Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

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

Federal Office for the Environment FOEN

Achim Schafer 3 November 2020

2020 Market Statement for Switzerland Developments in Forest Product Markets

File: BAFU-061.2-03-08-6/9/4/4

Pavillon Théâtre de Vidy in Lausanne, canton of Vaud
(image source: © Ilka Kramer, Blumer-Lehmann AG, Gossau SG)

BAFU-D-8F3E3401/1

Inhalt

Contributions: Eduard Belser, Journalist specialising in the timber market

Compiled by: Achim Schafer, Swiss Federal Office for the Environment FOEN, Forest Division, Bern

1 General economic trends

1.1 Developments up to mid-2020

For the reporting period 2019 to mid-2020, a key framework condition for the Swiss export industry– the euro exchange rate – was unstable. The euro exchange rate fell from 1.12 CHF/EUR in January 2019 to 1.05 CHF/EUR in June 2019 – before recovering slightly to 1.08 CHF/EUR in September 2020. The trend for the coming months is difficult to assess. In January 2019, the USD/CHF exchange rate began at 0.99 CHF/USD, reached its peak in April 2019 at 1.01 CHF/USD and fell slightly to 0.91 by August 2020. The Swiss National Bank (SNB) will have to maintain its low interest policy to prevent the Swiss franc becoming too attractive as a safe haven currency. This policy is predominantly affecting the pension insurance system and small savers and makes investment in property disproportionately attractive, which carries the risk of a property boom.

In Switzerland as elsewhere, economic development in 2020 has been heavily impacted by the COVID-19 pandemic. In December 2019, the world was alarmed by reports of a new respiratory disease emerging in the Chinese city of Wuhan. By late January 2020, major airlines had suspended flights from and to China. The tourism industry in Switzerland went into a rapid nosedive. The first case of COVID-19 in Switzerland was confirmed on 24 February, after which the coronavirus began to have an ever-increasing impact on people's everyday lives, politics and business activity. Issues such as the US-China trade dispute, the turmoil of Brexit and other factors influencing the economy receded further and further into the background.

On 28 February 2020, Switzerland's government, the Federal Council, declared a 'special situation', and the first death from the COVID-19 virus was recorded on 5 March. The Federal Council urged the public to observe social distancing and to wash their hands frequently. On 11 March, the World Health Organization (WHO) classified the situation as a global pandemic. In the canton of Ticino, nine border crossings to northern Italy – a particularly hard-hit area – were closed, and in late April the government banned events attended by more than 100 people, although up to 50 people were still allowed to gather in restaurants, bars and nightclubs. Many companies that were able to do so arranged for their staff to work from home. Schools suspended classes, which meant that many parents faced the multiple burden of working from home, looking after their children and home schooling. Higher education institutions switched to distance learning. Meanwhile, economic activity steadily weakened.

On 16 March, the Federal Council declared an 'extraordinary situation', meaning that all shops, markets, restaurants, bars, and entertainment and leisure establishments were closed. Only food shops were allowed to remain open. On 20 March, the Federal Council approved a comprehensive package of measures worth CHF 32 billion to cushion the economic impact of the spread of the coronavirus. Together with the measures already approved on 13 March, this meant that a total of CHF 42 billion was made available. In early April, the finance minister freed up a further CHF 20 billion in emergency loans and guarantees. On 8 April, the government extended the existing measures until 26 April and at the same time announced a gradual easing of restrictions after that date. The steps involved in this easing were set out on 16 April.

From 27 April 2020, hospitals were able to resume all interventions, including non-urgent treatments, and outpatient medical practices, hairdressers, massage and cosmetic studios were allowed to reopen. Hardware stores, garden centres, florists and nurseries were also able to start trading again, subject to appropriate hygiene measures. Public transport, which had been curtailed, was ramped up again, and other businesses were permitted to reopen from 8 June. Secondary schools, vocational schools, higher education institutions, museums, libraries and zoos also began to operate, and public life slowly started to resume. On 19 June, the government declared the 'extraordinary situation' over. On 1 July, amid a rise in coronavirus cases, the government introduced measures such as compulsory wearing of face masks on public transport and mandatory quarantining for people entering Switzerland from certain regions.

These measures to combat the pandemic restricted businesses opportunities for companies in the first half of 2020, in some cases severely. At the same time, global economic demand has come under extremely severe pressure. This is particularly affecting the Swiss export industry, with the exception of the pharmaceutical industry, which is holding up well. Other industries hit hard by the coronavirus crisis

are tourism, transport (especially companies that rely mainly on tourists), hospitality and the entertainment and cultural sectors.

GDP growth in 2019 was 1.2%, significantly weaker than in 2018 (2.8%). Due to the coronavirus restrictions in Switzerland and abroad, GDP in 2020 is expected to decline by 6.7% compared with 2019.

1.2 Outlook

As in other countries, forecasts for the Swiss economy over the next two years are currently subject to major uncertainties linked to the coronavirus. Key factors will be the development of the number of coronavirus cases and the resulting degree of restrictions imposed, as well as the availability or otherwise of a vaccine or vaccines. For the tourism industry, the loss of foreign visitors will only be partially offset by the increase in Swiss tourists who would normally holiday abroad. The export industry is likely to recover to differing degrees and at differing speeds depending on the sector. The pharmaceutical industry is certain to be less affected, whereas the luxury goods industry (watches and jewellery) is set for a more prolonged lean spell. The Energy Act currently being discussed in Parliament could lead to greater investment in more energy-efficient and climate-friendly technologies, assuming the right incentives are adopted. However, the experts assess the Swiss economy's chances of recovery as comparatively good overall, in relation to other countries and considering the circumstances. A serious threat to that recovery was averted following the clear rejection of the Federal Popular Initiative 'For moderate immigration (Limitation Initiative)' in a popular vote. If passed, this would have restricted the free movement of persons with the EU and jeopardised Switzerland's economic agreements with the EU, its most important economic partner. Following a slump of 6.7% in 2020, one of the worst in the country's history, experts anticipate that the Swiss economy could grow by an estimated 5.2% in 2021.

For more information, see: https://www.seco.admin.ch/seco/en/home.html

2 Developments in forest products markets

2.1 Overview and general trends

Currency-related impacts on business activity in the Swiss forestry and timber industry have become all too familiar in recent years, and were already alluded to at the start of the report. Over the past few years, the Swiss forestry and timber industry has had little choice but to learn to cope with extraordinary and difficult impacts from the economic environment, such as the financial crisis, currency crisis and an increase in enforced usage of timber. An increasingly important factor in 2019–20 has been the growing oversupply of roundwood due to the increase in enforced usage as a result of drought and a drought-related rise in attacks on trees by harmful organisms, especially bark beetle infestation of spruce, the industry's staple species. These factors, together with major storm events in Switzerland and neighbouring countries over the past two decades, have led to significant changes in tree species composition and thus the composition of roundwood supply by species and quality.

Despite these difficulties, the Swiss sawmill industry saw its level of business activity hold steady in 2019 and so avoided recession, mainly thanks to demand from domestic construction. The climate debate and growing appreciation of the need for quick and drastic reductions in CO_2 emissions are helping to burnish the timber industry's credentials as a climate-friendly sector. The mood has improved and more investments are again being made in new facilities, especially for manufacturing glulam construction components. This could help to mitigate a disadvantage faced by the Swiss sawmill industry in relation to its foreign competitors. Roundwood prices are under heavy pressure. On the one hand, this is exacerbating the economic situation of forestry enterprises, but on the other hand, it means that Swiss timber is becoming more competitive again, so that even large-scale construction projects are increasingly using Swiss instead of imported timber. Another consequence is that wooden packaging (for agricultural products, for example), which had previously ceased to be economical, is now viable once again. Thus in late 2019, the Swiss Timber Box was launched in partnership with fruit and vegetable producers.

Although feed-in tariffs for photovoltaic electricity are now less attractive, the Swiss sawmill industry is investing heavily in solar power generation, a large proportion of which can be used to meet its own needs. As at December 2018, 35 sawmills affiliated to the Swiss sawmill and wood industry association

were generating 12.6 million kWh of electricity per year on 85,800 m^2 of roof space. Four enterprises generated 35.4 million kWh/year from biomass, and another sawmill wood-fired power plant with a capacity of 32 million kWh/year is set to come on stream in 2020.

The output of Switzerland's only remaining particle-board plant was an estimated 395,000 m^3 in 2019. Fibreboard production in Switzerland ended in 2019. For years, the Swiss paper industry has been hit by digitalisation and pressure on margins and prices from cheaper production locations. Sales have been declining for a long time, especially for very high-quality and graphic papers and newsprint. Consequently, more smaller suppliers withdrew from production in Switzerland in 2019, either relocating production abroad or selling their operations. For the forestry sector, this further narrowed sales opportunities for traditional industrial wood. However, this was offset by growing demand for fuelwood.

257,000 tonnes of wood pellets were produced in Switzerland in 2019, with domestic consumption totalling 332,000 tonnes.

2.2 Outlook

At a time of increased economic and political uncertainties due to the coronavirus, it has become even harder to make predictions for the forestry and timber industry in the years ahead. From a current perspective, however, in the context of climate change and the growing appreciation of wood as a carbon-neutral, renewable and home-grown (raw) material and construction material, the forestry and timber industry has a great advantage on its side. One of the key factors determining domestic demand for wood is the state of the construction industry, which is expected to weaken. On the other hand, timber construction is growing in popularity. The expansion of domestic production of glulam components and the Swiss timber construction sector's high level of digitalisation in planning and production, which enables it to meet demand at short notice and process smaller regional orders efficiently, are already a strength. This strength can be further consolidated to help offset, at least in part, the high location costs in Switzerland.

However, the forestry industry in particular has a sword of Damocles hanging over it in the form of more dry summers and thus further increases in enforced usage and loss of quality of harvested timber. Another important and ongoing risk factor affecting development prospects is the currency trend, i.e. a strengthening of the CHF against the EUR and USD.

2.3 Excellence in Swiss timber construction

Fagus Suisse – high-quality construction components made from Swiss beech Summer 2020 marked a major breakthrough for the Fagus Suisse project. After six years of preparation with the help of the Bern University of Applied Sciences' Architecture, Wood and Civil Engineering Department and a leading engineering firm, it was able to start producing high-quality glulam construction components made from Swiss beechwood. On 24 September 2020, the Fagus Suisse SA plant was opened at a former parquet factory in Les Breuleux in the Jura, in the middle of Switzerland's main beech-growing area. This location means that the bulk of the raw materials have only a short distance to travel, with the precut beech, ash and softwood being delivered in lorries by partner sawmills.

The delivered beechwood slats are processed into high-quality wooden components in standard and custom dimensions at a highly digitalised and automated production facility. The first step involves automatically measuring and sorting the wood. The moisture content is first checked in the main hall, and after being measured again the slats are then fed into the finger-jointing machine. The resulting timbers, with a cross section of 50 x 50 mm or 50 x 100 mm, are then planed and stored in the warehouse. When a customer order comes in, the IT system selects the most suitable timbers from the warehouse and sends them to the joinery machine, where they are glued together into high-quality construction components with a large volume and/or large surface area. These are primarily intended to be used as an alternative to steel and concrete.

The production process is modular, which means that the basic product can be made into beechwood components with a cross section of up to 0.28 x 1.28 metres and a length of up 13.5 metres. Ash can now also be used instead of beech, and mixed hardwood-softwood constructions are also possible. From 2021, the plant will be able to process oak as well. In view of the market situation and tough competition from abroad, Fagus Suisse has focused on maximising flexibility and quality. Partner plants

turn Fagus Suisse products into trusses, composite timber/concrete ceilings, timber ceilings/decking, acoustic elements, and so on. The great strength of Fagus Suisse's hardwood components opens up new opportunities for timber engineering, featuring hitherto-unseen graceful, slender and space-saving designs, exposed surfaces and a furniture-like aesthetic.

With severe storms and climate change forcing forest owners to move away from spruce in favour of more hardwood species, and with hardwood set to increase in prevalence as a result, new hardwood sales opportunities such as this are important and valuable. The Fagus Suisse project is therefore also helping to ensure a stable future for Swiss forests while also promoting biodiversity.

For the Swiss timber engineering industry, the sturdy yet graceful beechwood components open up new and previously unthinkable design possibilities.

For more information, visit: https://www.fagussuisse.ch

Swiss timber construction: world-leading with a growing market share. The share of timber construction continues to grow, particularly in the area of multistorey residential buildings right up to large-scale constructions in wood. Building with wood is back in fashion: the number of planning permission applications for apartment blocks mainly made of wood has more than doubled since 2005. Wood as a building material has received a boost from new fire safety regulations, lower production costs, short construction times with less inconvenience for residents and through the quality that can be achieved through extensive prefabrication with clearly structured work processes in enclosed halls. In high-density building, when adding on to existing buildings, the weight advantages of wood as a building material are naturally a factor. The increasingly visible appearance of wood as a building material is acting as a catalyst in this development.

The Prix Lignum, which is awarded every three years, plays a key role in raising the profile of the importance of domestic and renewable wood as a building material and of the quality of buildings realised in wood. Once again in the 2018 competition, the prize recognises a broad range of very different wooden structures, from a small garden pavilion to large residential complexes and industrial buildings. Even for Switzerland’s internationally-renowned star architects, being involved in modern timber construction is now de rigueur and has become a must. This development is thanks in no small part to the Prix Lignum.

Load-bearing building components are increasingly being replaced successfully with glued beechwood. In this way, building components made from energy-intensive steel and concrete can be replaced by those made from renewable, domestic beechwood, which require significantly less energy to process. Interest in such heavy-duty components made from beechwood is growing, but the corresponding production capacities in Switzerland still need to be developed. Efforts in this area are under way. The cost-effective, industrial fabrication of glued, high-performance construction components made from domestic beechwood is technically demanding, however, and requires significant investment. If these efforts are successful, the share of sales of the most important type of hardwood in Switzerland can be strengthened in sales channels with high added value. At present, a disproportionately large proportion of high-quality beechwood has to be used to generate energy or is exported at low prices to Italy and Asia.

Timber construction is the most successful area of the Swiss forestry-wood chain and is internationally renowned. This is also supported by the research activity at the two Swiss federal institutes of technology in Zurich and Lausanne, the Swiss Federal Laboratories for Material Science and Technology (Empa) and the universities of applied sciences. The digitisation of design and construction of buildings and building components, and the robotic production of complex structures have reached a high standard in Switzerland and are rapidly being developed. This research is carried out in close cooperation with the timber construction sector. However, the success in research and in the timber construction sector does not fully penetrate, and only slowly, through to forestry and the first stage of production – sawmills. Nevertheless, production capacity for glulam timber sections is also being increased in Switzerland due to the high demand. But significant quantities of glulam components will have to be imported from Austria and Germany for a few years yet. They will be produced partly from previously exported Swiss roundwood.

2.3.1 Example 1: Pavillon Théâtre de Vidy in Lausanne, canton of Vaud

Fig. 1 Pavillon Théâtre de Vidy in Lausanne, canton of Vaud.
(Image source: ©Ilka Kramer, Blumer-Lehmann AG, Gossau SG)

Fig. 2 Pavillon Théâtre de Vidy in Lausanne, canton of Vaud.
(Image source: ©Ilka Kramer, Blumer-Lehmann AG, Gossau SG)

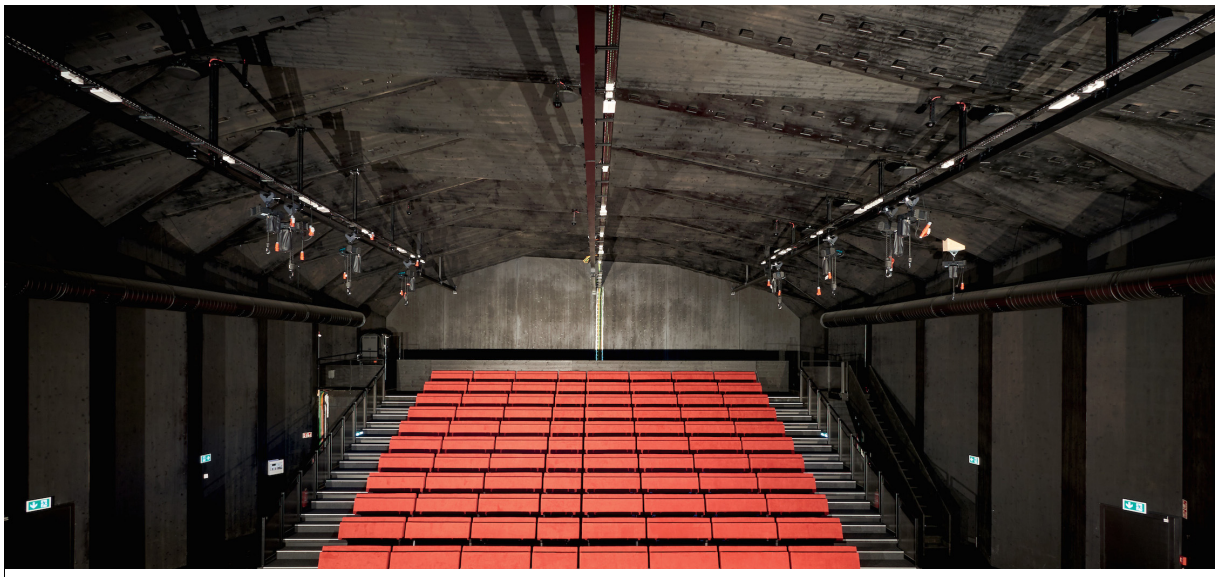

Fig. 3 Pavillon Théâtre de Vidy in Lausanne, canton of Vaud.
(Image source: ©Ilka Kramer, Blumer-Lehmann AG, Gossau SG)

Fig. 4 Pavillon Théâtre de Vidy in Lausanne, canton of Vaud.
(Image source: © Corinne Cuendet, Clarens VD/LIGNUM)

Pavillon Théâtre de Vidy Lausanne VD – Elegant folded construction providing the backdrop to a variety of cultural and creative activities

The Pavilion of the Théâtre Vidy-Lausanne is the prototype of a construction method in which the structure is formed by the interlocking of components. This method allows a building to be erected quickly on a clean construction site while offering excellent cost control. The timber construction system draws on ideas applied in metal by the Zurich architect and artist Max Bill in his 'Éduquer et créer' (Education and Creation) pavilion for the Swiss national exhibition Expo 64. (based on Prix Lignum)

Year of construction:	2017
Client:	Théâtre de Vidy, Lausanne
Architect:	Yves Weinand architecte and l'Atelier Cube SA, Lausanne
Engineering:	Bureau d'études Weinand, Liège
Development of building system:	Laboratoires des constructions en bois, IBOIS, EPFL
Frame construction:	Bumer-Lehmann AG, Gossau

2.3.2 Example 2: Apartment building in Küssnacht am Rigi, canton of Schwyz

Fig. 5 Apartment building in Küssnacht am Rigi, canton of Schwyz.
(Image source: © Photographer Stefane Zürrer, Buchrain LU)

Fig. 6 Apartment building in Küssnacht am Rigi, canton of Schwyz.
Image source: © Photographer Stefane Zürrer, Buchrain LU)

Fig. 7 Apartment building in Küssnacht am Rigi, canton of Schwyz.
(Image source: © Fotograf Stefane. Zürrer Buchrain LU)

Apartment building in Küssnacht am Rigi – Contemporary, homely timber design

Concrete and masonry structures are still very much the norm for new houses and other buildings. However, wood is acquiring a new importance as a building material. Nowadays, wood can be used with great versatility as a carbon-neutral, environmentally friendly construction material, and much of it can be sourced in Switzerland. Swiss forests still generate more new wood each year than is actually used. The technical possibilities now offered by prefabrication mean that the price difference is no longer a decisive factor when deciding between timber and solid construction. Moreover, the future potential of timber construction is greater than for concrete and masonry.

Despite being facilitated by new fire safety regulations in 2015, apartment buildings made entirely of wood are still considered groundbreaking, because their structural stability, fire safety and sound insulation require extensive experience, exceptional know-how and rigorous planning and design. The key factor determining the design of the new building on this plot was its integration into the existing housing development around it. The apartment building had to blend in as well as possible with the existing structures but also significantly enhance aesthetics and exposure to sunlight, both for itself and for the surrounding buildings.

Except for the staircase, the new building is timber throughout, with the supporting and separating components all made of wood. The secret behind its aesthetic and technical perfection is a comprehensive, holistic and meticulous design combined with a sleek finish. For example, the intermediate floors, which had to have a fire-resistance rating of REI 60, are made from exposed 'eggo' components. Thanks to their hollow box construction, the spans of up to six metres (common in modern residential buildings) could be elegantly straddled with units measuring just 26 centimetres in height. Another physical characteristic of the units came in useful for meeting the tougher soundproofing requirements. As the hollow units were filled with lime chippings, an additional layer of fill above the wooden floor and a conventional underlay were sufficient to comply with the heightened sound insulation requirements. Further proof of the versatility of the eggo components are the built-in spot lamps providing optimum illumination of the living area. The external walls, which had to have a fire-resistance rating of

REI 60, were built using the timber-frame construction method and also fulfil multiple functions. Elegant, large-scale Alucobond composite panels were used for the exterior façade. The systematic use of timber-frame construction and the focus on wood as a material enabled the tight schedule and budget for the construction work to be met, since all parts could be assembled on site in a very short time. The new tenants moved into the building after 13 months of construction work (including the demolition of two existing apartment buildings). The whole project was planned in close cooperation between the architect, the timber-construction designers and the carpenters carrying out the work, using a 3D model. This enabled the key issues to be identified and addressed at an early stage, which contributed significantly to the efficient and rapid installation on site. (based on Prix Lignum)

Year of construction:	2017
Architecture:	Marty Architektur AG, Ivan Marty, Schwyz 2017
Main timber used:	Untreated spruce

2.3.3 Example 3: Rhyboot sheltered workshops in Altstätten, canton of St Gallen

Fig. 8 Rhyboot sheltered workshops in Altstätten, canton of St Gallen.
(Image source: © Photographer Roland Bernath, Zurich

Fig. 9 Rhyboot sheltered workshops in Altstätten, canton of St Gallen.
(Image source: © Photographer Roland Bernath, Zurich)

Fig. 10 Rhyboot sheltered workshops in Altstätten, canton of St Gallen.
(Image source: © Photographer Roland Bernath, Zurich)

Rhyboot sheltered workshops in Altstätten, canton of St Gallen

Rhyboot's newly-built sheltered workshops for people with a disability make a striking and self-confident architectural statement at the entrance to Altstätten. The structure forms the prelude to the adjoining area of detached houses, but by virtue of its size also acts as a bridge to the large-scale industrial and sports area on the opposite side of the street. The building sections are located around the boundary of the plot, creating a courtyard where people can meet and interact and which is entered via a spacious and inviting square facing towards the main road and town centre. The building around its courtyard feels extremely safe and secure – somewhere that people enjoy coming to work or visit.

Four main entrances, all equally prominent, lead to workshops in the rear part of the building, and to a laundry, restaurant and offices in the front part, which are functionally connected via the outside space. The spacious work and recreation areas form a sequence of rooms winding around concrete access cores, with just a few (structurally necessary) doors to be passed through.

Despite the size of the building, you never feel lost. This is thanks to the courtyard, which provides an obvious central point for navigation, and also the helpful colour scheme on the artistic entrances, which matches the colours of the individual departments. The robust timber construction creates a pleasant working atmosphere and its rhythmic design brings a feeling of tranquillity to the rooms.

The supporting structure of the above-ground floors, the internal partitions, the façade cladding, the windows and doors, and all the insulation (including in the floor structure) are made of wood.

Great importance was attached to using a high proportion of Swiss timber and to supporting the regional economy. The supporting structure consists of columns, joists and exposed beams. Its dimensions are different on each of the two floors, reflecting the loads it is required to support. (based on Prix Lignum)

Client:	Verein Rhyboot, Meinrad Gschwend, Altstätten
Year of construction:	2017
Architect:	Huber Waser Mühlebach, dipl. Arch. ETH SIA, Thom Huber, Lucerne
Timber construction engineer:	Bachofner GmbH, Rolf Bachofner, Frümsen
Timber construction:	DM Bau AG, Pascal Meng, Oberriet

2.3.4 Example 4: Bus stop with grocery store in Churwalden, canton of Graubünden

Fig. 11 Bus stop with grocery store in Churwalden, canton of Graubünden.
(Image source: © skipp communications, Chur)

Fig. 12 Bus stop with grocery store in Churwalden, canton of Graubünden.
(Image source: © skipp communications, Chur)

Fig. 13 Bus stop with grocery store in Churwalden, canton of Graubünden.
(Image source: © skipp communications, Chur)

Bus stop with grocery store in Churwalden – Elegantly curved and multifunctional centre point for the village

The original brief was to construct a new roof for the existing bus stops. However, given the site's strategic location and significance within Churwalden, the architects took the initiative to incorporate some new features and give the covered bus stops an additional use. The result is a centrally located bus terminal complete with grocery store. As well as an inspiring and unusual symbiosis never seen before in this form in Switzerland, it is also a major enhancement of the village of Churwalden, filling an undefined space in the village centre and significantly improving public infrastructure.

The elongated, rectangular structure flanks the village's main street. Its slightly rounded corners reflect the fluidity of movement inherent in the building's purpose, gently guiding passers-by around the building to the new gondola lift station located to its rear. On each side, there is space for three buses to pick up passengers under the wide cantilevered roof that projects right around the building. The retail space is located inside the structure, its entrance at one end doubling up as a vestibule and waiting room. The choice of material reflects the building's purpose and design: wood has a light feel appropriate to a shelter and to a 'small building' within the wider context of the village, and also emphasises the ties between the building's operators and the local residents and region.

The supporting structure of the bus terminal is split into two distinct parts: the spatial structure and the canopy, envelope and façade structure. This results in two positive features. The spatial structure has no penetrations and can be clearly divided into layers, namely the primary supporting structure, inner cladding and thermal insulation/secondary supporting structure. The envelope structure, including the canopy, is also functional rather than purely decorative: it acts as ventilation space and substructure for the roofing, as a static structure for the canopy, as a building envelope and as a waterproofing system.

Around 90% of the timber used in the construction is Swiss. The façade is made of roughly sawn planks, all of which come from Churwalden's community forest. The canopy arches are made from three layers of planks nailed crosswise and stabilised by a three-ply board. All structures of the building envelope were designed to be breathable.

The primary structure consists of a series of upright posts spaced approximately 5 metres apart, centre to centre. This glulam construction is located inside the building and is also made of Swiss timber. The secondary construction is a frame with ribs made of dried and planed normal wood and a three-ply board as cladding. The roof panel and interior walls provide wind bracing and earthquake resistance. (based on Prix Lignum)

Year of construction:	2016
Client:	Bellavita Lai AG, Heinz Tschudi, Chur
Award:	2018 Lignum Prize, East Region approved
Architecture:	Ritter Schumacher AG, Jon Ritter, Chur
Construction management:	Anderegg Partner AG, Bellach, Solothurn
Timber construction engineer:	Makiol Wiederkehr AG, Beinwil am See, Aargau
Timber construction:	Frommelt Zimmerei und Ing. Holzbau AG, Schaan (FL)
Timber used:	Untreated spruce

2.3.5 Example 5: Gastropavilion at ETH Hönggerberg, Zurich

Fig. 14 Gastropavilion at ETH Hönggerberg, Zurich.
(Image © Photographer Luis Asin)

Fig. 15 Gastropavilion at ETH Hönggerberg, Zurich.
(Image source: © Photographer Luis Asin)

Fig. 16 Gastropavilion at ETH Hönggerberg, Zurich
(Image © Photographer Luis Asin)

Gastropavilion at ETH Hönggerberg, Zurich

The new Gastropavilion at ETH Zurich's Hönggerberg campus is intended as a meeting place for lecturers, visitors, staff and students as well as a reception and dining space for international guests. The building is simple in design but perfectly suited to its function. Large windows on all sides, all of which can be opened, create a feeling of transparency and connect the campus with the beautiful landscape stretching away to the north. A spacious terrace running the entire length of the south side faces the campus and the sun, inviting guests to linger in the shade of its awnings.

The timber structure and choice of wood and fabric furnishings inside create a pleasant ambiance, while the white varnished oak cladding the walls and the solid oak furniture designed specifically for this space enhance the warm atmosphere. All the furniture can be moved around easily as required, allowing the guest space to be used flexibly (for drinks receptions, concerts, readings, exhibitions and so on). The central element, the 'technical heart' of the restaurant, housing the à la minute kitchen with the large bar and vertical access area, divides the guest space in an open and flexible way into three separate parts, the café-bar, the bistro and the restaurant, with the latter providing a versatile venue for events. The lower floor, which can only be seen from the north side, houses the main kitchen, the storeroom and all the building services, as well as the guest toilets.

A frame construction with a span of approximately 12 m forms the main supporting structure. The frames run diagonally across the building and, in addition to carrying the roof structure, also provide transverse bracing for the building shell. The longitudinal bracing is formed by the centrally located staircase core made of cross-laminated timber (CLT), in which even the lift has a wooden structure. The ceiling is also made of CLT, with the ceiling elements mainly resting on load-bearing interior walls in the basement. The transverse rigidity of the CLT panels means that the large ventilation ducts can be spanned without additional joists. (based on Prix Lignum)

Year of construction:	2017
Client:	ETH Zurich Real Estate Management, Michael Brönnimann, Zurich
Award	International Spanish Architecture Award 2017
Architect:	Tuñón & Ruckstuhl Architekten GmbH SIA, Marceline Ruckstuhl, Rüschlikon/Tuñón & Ruckstuhl Architekten GmbH SIA, Emilio Tuñón, Rüschlikon

Main supporting structure: Implenia Schweiz AG, Patrick Lier, Rümlang

Timber used: Varnished spruce

2.3.6 Example 6: Rynetel wildlife crossing, A1 motorway between Suhr and Gränichen, canton of Aargau

Fig. 17 Rynetel wildlife crossing, A1 motorway between Suhr and Gränichen, canton of Aargau.
(Image source: © Photographer Michael Küng)

Fig. 18 Rynetel wildlife crossing, A1 motorway between Suhr and Gränichen, canton of Aargau.
((Image source: © Photographer Michael Küng)

Fig. 19 Rynetel wildlife crossing, A1 motorway between Suhr and Gränichen, canton of Aargau.
(Image source: © Photographer Michael Küng)

Rynetel wildlife crossing, A1 motorway between Suhr and Gränichen, canton of Aargau – A wooden structure allowing wildlife to roam freely

The AG6 wildlife corridor in the Rohr-Rupperswil forest area is of supraregional importance. There are currently obstacles within the corridor, namely the SBB railway line between Aarau and Brugg, the N1R national highway, the cantonal highway between Suhr and Hunzenschwil, and the A1 motorway. A wildlife crossing has been built over the A1 between Suhr and Gränichen to enable unrestricted use of the wildlife corridor around the motorway. The crossing is covered with earth up to the height of the surrounding forest area and is planted over its entire width. The planting is diverse to cater for a range of animals, with shrubs and bushes as well as small habitat piles. A number of protection measures have been installed, including hedges, spotlights fitted with glare shields, amphibian protection grating as well as the existing wildlife protection fence.

What makes this crossing unusual is that it is built out of wood – the first of its kind in Switzerland. Following persistent efforts by Lignum (the umbrella organisation of the Swiss timber industry), politicians and authorities have been persuaded that a wooden supporting structure offers a safe and practical solution for wildlife crossings over motorways, despite the high earth loads and impact forces to be withstood.

Construction took place between February and October 2020. After the individual slats had been pressure-impregnated, they were glued, bent and joined to form arched joists. Following the joinery stage, the steel joints were assembled. On the construction site, the arch trusses were hoisted into position one by one, then the assembly of the secondary supporting structure began. This also consists of pressure-impregnated glulam timber. The structure is closed at the ends with panels of laminated veneer lumber. (based on Astra/Lignum)

Year of construction: 2020

Client: Federal Roads Office (FEDRO), Zofingen branch

Civil engineers:	WUEF engineering consortium with Bänziger Partner AG and Timbatec AG
Construction:	ARGE FERA with Aarvia Bau AG and Häring AG
Timber construction:	Hüsser Leimbau AG
Materials:	Impregnated spruce
Dimensions:	Total length of 36 m, span of 2 x approx. 17.2 m, usable width of 50 m, total area of approx. 1,800 m^2
Cost:	CHF 13.9 million

2.3.7 Example 7: Markuskirche (St Mark's Church), Lucerne

Fig. 20 Markuskirche Lucerne
(Image source: © DEON AG, Lucerne

Fig. 21 Markuskirche, Lucerne
Image source: © DEON AG, Lucerne

Fig. 22 Markuskirche Lucerne
(Image source: © DEON AG, Lucerne

Markuskirche, Lucerne – A new central structure serving a variety of purposes

As society changes, more and more churches are losing their original use. Many of these buildings are valuable in terms of architectural history and cultural heritage, but their preservation is only viable if a suitable new purpose can be found for them. Wood as a building material can be helpful in this respect, given its strengths in terms of design possibilities, lightness and flexibility. Located opposite the Grand Casino in Lucerne, the Markuskirche was built in 1898. Originally, the church was used by the Anglican community and the city's many English tourists, but it has been owned by the current Markuskirche Luzern since 1984.

The inside of the building underwent a radical conversion over a four-month period. This construction project was unique in the area as the church is over a hundred years old and under the second highest level of monument protection. The plans were developed and implemented under the close supervision of the responsible conservation authorities. Prior to the conversion, the church was divided into a number of spaces by partition walls, which made it feel narrow, unwieldy and gloomy. Now, a semi-transparent, multistorey and multifunctional meeting island in the rear half of the nave has given the space a new lease of life. The island features a range of facilities, including a kitchen with double-sided counter, storage space, interpreter booths, service rooms and a new staircase to the gallery. This installation separates the area used by the congregation from the foyer, but thanks to two large side doors the church can still be experienced as a single, generous space.

Funded in part by donations, loans and charitable contributions, the conversion was ultimately only possible thanks to the voluntary work of numerous church members, who gave around 1,500 hours of their own time to the project. (based on Prix Lignum)

Year of construction:	2017
Client:	Markuskirche Luzern, Pastor Marek Kolman, Lucerne
Engineers:	Blesshess AG, Philipp Hess, Lucerne
Timber used:	Mainly stained spruce

2.3.8 Example 8: MS Säntis, Lake Constance

Fig. 23 MS Säntis, Lake Constance.
(Image source: © Susanne Fritz Architekten, Fotografie © Pierre Kellenberger)

Fig. 24 MS Säntis, Lake Constance.
(Image source: © Susanne Fritz Architekten, Fotografie © Pierre Kellenberger)

Fig. 25 MS Säntis, Lake Constance.
(Image source: © Susanne Fritz Architekten, Fotografie © Pierre Kellenberger)

MS Säntis, Lake Constance – The yacht for one day

The elegant motor vessel MS Säntis was used by the Schweizerische Bodensee-Schifffahrtsgesellschaft (Swiss Lake Constance Shipping Company) for scheduled services and excursions from the 1950s onwards. It is now increasingly used an event ship, which entails different requirements in terms of catering, interior design and technical facilities.

In keeping with its motto 'The yacht for one day', the Säntis has now undergone a complete refurbishment, including an enlargement of the main and upper decks. The restrained architectural language, using classic materials such as cherry wood and brass, brings together the nostalgia of the vessel's past as an excursion boat and the feeling of a modern luxury yacht. Contemporary crystal lights on the walls and ceiling create a glamorous ambience, while wall fabrics enhance the acoustics. The multimedia and catering facilities make the vessel suitable for all kinds of private and corporate events.

At the front of the ship there is a lounge which can be converted into an additional dining room if required for larger events. The expansion of the upper deck means that there is now an outdoor area, protected all year round by an awning, and a larger enclosed area. Sliding windows serve to connect the indoor and outdoor spaces. Cherry wood was used for all the interior fittings, as well as the ceiling (3D curved acoustic elements), floor (rustic floorboards, solid cherry wood parquet) and wall panelling (cherry wood alternating with fabric elements). (based on Prix Lignum)

Year of construction:	1956/2017
Client:	SBS Schifffahrt AG, Andrea Ruf, Romanshorn SG
Architecture:	Susanne Fritz Architekten, Susanne Fritz, Zurich
Woodwork:	buob Kühlmöbel AG, Andreas Rutz, Tübach
Timber used:	Mainly varnished cherry wood

2.3.9 Example 9: Detached house in Liebefeld near Bern

Fig. 26 Detached house in Liebefeld near Bern.
(Image source: © christine blaser - bildaufbau, Bern)

Fig. 27 Detached house in Liebefeld near Bern.
(Image source: © christine blaser - bildaufbau, Bern)

Fig. 28 Detached house in Liebefeld near Bern.
(Image source: © christine blaser - bildaufbau, Bern)

Detached house in Liebefeld near Bern – Simple wooden house offering high-quality living space.

Built for a young family, the house sits in an idyllic location on the edge of a forest, looking out over an old horse pasture and with a beautiful view of the Bernese Alps. It was the last undeveloped plot in the garden town of Liebefeld-Köniz. The client wanted a simple wooden house with high-quality living space, but without any frills. The house is reached by a small macadamised road that sweeps around an old pine tree, and sits on mature pastureland, which has been left unchanged. (based on Prix Lignum)

Year of construction:	2018
Architecture/Planning:	Johannes Saurer Architekt, Johannes Saurer, Thun
Engineer:	Indermühle Bauingenieure, Daniel Indermühle, Thun
Timber construction:	Schwarz Holzbau, Hanspeter Schwarz, Oberbalm
Main timber used:	Untreated larch

3 Roundwood: sawlogs, pulpwood and fuelwood

3.1 Developments up to mid-2020

After a stormy 2018, when damage reached a ten-year high, significantly less windthrow timber accumulated in 2019 and 2020 and there was no extensive storm damage. On the other hand, there were serious after-effects of storm damage from previous years, and the drought and high summer temperatures drove a sharp increase in damage to forests by harmful organisms, especially bark beetle. As a delayed consequence of the extreme summer of 2018, the area of beetle-infested timber that had to be used exceeded the 1 million m^3 mark for the first time since 2005. The 914,000 m^3 of enforced usage reported for summer 2019 combined with the estimates for winter 2019/20 take the total to the second-highest ever recorded, approximately 1.4 million m^3, including an estimated 250,000 m^3 of beetle-infested wood left standing in forests. Most of this timber was coniferous fuelwood.

The amount of timber harvested in 2019 was 4.6 million m^3, 11% less overall than in the previous year. In 2018, timber harvesting had increased significantly due to bark beetle infestation, summer drought and winter storms. The 2019 harvest was thus back in line with the average for recent years (2015–17). This development was also attributable to the decline in normal planned harvesting due to enforced usage and the fact that timber prices remained low.

The decline varied significantly between timber assortments. The harvested quantity of sawlogs – the main assortment in Swiss forests – and industrial wood (pulpwood) fell sharply, by 19% and 15% respectively. By contrast, the quantity of fuelwood harvested was practically the same as in 2018, up by 0.1%. A closer look at the fuelwood figures shows that coniferous (soft) fuelwood was the main contributor to this outcome (up 10%), whereas non-coniferous (hard) fuelwood harvests fell (by 6%). Since bark beetle infests softwoods (spruce and fir), resulting in poor-quality timber for harvesting, the increase in coniferous fuelwood can be explained. Sawlogs are normally processed in sawmills, but if the timber is infested by bark beetle, they often end up as fuelwood (mainly woodchips) – hence the 11% increase compared with the previous year.

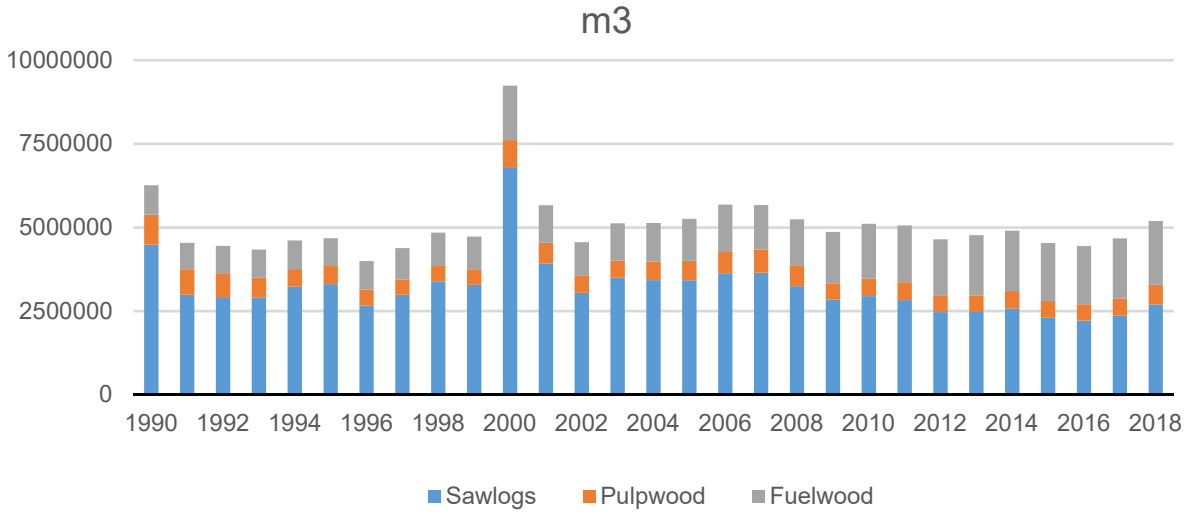

Fig. 29 Wood harvest in Switzerland 1991 – 2019 in m3
(Source: Swiss Federal Statistical Office)

3.2 Timber assortments and price trends

In 2019, some 2.20 million m^3 of roundwood (sawlogs) were harvested, of which 90.1% was softwood and 9.9% hardwood. This is 18.7% less than in 2018 (2.70 million m^3). During the reporting period, the CHF/EUR exchange rate moved from 1.13 in January 2019 to 1.08 in August 2020, reaching a low of 1.06 in March 2020.

Exports of softwood sawlogs fell to 345,000 m^3 in 2019, down by 24.8% on 2018 (459,000 m^3). Imports also declined, falling by 22.7% to 58,000 m^3, compared with 75,000 m^3 in the previous year.

Sawmills were generally well supplied with raw wood during the reporting period. However, due to the increase in enforced usage, the supply of high-quality fresh softwood sawlogs became scarcer over the course of 2019 and 2020.

The harvest of hardwood sawlogs declined by 6.9% in 2019 to 216,000 m^3, down from 232,000 m^3 in 2018. During the reporting period, import, export and demand for hardwood sawlogs remained at similar levels to the previous reporting period.

The harvest of industrial softwood in 2019 was significantly down on 2018, at 324,000 m^3 compared with 383,000 m^3, a drop of 15.4%. The volume of industrial hardwood harvested also decreased, falling by 13.1% from 206,000 m^3 in 2018 to 179,000 m^3 in 2019. This was partly related to structural change among domestic industrial wood consumers and the 11% overall reduction in harvest volume.

The 1.913 million m^3 of fuelwood harvested in 2019 was just above the previous year's total, although the proportion of hardwood fell from 60.3% in the previous year to 56.9%, which can be attributed to the increase in softwood from enforced usage.

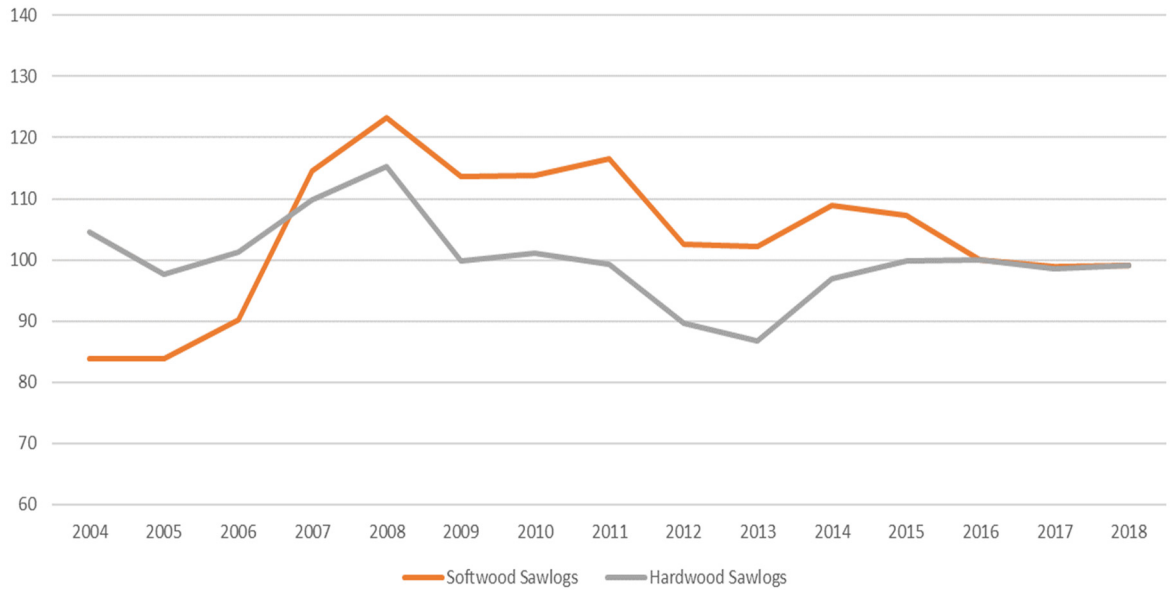

Fig. 30 Price index for sawlogs, 2001-2020 (Sep-Oct 2015 = 100)
(Source: Swiss Federal Statistical Office)

The price index for softwood sawlogs fell from 99.1 points in the January-February 2018 survey period to 91.8 index points in the May-June 2020 survey period. The index for hardwood rose slightly in the same period, from 99.1 points to 99.5 points. For industrial wood, the price index declined from 93.7 to 88.5 index points, while fuelwood (energy wood) saw a slight increase, from 109.5 to 110.6 index points.

File: BAFU-061.2-03-08-6/9/4/4

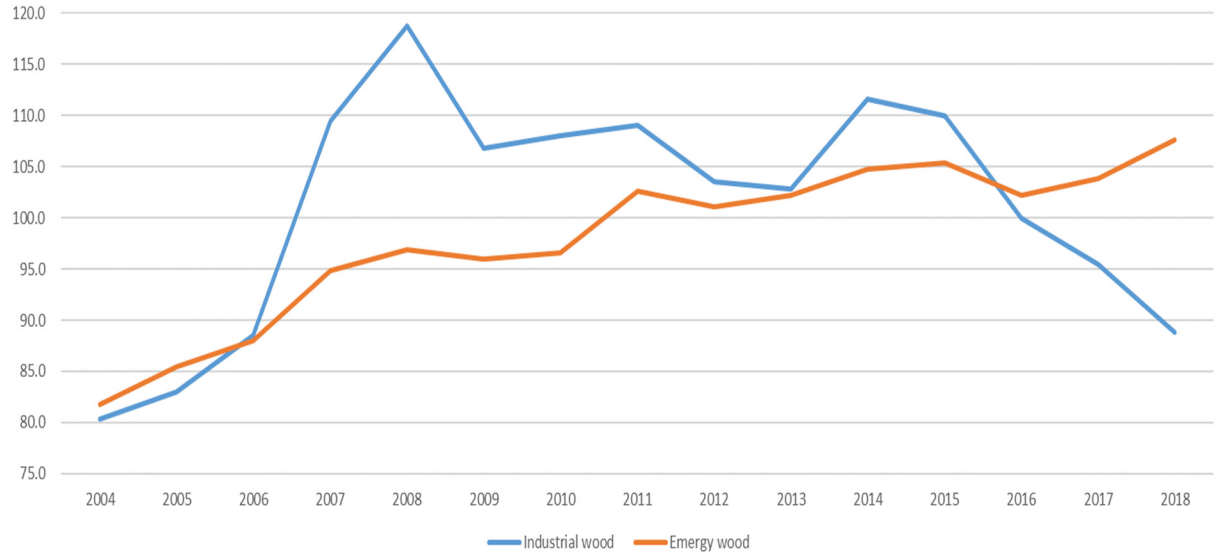

Fig. 31 Price index for industrial wood (pulpwood) and for energy wood (fuelwood), 2001–20 (Sep-Oct 2015= 100) (Source: Swiss Federal Statistical Office)

3.3 Economic situation of the forestry sector

Public forestry operations manage 71% of Switzerland's productive forest area. Despite considerable cost-reduction efforts, the operating results of the Swiss forestry sector improved in 2017. The corresponding data were collected via a test network of 160 forest enterprises distributed across Switzerland in the forest regions of the Jura, the Central Plateau, the Prealps and the Alps.

In 2019, 4.614 million m^3 of timber was harvested, 11% less than in 2018, when timber harvesting was boosted by bark beetle infestation, drought and winter storms. This development was driven by a reduction in planned wood harvesting due to the high level of enforced timber usage and the low timber prices, which dropped further. The 2019 timber harvest was in line with the average for 2015 to 2017. The decline varied significantly between timber assortments. The harvested quantity of sawlogs – the main assortment in Swiss forests – and industrial wood (pulpwood) fell sharply, by 19% and 15% respectively. By contrast, the quantity of fuelwood harvested was around the same as in 2018, up by 0.1%. A closer look at the fuelwood figures shows that coniferous (soft) fuelwood was the main contributor to this outcome (up 10%), whereas non-coniferous (hard) fuelwood harvests fell (by 6%). Since bark beetle infests softwoods (spruce and fir), resulting in poor-quality timber for harvesting, the increase in coniferous fuelwood – mainly in the form of woodchips – can be explained.

The 667 Swiss forestry enterprises recorded total revenues of CHF 534 million in 2019, with expenditure of around CHF 577 million. This equates to a shortfall of approximately CHF 41 million, slightly more (CHF 3 million) than in 2018. This economic comparison provides further evidence that enterprises were not able to sell as much valuable wood in 2019. Sales of sawlogs, which carry a relatively high price, declined sharply, while those of the less profitable fuelwood increased. In 2019, 43% of forestry enterprises reported positive results, compared with almost half in 2018.

Among enterprises in the Swiss Forest Enterprise Network (FEN), timber harvesting was also down in 2019, by 7%, and the financial situation was worse than in 2018. As less timber was harvested in 2019, forest management costs fell by CHF 38 per hectare, but at the same time timber revenues decreased by CHF 43 per hectare. Consequently, the deficit per hectare of productive forest area within the FEN rose by CHF 5 to CHF 60. Service provision contributed a profit of CHF 11 per hectare (CHF 9 per hectare in 2018) while the production of goods (such as firewood) contributed a loss of CHF 2 per hectare (profit of CHF 5 per hectare the previous year). Overall, the FEN enterprises made an average loss of CHF 52 per hectare (previous year: loss of CHF 42 per hectare).

The outlook for 2020 and 2021 suggests that the COVID-19 crisis will also leave its mark on forestry enterprises. Furthermore, the increased prevalence of long dry spells during the summer means that a high level of enforced timber usage and a low average timber price are likely to persist.

3.4 Wood energy

In 2019, Switzerland's final energy consumption increased by 0.3% to 834,210 TJ compared to the preceding year. This is down to colder weather conditions with 6.1% more heating degree days. However, other factors that determine the long-term growth trend of energy consumption increased in 2019: a 0.7% increase in the average permanent resident population, GDP growth at 0.9 %, a 0.8 % increase in the motor vehicle stock and an increase in housing stock (for which no detailed figures are currently available). Efficiency increases and substitution effects, on the other hand, have a dampening effect on the growth in energy consumption. The annual ex-post analyses will provide further information on the factors determining the evolution of energy consumption (publication in July 2020). In 2019, 16.9% (42,330 TJ) of primary domestic energy produced (250,290 TJ) came from wood, 58.3% from hydropower, 10.8% from household and industrial waste, and 14.0% from other renewable energy sources (solar, wind, biogas, biofuels and ambient heat).

–> For more information, see: https://www.bfe.admin.ch/bfe/de/home/news-und-medien/publikationen.exturl.html/aHR0cHM6Ly9wdWJkYi5iZmUuYWRtaW4uY2gvZGUvc3VjaGU=.html?keywords=&q=gesamtenergiestatistik&from=01.01.2019&to=&nr=

and: https://www.bfe.admin.ch/bfe/de/home/versorgung/statistik-und-geodaten/energiestatistiken/teilstatistiken.html

Due to the characteristics of this climate-neutral raw material and the subsidising of non-renewable energies, the importance of wood as an energy source continues to increase. The potential offered by wood fuel (i.e. forest, slash, wood residues and used wood) will be exploited more extensively in the future. *The cost-covering remuneration for feed-in to the electricity grid (CRF)* for electricity generated from renewable sources affects the viability of wood-fired heating plants and, together with a desired gain in terms of image, increases the (economic) attractiveness of business with green electricity for the Swiss electricity companies.

Seven large wood-fired power plants currently operate in Switzerland. Despite the current difficult economic climate, there are plans to build more plants to support the implementation of the Energy Strategy 2050.

In 2019, the number of wood-fuelled systems fell by around 12,900 compared with 2018, a year-on-year drop of 2.3%. The decline was mainly due to a reduction in the number of room and building heating systems, and in particular of closed fireplaces, stoves and wood-burning cookers. These small wood-burning systems, which are comparatively problematic in terms of particulate matter emissions, are coming under pressure from heat-pump-based heating systems, which are easier to operate than wood-burning systems and can be run on electricity from renewable sources. Currently, the number of wood-fuelled systems (all categories combined) is just over 549,000, which is about 20.7% below the 1990 level.

The total installed capacity of all wood-fuelled systems fell by 52 MW in 2019, a drop of 0.5% on the previous year. The figure is declining particularly sharply for room and building heating systems, which fell by 117 MW and 42 MW (2.2% and 2.6%) respectively. By contrast, automatically-fed systems saw an increase in capacity of 101 MW or 4.0%, and systems burning special types of fuel increased by 1.0%. Overall, installed capacity across all categories, excluding waste incineration plants (WIPs), is currently around 10.0 GW, 19.9% less than in 1990.

With 3,067 heating degree days, 2019 was colder than the previous year (2,891 heating degree days). The 3.7% increase in the effective final energy conversion (gross consumption of wood, including WIPs, in TJ) is therefore greater than the corresponding weather-adjusted figure (decrease of 2.6%). In total, an effective wood conversion (including WIPs) of 4.85 million m^3 is identified for the year 2019, which means a final energy conversion (gross consumption of wood) of 47.8 PJ. Excluding WIPs, the corresponding figures are 4.41 million m^3 and 43.7 PJ.

The weather-adjusted wood conversion was 5.25 million m^3 or 14.4 TWh in 2019, an increase of 5.4 TWh or 63.9% since 1990. Last year, wood conversion rose by 2.6%. Excluding WIPs, the weather-adjusted wood conversion for 2019 was 4.81 million m^3 or 13.3 TWh. The wood used currently breaks down as follows: around 62% natural wood, 14% wood residues, 12% waste wood and 12% wood pellets.

The weather-adjusted useful energy production from wood totalled 10.3 TWh in 2019 (including WIPs), an increase of 104.5% since 1990. Compared with the previous year, useful energy production rose by 350 MWh or 3.5%. Excluding WIPs, weather-adjusted useful energy production for 2019 was 9.7 TWh.

Electricity generation as a proportion of total useful energy production remained comparatively low at 513 GWh or 5%. However, electricity generation increased by 25 GWh or 5.2% compared with the previous year.

Since 2005, wood energy statistics have been compiled using an updated model approach, and compared with the latest ex-post analyses from Prognos each year. The database of automatic firing systems and the statistics on renewable waste plants were updated in 2019, as every year, and the evaluation of wood energy statistics back-corrected to 1990. Due to the updates and model adjustments made, the time series shows a difference in gross consumption of wood (effective final energy conversion) of no more than 5% compared with the survey from the previous year (2018).

3.5 Certified forest and forest products

3.5.1 FSC and PEFC certification

Approximately 0.65 million ha of Swiss forest (i.e. 51 % of the total forest area) was certified in 2014. Of these certified areas, more than the half have both FSC and PEFC certification. Of the timber harvested in Switzerland in 2014, 66% was certified. The corresponding data were not surveyed from 2015 since the revision of the Swiss forestry statistics.

At present, over 900 companies operating at all levels in the timber processing sector hold a certificate. In contrast to the situation in the forestry 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. 30% hold both the FSC and PEFC certificate. At present there are no companies in Switzerland that are solely PEFC-certified.

In 2009 a national certification standard, which forms the basis of certification for FSC and PEFC in Switzerland, was introduced by both label organisations. However, this harmonisation is criticised today as the competition between the private labels is disappearing as a result of its introduction.

The main driving forces for certification in Switzerland are the DIY sector and the demand for certified paper products. However, the sellers of certified wood cannot demand a higher price (“green premium”). Thus, the market does not compensate for the additional costs incurred in certification. For this reason, certification is a contentious issue in the forestry and timber sector.

“Herkunftszeichen Schweizer Holz” (label of origin)

The origin of the wood is not declared under the FSC and PEFC certification systems. In 2009 the forestry and timber industry introduced a new label (“Herkunftszeichen Schweizer Holz”, HSH). It is managed by LIGNUM, the Swiss timber sector umbrella organization. Its main purpose is to show and prove the Swiss origin of the timber products.

The intention here is to raise the awareness of end users about Swiss wood that is produced in accordance with the strict sustainability requirements of the Swiss forest legislation and has not caused environmental pollution as a result of being transported over long distances. The HSH guarantees the traceability and documentation of a wood product from its origin to the end user. Products bearing the Herkunftszeichen Schweizer Holz label of origin may contain up to 20% of wood of foreign origin if it comes from a comparable production region (low risk origin) and has a sustainability certificate or declaration of origin.

Since September 2011, all wood originating from Swiss forest areas can be marked with the

Herkunftszeichen Schweizer Holz label of origin. Use rights are assigned to forest owners if they are prepared to fulfil the conditions of the regulation. The cantonal forestry sector associations monitor compliance with the regulation requirements.

-> https://www.holz-bois-legno.ch/label/

3.6 Sawnwood

The construction industry, especially timber construction, is by far the most important sales market for sawlogs. The 2015 revised fire protection standards for timber structures have led to a marked increase in the construction of multistorey residential and office buildings, with towers up to 80 metres high. The timber construction sector is continuing on the path to success and gaining market shares. In 2019, the proportion of load-bearing structures made of timber was 8.7% for residential developments with three or more dwellings, 10.0% for hospitals, other healthcare buildings and nursing homes, 13.2% for retail and administrative buildings, 14.4% for commercial and industrial buildings, 18.3% for sports and leisure buildings, 19.8% for residential buildings with up to two dwellings, 21.4% for education and training buildings and 37.6% for agricultural buildings (the highest proportion of any category). Across all building categories, the total was 15.3%.

The dynamic growth in timber construction keeps gathering pace and is increasingly influencing the mood of the suppliers, the sawmill sector. They are again optimistic about their future prospects, which is reflected in increased willingness to invest, e.g. in production facilities for glulam structural timber and photovoltaic installations for in-house power generation. But a high percentage of glulam structural timber in particular is still imported from the neighbouring countries of Austria and Germany. However, thanks to investments in glulam production, the Swiss sawmill industry is catching up and will also be able to benefit from the advantages of proximity to customers in this area.

1.863 million m^3 or 85% of the 2.195 million m^3 of roundwood (stemwood) harvested in 2019 was processed in Switzerland by 333 sawmills into 1.126 million m^3 of sawn timber. Only about 48,500 m^3 or 4.3% of this is hardwood.

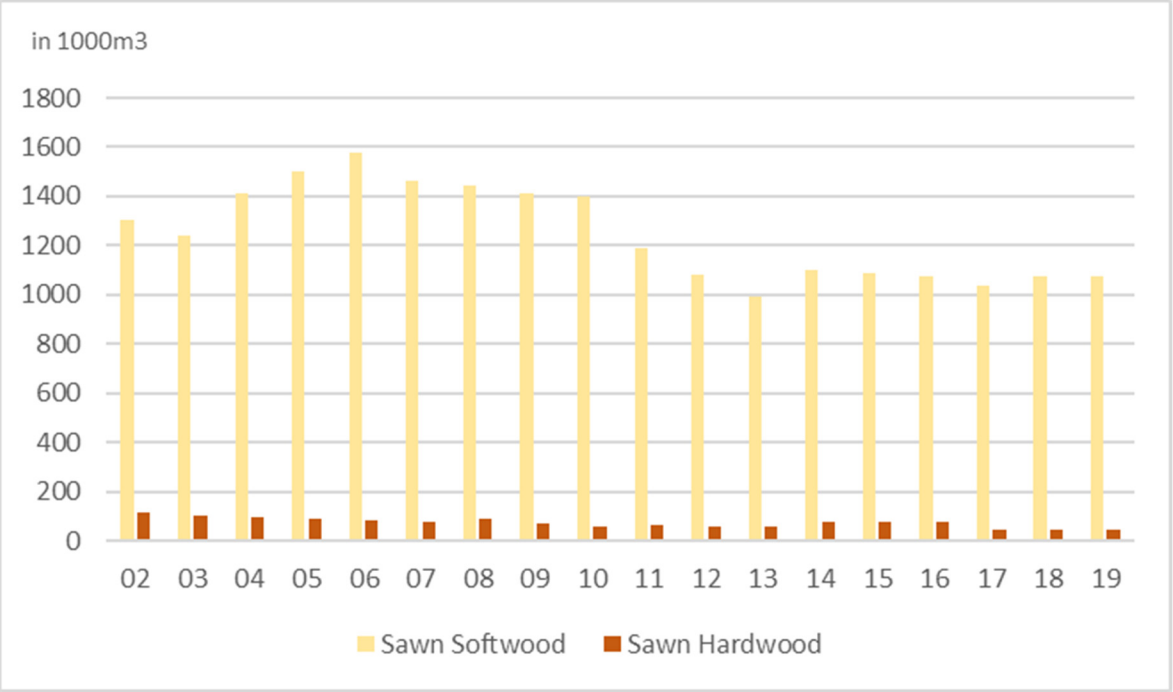

Fig. 32 Sawnwood production in Switzerland, 2002-2019
(Source: Swiss Federal Statistical Office)

Swiss sawmills largely cover their sawlog requirements from domestic sources – at prices charged in Swiss francs. They also export sawnwood and sawnwood residues into the euro zone. As a result, they face a double, and correspondingly severe, competitive disadvantage vis-à-vis their competitors from the EU. Moreover, the Italian sawnwood market, a traditional sales channel, is declining, and, on the domestic market, traditional wood boards cut to the customer's specifications for construction purposes, are being increasingly replaced by further processed semi-finished products such as glued

construction timber. The prices of imported glued-laminated beams correspond approximately to those that Swiss laminated wood producers have to pay for domestic sawnwood. Given that the increase in the average prices of the sawnwood assortments was lower than those of sawn roundwood, the economic scope available to the sawmills decreased further.

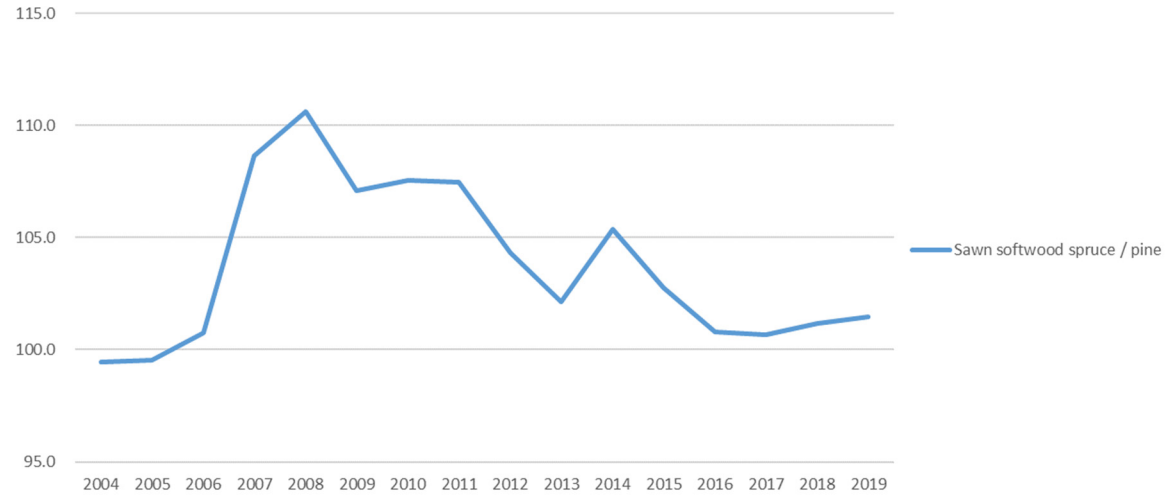

Fig. 33 Price index for soft sawnwood, 2001-2019(Sep-Oct 2015 = 100)
(Source: Swiss Federal Statistical Office)

In 2019, 2.195 million m^3 or 47.6% of the total of 4.614 million m^3 of timber harvested was sawlogs, of which 1.978 million m^3 or 42.9% was softwood and just 216,000 m^3 or 4.7% was hardwood. 1.784 million m^3 of softwood sawlogs, 26,400 m^3 of it imported, was processed into 1.077 million m^3 of sawn softwood in 2019, with a yield of 60.4%. In the case of hardwood sawlogs, 80,760 m^3, 8,750 m^3 of it imported, was sawn into 48,500 m^3 of sawn hardwood with a yield of 60.0%. This generated 737,370 m^3 of sawmill residue, of which 17% was used as fuelwood by the plant itself and 34% as fuelwood by third parties, with 42% or 306,910 m^3 being used as raw material for the paper and particleboard industry and 7% or 49735 m^3 as raw material for other applications.

3.7 Pulpwood-processing sector

In 2019, 503,000 m^3 of industrial wood was harvested, of which 64 % was softwood and 36 % hardwood. 23,000 m^3 of industrial wood was imported and 123,000 m^3 exported, giving a domestic consumption of industrial wood of 403,000 m^3 for 2019.

Since there is only one plant in Switzerland manufacturing particle board and MDF in 2020 and the only manufacturer of fibreboard ceased production in Switzerland in 2019, the production volume has to be estimated for data protection reasons. The estimated figures for 2019 are 387,000 m^3 of particle board, 185,000 m^3 of fibreboard, 185,000 m^3 of MDF/HDF and 77,000 m^3 of other fibreboard. The production of plywood, used for example in ski cores and other high-quality products, was marginal at 8,000 m^3.

3.7.1 Wood-based panels

Thanks to new fire safety regulations, wood-based panel materials can now be used to a much greater extent in multistorey wooden buildings. However, production of such products has largely moved abroad because the cost of manufacturing them in Switzerland is too high. Since there is only one plant in Switzerland manufacturing particle board and OSB in 2020 and the only manufacturer of fibreboard ceased production in Switzerland in 2019, the production volume has to be estimated for data protection reasons. The estimated figures for 2019 are 387,000 m^3 of particle board, including OSB, 185,000 m^3 of fibreboard, 185,000 m^3 of MDF/HDF and 77,000 m^3 of other fibreboard. The production of plywood, used for example in ski cores and other high-quality products, was marginal at 8,000 m^3.

3.7.2 Pulp and paper

Chemical pulp has not been produced in Switzerland since 2008. For years, the Swiss paper industry has been hit by digitalisation and pressure on margins and prices from cheaper production locations. Sales have been declining for a long time, especially for very high-quality and graphic papers and newsprint. Changes in national conditions and the global concentration process have led, among other things, to production volumes being outsourced from Switzerland to other corporate locations in recent years. A small manufacturer of specialty papers relocated production to Germany in 2019, while another, somewhat larger, one sold its production operations to a South African competitor and closed its production site in Switzerland. In the above-mentioned challenging economic environment, what remains of the Swiss paper industry essentially held up well in 2019, matching the previous year's performance. In 2019, the member companies of the Swiss Paper, Cardboard and Film Manufacturers' Association SPKF produced 1.258 million tonnes, 3.9% less than in 2018. 1.034 million tonnes were supplied in 2019, down from 1.420 million tonnes in 2015. How greatly the coronavirus crisis – especially the move to more home working – affects the industry will become apparent in 2020 and 2021.

For more information, visit: https://spkf.ch

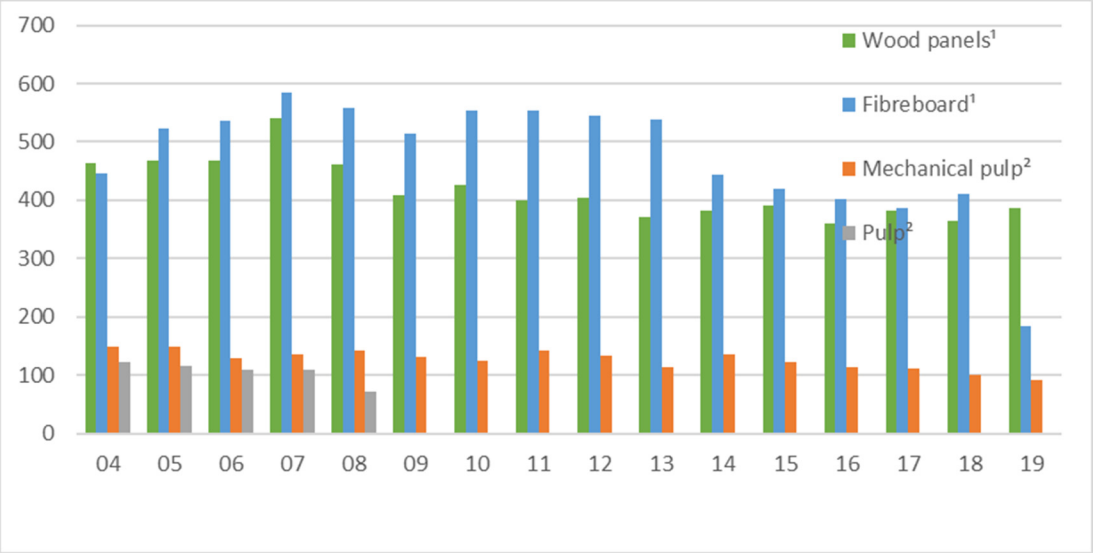

Fig. 34 Production of wood panels, fiberboard, mechanical pulp and wood pulp 2002-2019
(Source: Estimated values; Federal Office for the Environment FOEN [1]: in 1000 m3 , [2]: in 1000 t)

4 Tables

4.1 Economic Indicators for Switzerland

Economic Indicators for Switzerland

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Economic growth in % [1]	0	2.4	2.7	3.8	3.8	2.2	-1.9	3	1.8	1	2	2	0.8	1.5	1.4	2.8	1.2	-6.7	5.2
Inflation in % [2]	0.6	0.8	1.2	1.1	0.7	2.4	-0.5	0.7	0.2	-0.7	-0.2	0	-1.1	-0.4	0.5	0.2	0.4	-1.0	-0.5
Unemployment rate in % [3]	3.7	3.9	3.8	3.3	2.8	2.6	3.7	3.5	2.8	2.9	3.2	3.0	3.2	3.3	3.1	2.5	2.3	3.9	4.1
Interest yields in 10-year gouvernement bond in % [4]	2.6	2.7	2.1	2.5	2.9	2.9	2.2	1.6	1.5	0.7	0.9	0.8	0.7	-0.4	0.0	0.2	0.5	0.6	0.8
Currency rate [4]																			
EUR	1.52	1.54	1.55	1.57	1.64	1.59	1.51	1.38	1.23	1.21	1.23	1.2	1.07	1.09	1.13	1.15	1.11	1.07	1.09
USD	1.35	1.24	1.25	1.25	1.2	1.08	1.09	1.04	0.89	0.94	0.93	0.90	0.96	0.98	0.98	0.98	0.99	1.00	1.05

1) State Secretariat for Economic Affaires SECO, revised 2012 in accordance with NOGA 2008 (Nomenclature Générale des Activités économiques), statistical series retrospectively revised
2) Consumer Price Index, Swiss Federal Statistic Office BFS
3) State Secretariat for Economic Affaires SECO
4) Swiss National Bank SNB

4.2 Forest products production and trade 2017-2018; Estimations and Forecasts 2019–2020

UNECE

TF1

TIMBER FORECAST QUESTIONNAIRE

Roundwood

Country: Switzerland | Date: 16.09.2020

Name of Official responsible for reply:

Achim Schafer

Official Address (in full):

Federal Office for the Environment FOEN

3003 Bern

Telephone:+41584691796 | Fax:

E-mail: achim.schafer@bafu.admin.ch

Product Code	Product	Unit	Historical data 2018	Historical data 2019	Revised 2019	Estimate 2020	Forecast 2021
1.2.1.C	SAWLOGS AND VENEER LOGS, CONIFEROUS						
	Removals	1000 m^3 ub	2'464	1'971 N	1'978	1'850	1'900
	Imports	1000 m^3 ub	73 #	75 #	58	55	60
	Exports	1000 m^3 ub	459 #	550 #	345	340	350
	Apparent consumption	1000 m^3 ub	2'078	1'496	1'690	1'565	1'610
1.2.1.NC	SAWLOGS AND VENEER LOGS, NON-CONIFEROUS						
	Removals	1000 m^3 ub	232	220 N	216	205	220
	Imports	1000 m^3 ub	50 #	50 #	49	50	50
	Exports	1000 m^3 ub	164 #	170 #	172	165	170
	Apparent consumption	1000 m^3 ub	119	100	93	90	100
1.2.1.NC.T	of which, tropical logs						
	Imports	1000 m^3 ub	0 #	0 #		0	0
	Exports	1000 m^3 ub	0 #	0 #		0	0
	Net Trade	1000 m^3 ub	0	0		0	0
1.2.2.C	PULPWOOD (ROUND AND SPLIT), CONIFEROUS						
	Removals	1000 m^3 ub	383	303 N	324	330	335
	Imports	1000 m^3 ub	24 #	20 #	20	20	20
	Exports	1000 m^3 ub	71 #	80 #	85	90	90
	Apparent consumption	1000 m^3 ub	335	243	259	260	265
1.2.2.NC	PULPWOOD (ROUND AND SPLIT), NON-CONIFEROUS						
	Removals	1000 m^3 ub	206	167 N	179	185	190
	Imports	1000 m^3 ub	4 #	5 #	3	3	3
	Exports	1000 m^3 ub	58 #	60 #	38	40	40
	Apparent consumption	1000 m^3 ub	151	112	144	148	153
3	WOOD CHIPS, PARTICLES AND RESIDUES						
	Domestic supply	1000 m^3	739 C	742 C	737	730	735
	Imports	1000 m^3	606 C	517 C		520	530
	Exports	1000 m^3	182 C	43 C	159	140	145
	Apparent consumption	1000 m^3	1'162	1'217		1'110	1'120
1.2.3.C	OTHER INDUSTRIAL ROUNDWOOD, CONIFEROUS						
	Removals	1000 m^3 ub	6	5	3	5	4
1.2.3.NC	OTHER INDUSTRIAL ROUNDWOOD, NON-CONIFEROUS						
	Removals	1000 m^3 ub	4	4	1	3	2
1.1.C	WOOD FUEL, CONIFEROUS						
	Removals	1000 m^3 ub	755	666	825	850	900
1.1.NC	WOOD FUEL, NON-CONIFEROUS						
	Removals	1000 m^3 ub	1'148	993	1'088	1'100	1'150

The historical data are from the most recent Joint Forest Sector Questionnaire (blank) or the Timber Forecast Questionnaire (#). For explanations please see cover letter.

These data are flagged with E, R, N or C for secretariat estimate, repeat, national estimate or calculated totals (from subitems). If there is no flag, this indicates officially supplied data.