Creating solutions for sustainability

Our re/insurance solutions help to address key environmental and social challenges. We focus on natural catastrophes and climate change, food security, renewable energy, funding longer lives, and insurance cover in emerging and developing countries.

USD 2.9 bn

Natural catastrophe premiums in our P&C Reinsurance business
(USD 2.75 billion in 2013)

For more information see
swissre.com/global_partnerships/

For more information see
swissre.com/rethinking/climate_and_natural_disaster_risk/

By managing risks and covering losses, re/insurance creates stability and enables economic growth. However, some environmental and social challenges can undermine sustainable progress if left unaddressed. Helping our clients and society at large to tackle such risks is a key component of our commitment as a responsible company.

Currently, we focus on the following themes: climate and natural disaster risks, agricultural risks, sustainable energy, and funding longer lives. We develop our solutions as part of our established risk modelling and underwriting activities or by creating innovative new products, in close cooperation with our clients and partners.

Thus, our solutions frequently include:

- Public-sector partners: Besides direct insurers and corporate clients, we develop risk transfer solutions for, and in cooperation with, governments and various public-sector organisations;
- Index-based insurance products: We are a pioneer in creating innovative insurance solutions that use an index to determine payments;
- Insurance-linked securities (ILS) or cat bonds: We are a leading developer of these products, which enable large risks to be transferred to the capital markets.

An overarching goal is to create solutions that suit the special needs of emerging and developing countries: If governments and communities have financial protection against risks such as windstorms, earthquakes, drought and flooding, they can better cope with the immediate consequences of a disaster.

But, just as importantly, re/insurance protection safeguards investments, allows governments to stabilise budgets and gives people the financial stability required to get loans. In this way, our solutions help to create the conditions for sustained social and economic development.

Natural catastrophes and climate change

Natural catastrophes are a key risk in our Property & Casualty (P&C) business. Losses from floods, storms, earthquakes and other natural catastrophes can affect millions of lives and the economies of entire countries. Therefore, providing effective re/insurance protection against natural catastrophes has large social and economic benefits. In 2014, we received USD 2.9 billion of P&C Reinsurance premiums for natural catastrophe covers (for losses larger than USD 20 million); this accounted for approximately 19% of total premiums in this business segment.

Insured natural catastrophe losses are becoming more frequent and severe globally due to the increasing use of insurance and the concentration of insured assets in exposed areas. The effects of climate change are likely to further drive up losses. According to the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) and its Special Report on Extremes (SREX), a changing climate gradually leads to shifts in the frequency, intensity, spatial extent, duration and timing of extreme weather events. As we have pointed out in our *sigma* publication on "Natural catastrophes and man-made disasters in 2014", annual insured losses from weather-related events have increased ten-fold over the last 40 years, from USD 5 billion in the 1970s to USD 50 billion.

We need to understand natural catastrophe risks and the impact of climate change to assess our P&C business accurately and to structure sound risk transfer solutions. To achieve this, we invest in proprietary, state-of-the-art natural catastrophe models and collaborate with universities and scientific institutions. This enables us to stay abreast of the latest knowledge on the economic impact of natural disasters, including the effects of climate change.

While the impact of climate change will manifest itself over the coming decades, most of our business is renewed annually and our risk models are refined every few years. Risks are essentially covered for 12 months, or for up to five years in the case of cat bonds. Thus, reinsurance premiums do not reflect expected loss trends over the next decades. Instead, for underwriting and risk management purposes, our models provide an estimate of today's risk. However, as natural catastrophe losses continue to rise due to the different factors described above, our models will gradually reflect this trend, as they are updated at regular intervals.

In addition to providing re/insurance covers, we offer our clients strategic expertise and integral risk assessments of natural disasters and climate adaptation. These include our expertise publications, free access to Swiss Re's CatNet® and our Economics of Climate Adaptation (ECA) studies.

Economics of Climate Adaptation (ECA)

With a time horizon of 2030, the ECA methodology enables decision makers to understand the future economic impact of climate change and to identify the most cost-effective actions to minimise that impact. This makes it possible to integrate adaptation to climate change with economic development and sustainable growth.

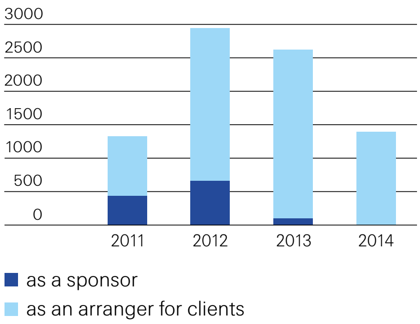
Insurance-linked securities

We are a leading player in the insurance-linked securities (ILS) sector. ILS are capital market instruments, typically in bond or derivative format, designed to meet the risk or capital management needs of a transaction sponsor. In exchange for a coupon or premium payment, the sponsor receives single or multi-year collateralised protection for specified risk events. If such an event occurs, the sponsor receives all or part of the principal; otherwise this is paid back to the investors in full at maturity.

Insurance-linked securities are particularly well-suited to provide protection against peak risks – events that happen infrequently but tend to lead to high losses, for example earthquakes or windstorms. ILS are used for both risk and capital management purposes in the P&C and the L&H business. For reinsurers they are attractive because they free up scarce capital; for insurers and corporate clients they provide multi-year collateralised protection; and for investors they offer attractive diversification possibilities, as they are relatively uncorrelated with other asset classes.

In 2014, our registered broker-dealer subsidiaries underwrote and distributed to institutional investors non-life ILS worth USD 1.4 billion, all of them for clients.

Non-life ILS underwritten by Swiss Re
USD millions



For more information see
swissre.com/investors/ils/

Strengthening risk resilience: highlights of 2014

On the next four pages, we describe key transactions and initiatives we were involved in during 2014. All of them help our clients to cope with natural disasters, climate change and volatile weather. Making communities more resilient to these risks enables them to stabilise economic and social progress.

Improving resilience to natural disasters in China

We made an important contribution to the development of natural catastrophe insurance markets in China. At present, insurance protection against natural catastrophes is very low in China: It is estimated that payouts usually cover less than 1% of economic losses, so there is an urgent need to improve resilience to disasters such as earthquakes and windstorms.

In a review of the insurance industry, the State Council recently issued a mandate to formulate and promote natural catastrophe schemes, which has sparked a lot of interest at both central and provincial levels. We have worked with the China Development Forum to produce a report on "Parametric Insurance and Reform of Natural Disaster Relief System in China", which was discussed with high-level officials, and we are now involved in setting up major pilots in two provinces. These schemes are being designed to provide contingency funding for disaster relief and reconstruction efforts based on parametric triggers.

Payout to Tonga after Tropical Cyclone Ian

Like its neighbours in the Pacific Islands, Tonga is highly exposed to natural disasters: in fact, the whole region is one of the most vulnerable in the world. These recurring disasters not only cause widespread destruction, they also put a huge financial strain on the islands' governments and hamper economic development.

In view of this, Tonga decided to join the Pacific Catastrophe Risk Insurance Pilot, along with five other Pacific nations: the Marshall Islands, Samoa, the Solomon Islands, Vanuatu and – a little later – the Cook Islands. Arranged by the World Bank and launched in 2013, the pilot offers the governments of these six countries insurance protection against earthquakes, tsunamis and tropical cyclones, using a state-of-the-art "modelled loss" approach which quickly approximates the damage caused by a natural disaster. We cover the insurance plan jointly with other insurers and have also given technical feedback.

When the category 5 Tropical Cyclone Ian hit Tonga in early 2014, it caused widespread destruction, killing one person, displacing thousands and destroying vital infrastructure such as health centres and schools. In some parts of the Ha'apai island group, up to 75% of the buildings were damaged. The intensity of the cyclone meant that a payout was triggered, thus quickly providing funds to the government for emergency and reconstruction measures.

Despite their idyllic setting, the Pacific Islands are highly vulnerable to natural catastrophes. We have helped to set up a pilot programme that gives six governments in the region quick access to emergency and reconstruction funds in the event of a disaster.

First payout to flood victims in Bangladesh
In 2013, we worked with several partners from the public and the private sector to develop a pioneering scheme in Bangladesh that offers insurance protection against flood damage to NGOs and other organisations so they can provide support to vulnerable low income households. Bangladesh is particularly vulnerable to periodic flooding, because it receives water from a drainage area 12 times its own size. This has had devastating consequences for the the country's development and has been one of the main reasons for its widespread and persistent poverty.

The programme insures 1 660 families in 14 villages located in the Char areas of the Sirajganj district. When the floods of August and September 2014 hit the region and caused massive damage in several villages, the programme was triggered for the first time. More than 700 families received a total of USD 25 000 in compensation, which enabled them to start rebuilding their lives and avoid desperate emergency measures.

By using an index-based solution, the programme has managed to meet two challenges at the same time. Building a fully-fledged flood hazard model would have been time-consuming and expensive, because there were no flood loss data for the area. Instead, the Bangladesh-based Institute of Water Modelling (IWM) built a simple model based on flood water level/depth and flood duration. This automatically triggers the payment of an insurance benefit and determines the households that are eligible for the payment, ensuring they receive compensation quickly.

We support the programme by reinsuring the risks and by offering product structuring support, pricing and underwriting.

Hydropower insurance for Uruguay
Hydropower causes very few CO_2 emissions in production; but as with other renewable energy sources, its actual output depends on the prevailing weather conditions. Uruguay generates a substantial amount of energy through hydroelectric plants that largely rely on rainfall. The risk of lower-than-usual rainfall has become an increasing burden to the Uruguayan government: For instance, in 2012 hydropower production slumped because of a prolonged drought, making it necessary for the government to buy costly electricity produced from fossil fuels as a substitute. Not only was this bad for the climate, it also pushed the government into a budget deficit.

In 2014, we assumed a portion of risk in a USD 450 million weather coverage bought by the Uruguayan government with the assistance of the World Bank Treasury, which helps to reduce this financial risk. In future, if the government needs to import electricity because of drought and a subsequent fall in energy generation, it will automatically receive compensation. The payout amount will be determined by rainfall data and oil prices, thus covering the double risk of drought conditions and an increase in energy prices.

By removing a major source of budget uncertainty, this landmark transaction will support continued investment in climate-friendly hydropower generation.

Rainfall protection in the Caribbean
Our innovative risk transfer instruments protect a number of Caribbean countries from the impact of tropical cyclones and earthquakes through the Caribbean Catastrophe Risk Insurance Facility (CCRIF). We stepped up that protection for eight countries in August 2014, extending insurance cover to extreme rainfall. We developed this innovative product with the CCRIF at the request of several Caribbean governments. It estimates the impact of heavy rain using satellite data so that payouts can be made quickly without time-consuming damage and loss assessments.

The governments protected by the new policy – Anguilla, Barbados, Dominica, Grenada, Haiti, Saint Lucia, St. Kitts & Nevis and St. Vincent & the Grenadines – did not have to wait long for payouts. The first payment was made to Anguilla on 27 October 2014 after flooding caused by Hurricane Gonzalo just two weeks earlier. Some of the funds will be used to make the island more resistant to future flooding. The largest payment in 2014 was made to Barbados, which received USD 1.3 million in December, less than three weeks after the heavy rains on 21 and 22 November. The four payments on the new product totalled USD 3.4 million in 2014.

African Risk Capacity
Drought is a recurring threat across Sub-Saharan Africa: since 1980 there have been over 200 drought events. About two thirds of the area's population work in agriculture, 80% as smallholder farmers. This means millions of people not only depend on farming for their food, but also for their incomes and livelihoods. A drought can thus have devastating consequences. In addition to the human suffering caused by famine, the costs of aid relief and a fall in revenues can wipe out years of development gains.

This is why we supported the launch of the African Risk Capacity, ARC (africanriskcapacity.org). Set up by the African Union and drawing support from the public and private sectors, ARC is the continent's first natural disaster insurance pool. In the inaugural 2014/2015 risk pool, drought insurance of USD 129 million has been offered to four governments – Kenya, Mauritania, Niger and Senegal. Mozambique also participated in the pool originally, but withdrew later.

When there is too little rainfall in the countries protected by the scheme, ARC will estimate the adverse impact on local crop production and the resulting response costs, using an innovative software that combines satellite-based rainfall estimates with crop models and local vulnerability profiles. When the response costs exceed a pre-defined threshold, the affected countries receive a payout within a few weeks, provided that their implementation plans have been approved. This move from "post-disaster aid" to "pre-disaster risk management" allows governments to significantly reduce the cost of emergency contingency funds.

We support ARC as a major capacity provider and by contributing our expertise to make it a commercially attractive and affordable solution. ARC is only the third sovereign risk transfer pool worldwide, after the Caribbean Catastrophe Risk Insurance Facility (CCRIF) and the Pacific Catastrophe Risk Insurance Pilot. We have played an instrumental role in both of these, too.

First weather index insurance programme in Nigeria

Another of our key achievements in 2014 was to help establish the first weather index insurance programme in Nigeria, Africa's most populous country and now its largest economy. Developed in partnership with impact investment firm Doreo Partners (www.doreopartners.com) and its agricultural franchise Babban Gona (www.babbangona.com), the programme protects smallholder farmers against the risk of adverse weather patterns. The weather index solution underlying it uses satellite data to determine whether there is a lack of rainfall and then pays out automatically.

Offering smallholder farmers effective insurance protection has huge social and economic benefits beyond protecting their livelihoods. Once farmers can show they have insurance, banks are much more willing to give them loans. This enables the farmers to invest in better seeds and fertilisers to increase yields. With a secure minimum income, they can then gradually accumulate savings, leave subsistence farming behind and escape poverty. By supporting programmes such as this one and the ARC, we help to develop the African insurance markets that facilitate sustained economic and social progress.

For more information see
swissre.com/rethinking/food_security/

In Sub-Saharan Africa, most people depend directly on farming for their food and income. Working with our partners in programmes such as the African Risk Capacity, we have recently helped to insure 2 million smallholder farmers against weather risks that may threaten their harvests.

Our commitment

... to the United Nations
Many of the innovative insurance transactions we have completed in recent years cover losses from natural catastrophes and weather volatility (eg drought or excessive rainfall). As climate change is expected to increase these risks, such transactions also help communities increase their climate resilience.

Building on the experience we have gained with these solutions, we made a significant commitment at the UN Climate Summit held in September 2014 in New York City. Personally addressing the government leaders present at the summit, our Group CEO Michel M. Liès made the following pledge: "By the year 2020, Swiss Re commits to having advised 50 sovereigns and sub-sovereigns on climate risk resilience and to having offered them USD 10 billion against this risk."

... to the Grow Africa Partnership
The African continent, especially Sub-Saharan Africa, is a focus area for our efforts to bring risk protection to underinsured communities. Most people in these countries are smallholder farmers and depend directly on agriculture for their livelihoods, yet have had little or no access to insurance protection so far. As a result, volatile weather and subsequent harvest failures can have devastating consequences for them.

To help find answers to this problem, we made an important commitment to the Grow Africa Partnership (www.growafrica.org) in 2012. This initiative was launched by a number of organisations to promote public-private collaboration and investment in African agriculture.

Our commitment to the Grow Africa Partnership includes the following three elements:
- Give farmers in Sub-Saharan Africa access to tools such as weather and yield index insurance products;
- Invest about USD 2 million per year in resources to support the development of sustainable agricultural risk management markets;
- Provide agricultural insurance for up to 1.4 million smallholder farmers.

To create effective insurance solutions, we work closely with several partners such as Oxfam America, the World Food Programme, USAID and the Global Index Insurance Facility. By the end of 2014, we helped to establish a total of 20 programmes that brought weather insurance to two million smallholder farmers in 12 Sub-Saharan countries – reaching our target ahead of schedule, and even exceeding it.

2 million

Smallholder farmers benefiting from the Grow Africa Partnership
(300 000 in 2013)

Offshore wind farms are an expanding source of clean energy. But because the technology is relatively new and projects are increasing in scale and complexity, they are challenging to insure. Swiss Re Corporate Solutions specialises in understanding these risks and helping our clients to manage them.

Sustainable energy solutions

Sustainable energy sources play a crucial role in reducing CO_2 emissions and securing future energy supplies. Given our strategic focus on climate change, we are keen to support energy generation from renewable sources. But as sustainable energy projects increase in scale and complexity, so do the risks associated with them. However, innovative risk transfer solutions can help reduce these risks and drive investment in the sector.

Offshore wind is considered one of the most promising renewable energy sources. But like renewable energy in general, it presents very complex risks. Unlike traditional lines, there is no long loss history to refer to. Underwriting such risks is therefore challenging from an insurance perspective.

Swiss Re Corporate Solutions takes a special interest in offshore wind as it has both the large capacity and the technical expertise to help manage the associated risks. We are continually enhancing our understanding of these risks and share our insights with our clients as well as other insurers.

Insurance cover for two offshore wind farms: Dudgeon…
In 2014, we were involved in a number of offshore wind transactions. One of them is the Dudgeon Offshore Wind Farm (www.dudgeonoffshorewind.co.uk), which will be constructed over the next three years on a site 32 km off the UK's Norfolk coast. As a lead underwriter, Swiss Re Corporate Solutions provides an "all risk" cover for the whole construction period as well as a "maintenance cover" for the first 24 months of the wind farm's operation. Norwegian company Statoil is one of the shareholders of the limited company that is developing the project, and will be the operator for both the construction and operational phases.

For more information see
swissre.com/rethinking/sustainable_energy/

The Dudgeon Offshore Wind Farm is planned to comprise 67 highly efficient turbines with a total capacity of 400 megawatts, sufficient to supply more than 410 000 UK homes with sustainable energy. When finished, its output will be transferred to the UK grid through a seabed cable of 38 km and an underground cable of 48 km.

... and Sandbank

In 2014, Swiss Re Corporate Solutions also signed an insurance cover for the Sandbank Offshore Wind Farm, which is situated 90 km west of the German island Sylt in the North Sea. The wind farm is being developed by a joint venture between Vattenfall and Stadtwerke München (SWM, Munich city utility). Swiss Re Corporate Solutions offers protection to the project for the entire construction phase, which is due to start in 2015.

Like the Dudgeon Offshore Wind Farm, Sandbank will use high-tech equipment to ensure efficient power generation. It will have an installed capacity of 288 megawatts and produce up to 1.4 TWh per year with 72 turbines, enough to power 400 000 homes. The power generated by Sandbank and two other wind farms nearby (DanTysk and Buitendiek) will be transmitted to a converter station currently being built, SylWin alpha. There, the power will be converted to direct current, which will help to reduce transmission losses over the 200 km long sea cable.

Life & Health insurance and funding longer lives

Life and health (L&H) insurance products play a crucial role in creating stability for individuals and society. They provide financial security in the event of death or illness, give access to medical treatment and offer dependable income in retirement. We help primary L&H insurers and other clients from the private and public sector to manage such risks efficiently, thanks to our specialist knowledge of mortality, morbidity and longevity trends.

Longevity and health insurance are two of our strategic priorities in the L&H business. The demand for longevity solutions is expected to grow further as demographics shift. We have invested in research and development to improve our ability to predict mortality and longevity trends. In the last few years, we have completed several longevity insurance contracts with pension funds in the UK.

Demand for commercial health insurance solutions is also growing, driven by several major demographic and socio-economic trends. These include: the greater healthcare needs of ageing societies; rising healthcare expectations of the new middle class, especially in growth markets; and healthcare finance reform, particularly in mature markets. We offer a variety of health reinsurance solutions to meet these needs, from short-term protection against the risk of volatility in medical expenses for insurers or employers, to very long-term protection against the financial impact of disability or critical illness.

Longevity transaction with the Aviva Staff Pension Scheme

In 2014, we participated in a landmark longevity transaction with the Aviva Staff Pension Scheme in the UK. With life expectancy rising, pension schemes face the risk that they will not be able to meet all their commitments. Longevity transactions cover this risk by insuring the schemes' liabilities in case their members live longer than expected.

At the time, the deal with the Aviva Staff Pension Scheme was the largest longevity transaction ever completed. It covers GBP 5 billion of liabilities and protects not only the scheme's 19 000 members with pensions in payment, but their widows or widowers and civil partners, as well. Swiss Re is in a position to write such large deals because we have a natural offset through our mortality business, the capacity to write the business to our own balance sheet and the expertise to create tailor-made solutions.

In technical terms, we worked together with two other reinsurers to transfer the longevity risk from the Aviva Staff Pension Scheme to Aviva Life & Pensions UK Ltd and then to the reinsurance market.

Longevity deals in the UK

The longevity solution we have developed with the Aviva Staff Pension Scheme is the latest in a series of such transactions in the UK. Our other clients include one of AkzoNobel's pension funds (17 000 members), the LV= pension fund (more than 5 000 members) and the Royal County of Berkshire Pension Fund (11 000 members).

For more information see
swissre.com/rethinking/longer_lives/