2019 Market Statement for Switzerland Developments in Forest Product Markets

Pilatus Aircraft Ltd aircraft assembly hall in Stans NW
(image source: Strüby Holzbau AG, Seewen SZ)
Contents

1 General economic trends ................................................................................................................. 3
  1.1 Developments up to mid-2019 ................................................................................................. 3
  1.2 Outlook ..................................................................................................................................... 3

2 Developments in forest products markets ....................................................................................... 4
  2.1 Overview and general trends ................................................................................................. 4
  2.2 Outlook ..................................................................................................................................... 4
  2.3 Excellence in Swiss timber construction .............................................................................. 5
  2.3. #Woodvetia 2.0 – campaign to promote Swiss timber relaunched in 2019 ...................... 25

3 Roundwood: sawlogs, pulpwood and fuelwood ............................................................................ 26
  3.1 Developments up to mid-2019 ................................................................................................. 26
  3.2 Timber assortments and price trends ..................................................................................... 27
  3.3 Economic situation of the forestry sector ............................................................................. 28
  3.4 Wood energy ........................................................................................................................... 29
  3.5 Certified forest and forest products ....................................................................................... 30
  3.6 Sawnwood ............................................................................................................................. 31
  3.7 Pulpwood-processing sector ................................................................................................. 32

4 Tables ........................................................................................................................................... 34
  4.1 Economic Indicators for Switzerland .................................................................................... 34
  4.2 Forest products production and trade 2017-2018; Estimations and Forecasts 2019–2020 . 35

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1 General economic trends

1.1 Developments up to mid-2019

For the reporting period 2018 to mid-2019, a key framework condition for the Swiss export industry—the euro exchange rate—was very unstable. The Euro exchange rate rose from 1.17 CHF/EUR in January 2018 to 1.19 CHF/EUR in April 2018—only to slip back to 1.09 by September 2019 with a tendency to fall further. The dispute on trade policy between the USA and China and the as yet unknown real impact of Brexit and the associated more uncertain and gloomier economic outlook are probably the main reasons for this movement in the Euro exchange rate. In the EU the political instability in Italy now represents another high risk to the economy.

In January 2018 the USD/CHF exchange rate began at 0.96 CHF/USD, reached its peak in April 2019 at 1.01 CHF/USD and fell slightly to 0.99 by September 2019. The Swiss National Bank (SNB) will have to maintain its low interest policy to prevent the Swiss franc becoming too attractive as a safety 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.

Under pressure from the low euro exchange rate, the Swiss export economy became significantly more efficient and can therefore rapidly take advantage of the favourable international economic environment until the first quarter of 2019. The status of the chemical and pharmaceutical industry will be further strengthened. In the machinery and metalwork industries in particular, the situation has eased significantly. Even tourism, which is heavily dependent on the exchange rate, has been able to make up considerable ground. The adaptation of Swiss tourism to new customer groups, particularly from Asia and the Gulf States, has contributed to this. The higher inflation in European neighbouring countries has also supported the positive effects of the stronger euro. More visitors from neighbouring EU countries are also holidaying in Switzerland again.

At 2.5%, Swiss GDP growth was much stronger in 2018 than in 2017 when it was only 1.0%. Manufacturing industry contributed significantly to this at 1.5%. After a pause in the 3rd quarter of 2018, this sector again grew dynamically, particularly in the chemical and pharmaceutical industry. Other industrial sectors also reported rising sales, including the watch, clock and precision instruments industry and the food industry. Manufacturing industry benefited from the strong international demand for Swiss products. Goods exports showed strong growth of 5.6%. This development is generally continuing in the first half of 2019.

1.2 Outlook

The outlook for the Swiss economy was beginning to look more pessimistic towards the middle of 2019. A principal reason for this is the trade dispute between the USA and China. The September forecasts by experts for growth in GDP are 0.8% for the full year 2019 and 1.7% for 2020. The economic outlook for 2020 is shaped by considerable uncertainty around the evolution of the euro/franc exchange rate, the lack of clarity on how the economic war between the United States and China will pan out and potentially escalate, and by tensions within the EU and between the EU and Turkey. The Swiss National Bank therefore intends to continue to stick to its low interest rate policy, even some-times using negative interest rates, which in turn will limit investment opportunities for institutional investors and focus investment on real estate. This increases the risk of a real estate bubble, also given the continuing decline in immigration figures and growing housing vacancy rates in certain regions. However, there is also growing interest in renovating old buildings and investments in making homes more energy-efficient. The incentives for these set by politicians, however, are still insufficient. The impact on the automotive supplier sector with its importance for Switzerland of the changes in the international automotive industry, particularly in Germany, due to the trend towards electric cars should not be underestimated. The sector is however already relatively well placed as regards materials and parts for interior fittings, components for electric cars etc.

On energy policy, important political strategies will be laid down in the coming months, partly for climate protection reasons. They are likely to offer greater climate protection, based on the changes expected in the majority situation after the parliamentary elections in October 2019. The effects on the
Swiss economy will vary from sector to sector. It will be important to respond positively to these challenges and to make best use of the opportunities presented by these new requirements in order to secure a competitive advantage with climate-friendly technologies.

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

2 Developments in forest products markets

2.1 Overview and general trends

Over the course of 2018 and the first half of 2019, a key economic parameter for the Swiss forestry and timber industry – the euro/franc exchange rate – saw a significant recovery. This positive development culminated in spring 2018, after which point it declined again. Even so, this development took some pressure off Swiss industry in general and also raw wood prices for a few months and reduced the price advantages of imports of sawnwood and glued semi-finished products for construction. Conversely, ex-ports of raw wood, sawnwood and wood-based panels to the important neighbouring markets of Italy, Germany, France and Austria became more competitive. Sawmills in Switzerland, Germany, Austria and France reported above-average capacity utilisation and buoyant trade in the forestry and timber sectors during the reporting period. Global warming and the rising summer temperatures and increasing periods of drought are also a growing challenge for Swiss forestry in terms of forest management, particularly in the choice of tree species, e.g. the main tree species, spruce and beech, are particularly affected by climate change. The last three summers of 2017, 2018 and 2019 with periods of heat and drought lasting for weeks are increasingly making themselves felt in the condition of the forests. These have become more fragile in the reporting period. For this reason and as a result of the windthrows caused by the storm systems Burglind, Evi and Frederike and local Föhns winds (strong southerly winds in the Alps and Prealps), the occurrence of enforced usage timber due to spruce infestation by bark beetles increased sharply in 2019. These additional supplies of poorer quality timber may increasingly be poorly received by the market. This will also have a negative impact on the future evolution of the economics of the forestry enterprises.

This lean period lasting for years has exhausted the financial reserves of the forestry enterprises and the first processing stage, the sawmills, in Switzerland, despite the brief respite during the 2018 recovery. There is still little scope left for major investment in fundamental improvements to the infrastructure. The scope is now somewhat greater again for the sawmills – the first timber processing stages - and they are taking full advantage.

2.2 Outlook

The pressures of climate change have led to a fundamental change of political opinion which was not to be expected until recently. The forthcoming climate policy agenda in 2020 is also likely to give new and greater weight to the CO2 policy arguments for timber as a building material, raw material and energy source. The damage to the forest due to climate change is countered by the possible greater policy weighting for forestry and the timber industry.

The exchange rate between the euro and the Swiss franc, economic development in Switzerland’s neighbouring countries – Italy, France, Germany and Austria – as well as the anticipated further increase in compulsory felling due to bark beetle infestation, will continue to be central issues for the Swiss forestry and timber industry in 2019 and 2020. However, this is set against a positive assessment of sales markets for softwoods and a stable outlook for the difficult sales markets for hardwoods. The boom in timber construction, as well as packaging for exports in the machinery and metalworking industries, will continue to drive strong demand for roundwood and sawnwood in 2019 and into 2020. The outlook is good that an anticipated decline in building activity can be offset by a further increase in the share of timber construction and an increase in energy-efficient renovations in the context of the 2050 Energy Strategy.

The Swiss timber construction enterprises will probably continue to be very successful in the coming years thanks to strong activity in construction and the shift towards timber buildings. Thanks to very active universities and universities of applied sciences in the field of timber construction, and the lively and regular exchange with timber construction businesses, innovations quickly find their way into build-ing practice. A challenge that is becoming ever more pressing is how to improve the protection of
buildings against summer heat due to climate change. This area is already being prioritised in timber construction research. Given the positive effect on climate policy of the use of timber as a building material and raw material, greater potential can be expected. For industrial wood and residues from wood processing, sound demand for woodchips is expected in 2019/2020 from the domestic paper and derived timber products industries. For the paper and paperboard industry and producers of engineered wood boards, the CHF/EUR and CHF/USD exchange rate will also be a major factor in 2019/2020. The paper industry will feel the effects of the falling trend in paper consumption per head and the further digitalisation of the media even more acutely in the coming years. Sawdust and shavings will remain in demand primarily for the production of wood energy pellets.

2.3 Excellence in Swiss timber construction

The share of timber construction continues to grow, particularly in the area of multi-storey 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 underway. 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 Pilatus brings wood to flight – Pilatus Aircraft Ltd aircraft assembly hall in Stans, canton of Nidwalden

Fig. 1 and cover picture Pilatus Aircraft Ltd aircraft assembly hall in Stans, canton of Nidwalden.
(Image source: Strüby Konzept AG, Seewen SZ)

Fig. 2 Pilatus Aircraft Ltd aircraft assembly hall in Stans, canton of Nidwalden.
(Image source: Strüby Konzept AG, Seewen SZ)

Fig. 3 Pilatus Aircraft Ltd aircraft assembly hall in Stans, canton of Nidwalden.
(Image source: Strüby Konzept AG, Seewen SZ)
Timber for construction and gigantic dimensions are also the dominant feature at the newest Pilatus Aircraft building in Stans, canton of Nidwalden.

The new structure is mainly used for the manufacture of fuselage, wing and rudder sets for the Pilatus 24 twin-engine business jet. Production of 50 sets per year is planned. The core of the facility is a riveting machine for aircraft parts developed by Pilatus. The building is designed for a production volume of 140 aircraft per year and 200 workspaces. It is adjacent to the company’s headquarters and is due for occupancy in mid-2019.

- Year of construction: 2019
- Client: Pilatus Aircraft Ltd., Stans, Nidwalden
- Architect: Scheitlin Syfrig Architects, Lucerne
- Contractor: Struby Konzept AG, Seewen, Schwyz
- Frame construction: neue Holzbau, Lungern, Obwalden
- Clear roof span: 52 x 190 m
- Production area: 11,000 m²
- Trusses: 6 weighing 16 tonnes each
- Timber construction: ca. 3,200 m³ (all certified Swiss timber)
- Construction cost: ca. CHF 30 million
2.3.2 Timber construction in Switzerland – example 2:
Cathedral of Labour – New BLS production building at Bönigen, canton of Bern, Prix Lignum 2018, 1st place, central region, national rating special prize Swiss timber.

Fig. 5 BLS production building with translucent façade, Bönigen, canton of Bern.
(Image source: Schwaar & Partner AG, Bern)

Fig. 6 BLS production building with translucent façade, Bönigen, canton of Bern.
(Image source: Schwaar & Partner AG, Bern)
Cathedral of Labour – New BLS production building at Bönigen, canton of Bern

BLS is one of the largest transport companies in Switzerland. It operates and maintains a 420 kilometre rail network. BLS’s activities also include bus services, car trains, shipping and freight transport. It is currently renewing its workshops at Bönigen on Lake Brienz. A new timber-construction facility has been built at Bönigen for heavy maintenance such as inspection and repair of trains and individual components. The 25 metre wide building has a structural frame of glulam beams supported in the centre and is characterised by spaciousness and functionality. The translucent façade gives the building an unexpected lightness despite its size. A suspended ceiling over two thirds of its area is of wood-concrete-composite construction. The craneway girders are of beech veneered plywood.

- Year of construction: 2017
- Award: 2018 Prix Lignum, 1st place central region, national rating, special prize, Swiss timber
- Client: BLS, Bern
- Architecture: Schwaar & Partners, Bern
- Timber construction engineers: Indermühle Civil Engineers, Thun, canton of Bern
- Timber construction: Brawand Carpentry, Grindelwald, canton of Bern
- Façade: Bauimpuls, Heimberg, canton of Bern
- Dimensions: Length 57.85 m, width 24.82 m, ridge height 14.30 m
- Materials: Glulam and two-ply timber, spruce, 555 m³. Three-ply timber boards for floors, 34 m³. Three-ply boards for roof, 67 m³, beech veneered plywood (for craneway girders) 27.5 m³

Fig. 7 BLS production building with translucent façade, Bönigen, canton of Bern.
(Image source: Schwaar & Partner AG, Bern)
2.3.3 Timber construction in Switzerland – example 3: Anthroposophical design in ash wood – Ekkhartshof community and restaurant building at Lengwil, canton of Thurgau.

**Fig. 8** Ekkartshof community and restaurant building at Lengwil, canton of Thurgau. (Image source: Lukas Imhof Architektur GmbH, Zürich)

**Fig. 9** Ekkartshof community and restaurant building at Lengwil, canton of Thurgau. (Image source: Lukas Imhof Architektur GmbH, Zürich)
Anthroposophical design in ash wood – Ekkhartshof community and restaurant building at Lengwil, canton of Thurgau

This residence and workspace for people with care needs was built in the 1970s as an artwork of anthroposophical design in the heart of the lakeland scenery of Thurgau. A new restaurant was intended to become the focus of social life. The dining room frames the landscape with a columned hall of ash wood which reflects and reinterprets the anthroposophical design of the existing buildings. The columned hall is self-supporting and glazed all round and sits on a concrete plinth which emerges from the slightly sloping terrain.

- Client: Lengwil Ekkhartshof Association/Canton of Thurgau Building Dept
- Contract type: Selective project competition
- Year of construction: 2018
- Architect: Lukas Imhof Architects, Zurich
- Timber construction engineer: Josef Kolb AG, Romanshorn, Thurgau
- Timber construction in ash glulam: neue Holzbau AG, Lungern, Obwalden
- Cost: CHF 12 million (1st phase, construction of a restaurant and multi-purpose building seating 200, with a restaurant kitchen), CHF 24 million (project total)
- Dimensions: Length 28.90m, width 15.10 m, height 04.08 m
2.3.4 Timber construction in Switzerland – example 4: 2018 reinterpretation reflecting vernacular architecture – Solothurn rowing club boathouse

Fig. 11 Solothurn rowing club boathouse in Solothurn
(Image source: phalt Architekten AG, Zürich/Solothurn)

Fig. 12 Solothurn rowing club boathouse in Solothurn
(Image source: phalt Architekten AG, Zürich/Solothurn)
Reinterpretation reflecting vernacular architecture: Solothurn rowing club boathouse in Solothurn

Solothurn rowing club, founded in 1910, built a large new boathouse in the Swiss vernacular style in 1919. This impressive timber building with a balcony projecting over the River Aare and vast hipped roof characterises the local style in this sensitive river environment. The poor condition of the building and the increased requirements of the rowing club required a new building. Within the stringent planning conditions, the roof space could be made usable and additional floor space created by lowering the floor in the boat store. Like its predecessor, the new building is mainly of timber construction and blends very well with the design of the original. The colour design typical of the vernacular style has been adopted and adapted. In combination with the textured finish formed by narrow cover slats and the periodic configuration, this gives the long boathouse structure an elegant impression of depth.

- Year of construction: 2017
- Client: Solothurner Ruderclub
- Architecture: phalt Architekten AG, Solothurn/Zürich
- Construction management: Anderegg Partner AG, Bellach, Solothurn
- Timber construction engineer: Makiol Wiederkehr AG, Beinwil am See, Aargau
- Timber construction: Späti Holzbau AG, Bellach, Solothurn
2.3.5 Timber construction in Switzerland – example 5:
Imperial prospect: The Napoleon Tower in Hattenhause-Wäldi, canton of Thurgau.

Fig. 14: The Napoleon Tower in Hattenhause-Wäldi, canton of Thurgau.
(Image source: Urs Keller)

Fig. 15: The Napoleon Tower in Hattenhause-Wäldi, canton of Thurgau.
(Image source: Urs Keller)
Imperial prospect: The Napoleon Tower in Hattenhouse-Wâldi, canton of Thurgau

A few kilometres from the Swiss residence of Louis Napoleon, later the French Emperor Napoleon III – Schloss Arenenberg in Salenstein on Lower Lake Constance - stands the Napoleon Tower. This lookout tower was erected in remembrance of a 29 metre high lookout tower built in 1829 on the initiative of Louis Napoleon. The tower is open to the public and offers a panoramic view of the peaks of the Alpstein mountains, Lake Constance, the rural landscape of Thurgau and the Hegau volcanic cones. The wooden tower stands on a concrete plinth. Its viewing platform is reached by a spiral staircase.

- Year of construction: 2017
- Client: Förderverein Napoleonturm, Hattenhausen, canton of Thurgau
- Architect: dransfeldarchitekten AG, Ermatingen, canton of Thurgau
- Timber construction engineer: Krattiger Engineering, Happerswil-Buch, canton of Thurgau
- Construction companies: ARGE regional timber constructors, Märstetten (Kämpf Holzbau AG, Raperswilen / Sommerhalder Holzbau AG, Märstetten / Ilg Holzbau, Ermatigen / Brenner & Jöhr Holzbau GmbH, Engwilien)
- Main supporting structure: neue Holzbau AG, Lungern, canton of Obwalden
- Timber used: untreated larch
- Dimensions: Height 40.50 m, length 7.00 m, width 7.00 m
2.3.6 Timber construction in Switzerland – example 6: Stylish conversion rather than demolition – Alpine Loft in Mathon, canton of Graubünden

Fig. 17 Alpine Loft in Mathon, canton of Graubünden. (Image source: office haratori, Zürich)

Fig. 18 Alpine Loft in Mathon, canton of Graubünden. (Image source: office haratori, Zürich)
Stylish conversion rather than demolition: Barn conversion to Alpine Loft in Mathon, canton of Graubünden

The structural changes in agriculture are increasingly leaving old, vernacular style barns standing empty. A sympathetic conversion to a home in keeping with the traditional local built environment gives the existing fabric a new future whilst conserving resources. Wood is a building material that can show its strength on conversions of this kind, being easy to work with, highly flexible, organic and lightweight. In Mathon in Graubünden, a barn which was in disrepair and would have left a gap in the local landscape had it disappeared was converted to a pine log Alpine Loft with areas for working and living. It integrates into its surroundings in a respectful and inconspicuous manner.

- Year of construction: 2016
- Award: 2018 Lignum Prize, East Region approved
- Client: office haratori, Nahoko Hara, Zeno Vogel, Zurich
- Architecture: office haratori, Nahoko Hara, Zeno Vogel, Zurich/office winhov, Jan Peter Wingender, Amsterdam
- Civil engineers: Conzett Bronzini Partners, Jürg Conzett, Chur, Graubünden
- Timber construction: Mani, Domenic Mani, Andeer, Graubünden
- Materials: Untreated pine
2.3.7  Timber construction in Switzerland – example 7:  
A new town made of wood – “sue & til” complex, Winterthur Hegi, canton of Zurich

Fig. 21 “sue & til” complex, Winterthur Hegi, canton of Zurich.  
(Image source: Michael Meuter Lignum)

Fig. 22 “sue & til” complex, Winterthur Hegi, canton of Zurich.  
(Image source: Michael Meuter Lignum)
Fig. 23 “sue & til” complex, Winterthur Hegi, canton of Zurich.
(Image source: Michael Meuter Lignum)
A new town made of wood – “sue & til” complex, Winterthur Hegi, canton of Zurich.

A spatially dense urban complex for residential and commercial use with over 300 homes has been built in Winterthur-Neuhegi, the new urban centre on the former Sulzet industrial site on the edge of Winterthur. The residents of this large complex of wood and wood-based hybrid construction should experience totally modern living in a well-designed space whilst helping to conserve natural resources. The aims of the 2000-Watt Society are to reduce energy consumption and replace fossil fuels with renewables.

The complex encloses a landscaped courtyard and has several green areas on the outside. Increased efficiency and new technologies are intended to reduce the continuous power required at primary energy stage in the long term from the current 6000 to 2000 Watts per head per year. Only 500 Watts of this will come from fossil fuels in the future. The industrially manufactured timber structures for the large complex were factory made in sections and assembled on site. Prefabricated units were developed for the bathrooms so that the rapid tempo of the timber construction was not held up. The size of the project meant that individual components such as the ceilings could be newly developed and then tested and optimised for their acoustic properties at the Federal Laboratories for Materials Testing and Research in Dübendorf.

- Year of construction: 2016-2018
- Client: Allianz Suisse, Zurich/Impelina Schweiz AG, Winterthur
- Architecture/Planning: webebrunner architects, Boris Brunner, Zurich, and soppelsa architects, Mario Soppelsa, Zurich
- Engineers: Timbatec AG, Andreas Burgherr, Zurich, and Dr. J. Grob & Partners, Max Schläfli, Winterthur
- Timber construction: Impelina Switzerland Modernisation & Development – Timber Construction, Simon Beeler, Rumlang
2.3.8 Timber construction in Switzerland – example 8: Solar ark in the Graubünden mountains – Schneller Bader house and studio in Tamina, canton of Graubünden.

Fig. 25 Bader Schneller house and studio in Tamina, canton of Graubünden. (Image source: Prix lignum)

Fig. 26 Bader Schneller house and studio in Tamina, canton of Graubünden. (Image source: Prix lignum)
**Fig. 27 Bader Schneller house and studio in Tamina, canton of Graubünden.**
(Image source: Prix lignum)

**Solar ark in the Graubünden mountains – Bader Schneller house and studio in Tamina, canton of Graubünden.**

Resembling an elongated ship’s hull – like an ark – the Bader Schneller house sits on a slope at the edge of the village of Tamins. The simple, clearly structured building evokes a barn with its battened sliding doors in untreated pine slats. On the south side of the roof, 108 m² of integrated photovoltaic panels generate about 44% more energy than the house needs.

With the annual surplus solar power of the installation, five electric cars could each drive 12,000 km per year. The concrete basement is built into the slope and serves as a studio. The upper floor features lavish use of wood and consists of an airy loft glazed on both sides which has a kitchenette at one end and is set between cabin-like end rooms for sanitary facilities and sleeping.

- **Year of construction:** 2016
- **Client:** Schneller Bader, Tamina GR
- **Architecture:** Bearth und Deplazes, Chur
- **Awards:** Norman Foster Solar Award 2017 of the Solaragentur Schweiz in the category “Plus-Energie-Bauten [Energy-plus buildings]”
- **Energy demand:**
  - Hot water 3080 kWh/a
  - Heating 9020 kWh/a
  - Electricity 3730 kWh/a
  - Electricity production PV equipment 22750 kWh/a
  - Electricity surplus 6920 kWh/a (44%)
2.3.9 Timber construction in Switzerland – example 9:
A peaceful and poetic place – summer house in the historic terrace garden on the Rheinsprung in Basel.

Fig. 28 Summer house in the historic terrace garden on the Rheinsprung in Basel.
(Image source: Florian Rauch, Basel)

Fig. 29 Summer house in the historic terrace garden on the Rheinsprung in Basel.
(Image source: Florian Rauch, Basel)
A space for peace and poetry – Summer house in the historic terrace garden on the Rheinsprung in Basel.

In 2016/2017, the historic terrace garden of the old university on the Rheinsprung in Basel, with its precious remains from different eras, was renovated and enhanced by a modern interpretation of a summer house in a pleasure garden. A peaceful and poetic space was created between the Weissen and the Bauernhaus above and the banks of the Rhine below, right in the centre of Basel. The square pavilion with its filigree trellising of larch slats takes up the support frame and espalier motif which was popular in the Baroque period. The higher density Swiss mountain larch wood grown at 1300 metres above sea level was installed in strict compliance with the principles of structural timber protection to guarantee long life without the use of environmentally harmful chemical wood protection products.

- Year of construction: 2017
- Architecture / Planning:
  bau kultur landschaft gmbh, Florian Rauch, Basel und Stauffer Rösch AG, Landschaftsarchitekten, Basel
- Garden history consultant:
  garden historian, Dr. Johannes Stoffler, Zürich
- Preservation of historical monuments consultant:
  Cantonal historical monuments preservation office, Basel-City
2.3. #Woodvetia 2.0 – campaign to promote Swiss timber relaunched in 2019

The awareness campaign #Woodvetia initiated by the Federal Office for the Environment (FOEN), ran in 2017/2018 and used humour and imagination to successfully raise awareness of the far-reaching significance of timber to the Swiss population. It will therefore be relaunched and continued in 2019 as #Woodvetia 2.0. (Source: FOEN/#Woodvetia.)

*Fig. 31 Psychiatrist and adventurer Bertrand Piccard (circumnavigation of the Earth in a hot air balloon in 1999 and in a solar aircraft in 2015/2016) with the sculpture of his grandfather August Piccard (1884 – 1962) and the artist Inigo Gheyselinck.*

(Source: FOEN/#Woodvetia)
3 Roundwood: sawlogs, pulpwood and fuelwood

3.1 Developments up to mid-2019

Unlike previous reporting periods, Swiss forests were severely affected by significant storm damage in the current reporting period. Storm “Eleanor”, which hit Switzerland on 3–4 January 2018, and the other January storms “Evi” and “Frederike” led to forest damage in all cantons except Ticino. According to a survey of the cantons conducted by the Federal Office for the Environment (FOEN), a total of approximately 1.3 million m$^3$ of wood was felled by storm “Burglind” which equates to around a quarter of Switzerland’s annual wood consumption. This does not include any additional, smaller amounts following storm “Evi” on 17 January and “Frederike” on 18 January 2018. As the storm damage did not exceed annual wood consumption, these storms are not nationally significant, as was the case with storm “Lothar” in 1999. Because these storms occurred in January, however, the accumulated windthrow timber could be included in current wood consumption and absorbed by the market. That storm occurred in a period of rising bark beetle numbers. Taken together with the dry summers of 2018 and 2019, bark beetle infestation significantly increased. Beetle-infested wood totalled 229,000 m$^3$ in 2016, 326,000 m$^3$ in 2017 and an estimated 735,000 m$^3$ in 2019, with a tendency to keep rising. The dry summer is also causing the silver fir to weaken and be more susceptible to infestation by the silver fir bark beetle.

In 2018 the market was still relatively capable of absorbing the timber which had to be used due to windthrow and bark beetle infestation. This is becoming increasingly difficult as 2019 progresses. At 5.20 million m$^3$, the total Swiss timber harvest in 2018 was 10.9% higher than in 2017 (4.69 million m$^3$). This marked increase is to a large extent due to the increased accumulation of wood which must be used. The total wood harvest originating from public forests was 3.41 million m$^3$ in 2018, which is slightly up from the prior-year level of 3.07 m$^3$. The harvest from private forests rose from 1.61 million m$^3$ in 2017 to 1.78 m$^3$ in 2018 – an increase of 10.6%. The softwood contribution of the total timber harvest in 2018 was 3.61 million m$^3$ or 69%. Against the trend of recent years, this was higher than in 2017 at 64%. This reflects the high incidence of softwood which had to be used as a result of storms and bark beetle infestation. In 2018, softwood made up 2.46 million m$^3$ or 91% of the 2.70 million m$^3$ of sawlogs. Softwood made up 0.38 million m$^3$ or 65% of the 0.59 million m$^3$ of pulpwood harvested in 2018. In contrast, the 2018 fuelwood harvest of 1.90 million m$^3$ was dominated by hardwood with a 1.15 million m$^3$ or 60% share.

Harvested volumes increased for all the timber assortment groups surveyed in 2018, apart from energy logs. At around 13.9%, sawlogs, the most significant assortment group in terms of volume, saw the largest increase, to 2.70 million m$^3$. The harvest of wood chips, which are mainly used in large wood chip boilers, also saw a marked increase of 10.0%, to 1.16 million m$^3$. The renewed decline in energy logs by 0.5% to 0.74 million m$^3$ is in line with the trend that has persisted for several years and reflects the advance of automatic wood-fuelled installations that run on wood chips.

![Fig. 32 - Wood harvest in Switzerland 1990 - 2018 in m$^3$](image)
3.2 Timber assortments and price trends

In 2018 some 2.70 million m$^3$ of roundwood (sawlogs) were harvested. This is 13.9% more than in 2017 (2.37 million m$^3$). In the first few months of 2018 the Euro exchange rate against the Swiss franc improved to a monthly average of 1.19 CHF/EUR, which temporarily eased the situation for the Swiss sawmills and improved the conditions for exporting roundwood and sawn timber. It also made it easier to export the spruce/fir roundwood left by the storm in January 2018. These exports rose from the 2017 level by 46% to 422,000 m$^3$. The increase in spruce/fir roundwood exports was 47% to Italy and as high as 85% to Austria. No additional quantities were exported to France. Conversely, imports of spruce/fir roundwood fell by 15%, and by 13% from Germany.

The sawmills were well or very well supplied with roundwood in 2018. At the beginning of 2019 the demand for fresh spruce/fir sawn timber was soon established, even though large quantities of beetle-infested wood were still to be processed. The demand for hardwood sawlogs is relatively high. The market for beech sawlogs, the most important variety of hardwood in terms of volume, remains weak due to the lack of suitable processors. The majority of the traditional processing capacities for Swiss beechwood in northern Italy ceased operation in recent years. The price of beech sawlogs remained under pressure during this reporting period. The efforts to develop the production of beech glulam are forging ahead. Together with the Department of Architecture, Wood and Civil Engineering of the Bern University of Applied Sciences further fundamentals for the production, sorting, strength testing and use of beech glulam products may be obtained. Production may be launched. This collaboration to develop high performance laminated timber is continuing in 2019.

The harvesting of hard sawlogs (Laubholz) decreased in 2018 by 5.7 % to approximately 232,000 m$^3$, of which 55,000 m$^3$ was exported. These exports fell markedly between 2016 and 2017. At only around 32,000 m$^3$ in 2018, imports of hard stemwood were also considerably lower than exports.

The harvesting of energy wood increased in 2018 by 5.7 % to 1.90 million m$^3$ and that of wood for the derived wood products and paper industries (“industrial wood”) increased by 16.3 % to 0.59 million m$^3$. Hence the supply of wood shifted further away from higher quality roundwood assortments to lower quality assortments for industrial processing and, above all, energy production. Medium and lower quality beech roundwood, large volumes of which were exported to Italy or processed in Switzerland into the 1990s, now enter the expanding energy wood market.

**Fig. 33 - Price index for sawlogs, 2001-2018 (Sep-Oct 2015 = 100)**
(Source: Swiss Federal Statistical Office)
Fig. 34 – Price index for industrial wood (pulp wood) and for energy wood, 2001-2018 (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. The analyses of the operating results from the test network for the forestry year 2018 reveals a trend similar to the previous two periods. Timber yields remain stable across all assortments and areas, with slight increases in fuelwood and stem hardwood.

The overall results again confirm the trend in loss reduction apparent for a number of years (~ 42 CHF/ha). The Prealps are the only forest region where the overall result has worsened slightly from the previous year. Despite this, the Prealps have the best overall results – along with the Jura, where the loss is reduced to less than a third of the previous year’s figure at -21 CHF/ha.

Forest management: Throughout Switzerland the overall result for forest management of -62 CHF/ha is better at -55 CHF/ha. The timber yields per cubic metre fall only slightly from 67 to 66 CHF/m³. The reason for this improvement is the increased yields of 55 CHF/ha. They result from a higher sales volume and correspondingly higher contributions from the sale of timber. However, the 2018 total costs of 574 CHF/ha are also higher than in 2017 by 48 CHF/ha. The largest share of this cost increase can be attributed to the additional costs of the timber harvest (43 CHF/ha at the 2nd production stage). Administrative and other activities account for smaller percentages. Due to the higher usage volume, the harvesting costs per cubic metre only rise by one CHF/m³ to 82 CHF/m³. This phenomenon is most evident on the Central Plateau, where by far the highest timber harvesting costs per unit area at 603 CHF/ha are to be found.

With a 30% increase over the previous year, the biggest cost impact is also recorded in this region. Due to the good access and more efficient harvesting methods on the flat Central Plateau, this cost increase of 0.30 CHF/m³ to 60 CHF/m³ is still very small on a per unit volume basis. The opposite is true in the Alps, where timber harvesting costs per unit area are lowest due to low intensity of use (252 CHF/ha). However, the more costly harvesting methods (e.g. helicopter or cable crane) result in the highest harvesting costs per unit volume of 141 CHF/m³.

Meanwhile, the costs for infrastructure of 61 CHF/ha remain at a similar level to 2017. With the exception of the Alps, the costs of the 1st production stage (young forest tending, establishment of a stand) are reduced slightly overall by 3 CHF to 56 CHF/ha.

Looking only at timber harvesting without contributions (contribution margin 1a), the figures have been decreasing for three years to the current -16 CHF/m³. Currently these figures are only positive in the Central Plateau and the Jura. When the other forest management costs are added, the result is also
3.4 Wood energy

In 2018, Switzerland’s final energy consumption decreased by 2.2% to 830,880 TJ compared to the preceding year. This is down to warmer weather conditions with 10.6% less heating degree days and better economic development. However, other factors that determine the long-term growth trend of energy consumption increased in 2018: a 0.7% increase in the average permanent resident population, GDP growth at 2.5 %, a 1.20 % 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 October 2019). In 2018, 15.0 % (39,990 TJ) of primary domestic energy produced (266,310 TJ) came from wood, 50.6 % from hydropower, 22.4 % from household and industrial waste, and 12.0 % from other renewable energy sources (solar, wind, biogas, biofuels and ambient heat).

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.

Six 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. Another new wood-fired power plant with a heat input of 36 MW to be constructed in Sisselerfeld (Basel region) is intended to partially replace an existing gas-fired power plant, enabling an annual reduction in CO₂ emissions of 35,000 tonnes.

The investment decision is due in May 2017, and the wood-fired power plant is due to commence operation in April 2019. The main customers for the energy to be produced by the plant are two large chemical companies. Operating at 86% capacity, the plant is expected to generate 200 gigawatt hours of thermal energy and 42 gigawatt hours of electrical energy annually from 110,000 tonnes of wood. The new plant, one of the largest biomass power plants in Switzerland, will reduce CO₂ emissions by around 50,000 tonnes per year.

Construction will begin on a second wood-fired power plant in Basel in early 2017, which is expected to yield an annual reduction in CO₂ emissions of 19,000 tonnes. The new plant, which will be fuelled by wood chips, is expected to generate around 80 gigawatt hours of thermal energy and 27 gigawatt hours of renewable electricity. A large portion of the wood chips will be sourced from forests in the region, but wood residues and waste wood will also be used. The power plant will commence commercial operations in winter 2019/2020. The carbon neutral percentage of the district heating produced will...
then increase from approximately 60% currently to 68%. The fuelwood required will be delivered to the plant as wood chips. A large proportion of this material comes from the region’s forests and some derives mainly from countryside management. The wood-fired power plant II is immediately adjacent to the Basel refuse incineration plant, which is the most important production facility for the Basel district heating system, and next to the existing wood-fired plant. Small to medium-sized wood-fired heating systems of local and regional importance are also being installed on a regular basis. Small to medium-sized wood-fired heating systems of local and regional importance are also being installed on a regular basis. For example, a combined heat facility with heat production of 10 MWh per heating period goes into operation in the main town in Obwalden in October 2019.

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

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.

3.5.2 “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 timber construction sector is continuing on the path to success and gaining market shares. In 2017, timber's material share in load-bearing structures across all categories of building stood at 14.1%, in leisure, sports and health at 10.2% and in agricultural buildings at 39.7%. The 2015 revised fire protection standards for timber structures have led to a marked increase in the construction of multi-storey residential and office buildings, with towers up to 80 metres high.

This development is currently gaining momentum. Timber’s material share in load-bearing structures rose between 2011 and 2017 for single-family houses from 12.6% to 13.5% for new builds and from 26.1% to 33.8% for extensions and conversions. Overall, an 18.2% share was achieved for these homes in 2017. In multiple dwelling units, the increases in the same period were from 6.0% to 7.2% for new builds and from 26.1% to 28.5%. The total timber share in load-bearing structures for multiple dwellings reached 14.5% in 2017.

This 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. 1.86 million m$^3$ or 78% of the 2.36 million m$^3$ of roundwood (stemwood) harvested in 2018 was processed in Switzerland by 336 sawmills into 1.12 million m$^3$ of sawn timber. Only about 45,000 m$^3$ or 4.0% of this is hardwood.

![Fig. 35 - Sawnwood production in Switzerland, 2002-2018](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. 36 - Price index for soft sawnwood, 2001-2018 (Sep-Oct 2015 = 100)
(Source: Swiss Federal Statistical Office)

In 2018, 60 % of felled roundwood was turned into sawnwood; 19 % of wood residues were used to generate energy within the forestry operations themselves, 30 % was sold as wood fuel, 44 % went to the paper and derived timber products industries, and 7 % was used in other ways.

3.7 Pulpwood-processing sector
In 2018, 589,000 m³ of industrial wood was harvested, of which 65 % was softwood. 28,000 m³ of industrial wood was imported and 129,000 m³ exported, giving a domestic consumption of industrial wood of 335,000 m³ for 2018.

3.7.1 Wood-based panels
The Swiss particle board and fibreboard industry benefited from the thriving domestic construction economy in 2018 (particularly in the area of residential construction, the finishing of buildings and renovation projects), from the new fire safety regulations introduced in 2015 and from the higher standards of energy efficiency and living comfort. However, it came under particular pressure in the export sector as a result of the low euro exchange rate. Production figures for particle board and fibreboard are no longer collected and published for data protection reasons and must be estimated. In 2018, more than 70 % of the particleboard and fibreboard produced was exported. Switzerland’s only fibreboard manufacturer was sold to a French group in 2016. Soft fibreboard is preferred for the energy-based renovation of buildings and used for high-quality heat and noise insulation. Particleboard is mainly used in the production of furniture and in interior construction. Hard fibreboard is not produced in Switzerland. Due to the process of concentration in the sector, publication of its export data is still very restricted.
3.7.2  Pulp and paper

The Swiss paper and paperboard industry held up well in 2018 in a generally difficult economic environment. However, it suffered from the repercussions of the lifting of the minimum euro/franc exchange rate and from the excess production capacity on the European market, which put pressure on prices and margins.

2017 saw the closure of a factory specialised in the production of high-quality paper. The 9 enterprises still affiliated to the Swiss Pulp, Paper and Paperboard Industry Association (ZPK) manufactured 1.09 million tonnes of paper and paperboard products. Nearly half was produced by the only remaining large industrial paper manufacturer in Switzerland. Pulp has not been produced in the country since 2008.

Digitisation and changes in the media market put pressure on newspaper printing and other graphic paper, while the market for hygiene, household and packaging paper remained strong and recorded a slight upward trend.

This environment has led to radical structural changes in the sector. The paper mill in Utzenstorf, which produced 200,000 tonnes of recycled paper for advertising and newspaper printing a year, 60% of which was for export, closed at the end of 2017. The remaining waste paper has been taken over by the paper mill in Perlen.

![Fig. 37 - Production of wood panels, fibreboards, mechanical pulp and wood pulp 2002-2018](Source: Estimated values; Federal Office for the Environment FOEN, Forest Division)
### 4.1 Economic Indicators for Switzerland

#### Economic Indicators for Switzerland

<table>
<thead>
<tr>
<th>Year</th>
<th>Economic growth in %</th>
<th>Inflation in %</th>
<th>Unemployment rate in %</th>
<th>Interest yields in 10-year government bond in %</th>
<th>Currency rate</th>
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1) State Secretariat for Economic Affairs (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 Affairs (SECO)

4) Swiss National Bank (SNB)
### 4.2 Forest products production and trade 2017-2018; Estimations and Forecasts 2019–2020

**Product Revised Estimate Forecast**

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Product Description</th>
<th>Unit</th>
<th>Historical data</th>
<th>Revised Estimate</th>
<th>Forecast</th>
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</table>
### Timber Forecast Questionnaire

**Forest Products**

**Product Code** | **Product** | **Unit** | **Historical Data** | **Revised Estimate** | **Forecast**
---|---|---|---|---|---
6.C | Sawnwood, Coniferous | m³ | 198 | 205 | 219
| Production | 1000 m³ | 1086 | 1078 | 1120 | 1130
| Imports | 1000 m³ | 334 | 333 | 340 | 345
| Exports | 1000 m³ | 198 | 198 | 230 | 240
| Apparent consumption | 1000 m³ | 1224 | 1213 | 1235 | 1235

6.NC | Sawnwood, Non-Coniferous | m³ | 48 | 50 | 55
| Production | 1000 m³ | 48 | 46 | 50 | 55
| Imports | 1000 m³ | 47 | 42 | 45 | 50
| Exports | 1000 m³ | 25 | 21 | 20 | 25
| Apparent consumption | 1000 m³ | 70 | 68 | 75 | 80

6.NC.T | of which, tropical sawnwood | m³ | 3 | 3
| Production | 1000 m³ | 3 | 3
| Imports | 1000 m³ | 10 | 7 | 7 | 7
| Exports | 1000 m³ | 0 | 0 | 0 | 0
| Apparent consumption | 1000 m³ | 13 | 10 | 10 | 10

7. | Veneer Sheets | m² | 1 | 0
| Production | 1000 m² | 1 | 0
| Imports | 1000 m² | 5 | 5
| Exports | 1000 m² | 2 | 2
| Apparent consumption | 1000 m² | 3 | 3 | 3 | 3

7.NC.T | of which, tropical veneer sheets | m² | 0 | 0
| Production | 1000 m² | 0 | 0
| Imports | 1000 m² | 0 | 1 | 1 | 1
| Exports | 1000 m² | 0 | 0 | 0 | 0
| Apparent consumption | 1000 m² | 0 | 0 | 0 | 0

8.1 | Plywood | m³ | 8 | 6
| Production | 1000 m³ | 8 | 6 |
| Imports | 1000 m³ | 203 | 200 |
| Exports | 1000 m³ | 5 | 4 |
| Apparent consumption | 1000 m³ | 206 | 205 | 205 | 210

8.1.NC.T | of which, tropical plywood | m³ | 0 | 0
| Production | 1000 m³ | 0 | 0
| Imports | 1000 m³ | 3 | 3
| Exports | 1000 m³ | 0 | 0 | 0 | 0
| Apparent consumption | 1000 m³ | 3 | 3 | 3 | 3

8.2 | Particle Board (Including OSB) | m³ | 382 | 370
| Production | 1000 m³ | 382 | 366 | 370 | 370 |
| Imports | 1000 m³ | 240 | 235 | 235 | 240 |
| Exports | 1000 m³ | 246 | 248 | 245 | 240 |
| Apparent consumption | 1000 m³ | 377 | 363 | 360 | 370 |

8.2.1 | of which, OSB | m³ | 0 | 0
| Production | 1000 m³ | 0 | 0 |
| Imports | 1000 m³ | 89 | 96 |
| Exports | 1000 m³ | 1 | 1 |
| Apparent consumption | 1000 m³ | 88 | 93 | 94 | 94 |

8.3 | Fibreboard | m³ | 78 | 75
| Production | 1000 m³ | 387 | 400 |
| Imports | 1000 m³ | 235 | 210 |
| Exports | 1000 m³ | 317 | 292 |
| Apparent consumption | 1000 m³ | 306 | 318 | 309 | 309 |

5.3.1 | Hardboard | m³ | 6 | 9
| Production | 1000 m³ | 6 | 6 | 9 | 9 |
| Imports | 1000 m³ | 27 | 26 | 23 | 23 |

5.3.2 | MDF/HDF (Medium density/high density) | m³ | 71 | 70
| Production | 1000 m³ | 221 | 235 | 225 | 230 |
| Imports | 1000 m³ | 81 | 77 | 60 | 60 |
| Exports | 1000 m³ | 244 | 219 | 225 | 230 |
| Apparent consumption | 1000 m³ | 58 | 77 | 80 | 85 |

5.3.3 | Other fibreboard | m³ | 16 | 18
| Production | 1000 m³ | 166 | 166 |
| Imports | 1000 m³ | 122 | 101 |
| Exports | 1000 m³ | 67 | 67 | 75 | 75 |
| Apparent consumption | 1000 m³ | 221 | 214 | 215 | 220 |

5.4 | Wood Pellets | m³ | 315 | 320
| Production | 1000 m³ | 301 | 315 | 320 | 325 |
| Imports | 1000 m³ | 0 | 0 | 0 | 0 |

**Reference:** R434-1459

**Country:** Switzerland

**Date:** 15.08.2019

**Name of Official responsible for reply:**

**Federal Office for the Environment (FOEN)**

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**Fax:**

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

**Date:** 15.08.2019

**Reference:** R434-1459

**Historical data**

**Exports**

**Imports**

**Production**

**Apparent consumption**