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Country Market Statement: Switzerland

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1 General economic trends

Switzerland has experienced a consistent economic boom since 2004, which started in the export and finance sectors, spread to the consumer and domestically-oriented sectors over the past two years and has also had a very positive effect on the demand for wood. 2007 was another boom year for the Swiss economy and, after a slowdown in early 2008, the economy grew by over 2 % up to the middle of the year and industrial production has also increased again. Compared to the US and European economies, the Swiss economy has proven to be rather robust. The global downturn has so far mainly had a negative impact on perception, with little reflection in the economic data. Inflation reached its highest level in 15 years in summer 2008, largely as a result of the rising cost of crude oil.

Overall, the rate of growth experienced over the past two years is attenuating. An inverse trend can now be observed: negative signals are emanating from the financial sector which contributes to almost 15 % of Swiss GDP. Due to the negative developments in the US and Europe, exports, which represent 55 % of GDP, are declining. As opposed to this, **domestic consumption** and domestically-oriented sectors remain robust and are shoring up the economic activity. GDP will grow by around 1.9 % in 2008. If the price level of oil does not reach new heights, the weakening in demand will reduce inflationary pressure.

Labour markets generally react to changing economic demand only after a delay. **Employment** will therefore in all likelihood continue to rise until at least mid 2009, but at a reduced rate. Because consumer spending is impacted heavily by the labour market situation, it can be expected to continue to support growth in 2009, but to a decreasing extent. Consumer spending will receive a welcome boost from immigration, an important percentage of the immigrants being highly qualified with the corresponding purchasing power.

Switzerland will not be able to escape the slowdown in international growth and growth will be below its potential in 2009. But the Swiss economy will probably not slip into recession, maintaining a growth rate of 1 %, whereas inflation will ease to around 1.4 %.

Capital investments will experience the lowest growth of any single component of GDP. This is because such investments react quickly to uncertain income prospects, and production capacity has been expanded significantly in recent years.

Activity in **the construction sector** will continue to weaken but from a high level. Demand is being sustained by the “conversion and renovation” sector, demographic development and the associated demand for residential accommodation.

2 Policy measures taken in Switzerland over the past 18 months and current developments, which have a bearing on markets of forest products or forest management

2.1 Climate Change (policies) and the Forest Sector

Switzerland's climate policy

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 (see 2.1.1).

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.

In February 2008 the Swiss Federal Council also initiated the revision of the CO2 Act for the post-2012 period. It is intended that Switzerland will take direction from the EU's reduction targets in this regard. In terms of content, two possible variants are under discussion for the revision of the act:

- 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.

2.1.1 CO2 tax on combustible fuels

The Federal CO2 Act lays the foundation stone for sustainable energy and climate policy. Parliament and the Federal Council (i.e. Swiss government) defined emissions targets in the context of this law. If intermediary objectives are not fulfilled, various successive measures come into force. The reduction target for CO2 emissions from combustible fuels was not achieved in 2006. For this reason, a CO2 tax on fossil combustible fuels (heating oil, natural gas) of CHF 12 per tonne of CO2 emission is levied from January 2008. The CO2 tax is a steering tax on CO2-emissions. The revenue of 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. It is intended to increase the tax in subsequent years. The tax will not be levied on energy wood.

2.1.2 Kyoto Protocol and Forest Management

In 2004, on the basis of a parliamentary motion, the Swiss Parliament decided to nominate forest management as an activity under Article 3.4 of the Kyoto Protocol. Case studies on several areas were initiated in various regions of the country. These should provide the basis for national rules for assessing and accounting for sink removals and emissions by carbon sources in the forest management sector.

In November 2006, the Swiss government communicated in its report to the UNFCCC that Switzerland will be accounting for forest management under Article 3.4 of the Kyoto Protocol.

No legal basis created for the transfer of sink rights to forest owners

As part of the revision of the Forests Act, it was intended to give forest owners the option of trading on the basis of the sink service provided by their forests. If they had committed to assuming responsibility for the CO2 balance of their forests, carbon Removal Units (RMUs) would have been allocated to them based on the volume of the sink service provided.

However, the Swiss parliament rejected the revision of the Forests Act in March 2008. Thus, until further notice, forest owners cannot claim RMUs on this basis. Moreover, because wood utilisation has become economically more attractive in recent years, the interest of forest owners in becoming involved in carbon trading based on sink services is declining.

Good CO2 balance of harvested wood products

In 2006 the Swiss Parliament issued a mandate in the context of the Kyoto negotiations for **climate policy is geared to the fact that it will be possible to account for wood used in construction as a CO2 sink**. The use of wood as a construction and raw material results in the sequestration of carbon and avoidance of CO2 emissions. The avoidance of CO2 emissions is already taken into account in

the emissions calculations. As opposed to this, it is not admissible for wood used in construction to be taken into account as a carbon store during the first commitment period of the Kyoto Protocol. Accounting for wood used in construction is being negotiated for the second commitment period which begins after 2012.

FOEN commissioned a study on the potential contribution of the Swiss forestry and timber sector to the reduction of CO₂ emissions. Different scenarios were calculated as part of the study. One scenario entitled "reduced harvesting" predicted a sharp increase in the sink service provided by forests in the short term, i.e. over the next ten years: this would decline on a continuous basis thereafter, however, and is, therefore, unsustainable. The best long-term effect was achieved by a scenario in which standing volume 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.

The report is available to download from:

<http://www.bafu.admin.ch/wald/01198/01209/index.html?lang=en>

Together with the UNECE/Timber Section, FAO and the MCPFE, FOEN's Forest Division organised a workshop on the topic "**Harvested Wood Products in the Context of Climate Change**" in September 2008. The following recommendations were made by the workshop:

- "When drawing up responses to climate change by the forest sector, different strategies including carbon sequestration in forests, storage in wood products, and substitution of fossil fuels and energy-intensive materials should be considered and combined.
- Coordination, cooperation and mutual information between climate change negotiations and the forest sector is needed.
- Accounting for HWP or incentives to increase the use of wood must not compromise sustainable forest management domestically or in other countries.
- Governments, with the participation of all stakeholders, should take the lead to develop policies and strategies to strengthen the cascade and material use of wood."

The conclusions and recommendations can be downloaded from:

<http://www.unece.org/timber/workshops/2008/hwp/welcome.htm#m3>

Switzerland supports the accounting of harvested wood products in the national CO₂ balances as part of the international climate-policy negotiations.

2.1.3 Forest and climate change: effects and adaptations

FOEN will launch 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 forests, the resulting damage risks, the changes in tree species composition and their effects on forest services. Based on the project's findings it is intended to develop suitable silvicultural approaches to accommodate the relevant climate change scenarios along with corresponding recommendations for forestry practice.

2.1.4 Revision of the Ordinance on Air Pollution Control (Luftreinhalte-Verordnung)

The Federal Council passed the revision of the Ordinance on Air Pollution Control in July 2007. It comes into force on 1.1.2008. The aim of the revision 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 % 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. From September 2007, large industrial furnaces (from 500 KW) and power plants from 10 MW must comply with very strict dust limit.

2.1.5 Mineral oil tax

In accordance with the parliamentary resolution of March 2007, fuels from renewable energies are exempt from mineral oil tax. The ordinance on the revised mineral oil tax act came into force on 1 July 2008. Producers and importers of fuels from renewable raw materials who would like to benefit from tax relief on mineral oil must demonstrate that the products display a positive overall ecological balance.

Switzerland is the only country in the world that has binding ecological and social minimum requirements for biogenous fuels and thus assumes a pioneering role in this area.

To qualify for the exemption, the fuels must achieve a 40 % reduction in CO₂ emissions as compared with petrol and demonstrate a positive overall ecological and social balance. In particular, the conservation of sensitive ecosystems (forests or wetlands) must be guaranteed in the context of the cultivation of the raw material plants. 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 Materials/“Fuel-Ecobalance Ordinance (*Verordnung über den Nachweis der positiven ökologischen Gesamtbilanz von Treibstoffen aus erneuerbaren Rohstoffen*“/“*Treibstoff-Ökobilanzverordnung*“), which is due to come into force in early 2009 following further political consultation.

Producers and importers must present evidence in two particular areas:

- Proof of the entire production process of the fuels from cultivation to final sale.
- Detailed information on the origin of the raw materials, including information about the land-use prior to the cultivation of the raw material since January 2006.

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 Switzerland’s biomass strategy

In order to be able to approach the conflicts surrounding the use of biomass on a cross-sectoral basis, Switzerland is working on the development of a cross-sectoral strategy for the production and use of biomass. This is based on guidelines specifying how biomass should best be produced and used while taking societal, ethical, ecological and economic issues into account. This **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), consideration of species that are suited to the locations in which they are cultivated.

2.3 Energy policy

The Swiss Federal Council passed a resolution for the **Realignment of Swiss Energy Policy** in February 2007. Switzerland will arm itself to deal with the emerging gap in energy supplies and climate problems by adopting a four-pronged approach involving:

- greater energy efficiency,
- the development of renewable energies,
- the strengthening of energy foreign policy,
- the construction of new electricity generation plants.

As part of this policy realignment, the Federal Department of the Environment, Transport, Energy and Communications (DETEC) has developed action plans for energy efficiency and renewable energies incorporating measures to be implemented in the short and medium term. 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, initial and further 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 initial and further education and training.

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 (see also section 2.6.2.2):

2.3.1 The compensatory feed-in remuneration of renewable energy

The compensatory feed-in remuneration of renewable energy comes into force from 1.1.2009, will provide a total sum of CHF 250 million for electricity generation from renewable energy sources. It is intended to pay a price bonus of CHF 0.03/KWh for green wood (forest energy wood, field shrub). The aim of this promotional measure is to ensure that more forest wood, field shrubs and waste wood are used in energy generation.

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 on the heat sector and combined heat and power. Corrective adjustments can be made after one year in the area of feed-in remuneration.

2.3.2 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. Two examples of measures which aim to achieve greater energy efficiency or lower total energy consumption are provided below. Because this approach requires 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 projects. In the case of the "Minergie" label (see below), the direct use of wood is also promoted.

2.3.2.1 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 MINERGE. 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 conform also to MINERGIE standards.

Several products 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 recycability, 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.
- MINERGIE offers a variety of information material, planning tools, seminars and conferences as well as training courses.

Comfort is the central theme – 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. In this way, reliable evaluation can be assured. Only the final energy consumed is relevant. 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.

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.

In order to offer easy procedures to obtain certification standardized solutions are offered:

1. Ground-source heat pump 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-furnace.
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:

- <http://www.minergie.ch/>

2.3.2.2 Energy certificate for buildings

Following the approval of the EU directive entitled "Energy Performance of Buildings", an energy certificate for buildings is to be introduced in countries of the EU. In the same way as the energy label for household appliances, this certificate 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 opens up an opportunity to initiate urgently required improvements to buildings in terms of energy efficiency.

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

Findings obtained to date: In view of the positive experiences in the EU, the Swiss Federal Office of Energy has examined the feasibility of introducing an energy certificate for buildings in Switzerland. A recent study carried out has shown that:

- It would be possible to incorporate the necessary provisions into Swiss national energy legislation, and integrate them into the existing federal enforcement structure.
- If the certificate were made obligatory, this would involve a substantial proportion of existing residential buildings and result in a large number of renovation projects.

The new instrument will first be implemented on a voluntary basis up to 2010. Thereafter, the use of the energy certificate will be enforced through its incorporation into the relevant legislation.

Ongoing activities: The Swiss Federal Office of Energy is responsible for the national co-ordination of the voluntary implementation of the energy certificate for buildings. During this phase, an evaluation of potential implementation models is to be carried out within the scope of a test market (from 2008) together with the cantons and other market players. As the basis for this test market, within the scope of the SwissEnergy programme the SFOE is currently developing a uniform energy certificate for buildings for the whole of Switzerland.

<http://www.bfe.admin.ch/energie/00567/00569/00601/index.html?lang=en>

2.4 Wood resource policy

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 on completion of the *holz 21* wood promotion (end of 2008).

A *Wood Action Plan*, to be implemented from 2009, will help in the target-oriented implementation of the wood resource policy. The main focus in the implementation of the action plan is on the ecologically and economically effective use of wood. With a view to the efficient use of wood, use cascades will be prioritised which involve material use prior to energy use. In the case of energy use, greater overall efficiency of the conversion technology should be targeted.

2.5 Research and development

The *Federal Office for the Environment* (under the aegis of the "Swiss Wood" action plan"), *Lignum*, the timber sector umbrella organization, and the "Netzwerkholz" wood network jointly launched the "Innovations-Roadmap 2020" initiative in 2005. The Innovations-Roadmap 2020 initiative is part of the pan-European technology platform process "Forest-Based Sector Technology Platform" which aims to formulate strategic objectives and fields of action for the wood value chain. The conceptual design of the Innovations-Roadmap 2020 was completed in late 2007. Individual projects will now be imple-

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.

mented on a step-by-step basis. This constitutes the basis for the establishment of a national research project entitled "Wood Fibre 2020". This project has six modules:

1. Raw wood – availability, acquisition policy and processes
2. Life-cycle management of wood-based material flows
3. Conversion of wood into valuable chemical substances
4. Energy use of wood
5. Wood as material for components
6. Wood as material for load-bearing systems and buildings

The further development of the research coordination project Wood Fibre 2020 currently remains unclear.

Apart from Wood Fibre 2020, various research and development projects exist in Switzerland for the optimised use of wood in the areas of noise insulation, heat insulation, surface treatment of wood (e.g. impregnation with nanostructured materials), air pollution control (formaldehyde problem associated with derived timber products) and the gluing of construction components using high-performance adhesives (e.g. 1-component-polyurethane).

Support for projects in the area of applied R&D, the aim of which is the optimisation of wood as a resource and raw material and of timber processing, is still provided by the *Fonds zur Förderung der Wald- und Holzforschung* (Foundation for the Promotion of Forest and Timber Research). The Foundation, which was established for an unlimited period in 1946, is supported and financed by the federal authorities and the cantons. In terms of the promotion of wood as an energy source, one of the Foundation's current projects examines the extent to which the establishment of energy wood plantations on agricultural land can contribute to the supply of energy in Switzerland. Particular attention was paid to the profitability of such plantations as compared with traditional agricultural products, the availability of suitable land for the plantations and the environmental balance of different biomass cultures. The results, which are due to be published soon, show that under the existing economic and political conditions and taking into account the environmental effects, the operation of biomass cultures is not commercially viable Switzerland.

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

2.6.1 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 following conditions were specified:

- the measure 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 the wood. 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 method involving the measurement of isotope distribution is currently under discussion. Using this method it should be possible to compare the sample with a reference sample which is specific to the location where the wood was grown. The type of wood can also be determined using an isotope method of this kind.

In addition, 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 in the forestry sector and the sectors directly associated with it. The latter expect that the measure would result in the strengthening of the market position of Swiss wood products from Swiss wood. (Nearly 60 % of the total forest area and two thirds of the timber harvested in Switzerland are certified. – see chap. 3.3)

2.6.2 Wood promotion policies

Wood mobilization ...

FOEN's wood promotion programme, *holz21*, i.e. "wood21", was launched in 2001 and runs until the end of 2008.

In recent years, the increase in the demand for raw wood has outstripped the relatively inflexible level of supply. At the same time, the volume of wood being logged is lower than the volume of growth increment – in particular in the small-scale private forest and in the Alps and Pre-Alps. As a result, increasing emphasis has been placed on the mobilisation of raw wood in private forests.

... and wood use

Furthermore, *holz21* supported and continues to support two information campaigns promoting the use of wood energy (with the backing of the association *Holzenergie Schweiz*, i.e. "Wood Energy Switzerland") and the use of timber in construction (with the support of *Lignum*, the umbrella organisation of the Swiss forestry and timber sector). The promotion of **multi-story timber construction** is a particular focus in this context. Information is being made available on the options available for multi-story timber construction. Knowledge transfer (further training and information) among architects, planners and clients as well as a wider circle of investors plays an important role here. Numerous multi-story timber-framed structures have now been built or are in the course of construction. With regard to the future, the further technical development of the use of wood in all areas of application (fire protection, noise protection etc.), the use of wood in energy-efficient built structures and the raising of awareness and provision of information to the public about the use of wood remain important areas for action.

From 2009, wood promotion activities will be organised as part of the *Wood Action Plan (Aktionsplan Holz)*. This *Wood Action Plan* will implement the strategies and aims formulated by the Wood Resource Policy (see section 2.4) and as a result focus on measures that serve the following aims:

- Exhaustion of the sustainably utilisable wood production potential and increase in the efficient supply of wood
- Stimulation of the demand for harvested wood products; in particular the proportion of wood used in Switzerland's building stock
- Increase in the energy use of wood
- Strengthening of the innovative power of the wood value chain

The instruments used to promote these aims should be designed in such a way that any resulting distortion of competitiveness is minimised. In addition to the promotion of the use of wood, wood mobi-

lisation remains an important field of action, in particular the provision of consultancy services and motivation of forest owners in relation to forest management.

For further information:

- <http://www.holz21.ch>
- <http://www.lignum.ch>

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 unambiguous task. Although guidelines for conducting a LCA are available, a variety of decisions remain during the setting up of the life cycle inventory that implicitly or explicitly rely 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 the 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 will be carried out with the involvement of the timber sector and will take approximately two to 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.

For further information:

- <http://www.bbl.admin.ch/kbob/00493/00495/index.html?lang=de> (KBOB, a coordination group for public construction projects)
- <http://www.empa.ch>
- <http://www.eco-bau.ch>

3 Developments in forest products markets

Demand for Swiss wood has increased steadily over the past three years. A ten-year low in the price of wood appears to have come to an end as raw wood prices continued to rise over the course of 2007 and, on average, approached the price levels of the early 1990s.

Against the background of the positive economic climate, the forestry and timber sector has performed strongly in 2007. Production is expanding – throughout the sector. The order situation in the Swiss timber industry is still good. A positive demand on the part of domestic consumers could be observed

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

in 2007 and 2008. This is particularly important because, at 85 %, Switzerland represents the most important market for the domestic timber and furniture industry. The healthy order situation in the area of construction and renovation is ensuring that sawmills and joineries remain busy.

Demand for roundwood will increase in autumn 2008. In the medium term, **overall consumption of wood in Switzerland** will increase slightly in the coming years. This can be accounted for by the investment plans in the sawmill sector, the increase in production in the wood-based panel industry and, above all, the increasing demand for fuel wood. This increase in demand will mainly be covered by decreasing exports of raw timber.

However, the euphoria which was still in evidence a year ago has declined somewhat. The entire sector faces lower margins due to increasing energy costs. A trading environment characterised by increasing raw material prices and weakening production has a contrary influence on the wood market and presents a challenge for the actors involved in the wood market.

Two events made negative headlines in mid-September: i.e. the crisis on the global financial markets and the closure of the *Borregaard* cellulose plant (see 3.5.2). Demand for wood remains brisk, however, and even high in the case of soft roundwood. It is difficult to say definitively how global developments will affect the investment decisions that have already been taken and the planned extension of capacity in the wood industry. Overall, it may be assumed that demand for wood will continue to increase. It is possible that the expected development may be somewhat delayed, however.

3.1 Roundwood: sawlogs, pulpwood and fuelwood

Review up to 2008

The Swiss forest was largely spared the effects of winter storm *Kyrill*, which generated large volumes of windthrow in central Europe in January **2007**. The oversupply of windthrow in Germany and Austria and the resulting weak foreign demand also influenced the roundwood market in Switzerland into summer 2007. However, price levels improved again towards the end of 2007 and, on average, raw wood prices approached the levels achieved in the early 1990s.

According to the Swiss forest statistics, just under 5.7 million m³ of timber were harvested in Swiss forests **in 2007**. Thus, the total volume harvested remained constant as compared with the previous year.³

However the increased demand for wood and improved wood prices yielded Swiss forestry operations their highest revenues since the storm year 2000, and the economic situation of public forestry operations improved for the seventh year running in 2007. The sector's overall deficit, which remains, was reduced by 60 % to CHF 13 million.

Wood production remains the most important source of income for the Swiss forestry sector. In 2007, on average 55 % of the revenues gained by the forestry operations originated from the production of the raw material wood (however, the corresponding figure for the Alpine region is only 37 %).

Of the volumes harvested, 3.6 million m³ or 64 % are accounted for by **sawlogs**, of which 74 % consist of soft roundwood. Due to the commencement of operation of a large sawmill in the canton of Graubunden in mid-2007 and the development of domestic soft-roundwood processing capacity, demand for this variety is increasing in particular. There has been little change in the volumes harvested,

³ Actual forest utilisation is probably underestimated by around 15 % in the Swiss forest statistics, with the underestimation involving private forests, in particular, and fuel wood. While the statistical data available on public forests (71 % of total forest area and 62 % of harvested timber) are quite reliable, utilisation in private forests is estimated by the local forest rangers.

however, and there has even been a decrease in the public forests of the Swiss Central Plateau. A clear and sustained increase in the difficult-to-access Alps and Pre-Alps is only possible if prices rise even further. Up to now the increase in demand could be met as a result of the reduction in exports. The increased demand for wood poses major challenges for the small-structured forest sector which is still not tailored to the supply of large sawmills.

The increased and increasing processing capacities within the sawmill industry have shaken up the soft roundwood market (see section 3.4). The soft roundwood export surplus has decreased significantly: i.e. exports decreased by 25 % in 2007 to reach 0.74 million m³. As opposed to this, imports, which were previously marginal, increased by a factor of ten as compared with the previous year. In addition to the increased capacities, this can be explained by the large volumes of windthrow generated by winter storm *Kyrill*.

Due to the strong demand from the pulpwood consuming industry, the volume of **pulpwood** harvested in 2007 (12 % of the total volume) increased by 9 % to 0.69 million m³.

The volume of **fuelwood** harvested (23 %) decreased by 6 % to 1.33 million m³, a development which can largely be explained by the mild temperatures of winter 2006 and 2007 (see chapter 3.2).

Current developments

Sufficient wood was felled in the winter months of 2007/2008 and the wood processing industry was adequately supplied. Harvesting practically came to a standstill in the summer months of 2008 and imports (mainly from Germany) doubled in the period January to July 2008! Due to the activities of the *Stallinger* [Timber Industries group], exports of **spruce and fir roundwood** increased by a further 26 % to 0.46 million m³ for the period January-July 2008 as compared with the same period in 2007. Of this volume, in July 2008, 50 % was exported to Italy, 38 % to France and only 10 % to Austria and 2 % to Germany.

While the excess capacities of the sawmill industry and the large volumes of windthrow had a very negative impact on wood prices in neighbouring countries, price levels in Switzerland remained relatively steady. Thus, for the first time in many years, Swiss prices increased *as compared with* those abroad. The demand for softwood increased significantly from mid-August, however the volume of wood logged remains surprisingly small.

In terms of volume, an approximate 8 % increase in demand for soft roundwood may be expected in 2008 as compared with 2007. Demand will increase by around 20 % by 2009. The volume of timber harvested is not expected to increase, however. As opposed to this, exports will continue to decline. The proportion of the volume of harvested softwood accounted for by exports will decline to around 20 % in 2008 and to around 15 % in 2009 (see forecasts in section 4.2).

Although brisk demand is also expected for good and very good quality **hard roundwood** in the forthcoming logging period, due to the lack of processing capacity, the hardwood market remains difficult, in particular for the bulk of low-quality beechwood. Demand for hardwood in the timber industry is stagnating. The imminent closure of *Borregaard Schweiz* will cause additional temporary difficulties for this market (see chapter 3.5.2).

Although one third of current annual growth increment is represented by hardwood, it only accounts for a good quarter of the volume of wood harvested. Moreover, due to the advent of climate change, the growth conditions for hardwood are changing. In order to improve the exploitation of the unutilised harvest potential in Swiss forests and optimising it in terms of the domestic market, demand must increase in favour of hardwood in the long term. (see also chapters 2.1.3 "Forest and climate change effects and adaptations", 2.4 "Wood resource policy" and 2.6.2 "Wood promotion policies")

Hardwood sales will benefit from the increasing demand for energy wood in the future.

It may be assumed that, in total, around the same volume of roundwood will be harvested in 2008 as in 2007.

3.2 Wood energy

Although demand for fuel has increased further, Switzerland's *total* energy consumption decreased by 2.6 % in 2007. This may be explained by a reduction in the use of combustible fuels as the weather conditions during the warm period and increasing oil prices compensated for the influence of positive economic development and population growth.

According to the Federal Office for Energy, 3.5 million m³ of fuelwood (including waste incineration plants) was consumed and 34.3 PJ final energy was produced from wood in Switzerland in 2007; thus, wood energy represented 3.6 % of the total final energy consumption – as it did in 2006.⁴ As compared with the previous year, effective consumption decreased by 1.8 %. This decline may be explained by the lower number of heating days and is not structural in nature.

Excluding waste incineration plants, effective consumption is roughly 3.1 million m³. At around 2 million m³, "forest wood"⁵ accounts for most of this (57 %). The proportion represented by wood residues is 20 % (0.7 million m³). At 5 %, the figure for wood pellets remains low – however the use of pellets has increased significantly in recent years (1 % in 2002 and 4 % in 2006). The use of energy-efficient pellet-fired systems increased at the cost of other types of heating systems by around 20 % in 2007. Moreover demand for their use in new buildings and as a substitute for oil and gas heating systems is increasing rapidly. A wood-pellet production plant run by the Solothurn energy concern *AEK Energie* will double its production this autumn from 30,000 to 60,000 tonnes. The current Swiss consumption volume of around 100,000 tonnes of wood pellets is expected to increase by over 100 % by 2012.

The energy wood market is very dynamic and relatively opaque. Investment plans are announced only to be abandoned again later. However two major plants were completed in 2008:

One of Europe's biggest biomass power plants, *Tegra Holz & Energie AG*, commenced operation in 2008. The plant operates exclusively using unprocessed wood. Switzerland's second biggest wood power plant will commence operation this month in Basle. This will have a significant effect on the demand for energy wood and also on the market for industrial wood.

Foreign trade in wood fuel is relatively insignificant. In other words, wood fuel harvested in Switzerland is also burned within the country.

3.3 Certified forest and forest products

In 2007, approximately 0.7 million ha of Swiss forest (i.e. 56 % of the total forest area) were certified. 60 % of the certified areas have both the FSC and Q/PEFC certificates. 35 % hold the FSC certificate only and only 5 % hold the Q/PEFC certificate only. Of the timber harvested in 2007 in Switzerland, 67 % was certified.

At present, almost 550 companies operating at all levels in the timber processing sector hold a certificate (i.e. an increase of ten percent): 79 forestry operations, 138 sawmills (+ 126 % as compared to 2006!), 61 timber traders and 227 other wood processors. In contrast to the situation in the forest sector, the majority of these companies only hold the FSC certificate. Forty percent hold both the FSC and Q/PEFC certificate. At present there are no companies in Switzerland that are solely Q/PEFC-certified.

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.

⁵ Due to the lack of better terminology, the term *Waldholz*, i.e. "forest wood", is used even when it is not possible to determine the origin of the wood. Part of the volume may also be harvested outside the forests.

The National Certification Standards of 1999 are currently being revised in a project funded by the Federal Office for the Environment. The standards are intended to provide a joint specification. The aim is to promote synergies for the dual-certification system which is most common in Switzerland.

3.4 Sawnwood

Review up to 2008

The Swiss sawmill sector is currently undergoing a **process of consolidation**. While production capacity is on the increase, the number of operations is decreasing: 494 operations produced 1.4 million m³ in 2002, whereas 388 operations (-20 %) produced 1.54 million m³ in 2007.

In 2007, 1 % of the operations – the five major ones with a capacity of more than 100'000 m³ – cut 33 % of the sawlogs, whereas 80 % of the operations – the 300 smallest ones with a capacity of 400 to 5000 m³ – cut 22 % of the timber volume.

In 2002, only two operations had a capacity of more than 100'000 m³. They were cutting 13 % of the timber volume.

In total, a good 2.5 million m³ of roundwood was processed in 2007. This corresponds to approximately 70 % of the volume of sawlogs harvested in Switzerland.

Switzerland's first largescale sawmill, Stallinger Swiss Timber, commenced operation in mid-2007. Its cutting volume for 2007 was around 250,000 m³. A cutting volume of 600,000 m³ could be achieved by the full capacity stage in 2008. This market entrance is reflected in the export figures for soft sawnwood. While the small and medium-sized operations produce for the domestic market, the large sawmills also supply the export market. Hence, the export share of soft sawnwood increased from 15 % in 2006 to 22 %. Exports of soft sawnwood increased by 47 % in 2007. Imports decreased by 10 %. Overall, the export surplus, which was initially targeted in 2006, has increased by a factor of seven.

Current developments

Due to the large volumes of windthrow generated by the storms Paula and Emma in 2008, production levels at German and Austrian sawmills were very high. Moreover, excess capacity exists in the area of sawnwood production at European level. Consequently, sawnwood prices came under pressure. As is the case abroad, the large Swiss sawmills, whose activities are geared towards the export market, are struggling with sales problems and are not producing at full capacity. Despite this, in the period January to July of the current year, i.e. 2008, 80 % more sawnwood was exported as compared with the same period last year! Thus, in terms of volume, sawnwood sales levels in Switzerland are satisfactory. The majority of the smaller and medium-sized sawmills, which mainly produce for the domestic market, are operating at a good capacity. Overall, the **demand for soft roundwood from Swiss sawmills is high** and, if anything, supplies for the entire sector are tight.

The imminent **closure of the *Borregaard Schweiz* cellulose plant** also affects the sawnwood sector as it will lose an important client for sawnwood residues (see chapter 3.5.2). Of the approximate volume of 1 million m³ of wood residues produced, 80 % is already exported today – mainly to Italy where it is processed into pellets. (Demand for pellets in Italy is growing faster than supply.) It may be assumed, that exports will initially increase. However, it should decrease again in the medium term as domestic demand is also growing.

The looming economic downturn will basically accelerate the **restructuring process** as, if wood utilisation is to be maintained or increased, wood prices must not fall in the long term. Moreover, the *Stal-*

*linger Swiss Timber*⁶ sawmill must be able to exploit its processing capacity to the full so as to remain competitive. This could trigger a crowding-out effect.

With regard to **hardwood**, there is practically no processing capacity in Switzerland. Hardwood merely accounts for a 5 % share of total production in this area. The aim of an ongoing project (*Avanti-Bois*) is the creation of a hardwood cluster in West Switzerland. The project will be supported by the Confederation up to the end of 2008. A large hardwood sawmill will constitute the core of this cluster. It is intended to locate numerous wood-processing operations nearby. The quest for an investor is proving difficult and the project still lacks binding commitment on the part of an investor.

Switzerland also has increasingly less capacity in relation to **veneer products**, despite the fact that domestic demand for these products is increasing. Production is being transferred to Eastern European states such as Slovenia, Czech Republic and Romania. The second last Swiss works of this kind closed in the course of 2007.

Outlook

Exports will continue to increase in the medium term. Another large sawmill (*Schilliger Holz AG*) with a processing capacity of around 600,000 m³ will be constructed over the next two years. However, due to the difficult situation currently facing investors and construction clients, it remains unclear when exactly the plant will commence operation. It was originally planned from 2010.

Domestic consumption of sawnwood products is expected to remain stable.

3.5 Pulpwood-processing sector

2.1 million m³ wood was consumed in the production of derived timber products and pulp in 2007. This represents an increase of almost 4 % (74,000 m³) which can mainly be explained by the increased demand in the wood-based panel industry. An increase in demand of the same order may be expected in 2008.

While the development of sales in the wood-based panel market is a welcome development, the profit margins of all pulpwood processors are under pressure from elevated production costs due to significant increases in energy and raw material prices.

3.5.1 Wood-based panels

Switzerland produced 540,000 m³ of particleboard (+15 %) and 534,000 m³ of fibreboard in 2007. Particleboard production increased by 15 % and fibreboard production increased by 8 %. It was a good year for the wood-based panel market, the trade in derived wood products picked up. This is particularly true for fibre panels: Import increased by around 15 %, export by 6 %. More than half of production is exported, mainly to Germany and to Turkey. The whole of Swiss wood-based panel industry is export-oriented: in 2007 around two thirds of production was sold abroad.

In the wood-based panel industry sales are good and production will continue on a high level. As far as insulating boards are concerned, planned production will increase. Demand for derived wood products is not expected to decline in 2008, particularly in the area of **soft fibre products**. **The increasing need for energy-optimized insulation solutions for building shells** is having a positive effect on sales here.

⁶ Stallinger Swiss Timber is due to be taken over by the Mayr-Meinhof Group in January 2009.

3.5.2 Pulp and paper

After wood consumption of the paper and pulp industry decreased in 2006, the utilization of raw material increased by 12 % in 2007. 952,000 m³ of wood was processed by the industry in 2006. A good 4 % of the volume of wood harvested in Swiss forests is currently used by the pulp and paper industry. The production of groundwood increased by almost 5 % to 135,000 tonnes, whereas cellulose production remained by 110,000 tonnes.

The Swiss market for paper and paperboard is saturated. The sector is strongly focused on the international market. This sector is strongly concerned by the weakening global economy. Competitive pressure in this energy and capital intensive sector is particularly strong. 68 % of production is exported. At the same time, imports account for 68 % of consumption in Switzerland.

The volume of paper produced in 2007 increased slightly. Production volume will not change significantly in the two years to come.

Mid-September, *Borregaard Schweiz* announced that it will most likely end operation of its cellulose plant for economic reasons after 2008. Explanations for this decision include: higher raw material and energy prices, the necessity for further important investments in order to maintain state-of-the art technologic equipment and missing overall competitiveness. The forecasts in the tables (Annexe 4.2) do not yet reflect this outlook.

4 Tables

4.1 Economic Indicators for Switzerland

	2003	2004	2005	2006	2007	2008F	2009F
Economic growth in %	-0.2	2.3	2.5	3.4	3.3	1.9	1.0
Inflation in %	0.6	0.8	1.2	1.1	0.4	2.6	1.4
Unemployment rate in %	3.7	3.9	3.8	3.3	2.8	2.6	2.7
Interest yields 10-year government bonds in %	2.6	2.3	1.9	2.5	3.1	2.9	3.0
Currency rate							
EUR	1.56	1.54	1.56	1.61	1.65		
USD	1.24	1.14	1.31	1.22	1.13		

4.2 Forest products production and trade in 2006-2007;

Estimations and Forecasts for 2008-2009

See TC1 and TC2 attached

Bern, October 2008

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TC1
UNECE TIMBER COMMITTEE FORECASTS
Roundwood

Country: Switzerland	Date: 20.09.2008
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Product Code	Product	Unit	Historical data	Revised	Estimate	Forecast
			2006	2007	2008	2009
1.2.1.C	SAWLOGS AND VENEER LOGS, CONIFEROUS					
	Removals	1000 m ³	3'289	3'290	3'250	3'300
	Imports	1000 m ³	12	83	115	150
	Exports	1000 m ³	1'250	945	740	550
	Apparent consumption	1000 m ³	2'051	2'428	2'625	2'900
1.2.1.NC	SAWLOGS AND VENEER LOGS, NON-CONIFEROUS					
	Removals	1000 m ³	341	358	330	330
	Imports	1000 m ³	66	58	50	50
	Exports	1000 m ³	325	286	255	255
	Apparent consumption	1000 m ³	82	131	125	125
1.2.1.NC.T	of which, tropical logs					
	Imports	1000 m ³	4 N	3	4	4
	Exports	1000 m ³	4 N	0	0	0
	Net Trade	1000 m ³	0	3	4	4
1.2.2.C	PULPWOOD (ROUND AND SPLIT), CONIFEROUS					
	Removals	1000 m ³	432	425	450	480
	Imports	1000 m ³	267	102	100	80
	Exports	1000 m ³	123	80	50	50
	Apparent consumption	1000 m ³	576	447	500	510
1.2.2.NC	PULPWOOD (ROUND AND SPLIT), NON-CONIFEROUS					
	Removals	1000 m ³	203	265	230	230
	Imports	1000 m ³	1	1	0	0
	Exports	1000 m ³	30	20	50	50
	Apparent consumption	1000 m ³	174	246	180	180
3 + 4	WOOD RESIDUES, CHIPS AND PARTICLES					
	Domestic supply	1000 m ³	1'000 C	1'007	1'000	1'200
	Imports	1000 m ³	775 C	832	850	900
	Exports	1000 m ³	803 C	879	800	800
	Apparent consumption	1000 m ³	972	960	1'050	1'300
1.2.3.C	OTHER INDUSTRIAL ROUNDWOOD, CONIFEROUS					
	Removals	1000 m ³	15	17	18	18
1.2.3.NC	OTHER INDUSTRIAL ROUNDWOOD, NON-CONIFEROUS					
	Removals	1000 m ³	5	7	8	8
1.1.C	WOOD FUEL, CONIFEROUS					
	Removals	1000 m ³	509	478	500	600
1.1.NC	WOOD FUEL, NON-CONIFEROUS					
	Removals	1000 m ³	908	851	940	1'000



TC2
UNECE TIMBER COMMITTEE FORECASTS
Forest products

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Product Code	Product	Unit	Historical data	Revised	Estimate	Forecast
			2006	2007	2008	2009
5.C	SAWWOOD, CONIFEROUS					
	Production	1000 m ³	1'580	1'463	1'600	1'760
	Imports	1000 m ³	339	351	380	350
	Exports	1000 m ³	221	316	480	610
	Apparent consumption	1000 m ³	1'698	1'498	1'500	1'500
5.NC	SAWWOOD, NON-CONIFEROUS					
	Production	1000 m ³	88	78	75	75
	Imports	1000 m ³	70	74	75	75
	Exports	1000 m ³	31	31	30	30
	Apparent consumption	1000 m ³	127	121	120	120
5.NC.T	of which, tropical sawnwood					
	Production	1000 m ³	3	3	3	3
	Imports	1000 m ³	21	19	20	20
	Exports	1000 m ³	0	1	0	0
	Apparent consumption	1000 m ³	23	22	23	23
6.1	VENEER SHEETS					
	Production	1000 m ³	5 C	6	6	6
	Imports	1000 m ³	5 C	5	5	5
	Exports	1000 m ³	6 C	5	5	5
	Apparent consumption	1000 m ³	4	6	6	6
6.1.NC.T	of which, tropical veneer sheets					
	Production	1000 m ³	0	0	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	5 C	6	5	5
	Imports	1000 m ³	143 C	126	130	130
	Exports	1000 m ³	3 C	4	4	4
	Apparent consumption	1000 m ³	145	127	131	131
6.2.NC.T	of which, tropical plywood					
	Production	1000 m ³	0	0	0	0
	Imports	1000 m ³	8	5	5	5
	Exports	1000 m ³	0	0	0	0
	Apparent consumption	1000 m ³	8	5	5	5
6.3	PARTICLE BOARD (including OSB)					
	Production	1000 m ³	470	540	540	540
	Imports	1000 m ³	321	319	315	315
	Exports	1000 m ³	385	387	390	390
	Apparent consumption	1000 m ³	406	472	465	465
6.3.1	of which, OSB					
	Production	1000 m ³	0	0	0	0
	Imports	1000 m ³	57	56	55	55
	Exports	1000 m ³	1	0	0	0
	Apparent consumption	1000 m ³	56	56	55	55
6.4	FIBREBOARD					
	Production	1000 m ³	494	534	555	560
	Imports	1000 m ³	129 C	179	171	170
	Exports	1000 m ³	403 C	289	300	300
	Apparent consumption	1000 m ³	219	424	426	430
6.4.1	Hardboard					
	Production	1000 m ³	9 N	0	0	0
	Imports	1000 m ³	68 E	43	40	40
	Exports	1000 m ³	5 E	0	0	0
	Apparent consumption	1000 m ³	72	43	40	40
6.4.2	MDF (Medium density)					
	Production	1000 m ³	282	334	345	345
	Imports	1000 m ³	57	105	100	100
	Exports	1000 m ³	271 N	250	260	260
	Apparent consumption	1000 m ³	68	189	185	185
6.4.3	Insulating board					
	Production	1000 m ³	203	200	210	215
	Imports	1000 m ³	4 E	31	31	30
	Exports	1000 m ³	127 E	39	40	40
	Apparent consumption	1000 m ³	80	192	201	205
7	WOOD PULP					
	Production	1000 m.t.	239 C	244	244	244
	Imports	1000 m.t.	530 C	534	534	534
	Exports	1000 m.t.	103 C	108	108	108
	Apparent consumption	1000 m.t.	666	670	670	670
10	PAPER & PAPERBOARD					
	Production	1000 m.t.	1'685 C	1'704	1'705	1'705
	Imports	1000 m.t.	1'157 C	1'147	1'150	1'150
	Exports	1000 m.t.	1'304 C	1'172	1'195	1'200
	Apparent consumption	1000 m.t.	1'538	1'680	1'660	1'655