

Forestry insurance: **A largely untapped potential**



Forests are a vital resource for life on our planet but remain largely uninsured today.

Swiss Re believes the re/insurance industry can make a big difference for forestry stakeholders by helping them close the protection gap with viable forest management solutions.

Minding a vital resource


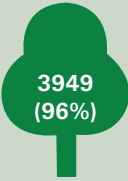
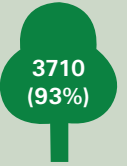
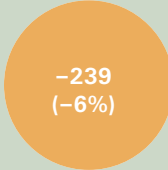


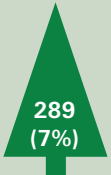






Forests are an indispensable resource for life on our planet: they provide a habitat for flora and fauna, conserve soil and water, offer protection against natural perils and form a vast source of energy and raw materials. They also serve as carbon sinks and thus play an essential role in securing the balance of our climate.

While the vegetation on our planet in its natural state would be dominated by trees, human activity has progressively reduced forest areas globally over the last centuries. Today's forests cover 30.6% or 3.999 billion hectares of the total land area worldwide. Increasing human population and the conversion of tropical forests to agricultural land have been the main causes for the shrinkage of forests. A total area of 129 million ha has been lost since 1990, according to the UN Food and Agriculture

Organisation (FAO) – Global Forest Resources Assessment 2015. Changing environmental conditions also have an effect on our forests in terms of their resilience, although their effects are complex and as yet difficult to gauge. With these climatic and socio-economic factors bearing on our forests, all efforts must be made to ensure that the remaining forests are maintained in a sustainable manner.

Forestry insurance – covering standing timber – can play an important role to this effect, an option that has long gone largely unnoticed in the industry but is gradually picking up. By addressing the related risks and collaborating with forestry stakeholders, the re/insurance industry can help to close the protection gap and ensure that planted forests are managed in an ecologically sound and economically viable way.

The current FAO classification system differentiates the following five types of forest:

Category	Type of forest	Forest area worldwide (million ha)		
		1990	2015	Change
Natural forest 	Primary forest: forest of native species in which there is no human activity and ecological processes are undisturbed – mostly in governmental/public ownership			
	Modified natural forests: forests of naturally regenerated native species in which there are clearly visible indications of human activity – mostly in governmental/public ownership			
Planted forest 	Semi-natural forest: forests comprising native species, established through planting, seeding or assisted natural regeneration			
	Productive forest plantations: primarily established for timber and fibre production			
	Protective forest plantations: primarily established for conservation of soil and water			
Total forest area	 			

*Percentage of global land area

Source: FAO - Global Forest Resources Assessment 2015

Minding a vital resource



Although their land area has diminished by 239 million hectares since 1990, natural forests still represent 93% of the total forest area worldwide. From a re/insurance viewpoint, the natural forests are difficult to value for underwriting purposes due to the multitude of different tree species they contain and the sparse information available regarding age, yield class, growth rates, etc. Accordingly, insurance coverage for these forests is limited to firefighting cost insurance and carbon offset-related products.

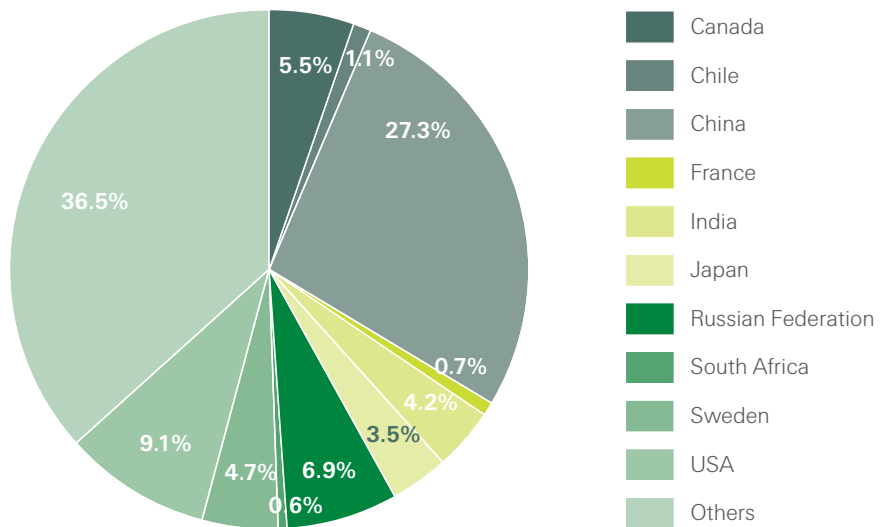
Insuring planted forests

By contrast, the area covered by planted forests has spread rapidly in recent years, with annual growth rates of up to 5.2 million hectares during the past 25 years, mainly driven by afforestation

in China. Since 1990, the planted forest area has increased by 110 million ha in total. Today, this forest category accounts for 7% of the total forest area and features varieties ranging from eucalyptus and pine to oil palm. As planted forests rely on intensive land use and focus on a small number of valuable species, they create a high concentration of values and hence a heightened risk exposure. This is where forestry insurance proves to be a valuable tool. Forestry insurance for planted forests offers protection against fire and windstorm – the two predominant forestry risks – and other risks, such as flood or ice and snow. This brochure focuses on forestry insurance and includes a comparative analysis of five selected markets of South Africa, China, Chile, Sweden and France.



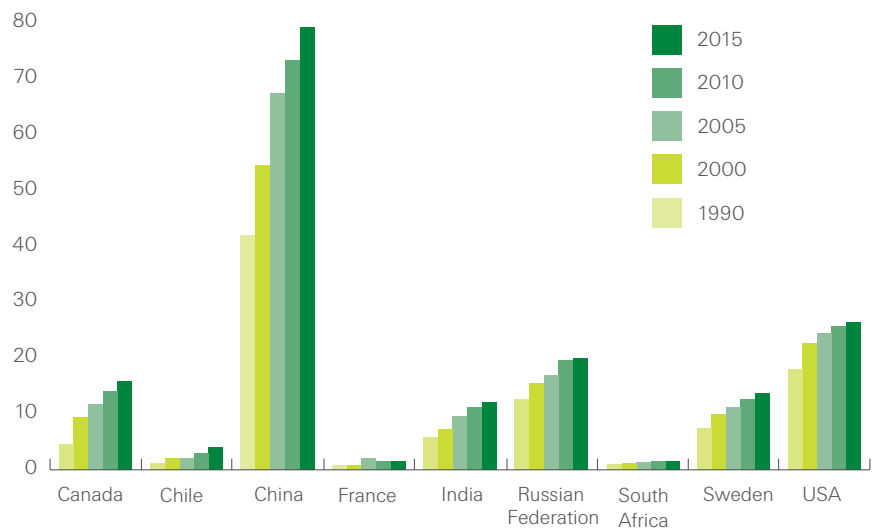
Area of planted forest (in % of total)



Source: FAO – Global Forest Resources Assessment 2015



Changes in area of planted forest, 1990–2015 (million ha)



Source: FAO – Global Forest Resources Assessment 2015

While forestry insurance is a niche insurance line and only a small percentage of today’s planted forests worldwide are insured, it is a growing business, and an increasing number of commercial plantation managers and institutional investors are looking for protection in the re/insurance market. Working within the scope of its sustainability risk framework, Swiss Re seeks to partner with forestry stakeholders to support profitable business development and forestry management activities.

Swiss Re’s sustainability risk framework

Re/insurers covering forestry business may run the risk of unintentionally supporting illegal logging activities or adverse environmental or social impacts. To prevent this, Swiss Re has developed a sustainability risk framework to identify and address the risks in core re/insurance and investment transactions that arise from sustainability challenges. The framework consists of eight policies on sensitive sectors, including the forestry and logging industry.

The framework stipulates that Swiss Re will not provide business support for activities that

- violate local, national or international law or binding agreements regarding illegal logging, including the illegal use of fire
- adversely affect world heritage sites or ecologically sensitive areas
- involve involuntary resettlement, impact vulnerable social groups or indigenous peoples and restrict access of local populations to natural resources
- are conducted in weak regulatory environments without sustainability certification






Managing forestry risks


Commercial forest operations are exposed to a wide range of biological, market and country-related risks, and their owners need to have sound forestry risk management practices in place to

deal with them effectively. The figure below shows an overview of the main risk categories for the operators of commercial forests:

Risk category	Risks
Biological growth	Natural hazards
	Pests, diseases, fungi, animals, insects
Markets	Timber prices
	Input costs
	Land value
Country	Regulatory framework
	Political/legal framework
	Tax regime
	Currency

Forestry insurance covers:

-  FLEXA Windstorm
-  Ice/Snow Flood
-  Hail Earthquake



Fire and windstorm are the two most important insurable risks for planted forests.

Source: Swiss Re

The market and country categories comprise risks entrepreneurs in any industry would encounter and are not specific to forest owners. This brochure focuses on the biological growth category, where forestry risk management and insurance can help to greatly improve the resilience of forestry operations. Risk management measures to this effect include ensuring a well-

diversified set of planted tree species and age classes, using trees that thrive in the local environment, adhering to appropriate rotation periods and applying best silvicultural practices. To protect their forests against the risk exposure to natural hazards, such as fire and windstorm, forestry stakeholders can resort to the services of the insurance industry.

Growing awareness of a niche insurance line

A special feature of forest stands is that, compared to other agricultural crop types, they have remarkably long rotation periods ranging from 10 to 200 years depending on the tree species, geography and timber product in question. Accordingly, the related capital is bound and the trees are exposed to various risks for a very long time.

However, despite their long risk exposure periods, only a small share of the world's forests is currently insured. By contrast, most processing facilities that follow in the production chain after the trees are harvested tend to be covered appropriately by property (fire following) and casualty policies (third party, product and employer's liability), often combined with business interruption covers. Still, awareness of this relatively small niche of standing timber insurance is growing. Commercial plantation managers, institutional investors and timber investment management organisations (TIMOs) are beginning to turn to this type of cover to protect their long-term timber investments.

Key features of forestry insurance

Forestry insurance provides protection against named natural perils. The indemnity amount is determined by assessing the value of the forest to be covered and, after a loss event occurs, comparing this amount to the corresponding post-event value of the forest. The resulting difference minus a deductible retained by the policyholder is the potential insurance indemnification. This forestry cover is used primarily for planted forests, ie for cultivated, commercial forests whose owners work with a dedicated forest management team. They run their forest operations for profit in line with best

management practices and a written forest management plan which, in addition to the items mentioned under the risk management measures above, specifies yield classes, standing timber volumes and annual growth rates. Forestry insurance typically covers timber only up to the point when the trees are harvested. By the same token, coverage does not extend to wood yards, ie harvested logs stored in the forest ready for processing, or to the transportation of the logs.

Covered perils: Fire, lighting, explosion and aircraft (FLEXA)

Fires pose the most serious threat to forestry assets, as they have the potential to devastate huge areas of planted and natural forest and threaten neighbouring structures. An estimated 95% of forest fires are caused by human activity. Managing these risks requires a deep understanding of the processes that determine the frequency and severity of fires. Once ignited, the fire's propagation speed and the availability of combustible material are critical factors for its further development. Propagation is mainly influenced by the topography of a region, by wind speed and other meteorological parameters, such as precipitation or humidity. The severity of a fire is largely determined by fuel loads, weather conditions and the cause of ignition.

Underwriters providing fire coverage also need to understand how the forest owners' fire detection systems work and what firefighting capabilities and equipment are available to protect the insured forests. An encouraging development here is that firefighting management and equipment have improved hugely in recent years, and together with the formation of firefighting associations have led to an overall decline in forest fire losses.

Managing forestry risks

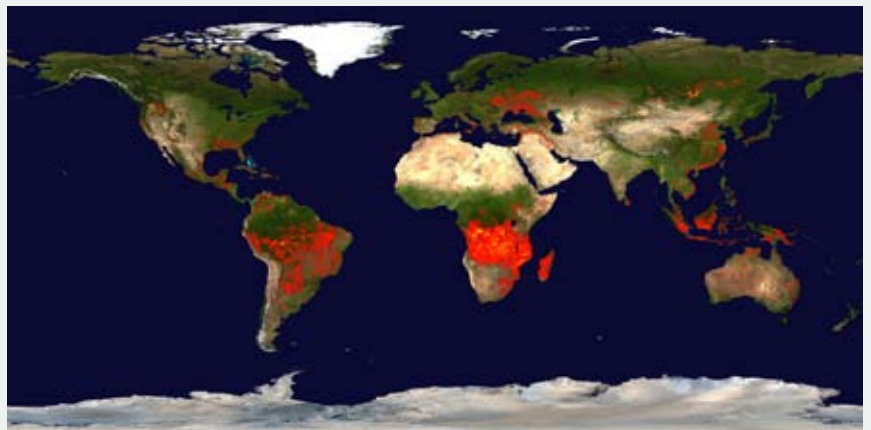
Covered peril: Windstorm

Although they are less frequent than fires, storms are just as capable of creating widespread damage. The correlation between wind speed and the actual loss in the forests depends on various factors, such as tree species, age, diameter and height, and as yet is not well understood. Other influencing factors include soil and subsoil

conditions and topography, as well as thinning activities during the last three years, which has the effect of temporarily destabilising the forest structure and increasing its susceptibility to windstorm. Apart from the two predominant covers for fire and windstorm, insurance against other natural perils, such as snow and ice, flood, hail, earthquake are also available but used less frequently.

Forest fire risk modelling

Fire risk models are becoming increasingly important to understand fire risks and improve fire disaster prevention and mitigation measures. Swiss Re has developed a fire model based on so-called forest fire weather indices to predict the risk of forest fires worldwide. The underlying concept is to link different weather parameters, eg temperature and wind speed, with fire characteristics, such as burnt area and frequency. Using insights into the relationship between weather and fire derived from long weather time series, the expected forest fire risk is estimated for different forest regions or plantations.



This fire map accumulates the locations of the fires detected by MODIS on board the Terra and Aqua satellites over a 10-day period from 19-28 August 2015. Each coloured dot indicates a location where MODIS detected at least one fire during the compositing period. Colour ranges from red, where the fire count is low, to yellow, where number of fires is large. We acknowledge the use of data products or imagery from the Land, Atmosphere Near real-time Capability for EOS (LANCE) system operated by the NASA/GSFC/Earth Science Data and Information System (ESDIS) with funding provided by NASA/HQ. For more detailed information go to: <https://earthdata.nasa.gov/earth-observation-data/near-real-time/citation>

Source: <http://lance-modis.eosdis.nasa.gov/cgi-bin/imagery/firemaps.cgi> (NASA)

Underwriting considerations

To qualify for forestry insurance coverage, the potential policyholder should ideally fulfil the following criteria:

- Sound and sustainable forest management practices, including a certificate label, eg FSC, PEFC
- Appropriate technology, equipment and installations available
- Skilled and experienced management and professional workers
- Transparent risk management procedures, particularly mitigation strategies in critical situations
- Clear management responsibilities and land title
- Comprehensive and solid financials with a sustainable investment case
- Minimum diversification of asset base
- Adequate and comprehensive valuation methodologies for timber (eg reasonable timber price market assumption)
- Basic information, such as tree species, yield classes, age class distribution, standing timber volumes, annual growth rates, rotation periods and silvicultural measurements
- Loss and exposure history

Forest underwriters need to pay special attention to such coverage aspects as increased harvesting costs, loss of profit due to premature harvesting, and costs for debris removal, replanting or re-establishment for infrastructure, and loss adjustment costs. Such extensions need to be clearly defined and priced in. Tree nurseries also need special attention as they normally have a high density of values and are very vulnerable hail and frost. Third party liability losses, such as trees falling on neighbouring properties, are typically excluded.



Valuation

A range of methods has been developed to estimate the value of forests in all their aspects, including non-timber forest products, such as watershed management, recreational use and biodiversity. The methods below are the ones most frequently used to evaluate timber.

Cost approach: Total cost incurred to date, ie the costs for establishing and maintaining a forest. This valuation method is normally used only for very young forest stands.

Realization value: The value that would be realized if the timber were harvested. This method can be used only once the forest is marketable, ie after it has been thinned for the first time. The main calculation factors are the standing timber volume and the current market price.

Net present value (NPV) or net discounted revenue (NDR) valuation: This method is based on projected future incomes and costs discounted to the present day at a specific discount rate (discounted cash flow, DCF). This method is derived from the Faustmann formula.

In some cases, none of these valuation methods are applied. Instead, the agreement is reached that the forest owner receives a fixed amount per m³ of timber in compensation if a loss occurs. This has the advantage of facilitating swift payment following a loss event. The downside is that it is a uniform process and as such may not be feasible for heterogeneous forest stands.

Rule of thumb: The insured value of standing timber largely depends on the tree species, age, yield class and soil type, and usually lies in the range of USD 1 000 to 3 000 per hectare. If the value is above USD 3 000 per hectare, the reasons for such high values should be assessed carefully.

Salvage

Standing timber damaged by a loss occurrence may still hold a substantial amount of so-called salvage value, and this can play a key role when it comes to mitigating a forestry loss. The salvage potential may vary considerably depending on various factors, such as the loss cause (fire or storm), tree species, intended use of the timber, age class, the availability of local and regional timber processing facilities and current market conditions. Typically, there is an oversupply on the local market following a major event, and prices will drop. Ways to avoid the oversupply peak include wet-storing timber or finding alternative markets and uses of timber.

In some cases, pre-agreed or guaranteed salvage tables are included in re/insurance contracts to speed up the claims settlement process. This can come as a great relief, since a forestry claims settlement process can take years.

For example, after storm Erwin/Gudrun in Sweden in 2005, a vast number of logs were wet-stored for several years to avoid the significant timber price drop caused by the resulting oversupply. This meant that it took several years for the final loss amount to be calculated.

Mature and emerging forestry insurance markets

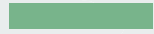
While most of the world's planted and semi-natural forests remain uninsured today, mature forestry insurance markets do exist in various countries, and are developing swiftly in others. As the comparative analysis in the following section shows, however, even the more mature markets in Chile, France, South Africa and Sweden differ considerably in terms of their level of maturity, the availability of insurance and types of risk covered. Meanwhile, forestry insurance in China is advancing rapidly in the wake of a booming commercial forestry industry. One aspect all five forestry markets have in common is that they have all been affected by severe fire or windstorm losses in recent years, triggering governmental and private risk management and insurance measures.



Total forest area

* Insurance penetration 1.2

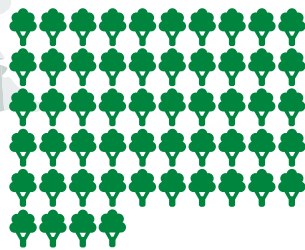
17.7



10%

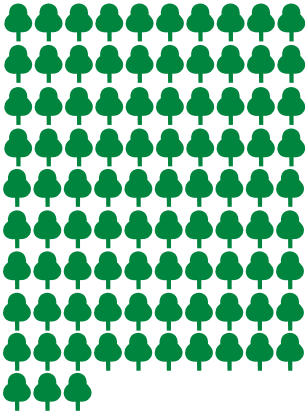
Primary forest

5.4



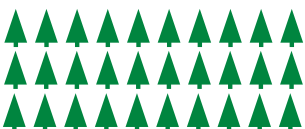
Natural forest

9.3



Forest plantations

3.0





1 tree = 1 million ha

*calculated as insured area divided by natural forest and forest plantation area. Swiss Re estimate.

Chile

Available forestry insurance solutions

Forest plantations can be insured against fire, drought, excessive rainfall, flood, frost, hail, snow and wind. Firefighting costs are often also insured (but sub-limited). Forestry insurance will either reimburse the costs of replanting (for young plantations) or the commercial value of the wood. The stumpage price is often used as the valuation method for plantations with marketable volumes according to the following table:

Tree species		Insurance indemnification
Pinus 	Eucalyptus 	
0 – 10 years	0 – 5 years	Replanting costs
11 – 16 years	6 – 10 years	Replanting costs or commercial value; whichever is higher (salvage potential in the region of 35%)
17 years +	11 years +	Commercial value (salvage potential in the region of 55%)

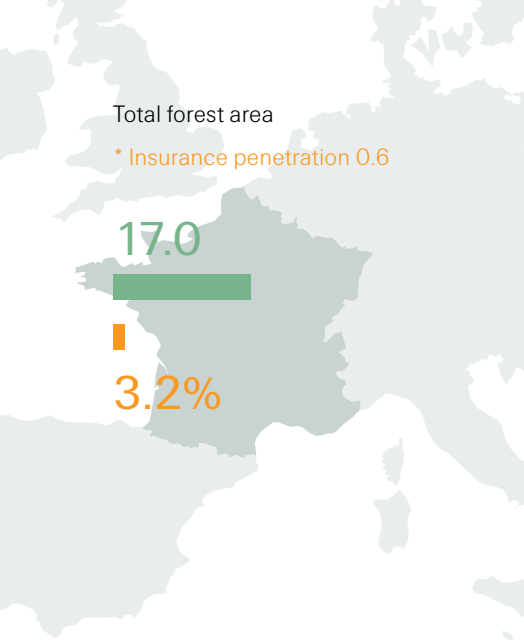
Insurance coverage for replanting costs (the so-called Prendimiento Forestal) is typically bought by small and medium-sized forest owners. Replanting costs are indemnified only if a loss caused by a covered peril has exceeded the deductible of 25%, or 10% for plantations with a commercial value.

Large losses – past events

The most serious loss events are caused by fires. Industrial forest plantations suffered severe losses during the fire seasons of 1998/99, 2001/02, 2008/09 and 2013/14. A total of more than 20 000 ha burnt down in each of these fire seasons, causing severe losses to the insurance industry. The worst fire season was 2008/09 with a total aggregated forest plantation loss of 27 300 ha. The average affected area in the plantation industry is around 8 900 ha/fire season.

Outlook 2020

Forestry insurance is bought mainly by large industrial forestry companies. SME (small and medium-sized) forestry companies are currently uninsured but have also been identified as potential customers for forestry insurance. However, they are finding it difficult to obtain insurance protection as they are unable to provide the required data quality, prompting insurers to charge prohibitive premium rates by default. To address this issue, the SAFOR project was created by the Chilean Foundation for Agricultural Innovation (FIA), government institutions, forestry and insurance companies. The Chilean Forest Institute (INFOR) leads this project aimed at improving information quality and thus raising the competitiveness of SME forestry companies. The potential is 800 000 ha for industrial eucalyptus and pinus plantations.



France

Available forestry insurance solutions

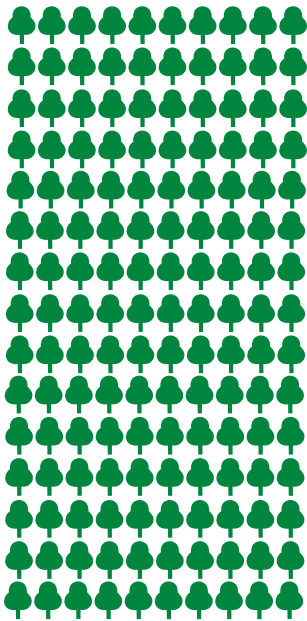
Two types of insurance products are available in the French market. Traditional guarantees provide protection against FLEXA. Additionally, insurers have also been offering coverage against storm, frost, hail and weight of snow. Both types of forestry insurance fall under the obligatory French Natural Catastrophe regime imposed by French law. This scheme provides compulsory protection against natural catastrophe perils (flood, excessive rainfall, drought, earthquake and other perils) for each property insurance policy. Insurance guarantees usually cover reforestation costs and loss of timber. For mature forests, the loss of timber value is calculated as the difference between the market values of standing and damaged timber, whereas the net present value is applied for younger trees. Insurance products are designed to cover extreme events, and payments are released only if losses exceed 20–30% at the plot level. A fixed amount deductible is applied per event and policy.

Primary forest

0

Natural forest

15.0



Forest plantations

2.0



1 tree = 1 million ha

*calculated as insured area divided by natural forest and forest plantation area.

Swiss Re estimate.

Large losses - past events

Historically, winter storms have been the most damaging events in France, which has suffered six major events since 1982. At the end of December 1999, winter storms Lothar and Martin destroyed 140 millions m³ of timber and a forest area of 1.1 millions ha, of which 525 000 ha were damaged to a degree of more than 50%. Losses amounted to three to four harvest years. The total damage was evaluated at EUR 6 billions and the loss of timber value at EUR 2.4 to 3.6 billions. The return period for events in the dimensions of Lothar and Martin is evaluated to be between 1 in 100 and 1 in 150 years. On 24 January 2009, winter storm Klaus hit south-western France, damaging some 700 000 ha and 38 millions m³ of maritime pine forests. The overall damage was evaluated at EUR 1.5 billions, the loss of timber value at EUR 600–900 millions.

Outlook 2020

With less than 500 000 ha insured, there is still huge potential for insurance development in France. Storm and fire insurance are competitive risk management tools for forest owners seeking to protect their long-term investments. They are suitable for both estate protection and timber production. Simplified and affordable storm covers are likely to best meet the current demand from uninsured forest owners. Forestry cooperatives are growing and managing forests productively, accounting for one third of privately harvested timber in 2014. Most of the 25 cooperatives were not insured in the past and are now seeking affordable insurance covers for large forest areas. The insurance market could provide innovative solutions, such as covers with today's triggers and deductibles but a lower sum insured (EUR 500-1 000 per ha), or covers with today's sums insured but higher payment triggers and deductibles. In 2013, the French legislator launched an investment account which grants tax exemptions in combination with storm insurance. Known as CIFA (Compte d'Investissement Forestier et d'Assurance), it provides a strong incentive for forest owners to apply a long-term asset management strategy. CIFA is expected to boost forest insurance penetration substantially, and some insurers already started implementing the scheme in 2015.

South Africa

Total forest area

* Insurance penetration 1.1

9.2



13.6%

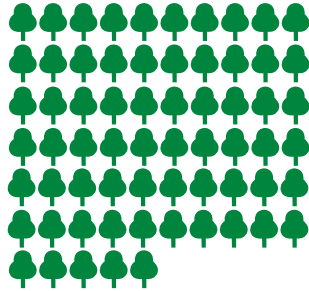
Primary forest

0.9



Natural forest

6.5



Forest plantations

1.8



1 tree = 1 million ha

*calculated as insured area divided by natural forest and forest plantation area.

Swiss Re estimate.

Available forestry insurance solutions

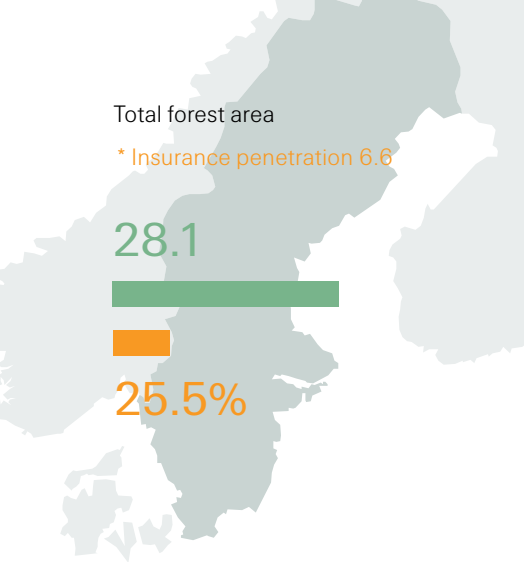
Standard perils covered by forestry insurance include fire, storm (including hail and weight of snow), flood and malicious damage. Possible coverage extensions are available for aerial bombing costs, ground firefighting costs, debris removal and for harvesting costs for timber burnt once felled. Any salvage value is deducted from the insured claim, and pre-agreed salvage tables are often included with the policy. The sum insured is calculated on the fair value method. Forestry insurance is not subsidised.

Large losses - past events

Major fire losses in 2007 and 2008 severely affected industrial forestry plantations. Total losses amounted to USD 140 millions in 2007 and USD 100 millions in 2008, driving the plantation industry to the brink of ruin. Firefighting protection measures have been stepped up tremendously since then, bringing about substantial improvements.

Outlook 2020

Government restricts any further expansion of forest land due to environmental concerns. There is an ongoing consolidation process in the industry, with private equity investors buying up smaller growers and bundling these assets into larger investment vehicles. Regional expansion into such countries as Mozambique, Uganda, Tanzania and Zimbabwe is expected to fuel demand for forestry insurance in the future.



Sweden

Available forestry insurance solutions

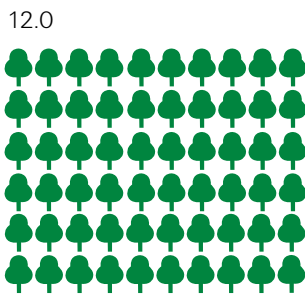
The two types of insurance provided in Sweden are fire (FLEXA) and a more comprehensive form which covers fire, lightning, wind pressure/storm, flood, breakage due to snow, insects, theft, malicious damage, wild animals and fungal disease. Firefighting costs are not covered. Insurance offers compensation for loss of timber value, increased harvesting costs and value lost due to premature harvesting. Loss of timber quality and changes in the market price are not indemnified. The market value or stumpage price are the methods used to evaluate timber.

A compensation table is used to calculate premature harvesting losses. Private forest owners can claim a storm loss if at least 1 ha of growing forest and 50% of its growing stock is damaged. Several smaller forest areas between 0.5 and 1.0 ha can be accumulated to a maximum of 5 ha. For all other perils, the deductible is 20% of the basic amount. For state-owned forests, coverage is also based on the timber value but a maximum value of USD 25 per m³ of damaged timber is agreed in advance.

Primary forest



Natural forest



Forest plantations



1 tree = 0.5 million ha

*calculated as insured area divided by natural forest and forest plantation area. Swiss Re estimate.

Large losses – past events

On 8 and 9 January 2005, winter storm Erwin/Gudrun felled a total of 75 millions m³ of timber mainly in the southern part of Sweden. This huge loss was partly due to the warm weather in early January which resulted in defrosted and saturated soil conditions. With the anchoring function of the soil impaired, the trees were unable to weather the storm. A new set of risk management measures was prepared in response to the storm, such as selecting tree species based on local conditions (eg birch trees in wet soil), preparing soil consistently, thinning most of the young tree stands, thinning at an earlier stage, and shortening the rotation period.

Outlook 2020

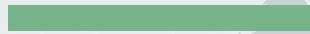
Sweden has a mature forestry insurance market with a stable outlook regarding insurance penetration. Biofuel demand is expected to increase further, with the result that less timber will go to the sawmill and the pulp and paper industry but to the biofuel industry instead.

China

Total forest area

Insurance penetration* 91.0

208.3



46.3%

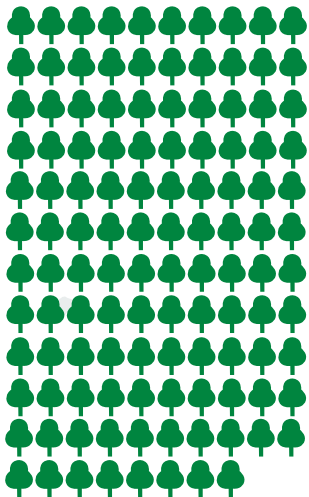
Primary forest

11.6



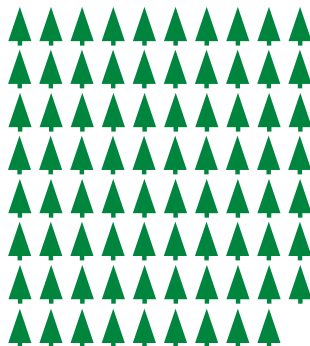
Natural forest

117.7



Forest plantations

79.0



1 tree = 0.1 million ha

*calculated as insured area divided by natural forest and forest plantation area. Swiss Re estimate.

Available forestry insurance solutions

Insured perils can range from fire only to comprehensive coverage including fire, insects and pests, rainstorm, typhoon, windstorm, flood, hail, landslide, mudrock flow, snowstorm, sleet and drought. Premium rates vary from 0.15% for fire only up to 0.8% for comprehensive coverage. The policy deductible is generally 1 ha per event. The value of any salvage is deducted from the insured claim. The sum insured is a fixed agreed value (typically USD 944 per ha). In 2015 Forestry insurance is subsidized by the central government, with 50% premium subsidies for non-commercial and 30% for commercial forestry (commercial forests being defined as any forest which is not owned by the state or a collective). In the case of fire damage, insurance reimburses dead trees only. With wind and snow damage, a claim is payable only for uprooted or dead trees and trees with a broken main stem. Most insured forests are located in the provinces of Jilin, Inner Mongolia, Jiangxi, Yunnan and Guangdong.

Large losses – past events

In 1987, the biggest forest fire on record, known as the Black Dragon Fire, occurred in Da Xing An Ling in the Heilongjiang and Inner Mongolia provinces. Around 1.9 millions ha of forest were destroyed in China, and an additional 6.1 millions ha burnt down on the Russian side of the border, causing a total loss of more than USD 700 millions at prices in 1987. After this fire, the central government invested tens of millions RMB into forest fire research and forest fire prevention, and new laws have been established. In 1995, a catastrophic forest fire occurred in Inner Mongolia, followed in the same area by another two in 1996 and another three in 2003. In January/February 2008, a series of severe snow storms with snow, sleet and freezing rainfall hit vast areas of China, most seriously affecting the provinces of Hunan, Jiangxi, Guangxi, Hubei, Zhejiang, Guizhou, Fujian, Anhui, Sichuan and Guangdong. The snowstorms affected 10% of China's total forest area, and 3% of the national standing timber volume was lost. It is estimated that around 9 millions ha of the forests suffered a total loss. The return period for this event is considered to be in the range of 1 in 50 to 1 in 100 years.

Outlook 2020

Forestry insurance in China will become more commercial. Insurance penetration is currently relatively low, but forestry has become a top topic on the governmental agenda. The forestry premium could reach an amount of USD 1 billion by 2020.

Summary

Following the dramatic contraction of the world's total forest area over the past quarter century, there have been signs of late that the deforestation rate is at least slowing down. This suggests that society is gradually becoming more aware of the vital importance of forests for our planet. At the same time, the rapid spread of planted forests in particular is generating a growing need among forestry stakeholders to protect this valuable resource by way of insurance. Forestry insurance is an effective approach for them to close the protection gap, enabling them to cover their standing timber investments which, given the long rotation periods of forests, are exposed to fire and windstorm risks over several years at a time.

While forestry insurance is well established in the sample markets of Chile, France, South Africa and Sweden, each of these countries has its own particular characteristics:

- In Chile, comprehensive forestry insurance is available and purchased primarily by large industrial forestry companies. Small to medium-sized companies are finding it difficult to obtain coverage for their forests as they are unable to provide the required data quality. Project SAFOR was launched to overcome this hurdle and increase insurance penetration.
- While various forestry insurance products are available in France, insurance penetration is still low. However, forest owners are beginning to show an interest in simple and affordable windstorm coverage, a product which best suits their needs.

- In South Africa, the planted forest industry was on the brink of ruin following the two disastrous fire seasons of 2007/2008. A joint effort of all industry players to mitigate fire losses has greatly improved their resilience in the meantime, and today insurance penetration for planted forests is high. Further growth is being pursued through expansion into neighbouring countries.
- Sweden has a mature forestry insurance market, and various severe winter storms have shown forest owners the benefit of having their assets insured. Growing demand for biofuel may further stimulate the local forestry insurance market.
- By way of contrast, China is still a relatively young and developing forestry insurance market. Huge afforestation efforts in this market are generating tremendous potential for forestry insurance going forward.

These examples illustrate the growing need and demand for forestry insurance, and underpin the promising outlook for this line of business on a global scale. The total area of planted forests has increased by 110 million hectares worldwide since 1990, creating a vast and as yet largely untapped potential for forestry insurance. Swiss Re is well positioned to help its clients seize these opportunities by providing reinsurance capacity and by developing smart solutions combining its global expertise with their local knowledge.



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