SWISS RE’S ANSWERS TO THE QUESTIONS RAISED IN THE
GREEN PAPER ON THE INSURANCE OF NATURAL
AND MAN-MADE DISASTERS

Background
The European Commission issued a draft Green Paper¹ on the insurance of natural and man-made
disasters (Strasbourg, 16 April 2013). Swiss Re has been invited to provide feedback by 15 July
2013 latest (to put on public Commission website). The EU Commission will assess whether or not
action (incl. legislative measures), at EU level could be appropriate or warranted to improve the
market for disaster insurance in the European Union.

This document consists of two parts: first it very briefly recaps Swiss Re’s vision of natural
catastrophe insurance; second it provides specific answers to the questions raised for Nat Cat
and man-made disasters. Swiss Re’s vision forms the basis for the answers and thus elements of
the vision are used in answering the questions.

Swiss Re’s vision
Swiss Re’s vision is to share risk and mitigation measures in a private-public partnership approach
that integrates insureds, the insurance industry and the states (as risk bearer of last resort).

The state is responsible for integrated risk management, governmental guidelines, construction and
maintenance of protection measures, appropriate planning of land use, defining interventions
activities and emergency forces, improving awareness, and defining the legal framework for
insurance.

The insured is responsible for buying insurance cover with substantial deductibles, being informed,
implement protection measures and maintenance, and for reacting to warnings.

The insurance industry is responsible for setting up an efficient insurance solution that provides
sufficient, secure and affordable coverage for all relevant perils, offering combined fire and named
peril coverage using standardized products, applying meaningful original deductibles and charging
partially or fully risk-adequate rates for each and every insured (as an incentive for loss- or risk-
reduction actions), maintaining an efficient organization, setting up loss pools, arranging financial
market solutions, setting up parametric insurance solutions, and last but not least for awareness
building, learning from disasters and exchanging detailed loss information to improve risk
assessment.

¹ EU Commission, Green Paper on the insurance of natural and man-made disasters, 16 April 2013.
Swiss Re’s answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

Answers to the questions raised

Part 1: Natural disasters

1. Market penetration of natural disaster insurance

1.a. What is your view on the penetration rate of disaster insurance in the European Union? Please provide details and data to support your arguments.

There is a significant protection gap in Europe. Over the past 20 years, insurance on average covered only 30% of disaster losses in Europe. There are huge differences in insurance penetration rates by perils, by country and even by regions within the country (e.g. Germany). Generally wind penetration is usually high (for private lines often bundled with fire), whereas penetration for flood and earthquake is much lower. In addition, in some countries (e.g. Austria) restrictive sublimits for flood and earthquake apply. The low insurance penetration of flood and earthquake is also reflected by the payouts of the EU solidarity fund; 80% of the payouts since its formation were related to flood and earthquake.

In UK with all perils cover ("All Risks") the insurance penetration for flood including storm surge is high; also quite high penetration for flood in Czech Republic and Poland; in Germany the so-called "Elementarschadenkampagne" promotes towards higher insurance penetration for earthquake and flood. In France the natural catastrophe insurance is compulsory.

On a European level (re)insurance capacity for natural catastrophe does exist.

1.b. Is more research needed to understand any possible gaps in insurance supply and demand, insurance availability and coverage?

If research were to be conducted it should focus on the risk perception of insurance buyers and on understanding their motives for buying or not buying insurance.

In addition, research is necessary wherever we have deficiencies knowing the risk; sound basis for providing insurance solutions are premiums commensurate with risk, e.g. based on hazard zones. In Switzerland, Germany and Austria no more research is needed. However in specific markets (e.g. Eastern Europe and Nordic countries on a much lower scale) and for specific risks, such as flood, more research is necessary. Not to forget the candidate country Croatia that will join the EU in July 2013 regarding earthquake.

The OECD Paper on Disaster Risk Management and Risk Financing explains the need for risk assessment research (page 15). Risk assessment guides the optimal allocation of scarce resources available to the phases of disaster risk management (DRM). By identifying and assessing the likelihood and consequences of potentially disastrous events, risk assessment provides governments with the basis for the prioritization of investments in disaster risk reduction, the improvement of emergency management capabilities and the design of financial protection strategies in a manner

---

2 For more information on the protection gap in Europe and recent natural catastrophe events see *SwissRe_Attachement_EU_GreenPaper.pdf*

3 "Elementarschadenkampagne" in Germany

http://www.gdv.de/2013/03/informationskampagnen-fuer-mehr-naturgefahrenschutz/

Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters
tailored to local conditions, needs and preferences. The results may be used also to inform and educate all relevant stakeholders about the most important threats society faces and thereby contribute to a culture of risk amongst communities and individuals. Risk assessment is thus an essential prerequisite for the full array of DRM plans and policies that contribute to overarching governmental objectives of reducing society’s vulnerability and enhancing its resilience.

2. Product bundling

2.a. What further action could be envisaged in this area?

Bundling of natural perils with fire policies is a good way to create a larger risk pool, to make disaster insurance more affordable and to facilitate outreach to customers. Bundling also makes sense to decrease the risk of anti-selection for one peril; however premium needs to be charged risk-adapted and separately for each peril (additional premium charged per each additional peril). If so, it could be beneficial to increase insurance penetration.

In many countries bundling already takes place (e.g. Germany, Austria, UK, France, Spain and Switzerland). Again, it very much depends on the country we are talking about. If one peril clearly prevails (e.g. EQ Romania) bundling of perils does make less sense than for countries with equally important perils. The specific exposures and the institutional framework conditions in each country need to be considered.

2.b. Would mandatory product bundling be an appropriate way to increase insurance cover against disaster risks?

There is no general answer; it depends very much on the country, the perils of concern, the relative exposure of the insureds, the risk perception, the availability of insurance and reinsurance capacity, and the readiness of the insureds to form a risk community.

Product bundling can make sense where national territories are not equally exposed to the same perils, as it helps to avoid antiselection and hence to keep insurance premiums at an affordable level. However product bundling may decrease insurance cover in case capacity is scarce for the key peril or if "secondary" perils can't be quantified properly. The bundling requires sufficient thought on how to enforce such a scheme and how to establish acceptance which highly depends on awareness of risks and insurance and the view towards insurance in each country. To ensure that insurance is not just considered as a form of tax, citizens need to be aware of their protection and right to a payout if the policy is triggered.

In a number of countries fire or other first party insurance policies are marketed on a voluntary basis, but insurance companies are required by law to include coverage for disaster risks in such policies (OECD Paper on Disaster Risk Management and Risk Financing, page 78).

Concerning flood risk, since virtually everyone is exposed to some degree of flood risk, a compulsory insurance scheme would have many advantages. Flood cover for the majority of property owners is only possible if either a comprehensive natural perils package is offered or if the insurance is compulsory. To limit a potential cross-subsidy from low risk to high risk areas,

---


Swiss Re’s answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

mitigations measures (state-driven such as dykes, levees and insured-driven such as moving goods, closing openings) must be taken.

2.c. Are there any less restrictive ways, other than mandatory product bundling, which could constitute an appropriate way to increase insurance coverage against disaster risks?

Swiss Re’s vision is to share risk and mitigation measures in a private-public partnership approach that integrates insureds, the insurance industry and the states (as risk bearer of last resort).

The state is responsible for integrated risk management, governmental guidelines, construction and maintenance of protection measures, appropriate planning of land use, defining interventions activities and emergency forces, improving awareness and defining the legal framework for insurance.

The insured is responsible for buying insurance cover with substantial deductibles, being informed, implement protection measures and maintenance and reacting to warnings.

The insurance industry is responsible for setting up an efficient insurance solution that provides sufficient, secure and affordable coverage for all relevant perils, offering combined fire and named peril coverage using standardized products, applying meaningful original deductibles and charging partially or fully risk-adequate rates for each and every insured (as an incentive for loss- or risk-reduction actions), maintaining an efficient organization, loss adjusters, setting up loss pools, arranging financial market solutions, setting up parametric insurance solutions, and last but not least awareness building, learning from disasters and exchanging detailed loss information to improve risk assessment.

There are many different ways to structure the risk transfer between all involved parties. Often, a tailor-made combination of traditional (re)insurance, compulsory/pools and financial market products achieves the best and most efficient protection.

Back to the specific question: Yes, less restrictive ways, i.e. market-based solutions, exist and ensure risk transfer products that meet individual needs of clients. Market based solutions require increased consumers risk awareness and knowledge of options for risk transfer.

Disaster risk awareness and education strategies should be aimed at promoting a culture of safety, so as to achieve changes in current patterns of human behavior that influence the risk of large-scale damaging effects of natural hazards (OECD Policy Handbook on Natural Hazard Awareness and Disaster Risk Reduction Education). Society has quite a short memory even towards big events.

The setup of a comprehensive risk management program, including risk zoning, appropriate building codes, their enforcement leading to more affordable insurance premiums is an alternative to mandatory insurance products.

A mandatory insurance embedded in the risk management program combined with an opt-out possibility (with the clear understanding that opt-out means no bail-out by the government.) is a less restrictive way.

In addition, adequately structured tax relief (i.e. the ability to deduct premium payments from taxable income) may help further penetration in some markets, especially in times of economic difficulties.

---

Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

Yet another option could be to offer and promote disaster insurance bundled with other goods and services with an opt-out possibility, i.e. through utility services, mortgages, construction materials.

The residential flood insurance provided in the UK through the Statement of Principles (SoP)\textsuperscript{8} would be another option. Under the SoP, the Association of British Insurers agreed to provide cover for homes at serious risk of flooding and the government committed itself to improving the nation's flood defenses. The SoP will most likely not be extended this year only because the government has not met the terms of the deal.

3. Compulsory disaster insurance

\textbf{3.a. Which compulsory disaster insurance, if any, exists in Member States?}

Switzerland\textsuperscript{9} is not a Member State but has a highly effective mandatory insurance scheme for nine disaster perils. Earthquake is currently not part of that scheme; discussions are on the way to include it. Another example for a non-member compulsory insurance scheme is Norway.

In Denmark there is a mandatory flood pool, all Danish property policies have to pay an annual contribution into the pool. The government programme in France makes cover for flood, earthquake and other natural hazards compulsory for all homeowners buying fire and theft insurance. In UK disaster insurance is not compulsory, but natural perils cover is obligatory with fire insurance; there is a voluntary self-commitment of the direct insurers to provide cover for private lines. In Spain all extraordinary risks, including natural perils and terrorism are covered by a compulsory insurance scheme.

There was the intention to create a compulsory disaster pool in Romania but "PAID"\textsuperscript{10} developed into a "voluntary" pool. Regarding Romania our knowledge is that it is compulsory for every homeowner to have insurance against earthquake, flood, and landslide. However, it can be with any insurance company, doesn't need to be via the pool PAID. The caveat in Romania is that there is no mechanism in place to ensure that insurance policies against Nat Cat are bought. The law specifies consequences for home owners not buying insurance (fines, penalties) but in reality those fines, penalties are simply not executed. In the end this weakens the compulsory nature of the disaster scheme in Romania significantly. The scheme as devised originally — a true public-private partnership — relies on all parties living up to their promise. While the private sector does offer comprehensive coverage it seems that the public sector does not follow up enforcing the law.

More examples of compulsory disaster insurance schemes can be found in the OECD Paper on Disaster Risk Management and Risk Financing\textsuperscript{11} (page 73, table 14 and page 78, table 18).

\textsuperscript{8} UK Statement of Principles (SoP) http://www.floodguards.com/abi.aspx
http://www.publications.parliament.uk/pa/cm201213/cmselect/cmenvfru/writeu/flood/m07.htm

\textsuperscript{9} Die Versicherung von Elementarschäden durch die privaten Sachversicherer in der Schweiz

\textsuperscript{10} The Romanian Catastrophe Insurance Scheme (PAID) https://www.paidromania.ro/

Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

3.b. Are these insurance products generally combined with compulsory product bundling or obligation for insurers to provide cover?

Typically, compulsory product bundling is combined with the requirement by law to have cover in place, but details of schemes vary a lot country by country.

In Norway earthquake, volcanic eruption, flood, storm and landslide are bundled. For more details see answer 3a) and the OECD Paper on Disaster Risk Management and Risk Financing (page 73, table 14 and page 78, table 18)\(^{12}\).

3.c. Is compulsory disaster insurance generally accompanied by a right for the customer to opt out of some disaster risks? What are the advantages/possible drawbacks?

Mandatory insurance with an opt-out clause might be a viable option. However, it is key to make the insured aware of the consequences (i.e. not bail-out by the state, no compensation by the state in case of a loss). Governments of Member States should make it very clear that they are not responsible for reimbursing citizens and companies for their losses from catastrophes if they chose not to buy insurance.

Risk awareness cannot automatically be assumed; for example, insureds are frequently not aware of perils that are not covered in their policy. Another example is the perceived non-exposure against flood for flats in higher elevations, which can be misleading. Elevated flat owners can nonetheless be exposed through cars in subterranean car parks, property stored in the basement, and power supply and heating systems damaged by flood.

Opting out of some disaster risks might lead to an adverse selection and/or insufficient premium in case the risk isn't priced according to exposure. Often premiums are fixed without considering the specific exposure at a customer's premises.

For country examples of mandatory nature of coverage under disaster insurance schemes see OECD Paper on Disaster Risk Management and Risk Financing (page 78, table 18)\(^{13}\) and for advantages and limitations of compulsory insurance schemes see page 79.

3.d. Would EU action in this area be useful?

Governments should act as rule setters. They set rules and regulations which allow the private market to operate without direct governmental financial support and which make risks insurable. This can include defining the terms of liability, setting underwriting standards, supporting preventive measures etc. In many cases the partnership is implicit. Example for this include: fire insurance and fire brigades, flood insurance and flood prevention measures (e.g. dams), earthquake insurance and building codes, life insurance and hospitals, as well as terrorism insurance and police or military forces.

EU action should focus to request countries to develop comprehensive risk management (incl. risk zoning (e.g. the EU flood directive is very helpful), building codes and their enforcement (a stricter control of their actual implementation can be useful for some single countries)) and risk financing

---


Swiss Re’s answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

Programmes (incl. insurance action to increase penetration). This is useful without prescribing how to implement disaster insurance in each country.

Compulsory insurance needs to be aligned with the above mentioned comprehensive risk management and needs to be based on adequate pricing/costing of the perils needs. This is especially important in high risk areas.

However governments should focus on the regulations, building codes and some mandatory insurance products, whereas the price should be set by the market.

4. Governments as (re-)insurers and (re-)insurers of last resort

4.a. How can state or state-mandated disaster (re-)insurance programmes be designed and financed to prevent the problem of moral hazard?

Alignment of interest is key. This can be achieved via various measures, such as appropriate sharing of the risk between insured, insurance companies, reinsurers, and the state. There are numerous examples, such as the Swiss natural catastrophe scheme, or the terrorism pools “NHT”\textsuperscript{14} in the Netherlands or “TRIP”\textsuperscript{15} in Belgium. Disaster insurance works best if embedded in overall risk management framework, incl. risk zoning, building codes, their enforcement and other prevention measures. The trigger for loss payments has to be based on objective measures in contrary to a political decision in order to avoid temptation to compensate through ad-hoc funds.

Specifically risk sharing is achieved through deductibles and/or coinsurance. Premiums reflecting the risk and independent loss adjusters are a must as well. Additionally the assurance and capabilities that a big loss/event can be settled fast and well.

When governments act as insurers through a government-sponsored insurance program it means to create a risk community that would not exist in a private market. This spreads the risks and makes premiums more affordable for higher risks. However, government-sponsored insurance is generally associated with significant moral hazard problems that lead to an increased overall risk. For example, compulsory state flood insurance may provide everyone with access to flood insurance; however the existence of this insurance may increase construction and wealth concentration in flood-prone areas and/or reduce prevention measures. To limit such adverse incentives, government-sponsored insurance should apply the same tools as private insurers to reduce moral hazard (e.g. risk-based premiums, deductibles, co-insurance and limits).

5. Parametric index-based weather insurance and other innovative solutions

5.a. Do you see any difficulties, barriers or limitations in using information to generate parametric insurance?

As long as clarity of the basis risk exists (the basis risk is assessed and understood), there are no fundamental limits to parametric insurance.

\textsuperscript{14} Nederlandse Herverzekeringsmaatschappij voor Terrorismeschade (NHT)
http://www.terrorismeverzekerd.nl

\textsuperscript{15} Terrorism Reinsurance and Insurance Pool (TRIP)
Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

Parametric covers are best suited for risks that are uninsurable or difficult to assess — for example business interruption, infrastructure or crops. Swiss Re believes that parametric covers have significant potential. The most interesting customer segments are large corporations that are subject to complex business interruption and contingent business interruption exposures, as well as governments who usually suffer considerable damage to uninsured infrastructure.

Parametric solutions are feasible for the "big bang", i.e. really catastrophic events. Implementation of parametric solutions which respond to small to medium sized events may be difficult, especially for the high resolution flood risk. The trigger itself can be difficult to define, i.e. using water depth at gauging stations is useful for river flooding, however the trigger is not suited for surface water flooding. In this case the consequent basis risk makes the product undesirable.

Lack of reliable data (past losses, easy access and affordability of meteorological data) can be a barrier for developing parametric products. We have experienced difficulties in developing parametric products for consumers because they were not accepted as insurance products under current laws (example: Cat Voucher in California and in Canada).

Specific to other innovative solutions: Swiss Re strongly supports the development and enhancement of financial market solutions. It considers them to be vital tools for managing and transforming its own risk as well as those of its clients.

The MultiCat Program in Mexico is a good example for a parametric insurance. For more information see OECD Paper on Catastrophe Financing for Governments: Learning from the 2009-2012 MultiCat Program in Mexico16.

5.b. Which factors could scale-up the promotion and uptake of such innovative insurance solutions?

Parametric covers as insurance need to be recognized and consumers need to be educated to understand the concept of parametric cover and basis risk. Clarity about regulatory requirements for and treatment of parametric insurance is crucial, i.e. Solvency II project, accounting rules, insurance codices prohibiting gains out of insurance in case of discrepancy between original loss and insurance payment. The European insurance concept is currently indemnity based, it is important to amend the insurance concept to include parametric cover, i.e. that parametric covers can be written under an EU insurance or reinsurance license.

Along with enhanced recognition free access to meteorological and related data is needed as well as scientific models to estimate losses. Data availability is one of the important points in this respect, namely also satellite data with high temporal and spatial resolution.

Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

6. Disaster risk awareness, prevention and mitigation: Insurance pricing as an insurance market-based incentive to promote risk awareness prevention and mitigation

6.a. Could risk-based pricing motivate consumers and insurers to take risk reduction and management measures?

Yes, if transparency about the impact of risk reduction measures on insurance rates exists and if monetary incentive is big enough. Risk-based pricing may provide signals to individuals regarding the hazards they face, thus encouraging the adoption of mitigation measures that may lie within their capacity to address and promoting a culture of risk reduction. It may also encourage local authorities to undertake critical risk reduction investments and encourage spatial planning that is responsive to disaster risks, both of which should help to lower disaster costs and make insurance more affordable (OECD Paper on Disaster Risk Management and Risk Financing\(^17\), page 80).

However, insurers will not take measures to reduce risk (e.g., building dams). Large-scale mitigation is a governmental task. The insurance industry provides the financial backbone for a swift post-disaster recovery. Direct funding of prevention measures is not generally part of the reinsurance business model. The costs and benefits are typically not equally distributed (as with public goods) and Swiss Re must act as a profit-oriented business. In specific cases, the funding of prevention measures can be considered as an investment to develop a market or a means to limit losses. Also see answer 3d) governments as rule setters.

For country examples of pricing mechanisms see OECD Paper on Disaster Risk Management and Risk Financing\(^18\), page 81, table 20, and for advantages and limitations of risk-based pricing and flat-based pricing see page 83, table 21.

6.b. Would the impact of risk-based pricing be different if disaster insurance was mandatory?

No, unless limitations are implemented that prohibit the risk-based pricing. Risk-adequate premium should always be the first choice within any insurance scheme. Mandatory insurance however increases the overall risk pool and may soften price differences.

6.c. Do insurers in general adequately adjust premiums following the implementation of risk prevention measures?

It is the most important role of private insurance to reflect prevention measures (incl. building codes) in the insurance premium. Risk-adjusted pricing is an important incentive for risk mitigation.

The risk exposure and prevention level are important factors for determining the premium, but are not on the only ones. Insurers try to cost it accurately; however, the market price / reality may be a different one (credits given for higher deductibles, that are justified in the case of the credit not being larger than the reduction of expected loss by that deductible).

Regarding flood in general they do, when using a zoning system and charge different premiums according to flood zones; protection measures must be reflected in the flood zones. To this end


Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

reliable information on risk prevention measures is needed, e.g. protection standards used for designing dams, deterioration of protection measures over time if maintenance is neglected.

7.

7.a. Are there specific disasters for which flat-rate premiums should be suggested?

No one size fits all. Flat-rates can be in contradiction to risk based premiums. Decision if a flat-rate is appropriate needs to be in agreement with adequate risk zoning, building codes, regulation and no bail-out (moral hazard).

Flat-rate pricing diminishes risk incentives offered by risk-based pricing at the level of the individual or business covered by insurance. Decision-making at the individual, business and local (or national) government level will not benefit from the cost signals provided by insurance markets on critical risks, leading to decisions that are likely to increase risk rather than reduce it, such as overbuilding in hazard-prone areas. Flat-based pricing may also be regarded as burdensome if not unfair by those at low risk. In order to strengthen risk reduction incentives under a scheme with flat-rate pricing, risk differentials may be introduced through differential deductibles. For instance, in France, deductibles vary with the implementation of regional prevention measures: insofar as prevention measures have not been implemented, deductibles increase in line with the number of disaster in the region that have been declared in the last five years, for instance quadrupling if five or more disasters have been declared for the region (OECD Paper on Disaster Risk Management and Risk Financing19).

7.b. Should flat-rate premiums be accompanied by caps on pay-outs?

No one size fits all. Caps on pay-outs can be part of the solution, however the link between caps and flat rates are not urgent as long as premiums are adequate (independently whether a cap applies or not). There is a certain incentive to limit the pay-outs to avoid anti-selection of a few numbers of large risks.

It is not clear what specific kind of ‘cap’ is meant (cap on sum insured or payout per policy, or cap of cover provided by the market).

8.

8.a. What other solutions could be offered to low-income consumers who might otherwise be excluded from disaster insurance products?

It is a community decision who bears the costs of natural disasters.

Insurance for low-income consumers can be introduced through simple and easy to understand products with low sums (covering part of the home). Additionally selling insurance through alternative distribution channels, i.e. banks, mobile phone companies, utility companies can facilitate the outreach to low-income consumers.

Smaller limits can lead to affordable premiums. Also covers for total losses only (or at least very large losses); taking out small and medium losses by applying high deductibles would decrease premiums substantially. Offering subsidies to some consumers would dilute the signal about risk that is

Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

provided by risk-based insurance premiums. Hence it could encourage risky behavior by low-income consumers.

9. Long-term disaster insurance contracts

9.a. Is there a case for promoting long-term disaster contracts?
That depends on the case; again no one size fits all. Especially for scenarios where a post-event capacity shortage is expected, long-term contracts can help to mitigate price shocks and to safeguard availability of insurance and reinsurance capacity.

9.b. What would be the advantages/drawbacks for insurers and the insured persons respectively?
This question can only be answered with respect to a specific proposed scheme.

10. Pre-contractual and contractual information requirements

10.a. Do you think there is a need to harmonize pre-contractual and contractual information requirements at EU level? If so, should the approach be full or minimum harmonization?
In general giving consumers clear and transparent information on their risk situation would be helpful, e.g. construction quality, risk zone. A harmonization certainly facilitates possibilities to copy a role model to another country. Short-term a harmonization causes additional costs and but could pay-off in a mid to long term perspective through reduced administration costs.

Nevertheless, we don't consider harmonization as a prerequisite. With current differences in individual national insurance schemes, it is hardly conceivable to find an acceptable form of European protection.

10.b. What requirements concerning the commitment should be included, for instance:
- the nature of the insured risks,
- adaptation and prevention measures to minimize the insured risks,
- features and benefits (such as compensation of full replacement costs, or depreciated, time value of assets),
- exclusions or limitations,
- details for notifying a claim, for instance, if both the loss and its notification must fall within the contract period,
- who and to what extent bears the costs of investigating and establishing the loss,
- contractual effects of a failure to provide relevant information by the insurer,
- the remedies, costs and procedures of exercising the right of withdrawal,
- contract renewals,
- complaints handling?

These points are treated in specific law (e.g. Versicherungsvertragsgesetz in Switzerland). Harmonization would not make sense. The existing laws on insurance contracts should be used for natural catastrophe insurance. It is more important that all insurance covers in a country are treated consistently, rather than having harmonization across Europe.
Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

11. Insurance terms and conditions

11.a. Do deductibles, excesses co-insurance and other exclusions effectively prevent moral hazard?
Yes, they help prevent moral hazard. They also ensure that insurance pays out only for catastrophic events (catastrophic from insureds' perspective, i.e. it does not pay for relatively small (and frequent) claims), which reduces administrative costs and premiums.

11.b. What alternative terms and conditions could be appropriate for disaster insurance, given that the insured party may be unable to take effective risk reduction measures against a disaster?
The consumers' risk awareness forms the basis. On top of that risk zoning, building codes, their enforcement and risk adjusted premiums need to be in place.

12. Data, research and information

12.a. How could data on the impacts of past disasters be improved (e.g., by using standard formats; improved access to and comparability of data from insurers and other organizations)?
Yes, wide spread data standard to ensure information sharing and comparability is needed. PERILS, an insurance industry initiative aimed at improving the availability of catastrophe insurance market data, is a poster child example.

Lack of reliable loss data can be an obstacle to provide insurance cover; therefore data will also be needed in areas where no insurance has been offered so far. The sharing of information has greater priority than the data format.

Specifically correct labeling of data as well as data concerning insured values and loss data per policy or location is vital for vulnerability analysis.

Transparency can be fostered, where appropriate, by identifying and documenting the sources of data and any limitations, as well as making them accessible. Access to data and information on exposures and vulnerabilities could be used to improve risk mapping, support the development of preparedness plans and reduce the cost of financial risk transfer tools. Disclosure, however, needs to take into account such considerations as cost, privacy, confidentiality, and national security. Public institutions may wish to open access to risk assessment models to facilitate objective review and continuous improvement. Sharing data and creating open systems promote transparency and accountability and can ensure a wide range of actors are able to participate in the challenge of building resilience through better informed decisions. Open data initiatives combined with bottom up approaches such as citizen mapping initiatives can be an effective way to build large exposure databases (OECD Paper on Disaster Risk Management and Risk Financing).

As national governments are subject to different risks than those in different countries, each region and community has its own risk profile. Under the United Kingdom's Civil Contingencies Act (2004).

---

20 PERILS is an insurance industry initiative aimed at improving the availability of catastrophe insurance market data. www.perils.org

Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

local authorities are required to carry out and publish local assessments of the risk of non-malicious emergencies in a 'Community Risk Register'. In the City of London, for example, approximately 60 risk scenarios are identified in the Community Risk Register, each of which is supported with an individual risk assessment. The Risk Register is then used by the London Resilience Partnership as a method of prioritizing resilience activities towards those risks judged to have a higher rating. The risks included in the London Community Risk Register represent 'reasonable worst case scenarios' and their inclusion in the register does not mean that they are going to happen, or that if they did that they would be as serious as the descriptions included in the Register. The Reasonable Worst Case scenarios are nationally developed and informed by historical and scientific data, modeling and trend surveillance and professional expert judgment.18

In the United Kingdom, the Natural Hazards Partnership (NHP) provides information, research and analysis on natural hazards for the development of more effective policies, communications and services for civil contingencies, governments and the responder community across the UK. It focuses on natural hazards that disrupt the normal activities of UK communities or damage the UK's environmental services. The NHP also provides the international community with a model for cross-government hazard management based on a platform of world-class environmental sciences. The NHP brings together expertise from across leading public sector agencies including: Environment Agency, Flood Forecasting Centre, Health Protection Agency, Health & Safety Laboratory, Met Office, Natural Environment Research Council, British Geological Survey, Centre for Ecology and Hydrology, National Centre for Atmospheric Science, National Oceanography Centre, Ordnance Survey, Scottish Environment Protection Agency, and the UK Space Agency. The NHP also contributes towards the Hazard Impact Model (HIM), which combines data and expertise from partners to identify areas and assets which are most vulnerable to a particular hazard. This is currently in a research phase but it is hoped that this will help to prioritize where to deploy 'responder' services, as well as identifying when and where to issue hazard alert warnings. The NHP also contributes to the National Risk Assessment (NRA) process by providing recommendations on: scientific overview for natural hazards and advising on any new risks that may need inclusion, supplementing current advice on scenarios for existing risks identifying NRA risks that could be linked and could occur concurrently.18

13. **How could the mapping of current and projected/future disaster risks be improved (e.g., through current EU approaches in flood risk mapping under the Floods Directive 2007/60/EC, 29 civil protection cooperation30 and promotion of EU risk guidelines31)?**

Risk maps are crucial and need to be in place for all regions and updated on a regular basis. International standards for developing and sharing of maps are useful from insurance perspective. Additionally standards on how to calculate and report losses can help improve the information quality (i.e. definition of loss and damage, economic versus insured loss, etc.).

In general better management of risk requires the collaborative contributions of experts — those who collect, analyze, or interpret data or information. However, issues related to competitive advantage, intellectual property, proprietary and sensitive data, and mission-specific mandates discourage these experts from working across sectors. Effective multi-risk/multi-hazard assessment models are also still in their infancy. Potential cascading/domino effects in natural and man-made systems are very rarely taken into account.
Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

14.

14.a. How could better sharing of data, risk analysis and risk modeling methods be encouraged?

A collaborative framework for assessing and managing risk from natural hazards would increase each sector's access to data collected by another sector, thereby improving the robustness of model results. International standards, methodologies and tools for use at the local level should be developed, enabling consistency and interoperability of data and models. This can be achieved through databases on the internet (clouds) on the basis of standardized data across the different countries.

National meteorological, seismological, and hydrological agencies are, in the case of natural hazards, central to data collection and reporting, which requires the installation of hazard monitoring equipment and recording systems that can capture the parameters of hazard events. Historical archives may also provide information on more infrequent, but higher impact, events that took place in the past but which could recur. The collection and dissemination of data on hazards and their characteristics in standardized formats will help to promote consistency and interoperability of national, sub-national, regional and global hazard databases, and thus deepen the pool of data available for hazard analysis. Care should be exercised so that valuable hazard information is not lost in the process (OECD Paper on Disaster Risk Management and Risk Financing).

Insurance markets require good quality data on hazards in order to underwrite hazard-related risks. Capital-market instruments have evolved whose payouts are triggered by the physical parameters of hazard events exceeding pre-specified thresholds in defined geographical areas, making the extensiveness and quality of hazard data, as well as the governance and independence of the data collection and dissemination process itself, critical.

Data inventories are useful to catalogue elements at risk and enable an assessment of exposures and vulnerabilities. Collecting location-based information on exposed populations, assets, and activities (e.g., census information, business registries, land use information) enables quantification of exposures, which is essential for the design of financial risk transfer instruments. Inventories may also usefully include location-based information on the characteristics and vulnerability of properties and infrastructure (e.g., value, use, age, building materials, soil conditions, number of floors, number of occupants). Such location-based data permits the layering of hazards and exposed populations, assets, and activities to obtain an integrated view within a defined geographical area. Maps may then be produced that allow these exposed elements to be quickly viewed, possibly at a high level of resolution, and assessed. The mobility of persons may introduce difficulties in assessing the exposures of populations (page 34).

The collection of information on exposures and vulnerabilities in standardized formats promotes consistency and facilitates linkages and exchange of data between national, sub-national, regional and global hazard databases. Such data collection, moreover, needs to take into account such considerations as cost, privacy, confidentiality, and national security. Data collection may, given scarce resources, be limited and focused on the highest priority variables, and dissemination may be restricted. In principle, however, efforts are necessary to ensure that data and information is made available and, where possible, disseminated (page 36).

Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

14.b. **Should the available data be made public?**

Yes, if data collection and management has been paid for by public money. In general efforts should be made to improve or create access to existing data. Vulnerability and exposure data of private corporations on critical infrastructure are often inaccessible due to security or commercial reasons. Building a global database in this area however would be a very challenging task. There is a strong demand for data mining, data harmonization and data standards taking into account that a lot of data is already around. For some data types it can be useful to get access to older datasets (especially on building inventories/vulnerabilities) while more recent data are restricted due to security or commercial reasons.

The most systematic public education efforts have been built around widespread campaigns. These campaigns involve a series of messages and materials that are massively distributed through a wide variety of media channels, as well as sometimes cultural activities. They typically involve partnerships between government, civic organisations, mass media outlets, and the private sector. While multiple organisations and sectors can be encouraged to develop and disseminate materials, country experiences show that guidelines on important content help limit confusion and conflicting messages. Trusted organisations and sectors (e.g., regional and local authorities, non-profit associations, industry) have often collaborated, with the support or direct involvement of national governments, in developing standardised material that organisations can take and modify for their particular target audiences. The insurance industry, as a key sector involved in financially managing disaster risks, can be usefully engaged in promoting and educating policymakers and individuals about disaster risks and financial protection. Some have used these opportunities to explain and promote better land use and construction standards that can help to reduce exposure and vulnerability. Others have partnered with civic and public organisations to promote public risk awareness and risk reduction education. In several countries, risk awareness, preparedness, and risk reduction information is made available on governmental websites. These websites focus on natural hazard information (including, where relevant, simplified hazard maps), the benefits of collective and individual disaster risk reduction actions, the availability and scope of disaster risk financing, risk-sharing, and risk-transfer tools, such as insurance, as well as on event response and emergency planning for post-event preparedness. Clear and consistent messages to all stakeholders, including all levels of government, concerning the allocation of expected disaster costs and disaster prevention responsibilities can promote a shared understanding of roles and responsibilities and stimulate individual and collective actions to reduce vulnerability and exposure to the risk of physical and financial losses from hazards (page 42).

14.c. **Should the EU take action in this area?**

Yes, the EU should encourage Member States to collect risk information and make it available (e.g. risk zones, protection measures, building standards, weather data services).

The public sector should take a leading role in establishing a national framework and strategy for action and in coordinating the development of coherent national hazard awareness and risk reduction education programs and policies. Public-sector action can involve the development of initiatives, but it can also involve efforts to coordinate, structure, or encourage existing or new initiatives undertaken by other stakeholders. In this respect, national governments can provide an important supporting role by encouraging programs undertaken by regional and local governments.

---

Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

the insurance sector, the private sector (including industry and trade associations), the education and academic sectors, and the civic sector. (OECD Policy Handbook on Natural Hazard Awareness and Disaster Risk Reduction Education24).

The EU could/should provide the collaborative framework and maybe also take ownership of a model to overcome some of the confidentiality and sensitivity issues. Furthermore the EU could initiate an international consultation between interested stakeholders for setting up an international platform/resource on risk assessment of large-scale events that cannot be addressed by single count. The EU can especially be valuable as a trustworthy intermediary who should create a platform for knowledge exchange. It is important to equally address public researchers as well as private industry stakeholders. See also answer 14a).

14.d. How can further dialogue between insurance industry and policymakers be encouraged in this area?

There appears to be a need to share best practices, guidelines, methodologies and standards to ensure consistent data and tools and to increase skills at the national and local levels, thus combining bottom-up and top-down approaches. Current international data harmonization and standardization initiatives, such as the Integrated Research on Disaster Risk (IRDR)25 or the International Disaster Database EM-DAT26 only cover very partially the needs of the risk assessment community. An example of an ambitious data collection project is that of the Global Earthquake Model (GEM)27, which in cooperation with local and national institutions, is developing a global database for earthquake event, losses and exposure data, with a spatial scale relevant both for local, national and global level analysis.

15. Promoting risk financing initiatives as part of EU development cooperation policy

15.a. How can the Union most effectively help developing countries to create solutions for financial protection against disasters and shocks and what should be the priority actions?

EU actions should start with raising awareness for natural disaster risks and risk transfer solutions through capacity building. The explicit solutions are manifold and range from financial support, role models to transfer/replication of successful cases (from developing countries and Europe). Local experts shall be involved and contacts to experts in countries with successful implementations of comparable solutions established. The provision of technical assistance to develop and promote new insurance solutions as well as increased free access to data is essential to help promote disaster risk solutions.


25 Integrated Research on Disaster Risk (IRDR) http://www.irdrinternational.org/

26 The International Disaster Database EM-DAT http://www.emdat.be/

27 Global Earthquake Model (GEM) http://www.globalquakemodel.org/
Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters


15.b. What types of partnerships with the private sector and the international institutions should be pursued for this purpose?

There are many different ways to structure the risk transfer between all involved parties. Often, a tailor-made combination of traditional (re)insurance, compulsory/pools and financial market products achieves the best and most efficient protection. Public private partnerships offer capacity building, project development and implementation, and actual risk transfer. Many different forms of public private risk transfer partnerships exist: government as rule setter, government as facilitator/sponsor, government as insurer, government as (re)insurance buyer.29

Switzerland30, Norway and Denmark have good natural catastrophe insurance solutions.

---


29 For more forms of public private risk transfer partnerships see "SwissRe_Attachement_EU_GreenPaper.pdf"

Part 2: Man-made disasters

16. Environmental liability and losses from industrial accidents

16.a. What are the most important aspects to look at when designing financial security and insurance under the Environmental Liability Directive 2004/35/EC?

A risk specific individual assessment of the activity and locations allows making an in-depth analysis of the environmental risk and setting the basis for a tailor-made risk transfer solution. This includes the understanding of the exposure of the operator/location to natural catastrophes like earthquakes, floods and windstorms which may result in a release of hazardous substances or waste (e.g. pipelines ruptures, tank leakage).

The insurance industry does not offer products against all of the liabilities and the insurance industry must be free to decide which risks they are willing to accept and which not.

For environmental liability a one size fits all approach does not work. A small company with a small amount of revenues might be a far more exposed ELD risk than a large "billion EURO" company. The latter might also have far better established risk management processes in place which are key for the insurance industry and for the assessment of a risk. Insurance cannot be viewed to be a substitute for proper risk management.

Risk appropriate terms and conditions include also the setting of an insurance limit and the fixing of a premium which reflects the exposure. Each insurance contract has a cap in insurance limit as no insurance carrier can offer unlimited capacity. Most insurance companies are joint stock companies with limited capital base available. Granting unlimited liability insurance amounts would also not be possible under the new solvency regulation.

The risk appetite of an insurer very much depends on strategy, experience/knowhow, existing portfolio/client basis and capital requirement under the solvency regulation.

17.

17.a. Are there sufficient data and tools available to perform an integrated analysis of relevant and emerging industrial risks?

The insurance industry works with risk specific tools. Some of them are publically available (e.g. geographical information system "Zuers-Public.de" in the German market) others have been developed and are used by individual (re)insurers for supporting a risk appropriate assessment of the risks for the daily underwriting depending on their interest for such risks. Such tools developed by individual insurers might give them a competitive advantage in the market and might have taken them years long to be developed and therefore it would not be feasible to share such tools.

17.b. How can data availability, sharing and tool transparency be ensured?

On the other side Swiss Re fully supports the goal to improve and strengthen the knowledge base of liability and losses from industrial accidents between insurers, business and competent authorities. This could be achieved by sharing publically available information on industrial accidents and a closer exchange on risk specific factors to be considered with such accidents. The ELD stakeholder conference, which was held in June 2013 is an excellent platform to further deepen the cooperation between the parties.
Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

17.c. How can co-operation between insurers, business and competent authorities be strengthened to improve the knowledge base of liabilities and losses from industrial accidents?

As outlined in the response to question 10 we do not consider a harmonization of pre-contractual and contractual information as a prerequisite. We rather see a need to harmonize on an EU level the risk management safety standards and licensing processes and put them on the highest level possible as insurance can't be a substitute for proper risk management process.

18. Offshore oil and gas operators' liability insurance

18.a. Considering the specificities of the offshore oil and gas industry, what kind of innovative insurance mechanisms could be appropriate?

Insurers play an important role in covering man-made disasters like for example energy offshore (oil) risks, but should not be viewed as the only solution for covering all of risks. The most common financial security instruments to cover liabilities of the oil companies range from self-insurance, insurance/reinsurance, bonds, warranties, guarantees and funds.

Traditional insurance covers also long-tail risks as for example pollution where restoration measures may take years to achieve their intended purposes.

18.b. Are there ways for the insurance industry to reduce the uncertainty regarding the assessment of risks and calculation of premiums?

The challenges for traditional insurance solutions for this industry sector are

- High risk activities as for example some technologies in the drilling and exploration industry consist of new pioneering technologies partially not yet approved in all aspects
- Risk assessment for those partially unproven technologies are difficult if not to say impossible to carry out
- Limited information on the nature of risks

Based on that, even more available risk information would not automatically lead to more available capacity.

18.c. What type of information should be publicly available to promote the development of insurance market products to cover major accidents?

Also if one would define a list of key underwriting criteria to bring more transparency this would not mean that based on such additional information the insurance market would be willing to offer products with higher capacity. Again, the low frequency/high severity exposure linked with the long tail nature of this industry segment are drivers which prevent the worldwide insurance market from offering products with significantly higher capacity than at present.

Big events like Deepwater Horizon can lead to large accumulation losses as (re)insurers might be involved in different insurance contracts of involved operators/contractors leading to a reduction of the capacity. Hence capacity is generally going down. The use of self-insurance is increasing also because of the more limited capacity available in the market after Deepwater Horizon and due to the fact that (re)insurers require higher premiums.

There is no insurance solution beyond what the market currently offers. The Gulf of Mexico insurance coverage of USD 10bn cited on page 18 (footnote 40 in the EU Green Paper) is far too high. Also
Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

insurance coverage in the Gulf of Mexico is limited to about USD 1.3bn which is the same for the EU and rest of the world.

In our view the financial consequences linked to the above described pioneering activities should not only be carried by the exploration and drilling industry respectively, the insurance market. Economic progress includes not only benefits for society but also uncertain risks which require the acceptance of the whole society.

19. Information rights of victims of man-made disasters

19.a. Should contractual conditions of third-party liability insurance policies be disclosed to third parties in case of man-made disasters? If so, how?

An insurance contract is an agreement achieved between the parties involved (i.e. the insurer and the insured) based on a variety of risk specific subjective factors like risks involved, quality of risk, loss history, risk management processes in place, scope of the insurance contract etc. Contrary to other lines of business like motor liability insurance, where the market offers more or less standardized insurance terms and conditions for a homogenous group of risks, being motor vehicles, this is not the case for environmental liability and related losses from industry accidents where each risk has to be assessed on its own merits and where the terms and conditions of an insurance contract may differ significantly between industry risks in respect of the scope of the insurance contract and in respect of the sum insured. Therefore a general broad disclosure of such an insurance contract would not be appropriate and could also be quite misleading as other third parties outside the contractual parties would lack of the rationale and knowledge which led to the setup of tailored made risk appropriate terms and conditions in an insurance contract.
Swiss Re's answers to the questions raised in the Green Paper on the insurance of natural and man-made disasters

20. Loss adjusting

20.a. Are there specific aspects of loss adjusting which would benefit from more Harmonization? If so, which?

Effective and efficient loss adjusting benefit from

- A clear "public authority pyramid" in each Member State in order to make clear which public body is responsible for what and at what moment in time. In an ideal world, one public authority should be the main contact partner for all experts involved in the loss adjusting process. These authorities should have the required knowledge; a "one authority fits all" solution should be avoided (e.g. a large marine loss calls for different skills than a fire/explosion in chemical plant).

- Give loss adjusters easy access to investigating public authorities (police, firefighters etc.), probably by means of an "accreditation" (like for a big sports event).

- Disasters of any kind are always a big hit for the affected economy as well as for the insurance industry. In order to help reduce associated costs, Member States could exempt loss adjusting related activities from VAT.

20.b. Are there practical difficulties for loss adjusters to operate cross-border?

In the past, we were not confronted with serious practical problems if loss adjusters operated cross-border. However there are not many examples of important catastrophe losses within Europe during the last few years (one major event was certainly the earthquake "L'Aquila"; we are not even sure if we would rate the "Costa Concordia" as a catastrophe event since the geographical scope is very limited). We have seen examples of cross boarder loss adjusting processes in the US after Hurricane Katrina (however to a limited extent since they were a lot of local experts around) and even more important after the Chile earthquakes. A challenge is to ensure that sufficient expertise is available; a requirement that oftentimes cannot be secured by local Loss Adjusters only. In such cases, cooperation between a local Loss Adjusters who brings along the local market and practice knowledge and an international Loss Adjusters who has the expertise to handle large complex cases is frequently most beneficial.

Easily granted (temporary) working permits in case that non EU citizens who are experts in the required field should help in the loss adjusting process.
21. General remarks

21.a. This paper addresses specific aspects related to the prevention and insurance of natural and man-made disasters. Have any important issues been omitted or underrepresented? If so, which?

Alignment to:

- Third-party nuclear liability insurance
  Although the Green Paper has a section 4.2 (Third-party nuclear liability insurance) respective questions to nuclear liability are missing. We express already today our interest to also contribute to the planned public consultation to this issue which, we understand, will be launched shortly.

And

- The Hungary proposal of the 'Establishment of a European Union Industrial Disaster Risk-Sharing Facility' and the related European Commission DG ENV 'Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents'
  We would welcome the opportunity to provide feedback in detail to the said proposals before further steps will be considered.

With respect to climate adaptation and the role of insurance in adaptation we recognize the effort of the EU Commission to align the 'EU Strategy on Adaptation to Climate Change'\(^{31}\) and the present consultation. Building on our experience in the field of 'Economics of Climate Adaptation'\(^{32}\) we look forward to supporting the EU Commission in this matter.

In our response to the present consultation we made repeated reference to the OECD Methodological Framework on Disaster Risk Management and Risk Financing\(^{33}\). We suggest deepening the relationship with the respective task force of the OECD.

---

\(^{31}\) EU Strategy on Adaptation to Climate Change


\(^{33}\) OECD Methodological Framework on Disaster Risk Management and Risk Financing
http://www.oecd.org/gov/risk/