted an increase in incoming orders. Experts are divided in their opinions as to whether this marks the bottoming out of the recession or merely a temporary reprieve. Further increases in unemployment and company bankruptcies and a decline in residential building are expected for 2010 in Switzerland. The problems in the banking sector have not yet been resolved either. On the other hand, the Swiss economy is benefiting from both the economic support programmes created by the Swiss government and those of its trading partners. Although work-on-hand in the construction sector decreased in the summer of 2009 by 11% as compared with the previous year, residential building activity remains at a very high level. The economic stimulus programmes provide particular stimulus for (energy-related) renovation projects (see box below). Lower energy prices are also a source of relief for the economy in the short term. On the other hand, however, the comparatively low price of energy in Switzerland is alleviating the pressure to achieve greater energy efficiency. The speed and scope of the international economic recovery will point the way for economic development in Switzerland. A decline in GDP of 1.7% is forecast for 2009 and weak growth of 0.4% for 2010.

Stabilisation packages for the support of the Swiss economy

Two economic stabilisation programmes were passed by the Swiss parliament in late 2008 and early 2009 which also contained provisions for the financing of energy promotion programmes and other environmental investments. The programmes support measures in the areas of flood protection, biodiversity, building renovation, district heating, the replacement of electric heating systems, the promotion of renewable energy sources and the promotion of the export of environmental technologies. (The run on these programmes was so great that all of the available finance was exhausted after a few weeks.) In June 2009 the Federal Council passed a third economic package which will provide a further CHF 15 million for the promotion of energy efficiency and renewable energy sources in building renovation projects. A temporary legislative act for the economic stabilisation measures remains to be approved by parliament in autumn.

2 Policy measures and developments, which have a bearing on markets of forest products or forest management

The legal framework for Swiss forest policy is set down in the Swiss Federal Act on Forests. In addition to this, a political action programme, the *Swiss National Forest Programme (NFP)*, was developed on the basis of a participative process. Representatives of the forestry sector and other relevant sectors were actively involved in the process. The *Swiss NFP* forms the basis for the orientation of the Swiss Confederation's forest policy up to 2015. The principle aim of the NFP is to guarantee **sustainable forest management** in Switzerland and, as a prerequisite for this, conditions favourable to the development of an efficient and innovative forestry and timber sector. The NFP aims to optimize and to improve the three dimensions of sustainability, i.e. the ecological, economic and social value of the forest. In 2008, a **wood resource policy** has been formulated that aims at the sustainable use of wood from native forest and at the resource-efficient use of wood.

Topics of interest

Thanks to the **legally enshrined ecological dimension of sustainability**, the Swiss population's image of the Swiss forestry sector is a positive one; it is seen as a "green" sector. However, the increase in the wood harvest between 2005 and 2007 prompted fears of the over-utilisation of the forests. At the same time, the timber industry, which was undergoing a period of expansion, was concerned about having an adequate wood supply. The volume of wood harvested in Swiss forests decreased significantly in 2008 and is not expected to increase again until 2010. The main focus of interest remains, therefore, **the general conditions that can alleviate the conflicts between increasing wood utilisation and other important forest functions** such as the conservation of the forest's biodiversity and its significance as habitat and recreational area.

A project entitled "Basic Requirements of Near-Natural Silviculture" (*Grundanforderungen an den naturnahen Waldbau*) has been under way since 2005. The aim of this project is to eliminate uncertainties in relation to sustainable forest management. The intention is to define transparent rules, which make it possible to increase utilisation without causing deterioration in the ecological forest functions. It has been decided to halt the process at present as it was not yet possible to achieve a consensus between the participating interests groups. The economic aspects of the principles used to define the promotion of biodiversity, were particularly contentious issues in the associated discussions.

In the very recent past many public and private-sector measures have targeted **the promotion of wood utilisation** (see *Wood Action Plan*, Chapter 2.4.1). At the same time, political moves were made aiming at an additional financial support for the construction and maintenance of forest roads in areas with high logging costs and correspondingly important standing volumes (Pre-Alps and Alps).

Moreover, it is also being discussed in expert circles as to **how the forest owners and the forestry operations (which generally run at a loss) can improve the marketing of their contribution to a sustainable society**. The forestry sector's public service contributions are not always made transparent and cannot be efficiently indemnified yet.

As part of the obligations assumed at international level in connection with the Kyoto Protocol, forest owners cannot assume entrepreneurial responsibility for the CO₂ balance of their forests as the legal basis for this is still lacking. However, pilot projects exist whereby forestry operations supply emissions certificates on the market for voluntary climate protection measures; the certificates are generated by the CO₂ sink services provided by their forests (see *CO₂ balance of forest and wood*, Chapter 2.1.1).

Thanks to targeted private-sector measures and numerous state-supported promotional measures **wood is increasingly seen, both by experts and the general public, as an ecologically useful construction material**. Based on the latest energy standards, there is an increasing focus on timber-framed structures (see *Energy efficiency and the green building movement*, Chapter 2.2.2).

2.1 Climate change (policies) and the forestry sector

CO2 Act, steering taxes and post-Kyoto

Switzerland's climate and energy policy are very closely linked. Measures for greater energy efficiency and for the further development of renewable energy sources as a proportion of total energy consumption impact positively on the fight against climate change and, at the same time, guarantee the energy supply.

Switzerland's climate policy starts with the most important climate gas, i.e. CO₂. Based on the Swiss **Federal CO₂ Act**, which was passed in 1999, Switzerland aims to reduce CO₂ emissions by 10 % by 2010 (as compared with 1990 levels).

The CO₂ Act is based, first, on voluntary measures, in particular on the part of business, and, second, on steering instruments, such as the CO₂ tax. If intermediary objectives are not fulfilled, various successive measures come into force. A CO₂ tax on fossil combustible fuels (heating oil, natural gas) of CHF 12 per tonne of CO₂ emission has been levied since January 2008. **The CO₂ tax is a steering tax on CO₂-emissions.** The revenue from the levy is redistributed to the citizens and enterprises. The price of heating oil increased by CHF 0.03 per litre and natural gas by CHF 0.025 per m³ as a result of the introduction of the tax. It is intended to increase the tax in subsequent years. The tax will not be levied on energy wood.

In accordance with the example set by the international regulations of the Kyoto Protocol, emissions reductions achieved abroad can also be accounted for under Switzerland's CO₂ Act.

Due to the intervention of the private sector, a CO₂ tax is not levied on propellant fuels but a "**Klimarappen**" ("climate cent"). The "climate cent" is a private-law instrument and a voluntary measure implemented by Swiss industry, which has entered into a commitment vis-à-vis the Swiss Confederation to reduce CO₂ emissions by 12 million tonnes over the period 2008 to 2012; at least two million tonnes of this will be reduced within Switzerland. If these targets are not achieved, the CO₂ tax will also be levied on propellant fuels. Some of the revenue from the "climate cent" is to be invested in emissions trading and climate protection projects in other countries while another portion will be used for climate protection measures within Switzerland (see section 2.2.2 *Energy efficiency and green building*, page 7).

At present it is expected that the CO₂ reduction targets will barely be fulfilled for all of Switzerland for the period 2008 - 2012.

The CO₂ Act requires further development in emission reductions **for the post-2012 period**. The government presented a draft for the **revision of the act** to parliament in August 2009. The revised act proposes a reduction of Switzerland's greenhouse gas emissions of at least 20 % by 2020.

Two possible variants for the revision of the act have basically been up for discussion since February 2008:

- Switzerland reduces its greenhouse gas emissions by 20 % by the year 2020 – mainly at domestic level. In terms of the instrument to be used to achieve this, the main focus is on the introduction of a steering tax on all climate gases. This would be accompanied by technical regulations for the reduction of fossil energy consumption in buildings and vehicles. The proceeds of the tax would be ring-fenced for the financing of a programme for the renovation of buildings and further climate protection measures both at home and abroad.
- Switzerland compensates for its climate gas emissions through the purchase of emissions certificates from abroad and becomes "climate neutral" as a result.

The current draft legislation states that at least half of the reduction targets should be achieved through domestic measures. To this end, the existing measures should be continued and developed further, in particular the CO₂ steering tax on combustible fuels. The levying of a tax on propellant fuels remains a secondary measure, i.e. it will only be introduced if the targets are not reached. This proposal is subject to strong criticism in part as motorised transport is among the main emitters of CO₂. Very energy-intensive companies that would face a correspondingly high tax burden are also to be exempted from the CO₂ tax. The existing emissions-trading system for energy-intensive companies, e.g. the paper industry, is to be integrated into the European trading system.

Due to the urgent need for action in the area of climate policy, however, further measures will be introduced before 2012 through partial revisions of the legislation currently in force. These concern buildings in particular. From 2010, a maximum of CHF 200 million from the **CO2 tax will be used to finance climate-related measures in buildings**. Most of this partly earmarked funding will be used in the context of a **national building programme for the upgrading of building envelopes** (insulation of roofs, walls, floors and ceilings and replacement of windows). A third of the earmarked funding will be made available for the **promotion of renewable energy**, waste heat utilisation and building services (see also Chapter 2.2.2 *Energy efficiency and the green building movement*, p 6ff).

The draft revision of the CO2 Act does not explicitly take the sink effect of wood into account (see next chapter).

2.1.1 Climate (change), forest and wood

CO2 balance of forest and wood: the Kyoto Protocol and forest management

Switzerland accounts for forest management as an activity under Article 3.4 of the Kyoto Protocol. In other words, the sink effect of the forest, i.e. the CO2 sequestered in its standing volume, can be taken into account in the calculation of the national greenhouse gas balance. Therefore, if the forest becomes a CO2 source, the **CO2 balance of the forest** will add to the national greenhouse gas balance.

At present there is no legal basis for the transfer of tradable national CO2 certificates (**Carbon Removal Units**, RMUs) to forest owners who would like to take entrepreneurial responsibility for the CO2 balance of their forests. On the other hand, because wood utilisation has become economically more attractive in recent years, forest owners are becoming less interested in engaging in carbon trading based on sink services.

The Swiss forest is expected to provide a minimal sink effect for the Kyoto commitment period 2008 – 2012; due to the increase in the wood harvest and in damaging events, it is expected to give rise to a CO2 source in the following period. On the other hand, the rise in wood utilisation increases the **substitution effect of wood** as the harvested wood replaces fossil fuels used in the production of construction materials or in the generation of energy. This substitution effect is also accounted for in the greenhouse gas balance. Moreover, long-lasting wood products, in particular wood used in construction, sequester CO2. The **sink effect of harvested wood products** cannot, however, be accounted for under the current provisions of the Kyoto Protocol. Accounting for wood used in construction is being negotiated for the second commitment period which begins from 2012. Switzerland supports the accounting of harvested wood products in national CO2 balances as part of the international climate-policy negotiations.

A study on the potential contribution of the Swiss forestry and timber sector to the reduction of CO2 emissions showed that the best long-term effect was achieved by a scenario in which the standing volume of the Swiss forest is initially increased slightly and annual growth increment is utilised on an ongoing basis. The study also shows that, overall, the substitution of other raw materials and fossil fuels by wood has a stronger influence on the CO2 balance than the sink service provided by the forest.

-> When formulating responses to climate change by the forest sector, different strategies including carbon sequestration in forests, storage in wood products, and the substitution of fossil fuels and energy-intensive materials should be considered and combined.

For the Swiss forestry and timber sector, the **three effects (CO2 balance of the forest, substitution effect of the use of wood, CO2 sequestration by wood products)** in combination add up to a CO2-neutral effect or a slight sink effect.

Forest and climate change: effects and adaptations

FOEN launched a project in conjunction with a number of research institutions in 2009, the aim of which is to estimate the effects of climate change on the Swiss forest, the resulting damage risks, the changes in tree species composition and their effects on forest services. Based on the project's find-

ings it is intended to develop suitable silvicultural approaches to accommodate the relevant climate change scenarios along with corresponding recommendations for forestry practice. This research project is due to run initially until 2011.

2.1.2 Other climate-related and clean-air measures that influence the use of wood

Two legislative measures which aim to improve the climate and its interaction with the ecosystems in very different areas have a long-term positive effect on the importance of wood as an energy source: the *Ordinance on Air Pollution Control* and the *Fuel-Ecobalance Ordinance*.

Wood-fired heating systems and Air Pollution Control

The revised **Ordinance on Air Pollution Control** (*Luftreinhalte-Verordnung*) came into force in January 2008. The aim of the revision of this legislation is to enable a gradual reduction in particulate matter emissions. This is necessary because **wood-fired heating systems** generate an average of 8 % of all particulate matter emissions, 7 % of which arise from the burning of wood, forest and garden waste. In accordance with the revised Ordinance on Air Pollution Control, wood-fired heating systems that are smaller than 350 KW will only be authorized for sale if they comply with EU standards and meet innovative air-pollution-control requirements. Small automatic wood-fired heating systems of 70-500 KW must comply with a dust limit value of 50mg/Nm³ from 2012. This limit value can be achieved by pellet heating systems or different wood-fired systems with filter systems. Large industrial furnaces (from 500 KW) and power plants from 10 MW have already had to comply with very strict dust limits since the end of 2007.

Switzerland's binding ecological and social minimum requirements for biogenous fuels and the mineral oil tax

Switzerland has binding ecological and social minimum requirements for biogenous fuels and thus assumes a pioneering role in this area.

Since 2008 fuels from renewable energies are exempt from mineral oil tax. In order to benefit from tax relief on mineral oil, producers and importers of fuels from renewable raw materials must demonstrate that the fuels achieve a 40 % reduction in CO₂ emissions as compared with petrol and demonstrate a positive overall ecological and social balance. This includes providing proof for the entire fuel production process from cultivation to final sale. In particular, the conservation of sensitive ecosystems (forests or wetlands) must be guaranteed in the context of the cultivation of the raw material plants (information about the land-use prior to the cultivation of the raw material since January 2006). Exactly how this proof must be provided is regulated by the *Ordinance on the Proof of the Positive Overall Ecological Balance of Fuels from Renewable Raw Material / "Fuel-Ecobalance Ordinance"* (*Verordnung über den Nachweis der positiven ökologischen Gesamtbilanz von Treibstoffen aus erneuerbaren Rohstoffen / "Treibstoff-Ökobilanzverordnung"*), which came into force in 2009.

The Fuel-Ecobalance Ordinance raises very complex questions in relation to the definition of criteria for the proof of overall ecological balance. Fuels that fulfil these criteria will be included in a "positive list." Biogenous waste, e.g. wood, is included in the positive list. Forest wood does not feature explicitly on the list because the maximum total efficiency of wood-based fuel is 30 % (heat production: up to 85 %, combined heat and power: up to 80 %).

2.2 Energy policies

Legal framework

The legal framework for the Swiss energy sector is mainly provided by two legislative acts: the Swiss Federal Energy Act (*Energiengesetz, EnG*) and the Swiss Federal Energy Supply Act (*Stromversorgungsgesetz, StromVG*). The measures, with which the targets defined by Swiss energy policy

shall be achieved are defined in two action plans. The measures comprise a mix of legally defined minimum standards and consumption specifications as well as incentive and promotional systems. The **Energy Efficiency Action Plan (Aktionsplan Energieeffizienz)** includes measures relating to buildings, mobility, devices and electrical engines, research and technology transfer, and education, and measures relating to the greater awareness on the part of the state with respect to its own function as a role model.

The **Renewable Energies Action Plan (Aktionsplan Erneuerbare Energien)** incorporates measures in the areas of heat production (heating and hot water, process heat from industry and services), hydroelectric power, biogenous fuels, research and technology transfer, and education and training.

Based on these action plans, in the period between 2010 and 2020, the consumption of fossil energies should be reduced by 20 %, the proportion of total energy consumption accounted for by renewable energy sources increased by 50 % and the increase in electricity consumption limited to a maximum of 5 %.

Various measures, which have been adopted and are in the course of being implemented, directly or indirectly enhance the attractiveness of wood as a CO₂-neutral energy source, in particular in relation to the promotion of renewable energy sources and energy efficiency in buildings.

2.2.1 The compensatory feed-in remuneration of renewable energy

The Energy Act stipulates an increase of the production of electricity from renewable energy sources by 2030. One of the most significant measures concerns cost-covering remuneration for the input into the network of electricity produced from renewable energy sources. The compensatory feed-in remuneration of renewable energy is paid to offset the difference between total production cost (including investments) and market price. It came into force in January 2009. Electricity consumers pay a surcharge per kilowatt hour to finance the payments (and other measures introduced under the Energy Act).

In order to ensure that more forest wood, field shrubs and waste wood are used in energy generation, a price bonus is also paid for green wood.

Given that the resource potential cannot cover all applications, a carefully balanced system is required. Overall efficiency plays a central role in the design of the wood promotion policy. For this reason, the Confederation is focussing its measures on the heat sector and on combined heat and power.

2.2.2 Energy efficiency and the green building movement

Energy efficiency is a crucial parameter for all sustainable development strategies. The building stock, which accounts for half of Switzerland's energy consumption, is a particular point of focus in this context. **Significant ecological and economic potential exists in the area of the construction of new buildings and renovation of old ones.** Therefore, numerous promotional programmes exist in this area at the most wide-ranging levels (i.e. national, cantonal, local).

- The cantons make a considerable contribution to the Confederation's energy and CO₂ objectives with their **cantonal promotion programmes**. A large proportion of the direct subsidies are paid for improvements to the building envelope (-> see also MINERGIE standard, p 7) and for the promotion of automatic wood-fired heating systems and solar collectors.
- **The "climate cent" building programme:** part of the tax levied voluntarily on propellant fuels by business is earmarked for energy measures in the context of a building programme (see Chapter 2.1, page 4). This programme finishes at the end of 2009.
- Additional funding is being made available for the promotion of the energy-based renovation of buildings as part of the **economic stabilisation measures** (see p 2).
- A **national building programme** for the reduction of CO₂ emissions is due to commence from 2010; it will be financed in part by the income from the CO₂ tax (see p 4). The existing cantonal incentive systems will be harmonized. Only measures will be supported that outperform the legally defined minimum standards.

- Promotional measures are also being implemented by the energy suppliers and municipal power stations.

Analyses have shown that in the domain of buildings legally binding standards have proven to be more effective than promotional funds. Therefore, the cantons are implementing more strict standards since 2008, which lead to a bisection of energy consumption, compared to former standards.

Two examples of instruments that aim to achieve greater energy efficiency or lower total energy consumption are provided below. Because energy-efficient buildings require the provision of greater insulation efficiency by the building envelope, materials with outstanding insulation effects are required. Thus, the use of wood, in particular in derived timber products, is favoured by both instruments. In the case of the “*Minergie*” label (see below), the direct use of wood is also promoted as wood has the additional advantage of involving lower levels of grey energy than other building materials (see also chapter 2.4.3).

MINERGIE-standard for buildings

MINERGIE is a registered quality label for new and refurbished building, which promotes the rational use of energy and extensive use of renewable energy sources. This trademark is supported by the Swiss Confederation and the Swiss cantons along with trade and industry. The comfort of the users is at the heart of MINERGIE. This is made possible by the combination of high-grade building envelopes and the continuous renewal of air. Specific energy consumption is used as the main indicator to quantify the required building quality. Only the final energy consumed is relevant. Apart from buildings, products and services can also conform to MINERGIE standards. Several standards are offered:

- **MINERGIE-Standard** requires that general energy consumption must not to be higher than 75 % of that of average buildings and that fossil-fuel consumption must not to be higher than 50 % of the consumption of such buildings.
- **MINERGIE-P** defines buildings with a very low energy consumption, it is especially demanding in regard to heating energy demand. This standard corresponds to the internationally-known passive house standard.
- **MINERGIE-ECO-Standard** adds ecological requirements such as recyclability, indoor air quality, noise protection etc. to the regular requirements.
- **MINERGIE-Modules** are building components and building equipment elements which are certified as being exceptionally well-performing with regard to energy efficiency.

Comfort is the central focus – i.e. the comfort of the users living or working in the building. This level of comfort is made possible by high-quality building envelopes and the systematic renewal of air. Specific energy consumption is used as the main indicator to quantify the required building quality. Only the final energy consumed is relevant. Apart from general requirements such as a ventilation system and moderate extra costs, a detailed **quantitative proof of energy performance** has to be delivered. This proof is the core of the certification process. To maintain feasibility and general use the additional costs for MINERGIE® must not exceed 10 % of the building costs. The MINERGIE-Standard is widely accepted. The most important for this is that builders and planners have the complete freedom both in their design and choice of materials and also in their choice of internal and external building structures.

The progression **from energy-efficient building to sustainable building** was achieved through the further development of the Minergie Standard to the Minergie-Eco-Standard as this also requires the use of environmentally-friendly materials that do not involve any reservations in relation to health. Hence, the use of wood as a building material is promoted by this standard.

Standardised solutions are offered to facilitate the process involved in obtaining certification:

1. Ground-source heat pumps for heating and hot water (all year).
2. Wood-fired systems for heating and hot water in winter, thermal collectors for hot water in summer.
3. Automatic wood-fired systems for heating and hot water (all year), e.g. pellet-furnaces.
4. Use of waste heat (industry, waste incineration and sewage treatment plants) for heating and hot water (all year as single source).
5. Air-to-water heat pump (outside air) for heating and hot water (all year).

For further information, see: <http://www.minergie.ch/>

Energy certificate for buildings

In the same way as the energy label for household appliances, an energy certificate for buildings classifies buildings from the point of view of energy quality. Property owners therefore receive a document that evaluates the overall energy efficiency of their building (shell, household systems and electrical installations). Furthermore, the energy certificate for buildings contains recommendations concerning specific measures to improve energy efficiency.

The aim of the energy certificate for buildings is to create **transparency on the property market** in that it indicates the energy consumption of a building in a clear and comprehensible manner so that it can be used as a criterion for purchase or rent.

From the point of view of energy policy, the introduction of an energy certificate for buildings creates **an opportunity for initiating urgent improvements to buildings in relation to energy efficiency**.

At the same time, the recommendation for the implementation of such improvements will yield direct benefits for property owners, and incentives are created for **ensuring the more energy-aware design and use of buildings**.

The Association of Swiss Architects and Engineers (SIA) has issued a fact sheet (no. 2031) that acts as a technical basis for the energy certificate for buildings. This fact sheet is based on the relevant European standards, in particular EN 15217 and 15603. These two standards propose a method for certification, but also provide scope for each country to adapt the regulations to local conditions.

In August 2009 the cantons launched the energy label for old buildings which is implemented on a voluntary basis. The Confederation supported the introduction of this label and is responsible for its co-ordination at national level. In addition to this energy certificate for old buildings that is issued by the cantons, yet another energy certificate was introduced for newly constructed wooden buildings by the *Swiss Association for Certificated Quality Buildings (VGQ)*. The first certificate aims at an assessment and evaluation of the existing constructions in order to fasten the modernisation of the dilapidated edificial park. The second certificate for wooden buildings classifies the new buildings according to the overall consumption of energy *and* material quality.

During the introduction stage of the voluntary energy certificate for buildings the Swiss Federal Office of Energy is working with the cantons and the other actors involved to evaluate suitable implementation models and analyse the associated findings. The objectives here are to identify a suitable means of implementing quality assurance and ensuring the continued development of the energy certificate for buildings. It is planned to enforce the use of a national declaration of energy consumption in buildings at a later stage through its incorporation into the relevant legislation.

www.bfe.admin.ch/energie/00567/00569/00601/index.html?lang=en; www.vgq.ch

2.3 The “green economy”: other cross-sectoral measures and strategies

The requirements associated with sustainable development in Switzerland and the further development of corresponding frameworks necessitate increasing cross-sectoral cooperation. Various strategies have been developed to this end.

One of these is the Confederation’s **Sustainable Development Strategy** which has been in existence for ten years and involves concrete measures which are updated on an annual basis. A “Sustainable Development Switzerland Dialogue” involving representatives from politics, business, science and associations takes place every year with a view to its further development. The focus of this year’s dialogue was the **competitive capacity of the Swiss economy from the perspective of sustainability**. The conclusion reached was that an economic shift in the direction of a “green economy” is not only necessary but also possible. Comparisons with other countries show that there is no direct positive correlation between competitive capacity and energy or resource consumption. On the contrary, medium-term competitive capacity is increased through the reduction of resource consumption. With a policy that can be predicted in the long term, significant improvements can be pursued with the help of free-market instruments.

A fundamental innovation in the public **financing of services in the area of the environment** was introduced with the implementation of the new system of fiscal equalisation and division of tasks between the Confederation and the Cantons (*Neuer Finanzausgleich, NFA*) in January 2008. As a

result of the introduction of this new system, joint tasks of the Confederation and cantons are no longer remunerated on a cost-oriented basis. Targets are now defined that must be achieved and corresponding general contributions are negotiated for a period of four years (2008-2012). Hence the costs are no longer central but the services. Targets have been agreed for four programmes in the area of the **forest**: *protective structures*, *protective forest*, *biodiversity* and *forest management*. Examples of concrete measures here include the construction of rockfall and avalanche protection structures, the maintenance of the protective forest, natural forest reserves and start-up finance for the formation of optimum forest management units.

In order to be able to approach the conflicts surrounding the use of biomass on a cross-sectoral basis, a cross-sectoral strategy for the production and use of biomass has been developed which involved the cooperation of several federal authorities. The strategy is based on guidelines that specify how biomass should best be produced and used while taking societal, ethical, ecological and economic issues into account. Therefore the **Swiss Biomass Strategy (*Biomassestrategie Schweiz*)** provides a basis for sectoral strategy, for example, in relation to the use of biomass for energy generation and nutrient management. Important principles include the efficiency of production and processing, the life-cycle perspective, cascade use (food and material uses come first followed by energy use at the end of the life cycle) and the consideration of species that are suited to the locations in which they are cultivated.

Against a different background, a strategy for the conservation and promotion of biodiversity since is also in development since January 2009. The **national biodiversity strategy** will be presented to parliament in 2011. The trigger for this mandate was the negative assessment of the status of biodiversity in Switzerland (OECD Environmental Performance Reviews Switzerland, 2007) and the obligations entered into as part of various international conventions. In order to conserve and strengthen the diversity of the ecosystem services, among other measures, sufficient areas for the protection and promotion of biodiversity will be segregated. The biodiversity objectives are to be integrated into all relevant policy and economic sectors.

2.4 Policies promoting the sound use of wood/initiatives aimed at increasing global competitiveness in wood products markets, and overall performance of the sector

2.4.1 Wood resource policy and wood promotion

It is the task of the Federal Office for the Environment (FOEN) to manage the access to Switzerland's natural resources. The main targets for the resource wood are that it contribute to the sustainable¹ use of wood from native forests and support the resource-efficient use of wood. In order to implement this aim in a targeted way, together with the cantons and the forestry and timber sector, FOEN has formulated a wood resource policy which is coordinated with the other relevant sectoral policies (e.g. energy policy, regional development policy). This policy defines, among other things, the direction to be taken by federal policy in relation to wood promotion. Wood promotion activities are organised in the context of **the Wood Action Plan (*Aktionsplan Holz*)**. Seven thematic focuses contribute to the implementation of the objectives of the Wood Resource Policy. Promotional and research projects that correspond to the following thematic focus areas are supported:

- 1 Data: support for knowledge transfer, publication of relevant data on wood volumes, wood utilisation potential, utilisation strategies and the life-cycle of wood as a material and energy source (life-cycle assessment)
- 2 Provision of information for and raising awareness of forest owners (mobilisation of raw wood reserves)
- 3 Provision of information for and raising awareness of the general public on the topic of "increased wood utilisation – coordination with other forest functions"
- 4 Development of innovative concepts for increasing the possibilities for the recycling and use of hard wood
- 5 Further development of energy-efficient and large-scale timber construction systems, use of wood in renovation projects
- 6 Raising of awareness of institutional end users in relation to timber structures and wood energy
- 7 Design of general conditions and coordination with relevant partners on topics concerning wood

¹ Sustainable: the economically efficient and socially and ecologically compatible harvesting and use of wood. This also includes the legally defined functions of the forest such as the protective function and biodiversity.

2.4.2 Research and development

In addition to the Wood Action Plan, the Confederation has other vehicles for the promotion of topics relating to the forestry and timber sector:

- The *Foundation for the Promotion of Forest and Timber Research (Wald- und Holzforschungsfond)* supports projects in the area of “applied forestry and wood research” (R&D). -> www.umwelt-schweiz.ch/whff
- FOEN supports projects and activities in the area of environmental technology and research through a special innovation programme, in which it works in close cooperation with research institutes and businesses. -> www.umwelt-schweiz.ch/innovation
- The Commission for Technology and Innovation (*Kommission für Technologie und Innovation, KTI*) is the Swiss Confederation’s innovation promotion agency. It supports knowledge and technology transfer between companies and universities with the aim of achieving the maximum possible market effect. -> www.bbt.admin.ch

2.4.3 Life Cycle Assessment of wood products and sustainable building

Life Cycle Assessment (LCA) has proven to be a key method for the successful implementation and application of the principle of sustainable development. The concept of eco-balancing is gaining in significance against the background of climate problems and the increasing scarcity of energy, raw materials and land. Industry and the construction sector expect that ecological issues will become increasingly important factors in the context of competitiveness. Thus, it is possible to observe increasing competition among industries that supply raw materials for the production of “ecological” construction materials or energy sources.

Establishing the life cycle inventory (LCI) of a product is no straightforward task. Although guidelines for conducting a LCA are available, a variety of decisions remain during the setting up of the life cycle inventory that rely implicitly or explicitly on subjective elements. Consistent and coherent life cycle inventory (LCI) datasets are a prerequisite to the performance of sound LCA studies. Quality-controlled and transparently documented generic datasets increase the credibility and acceptance of LCA results. In particular, they support informed decision-making in the field of energy as well as in the field of buildings, construction components and materials.

The “ecoinvent database” was developed by the Empa (the Swiss Federal Laboratories for Materials Testing and Research) with the aim of making the comparison of materials on the basis of their eco-balance understandable and transparent through the use of comparable methodologies.² The Empa uses these data in the development of fact sheets and recommendations for sustainable building.

Since early 2008, the authorities and Empa have been engaged in preparations for the updating of this database in the area of wood and harvested wood products as much of the data in this area originates from 1986, 1990 and 1999 and are therefore obsolete. At the same time, it is also intended to address methodological questions, for example that concerning the correct integration of the land use of a resource. This process is carried out with the involvement of the timber sector and will take approximately three years to complete. Other sectors, for example the steel, cement and coal industries, also plan to commission the revision and updating of the figures in the ecoinvent database relating to their activities. The KBOB (*Koordinationskonferenz der Bau- und Liegenschaftsorgane der öffentlichen Bauherren*, coordination group for public construction projects) regularly publishes lists with updated data on the ecological characteristics of building materials, technologies, energy sources and transport process and additional information on the topic of sustainable building (see also chapter 2.2.2).

For further information, see: <http://www.empa.ch>;

- <http://www.bbl.admin.ch/kbob/00493/00495/index.html?lang=de> (KBOB, a coordination group for public construction projects)
- <http://www.eco-bau.ch> > *eco-bau* is a platform for public construction clients that provides recommendations for sustainable building.

² The Empa is an interdisciplinary research and services institution for material sciences and technology development within the ETH domain.

2.4.4 Market transparency: the duty of declaration for wood and harvested wood products

In September 2007 the Swiss Parliament requested that the federal government develop a legally based duty of declaration for wood and harvested wood products. The aim here is to counteract illegal logging and increase market transparency.

The following conditions were specified:

- the measures should be introduced on a phased basis,
- implementation should function on the basis of the principle of self-declaration with sample controls,
- complex wood products would be exempt,
- international developments, in particular in the EU, would be taken into account,
- the forestry and timber sector would be integrated into the ongoing process.

The main difficulty for the implementation of this kind of duty of declaration lies in the difficulties involved in the traceability of wood products. Verifying the legality of non-certified wood necessitates the availability of information about the place of origin and the conditions associated with the production of the wood.

A pilot test was carried out on the traceability and verification of the legality of harvested wood products in four Swiss wood trading companies. The aim of the pilot project was to trace the flow of goods of products imported into Switzerland back to their place of origin and to develop an acquisition system for the verification of origin and legality up to the manufacture of harvested wood products.

The forestry and timber sector is divided in its opinion of such a duty of declaration. The motion enjoys strong support among environmental NGO's, in the forestry sector and the sawmill industry. The latter expect that the measure would result in the strengthening of the market position of Swiss wood products from Swiss wood. The development of the corresponding regulation is monitored by a widely-based working group.

The developed approach is based on the principle of market transparency. The declaration of the origin and type of wood is aimed at the end consumer. The following principles should apply:

- Duty of declaration at the final point of sale. Border controls are not implemented.
- No discrimination in accordance with WTO rules.
- No technical obstacles to trade with the EU.
- Only raw wood and solid wood products will be subject to the duty of declaration in the first stage. A decision will be taken regarding the further-reaching scope of the regulation when the provisions of the proposed EU regulation have been clarified.
- Complex derived timber products (to be discussed), packaging material (means to an end) and scrap wood (traceability not possible) are to be excluded from the duty of declaration.
- A simplified process is planned for wood and timber from the FLEGT agreement, CITES timbers and certified woods (e.g. PEFC, FSC).

Schedule:

- Hearing of sector by January 2010
- Consultation with the authorities March 2010; Decision of the Federal Council, 2nd quarter 2010
- Coming into force of 1st stage from 2011

3 Developments in forest products markets

The international financial crisis, the turbulence on foreign property and residential construction markets, and the economic decline and collapse of central European sales options for sawnwood, derived timber products and semi-finished wood products have impacted on the Swiss markets for raw wood and sawnwood. The consequences were well cushioned, however, by the robust domestic demand for wood – in particular from the residential building sector.

While many sawmills that produce timber for the domestic building market were kept busy, overall production in the sawnwood sector was below capacity. Staff were put on short-time working in some sawmills. The derived timber products industry and the paper industry, which has a strong international focus, also came under pressure. Average annual roundwood prices exceeded those of 2007, however they started to fall from mid-2008.

Although not unexpected, the abrupt closure of the Swiss cellulose plant, *Borregaard Schweiz AG*, did not have any drastic consequences for the pulpwood market as increased wood-energy power plant capacities came into operation, the winter of 2008/2009 was harsh and it was possible to find alternative sales channels on the export market.

Although the Swiss markets currently (autumn 2009) remain under pressure from the central-European markets for raw wood, sawnwood and derived timber products, the situation of the wood-processing sector is improving again. Although work-in-hand in the residential building sector was 11 % lower than last year's levels in mid-2009, building activity in this sector remains at a high level. The support measures for the energy-based renovation of buildings and the wood-energy power plant capacity now in operation are having a positive impact on the demand volume for raw wood, sawnwood and derived timber products. The demand for fresh spruce roundwood is not expected to fall. In the case of hard wood, a clear polarisation involving particularly high-quality raw-wood varieties and low-quality energy wood varieties can be observed due to the lack of processing capacities for average qualities both at home and in neighbouring countries.

3.1 Roundwood: sawlogs, pulpwood and fuelwood

Developments up to mid-2009

The Swiss forestry sector was spared the effects of major storms and compulsory logging in 2008 and 2009. There volumes of bark-beetle wood, which had remained high in 2007, also declined significantly. Thus, it was possible to plan the supply of soft sawlogs and other varieties better and adapt to the fall in demand. At 5.3 million m³, the wood harvest in 2008 was 7.5 % lower than that of the previous year.³

Of the 3.24 million m³ of sawlogs harvested in 2008, 89% were softwood and 11 % hardwood. At just under 2.9 million m³, the volume of soft sawlogs harvested was around 12 % lower than in 2007. As compared with prices in Germany, Austria and Scandinavia, prices for soft sawlogs in Switzerland remained stable. In late 2008 they were slightly below the previous year's level. However, the decline only increased moderately in winter 2009 to April. The development in processing capacities up to 2008 prompted a further decrease in soft sawlog exports: at 0.7 million m³, 26 % less of this variety was exported. At the same time the comparatively modest imports increased to 0.13 million m³. (The opposite trend can be observed for soft sawnwood: i.e. more is being exported and less imported.)

The market for beech sawlogs, the most important variety of hardwood in terms of volume, remains weak due to the lack of suitable processors. The majority of the traditional processing capacities for Swiss beechwood in northern Italy ceased operation in recent years.

The economic downturn, the closure of the Borregaard cellulose factory and the good supply options from abroad prompted the forestry operations to reduce the volume of industrial wood harvested by 12 % to 0.6 million m³ or to increase the sales of the corresponding varieties as energy wood.

The statistically recorded volume of forest energy wood harvest increased by almost 5 % to 1.4 million m³ between 2007 and 2008. The clear shift away from logs to woodchips, which allow for more rational processing, is worthy of note. This trend is also corroborated in the wood energy consumption

³ Source: Swiss forest statistics

statistics which show that the traditional small and medium-sized wood burners for wood in log form are decreasing in number and medium-sized to large wood-chip burners are on the increase. The small to medium-sized log burners are being replaced in part by pellet burners.

Current developments

The calm and balanced situation on the timber market in 2008 continues in the current year. Wood stocks were maintained at a low level up to now. Given the decrease in demand, logging activity in late winter/spring 2009 was significantly reduced which resulted in a reduced workload for the forestry companies.

The more relaxed situation on the international soft sawnwood markets is also impacting on the Swiss market. Demand is currently (September 2009) increasing – temporarily at least. The slight increase in prices reflects the seasonal rejuvenation of the market. The supply situation of the sawmill industry differs from region to region and based on the structure of individual operations (i.e. size and market orientation).

Most operations in the paper and derived timber products industry expect the industrial wood requirement in 2009 to remain at a similar level to that in 2008. An increase in requirement is expected by the Pavatex fibreboard works as its heat and sound insulation products are in high demand, particularly on the export market. However, Pavatex works mainly with sawnwood residues.

An increase in demand is expected in the energy wood sector, due to the reduction of stocks in winter 2008/2009 and an increased requirement as a result of growing wood energy capacities.

3.2 Wood energy

According to the Federal Office for Energy, nearly 4 million m³ of fuelwood (including waste incineration plants) was consumed and 38.5 PJ of final energy was produced from wood in Switzerland in 2008; thus, wood energy accounted for around 4 % of the total final energy consumption.⁴ Effective consumption increased by 12.8 % as compared with the previous year. Of the 4 million m³ of fuelwood used, 58 % originated from the forest, 21 % from wood processing and 21 % from used wood sources. Foreign trade in fuelwood is relatively insignificant. In other words, the fuelwood harvested in Switzerland is also burned within the country.

Wood energy is the second most important native and renewable energy source in Switzerland after hydroelectric power. Due to the characteristics of this climate-neutral raw material and the subsidisation of renewable energies, the importance of wood as an energy source continues to increase. The energy wood market is very dynamic.

Switzerland's second biggest wood-fired power plant, which has an output of 30 MW, commenced operation in Basle in 2008. Work also commenced in 2008 and 2009 on the construction of four additional wood-fired power plants with outputs of 20 to 40 MW.

Three large plants in Basle, Bern and Zurich are linked with waste incineration plants and connected to district heating networks.

A wood-pellet production plant run by *Pelletwerk Mittelland* has increased the volume of pellets produced by approximately 25,000 t/year since late summer 2009. For the first time, larger volumes of forest wood are being used for the production of wood pellets in addition to wood residues. The current Swiss consumption volume for wood pellets of around 110,000 tonnes is expected to increase by over 100 % by 2012.

3.3 Certified forest and forest products

Approximately 0.7 million ha of Swiss forest (i.e. 56 % of the total forest area) was certified in 2008. Of these certified areas, 60 % have both **FSC and PEFC certification**, 35 % have FSC certification alone and 5 % have PEFC certification alone. Of the timber harvested in Switzerland in 2008, 67 % was cer-

⁴ The increasing demand for electricity, the conditions of compliance with the Kyoto Protocol, the growing scarcity of fossil fuels and the gap in the electricity supply predicted to arise from 2020 prompted the Swiss Federal Office of Energy (SFOE) to launch a programme called *Swiss Energy*. One aim of *Swiss Energy* is to double wood energy by the year 2020.

tified. The area of certified forest decreased slightly from 2007 to 2008. In 2008, almost 50 % of the timber logged was certified.

At present, almost 550 companies operating at all levels in the timber processing sector hold a certificate. In contrast to the situation in the forest sector, the majority of these companies only hold the FSC certificate. Thus, the Swiss wholesale distributors, which also hold a significant share of the market in the DIY sector, are FSC-certified. Forty percent hold both the FSC and Q/PEFC certificate. At present there are no companies in Switzerland that are solely PEFC-certified.

Although certification is a private-sector tool, the Swiss Confederation promotes further optimisation in the area of certification and supported the development and **new version of the national certification standard** which forms the basis of certification for FSC and PEFC in Switzerland. Both label organisations introduced the new standard in spring 2009. New certifications and re-certifications should become less costly with the new standard.

The main driving forces for certification in Switzerland are the DIY sector and the demand for certified paper products. The FSC label is increasingly required on the paper market. The number of certified operations is also increasing in the printing sector. Therefore, the suppliers of these industries gain better market access through certification. On the other hand, the sellers of certified wood cannot demand a higher price ("green premium"). The current supply of certified roundwood considerably exceeds demand. Thus the market does not yet compensate for the additional costs incurred in certification. For this reason, certification is a contentious issue in the forestry and timber sector.

In 2009 the forestry and timber industry introduced a new label ("*Herkunftszeichen Schweizer Holz*"). It will be managed by LIGNUM, the Swiss timber sector umbrella organization. Its main purpose is to show and prove the Swiss origin of the timber products.

3.4 Sawnwood

Of the 2.5 million m³ sawn roundwood processed in Switzerland, 0.88 million m³, i.e. 35%, was cut in sawmills with an annual capacity in excess of 100,000 m³. The developments within the sector slowed down in 2008/2009 as new investments and capacity extensions were deferred. In 2008, the large *Stallinger Swiss Timber* sawmill, which commenced operation in 2007, was taken over by the Mayer-Melnhof Holz group, also an Austrian concern, along with the entire *Stallinger/Kaufmann* group. Exports of soft sawnwood increased by 34 % to 0.42 million m³ from 2007 to 2008. Soft sawnwood imports increased by 6.7% to 0.42 million m³.

A gradual recovery in the demand for and prices of soft roundwood and soft sawnwood is expected in conjunction with the recovery of the international markets.

The markets for hard raw wood and sawnwood will remain weak, in particular in the case of beech.

3.5 Pulpwood-processing sector

Operations that process industrial wood consumed 11% less forest wood and 12 % less sawnwood residues in total in 2008. Demand from the paper and paperboard industry will also be lower overall in 2009. This applies, in particular, to the paper factories and particleboard industry, whose products are mainly used in furniture and kitchen production.

3.5.1 Wood-based panels

Switzerland produced an estimated 0.46 million m³ of particleboard and 0.5 million m³ of fibreboard in 2008. Particleboard production decreased by around 14 % and fibreboard production by 6 %. 2008 was a difficult year for the particleboard and fibreboard industry, in particular on the export markets.⁵ Both production and exports in the fibreboard industry remained steady. The exports have rallied strongly since 2009. Due to the increasing demand from the building renovation sector and the asso-

⁵ For reasons of data protection and as a result of the process of consolidation in ever fewer numbers of companies, the precise trading figures are no longer published.

ciated state promotion measures, light building board and insulation materials are a long-term growth market. Expansion plans are in preparation.

3.5.2 Pulp and paper

In 2008, the Swiss paper and cellulose industry processed approximately 0.21 million m³ (-17 %) of domestic forest wood and approximately 40,000 m³ (+11%) of forest wood from abroad and 0.24 million m³ (-18 %) of domestic sawnwood residues and 0.23 million m³ (-38 %) of sawnwood residues from abroad. The reduced demand for wood reflects the difficult situation faced by the Swiss paper and cellulose industry in an international environment characterised by falling demand, lower prices and correspondingly harsher competition. The paper and cellulose industry processed almost 4 % of the wood harvested in Switzerland in 2008.

Due to a lack of competitiveness on the international market, Switzerland's only cellulose producer, Borregaard Schweiz, ceased operation in late 2008.

Sales in the Swiss paper industry declined dramatically in the course of 2009.

The new paper machine at Perlen Papier AG, which is currently under construction, will affect the demand for groundwood from 2011.

4 Tables

4.1 Economic Indicators for Switzerland

	2003	2004	2005	2006	2007	2008	2009 ^F	2010 ^F
Economic growth in %¹	-2.0	2.3	2.5	3.6	3.6	1.8	-1.7	0.4
Inflation in %²	0.6	0.8	1.2	1.1	0.7	2.4	-0.4	0.9
Unemployment rate in %¹	3.7	3.9	3.8	3.3	2.8	2.6	3.8	5.2
Interest yields 10-year government bond in %³	2.6	2.3	1.9	2.5	2.9	2.9	2.3	-
Currency rate³								
EUR	1.56	1.54	1.56	1.61	1.65	1.54	1.53	-
USD	1.24	1.14	1.31	1.22	1.13	1.15	1.16	-

1) State Secretariat for Economic Affairs SECO; 2) Consumer Price Index, Swiss Federal Statistical Office;

3) Swiss National Bank SNB

4.2 Forest products production and trade in 2008–2009; Estimations and Forecasts for 2009–2010

See TC1 and TC2 attached

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UNECE TIMBER COMMITTEE FORECASTS
Roundwood

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Product Code	Product	Unit	Historical data		Estimate	Forecast
			2007	2008	2009	2010
1.2.1.C	SAWLOGS AND VENEER LOGS, CONIFEROUS					
	Removals	1000 m ³	3'290	2'886	2'650	2'800
	Imports	1000 m ³	83 #	134	150	150
	Exports	1000 m ³	945 #	699	450	450
	Apparent consumption	1000 m ³	2'428	2'321	2'350	2'500
1.2.1.NC	SAWLOGS AND VENEER LOGS, NON-CONIFEROUS					
	Removals	1000 m ³	358	356	290	330
	Imports	1000 m ³	58 #	41	30	30
	Exports	1000 m ³	286 #	325	250	300
	Apparent consumption	1000 m ³	131	72	70	60
1.2.1.NC.T	of which, tropical logs					
	Imports	1000 m ³	3 #	2	2	2
	Exports	1000 m ³	0 #	0	0	0
	Net Trade	1000 m ³	3	2	2	2
1.2.2.C	PULPWOOD (ROUND AND SPLIT), CONIFEROUS					
	Removals	1000 m ³	425	356	320	360
	Imports	1000 m ³	102 #	158	130	150
	Exports	1000 m ³	80 #	77	50	80
	Apparent consumption	1000 m ³	447	437	400	430
1.2.2.NC	PULPWOOD (ROUND AND SPLIT), NON-CONIFEROUS					
	Removals	1000 m ³	265	253	150	170
	Imports	1000 m ³	1 #	7	5	5
	Exports	1000 m ³	20 #	54	50	60
	Apparent consumption	1000 m ³	246	206	105	115
3 + 4	WOOD RESIDUES, CHIPS AND PARTICLES					
	Domestic supply	1000 m ³	1'007 C	972	900	1'000
	Imports	1000 m ³	832 C	669	600	600
	Exports	1000 m ³	879 C	817	700	600
	Apparent consumption	1000 m ³	960	824	800	1'000
1.2.3.C	OTHER INDUSTRIAL ROUNDWOOD, CONIFEROUS					
	Removals	1000 m ³	17	15	15	15
1.2.3.NC	OTHER INDUSTRIAL ROUNDWOOD, NON-CONIFEROUS					
	Removals	1000 m ³	7	5	5	5
1.1.C	WOOD FUEL, CONIFEROUS					
	Removals	1000 m ³	478	467	500	600
1.1.NC	WOOD FUEL, NON-CONIFEROUS					
	Removals	1000 m ³	851	925	1'000	1'100



UNECE TIMBER COMMITTEE FORECASTS
Forest products

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Product Code	Product	Unit	Historical data		Estimate	Forecast
			2007	2008	2009	2010
5.C	SAWNWOOD, CONIFEROUS					
	Production	1000 m ³	1'463	1'448	1'400	1'500
	Imports	1000 m ³	351	378	320	300
	Exports	1000 m ³	316	422	420	500
	Apparent consumption	1000 m ³	1'498	1'404	1'300	1'300
5.NC	SAWNWOOD, NON-CONIFEROUS					
	Production	1000 m ³	78	93	80	90
	Imports	1000 m ³	74	73	70	70
	Exports	1000 m ³	31	24	20	20
	Apparent consumption	1000 m ³	121	141	130	140
5.NC.T	of which, tropical sawnwood					
	Production	1000 m ³	3	3	5	5
	Imports	1000 m ³	19	19	17	19
	Exports	1000 m ³	1	1	1	1
	Apparent consumption	1000 m ³	22	21	19	21
6.1	VENEER SHEETS					
	Production	1000 m ³	6 C	5 C	5	5
	Imports	1000 m ³	5 C	5 C	5	5
	Exports	1000 m ³	5 C	3 C	3	3
	Apparent consumption	1000 m ³	6	7	7	7
6.1.NC.T	of which, tropical veneer sheets					
	Production	1000 m ³	0 N	0 N	0	0
	Imports	1000 m ³	0	0	0	0
	Exports	1000 m ³	0	0	0	0
	Apparent consumption	1000 m ³	0	0	0	0
6.2	PLYWOOD					
	Production	1000 m ³	6 C	10 C	8	10
	Imports	1000 m ³	126 C	131 C	90	120
	Exports	1000 m ³	4 C	4 C	4	4
	Apparent consumption	1000 m ³	127	137	94	126
6.2.NC.T	of which, tropical plywood					
	Production	1000 m ³	0	0	0	0
	Imports	1000 m ³	5	23	20	25
	Exports	1000 m ³	0	3	2	3
	Apparent consumption	1000 m ³	5	21	18	22
6.3	PARTICLE BOARD (including OSB)					
	Production	1000 m ³	540	462	430	450
	Imports	1000 m ³	319	265	220	250
	Exports	1000 m ³	387	300 N	300	350
	Apparent consumption	1000 m ³	472	427	350	350
6.3.1	of which, OSB					
	Production	1000 m ³	0	0	0	0
	Imports	1000 m ³	56	56	58	60
	Exports	1000 m ³	0	0	0	0
	Apparent consumption	1000 m ³	55	56	58	60
6.4	FIBREBOARD					
	Production	1000 m ³	534 C	501 C	480	500
	Imports	1000 m ³	179 C	187 C	150	180
	Exports	1000 m ³	439 C	436 C	400	440
	Apparent consumption	1000 m ³	275	252	230	240
6.4.1	Hardboard					
	Production	1000 m ³	0	0	0	0
	Imports	1000 m ³	43	35	40	40
	Exports	1000 m ³	0	0	0	0
	Apparent consumption	1000 m ³	43	35	40	40
6.4.2	MDF (Medium density)					
	Production	1000 m ³	334	250	240	250
	Imports	1000 m ³	105	93	65	80
	Exports	1000 m ³	250	258	210	230
	Apparent consumption	1000 m ³	189	105	95	100
6.4.3	Other fibreboard					
	Production	1000 m ³	200	231	230	240
	Imports	1000 m ³	31	59	70	80
	Exports	1000 m ³	38	178	170	180
	Apparent consumption	1000 m ³	193	112	130	140
7	WOOD PULP					
	Production	1000 m.t.	337 C	213	150	190
	Imports	1000 m.t.	534 C	514	430	500
	Exports	1000 m.t.	108 C	90	0	0
	Apparent consumption	1000 m.t.	763	637	580	690
10	PAPER & PAPERBOARD					
	Production	1000 m.t.	1'705 C	1'698	1'450	1'500
	Imports	1000 m.t.	958 C	973	850	950
	Exports	1000 m.t.	761 C	732	700	750
	Apparent consumption	1000 m.t.	1'901	1'939	1'600	1'700