DISASTER INSURANCE IN SWITZERLAND:
THE CANTONAL PUBLIC SECTOR INSURANCE SYSTEM

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REPORT BY:

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EXECUTIVE SUMMARY

This report examines Switzerland's Protection Gap Entities (PGEs) - the cantonal level public sector building insurers known as Kantonale Gebäudeversicherungen (KGVs). The KGVs' role is examined against the background of the Swiss dual system of disaster insurance provision, which features private sector provision in parts of the country, and against the background of PGEs around the world.

The Swiss system is distinctive for its approach because of the:

- Dual system featuring both regulated private insurance (covering 20% of buildings and insured value) and localised public sector monopolies (covering 80% of buildings and insured value); [1]
- Double solidarity between the insureds, but also between the insurers;
- Integration of loss prevention and insurance to a much greater extent than in most other PGEs.

This approach has allowed the Swiss system to provide very affordable and comprehensive insurance against a range of disasters, that is economically and socially sustainable. Nonetheless, it faces important challenges in relation to:

- Earthquake;
- Increasing risk due to climate change;
- Growth in urban population leading to construction in exposed locations;
- Changes in construction methods resulting in more vulnerable buildings; and
- Changing cultural preferences that accentuate individualism.

The Swiss system will thus need to continue to adapt to address these ongoing challenges.

1. INTRODUCTION

In this report, we examine Switzerland's Protection Gap Entities (PGEs) – the cantonal level public sector building insurers known as Kantonale Gebäudeversicherungen (KGVs).

The KGVs operate in parallel with a private insurance system for disaster losses. We use the term "Swiss system" to refer to how disaster insurance in Switzerland is provided through the combination of private and public sector provision, as well as the thick network of relationships among these actors. We use the term "KGV system" to refer specifically to how disaster insurance is provided through KGVs. We first explain how the Swiss system operates and then discuss the KGV system in light of the international landscape of PGEs, based on our global research in this area [2].

Worldwide, a large portion of the damage caused by disasters remains uninsured in what is known as the 'insurance protection gap' [3]. This creates substantial problems even in wealthy countries, as governments need to step in to finance reconstruction.

When reconstruction is only partially funded or not at all, economic recovery takes more time, with substantial costs to individuals and society in terms of welfare and economic development [4]. Many governments have, therefore, resorted to collaborations with the insurance industry to ensure some degree of insurance through what we call Protection Gap Entities (PGEs). These entities "operate between state and market in developing novel solutions/schemes that mobilize global (re)insurance capital in addressing the aftermath of disaster" [5]. PGEs show considerable variation in governance structures (e.g., public or private partnership), risks covered (e.g., single peril or multi-peril), type of risk solution (e.g., product used) and their funding model (e.g., policy holders' premiums, public or private levy) [6], [7], [8]. Yet, they also exhibit significant commonalities, for instance in how they remove and redistribute risk between markets, government, and private citizens; the position they take in the insurance supply chain; and their role in stretching and expanding what can be insured [9].

Furthermore, the increasing frequency of weather-based disasters [10], the need to build in more exposed areas due to population growth, the use of construction techniques that make buildings more vulnerable (e.g., the extensive use of glass in modern constructions), and the tightening government budgets have resulted in a growing insurance protection gap and an increased focus by governments and the insurance industry on the role and potential for PGEs to address aspects of this gap.

Placing the Swiss system of public sector property insurers against this background offers insights for both other PGEs and for the Swiss system, particularly in the areas of the integration of insurance within the larger resilience landscape, and on the issues faced by PGEs as they attempt to remain relevant in the face of changing protection gaps.

2. OVERVIEW OF THE SWISS DISASTER INSURANCE SYSTEM

In this section, we provide some background on Switzerland and its landscape of disaster insurance provision, which will serve as the basis for the discussion of this system as compared to the others we have studied.

2.1 BACKGROUND

Switzerland is a federal republic with less than nine million inhabitants (roughly equivalent to the population living within the city limits of London) who speak four official languages. Its 26 cantons, the smallest of which has slightly more than 16,000 inhabitants, each have their own constitution, legislature, executive, police and courts. The political system is likely the closest to direct democracy in Western countries, with the population frequently called to vote on legislative proposals at both cantonal and federal levels. Switzerland's political and administrative system is decentralized and bottom-up, with relatively weak central authorities and a heavy emphasis on local and individual autonomy. The glue that has historically kept this system together is a heavy emphasis on consensus-building and 'solidarity'.

As one of our interviewees remarked:

> In order to be fair to everyone, we will try to develop a tool to assess the risks the same way and to provide a solution that fits the whole country. That means the economical part, the social part, the ecological part. It's our belief that if we do something it has to be a long-lasting solution and therefore it needs everyone.
>
> *(Interview 505)*

In keeping with this approach of combining localism with consensus building at the national level, disaster insurance provision in Switzerland is a tapestry of different approaches, which are coordinated through a combination of legislative frameworks at federal level and bottom-up mechanisms connecting individual parties. At the federal level, the system is dual – with two different systems operating in different areas of the country. In 19 cantons, disaster insurance is provided through the KGV system of local public sector insurers. In the remaining seven cantons (collectively known as GUSTAVO, an acronym of their names), disaster insurance is provided by the private insurance market as an extension of fire insurance. Disaster insurance is mandatory for all buildings in the cantons with public sector insurers and in four of the seven GUSTAVO cantons [11]. In all GUSTAVO cantons, lenders require disaster insurance to issue mortgages, which contributes to high penetration also in these cantons. Private provision in the GUSTAVO cantons is strictly regulated, to ensure that the system as a whole offers comparably comprehensive protection to citizens, independently of where they live, against losing their properties due to disasters.

In the cantons using the KGV system, the KGVs are connected through a thick set of relationships and structures that help coordinate their activities, once again balancing local autonomy with a need for consistency in the offer across cantons and the principle of solidarity. In turn, the KGVs and insurance market players are in regular contact on many issues, initiate and collaborate on some initiatives, such as the development of an information platform for professionals and the public on how to protect buildings against natural disasters (https://www.schutz-vor-naturgefahren.ch/bauherr.html).

While there is a lot of emphasis on solidarity, the Swiss system is also adamant in framing solidarity as an option that must generate the minimum possible burden to society. As we will show, the disaster insurance system is thus designed to limit the extent to which solidarity is needed in the first place through a careful balancing of the role of the different stakeholders as well as a sharp focus on resilience and mitigation in the long-term.

2.2 MAJOR FEATURES OF THE KGV SYSTEM

The major features of the KGV disaster insurance systems are summarized in Table 1 below. In the KGV system, disaster insurance is compulsory for all buildings, independently of use, with the only exception of federal buildings. Buildings are insured to their full reconstruction value, including debris removal and disposal. Because of the compulsory nature of insurance and up to date property registers, coverage of the building stock is virtually complete, with the value of insured buildings being about 2,500 billion Swiss Francs. Lending requirements for mortgages have led to very high penetration also in those among the Gustavo cantons that do not mandate insurance [12].

The disaster insurance cover includes damage to the structure of the buildings due to floods, windstorms, hail, avalanches, excessive snow pressure, rockfall, and landslides. Content insurance is covered in only some of the cantons adopting the KGV system and is provided by the private market where it is not included in the local KGV offer. Business interruption is also not covered through the KGV system. Floods, hail and windstorms are the most significant disasters in terms of losses. Earthquake is covered in neither the KGV system nor the private provision framework in the GUSTAVO cantons, with the exception of Canton Zurich, which offers limited protection. Earthquake thus constitutes the only major protection gap left in the Swiss system in relation to weather and geology-based disasters.

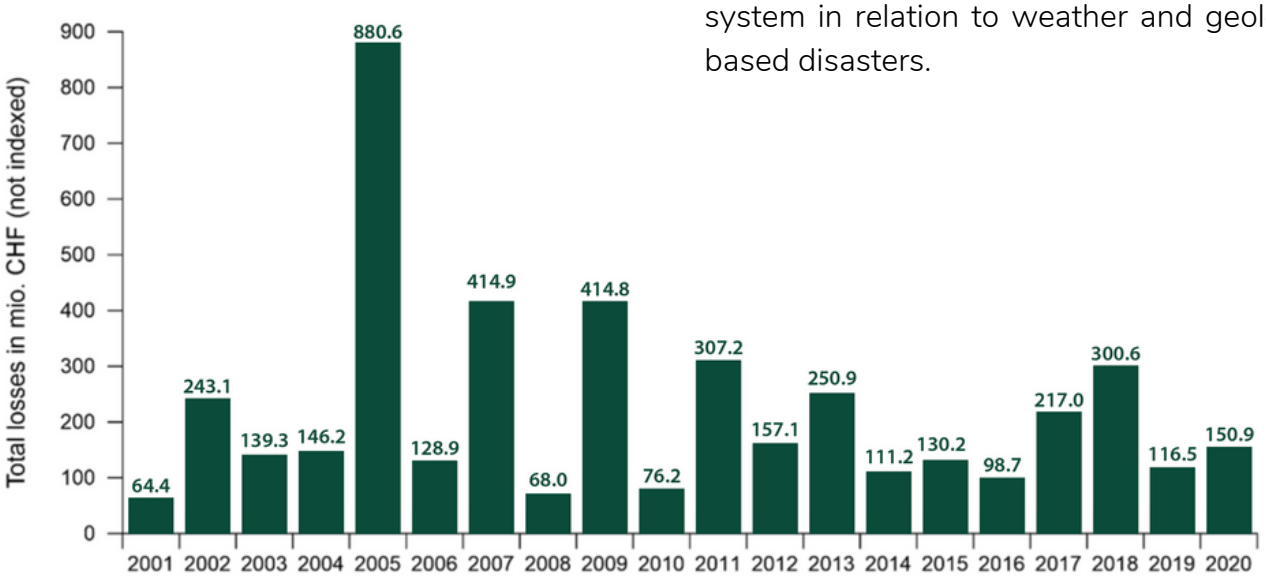


Figure 1 – Total losses for the KGV System | Source: VKG website [13].

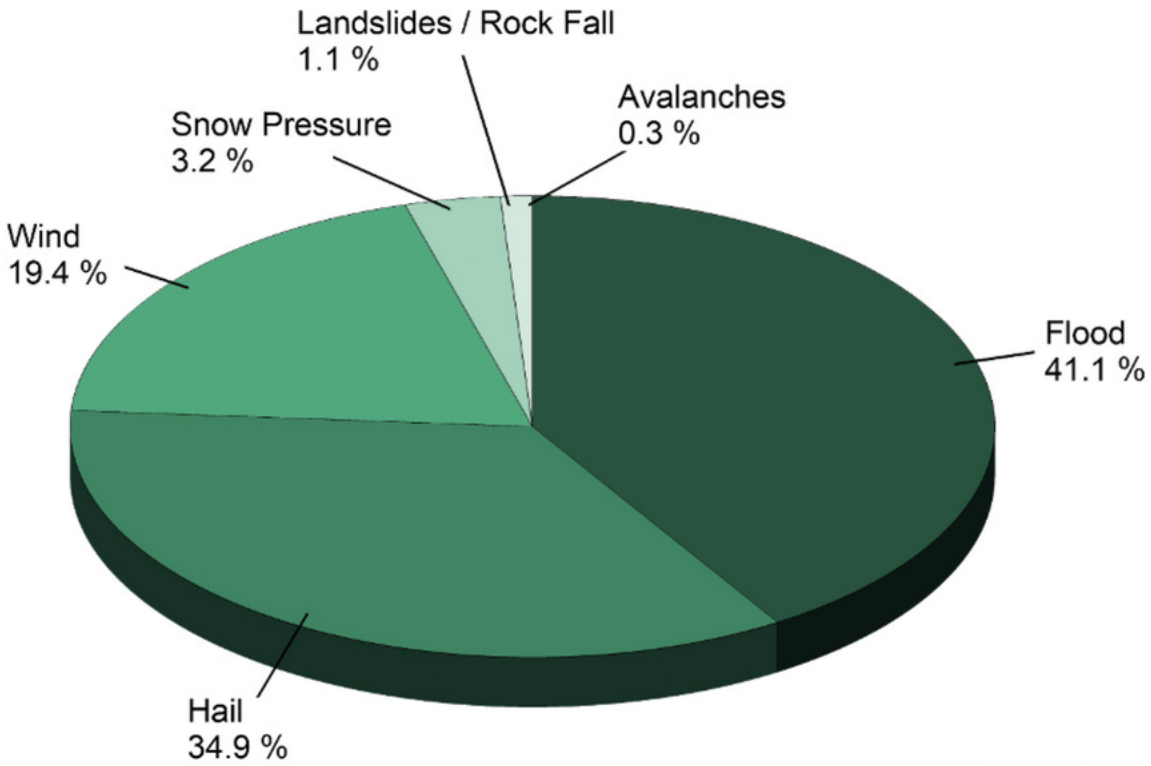


Figure 2 – Total losses and share of losses by peril for the KGV system | Source: VKG website [13].

For both private and public sector provision, the principle of 'double solidarity' applies – solidarity among insureds but also solidarity among insurers.

SOLIDARITY AMONG INSUREDS

In the KGV system, this principle applies to insureds within each canton. KGVs charge the same price for disaster insurance (a percentage of insured value) for each building, independently of the risk of the specific property. Thus, prices are homogeneous within cantons but differ across cantons, as they reflect the risk profile of the specific canton. In the GUSTAVO cantons, the same price is charged (again, a percentage of insured value) across all cantons, this price being calculated and set by the federal government.

SOLIDARITY AMONG INSURERS

In the KGV cantons, should a cantonal insurer's losses be excessive (larger than the 50 year return annual loss), an inter-cantonal fund (with a total capacity of 1.2 billion CHF), jointly financed by the KGVs, offers relief. In the GUSTAVO cantons, compensation mechanisms for excessive losses due to differential risks among insurers also exist through a so-called Compensation Fund, which has a liability limit of 1 billion Swiss Francs per event

MAIN FEATURES OF THE KGV-BASED DISASTER INSURANCE SYSTEM

• 19 not-for-profit, financially and administratively independent public sector monopolies at cantonal level (no government guarantee)
• Compulsory, multiperil, disaster insurance for buildings, at full reconstruction value and with unlimited cover for most KGVs
• Almost complete coverage (only federal buildings are excluded)
• A few KGVs provide content insurance
• Business interruption under private insurance
• Double solidarity
  ◦ Solidarity among insureds: same price within a canton independently of risk
  ◦ Solidarity between KGVs: intercantonal mechanism to support KGVs that exceed their capacity
• Earthquake is not included in the system (with the exception of Canton Zurich, which offers limited protection)

Table 1– Summary of the main features of the KGV-based disaster insurance system.

Overall, the KGV system is a cherished institution in Switzerland, and is appreciated in terms of effectiveness of protection as well as value for money, with its value often recognized by the industry too. For instance, one interviewee from industry told us:

> **The way in which the system is designed here - I find it special because it's mandatory and it's based on a monopoly, which is normally not necessarily in line with economic liberalism.**
> **So, is it good or bad? I mean, what I have observed for many years is that it works very well.**
>
> *(Interview 511)*

The fact that the system survived the privation of the 1990s in many sectors in Switzerland, like public transportation, the postal services and telecommunications is further testament to its performance.

2.3 THE PUBLIC SECTOR INSURERS

KGVs are public sector, not-for-profit organizations set up by law and granted monopoly over the provision of building disaster insurance. While they are public sector entities, they are autonomous, with their own governance under the arms-length supervision of their canton. They are required to remain financially viable and are not backed by a government guarantee.

The insurance of disasters through the KGV system took shape in the first half of the 1900s. Starting with Canton Vaud in the 1920s, public sector insurers that had until then covered only fire, begun to cover natural disasters [14]. The decision was controversial at the time and followed almost fifty years of debate. From the second half of the 1800s, Switzerland had embarked on a path of development and modernization. Numerous severe weather events, particularly floods, brought to the fore the plight of the still extremely poor rural population who were seeing their livelihood, and often the savings of several generations accumulated in property and equipment, destroyed by floods and landslides. Ad hoc, post-disaster charity collections in support of those affected by calamities played an important role in shaping the Swiss national identity and sense of community [15].

However, charity collections were unreliable and were increasingly seen as inadequate to cover the need. The question of how to help these populations, victims of events outside their control, became a prominent issue of a fast-developing country. Ultimately, the view that it was not fiscally prudent for the Cantons to take on the burden led to the decision to extend the cantonal fire insurance system (itself established starting in the early 1800s) to disasters, even though disaster insurance at the time was in its infancy and critics of the proposal highlighted that using insurance was a “jump in the dark”.

The early history of the system highlights three important features of the KGV system that persist to this day.

1

First, the importance of solidarity of the whole body of citizens with those affected by misfortune, which drove the setting up of the system. In this sense, while developed with modern insurance in mind, the KGVs shared some of the ethos of the early mutual societies.

2

Second, the emphasis on finding practical, working solutions that allow solidarity without overburdening the collective.

3

Third, the connection of disaster insurance with fire insurance, which, while not uncommon historically, in Switzerland persists to this day in that the KGVs are still responsible for both fire and disaster insurance. As we will discuss more fully below, the close connection with fire insurance ensured a focus on disaster response and prevention that is higher than in many other PGEs.

The KGVs are connected to each other through thick networks of relationships. Of the 19 KGVs, 18 are members of several joint institutions through which to pursue their work.

- The Association of KGVs (Vereinigung Kantonaler Gebäudeversicherungen - VKG) acts as an interface between the cantonal insurers, the federal institutions and other interest groups. It offers the opportunity for members to develop common approaches and exchange experiences.

- The Association of Cantonal Fire Insurers (Vereinigung Kantonaler Feuerversicherungen - VKF) promotes fire and disaster loss prevention. VKF is responsible for fire loss prevention regulations, which are legally binding in Switzerland. Over the years, the VKF has become active in similar prevention initiatives with regard to disaster loss prevention.

- The Foundation for Prevention (Präventionsstiftung - PS) carries out or finances applied research projects and engages in collaborations with various other entities. For instance, the work of the PS has led to the certification of building materials to decrease vulnerability and improve resilience and funded some of the work to develop a surface water risk model for Switzerland.

- The Intercantonal Reinsurance Association (Interkantonaler Rückversicherungsverband - IRV) negotiates reinsurance deals for the KGVs in aggregate and manages the inter-cantonal solidarity fund, which cantonal insurers can access should their loss from disasters exceed specific thresholds.

- The Earthquake Pool (Schweizerischer Pool für Erdbebendeckung - SPE). As discussed above, earthquake is not covered by the KGVs, with the exception of Zurich KGV, which provides limited protection. The SPE was set up by the KGVs on a voluntary basis in order to be able to provide a minimum relief should an earthquake strike. The fund is not linked to an earthquake insurance product.

The governance arrangements of these institutions reflect the bottom-up and consensus-building approach typical of Switzerland, with the heads of individual KGVs sitting on their boards to ensure that they respond to the needs of their members, as well as cantonal and federal government representation to ensure that they remain true to their public sector mission.

3. BEYOND INSURANCE: PREVENTION AND MITIGATION

The KGV disaster insurance system is integrated with prevention, response and mitigation activities at a federal level through the integrated national risk-management system developed in the 1990s following a wave of natural disasters. The KGVs play both direct and indirect but important roles in this system (see Table 2 for a summary). Today, as a KGV interviewee noted, the provision of insurance is seen as just one component of the role of the cantonal insurers.

> The really unique aspect of our system is that we cover three parts.
> We have prevention, we have intervention and insurance. As we are public institutions, we can put obligations on policyholders to do protection measures.
> We do a lot of prevention work. With good prevention you have less damage. And for the damage we have, we supervise the fire brigades and so can make sure that they have the right equipment, the right training to do the work well and to limit possible damage.
> And the third part, the damage that is here, we cover it with insurance.
> And this triangle is key to our system.
>
> *(Interview 496)*

KGVs have a direct role in both response and many aspects of prevention at the building level. At the level of disaster response, KGVs in their double role as fire and disaster insurers, supervise the work of the fire brigades. A significant part of the cantonal insurers' budget (about 250 million Swiss Francs per year), financed by their premiums, goes into the training and equipment of fire brigades. This helps in containing damages, particularly in relation to floods, through preparedness (e.g., the use of mobile flood defences) and prompt response.

KGVS - RESPONSE AND PREVENTION	
Response	Supervision of the fire brigades and financing of part of their training and equipment (~240 million Swiss Francs/year)
Prevention	
Individual buildings	
Pre-disaster	At the building permission stage, feedback on design features of major buildings that can reduce damage (typically non-mandatory)
Post-disaster	Partial financing of improvements at reconstruction that can reduce recurring damage (~78 million Swiss Francs/year)
	Possibility to refuse to insure in extreme cases when owners do not undertake improvements
Built environment	
Pre-disaster	Collaboration in the development of risk maps (A full set of risk maps is now in place with restrictions on construction in high-risk areas) Involvement in the development and awareness of disaster resilient construction standards and materials
Post-disaster	KGVs involved in the definition of infrastructural projects to reduce risk and damages (financed by the Cantons or the federal government)

Table 2 – KGVs activities in disaster response and prevention

In relation to prevention, KGVs have a significant direct role in relation to the resilience of individual buildings both pre- and post-disasters. For large construction projects, KGVs often provide feedback on design features when developers apply for building permissions. While these recommendations often are not mandatory, they provide important inputs to the design process, particularly in the case of floods, where relatively simple and unobtrusive measures can have disproportionately large effects.
For instance, one interviewee at a KGV remarked:

> **Most measures we are trying to implement in the buildings are extremely basic. For example, if you have underground parking, we ask that the access to the parking is not just straight and down, but there is first a small hill and then it's going down. It's unbelievably cheap and it has a huge effect.**
>
> *(Interview 506)*

For smaller dwellings, for example, individual family dwellings – where the planning permit is stage is less exacting than for large buildings – a significant portion of mitigation and prevention takes place after disaster, where KGVs can suggest improvements that would limit damage should a new event take place, and co-finance it. The KGVs invest about 80 million CHF a year to fund these activities. Again, there is typically a focus on relatively inexpensive measures that bring large benefits in damage reduction.

For example:

> We have quite a big number of [external] architects who are also going out after an event to do an estimation of the damage. This is a very effective point of intervention because people realize what we pay is a small part of the personal value which got lost after a flood. Those things are lost forever. So this arrangement is effective for implementing measures that prevent damage next time.
>
> *(Interview 506)*

Beyond these areas of direct responsibility, the KGVs play other more indirect but equally important roles in the broader resilience landscape, through the work of their association and the Prevention Foundation. For instance, they prompted and collaborated with the appropriate authorities in the development of building standards for disaster resilience construction. They collaborated in the local authorities' production of risk maps that are then used to restrict construction in certain areas and require special measures in other risk-prone areas. While owners of properties in zones at high-risk benefit from the same beneficial insurance prices as everybody else, no new construction is allowed, and old construction cannot be rebuilt. Furthermore, due to their interdependence with public sector bodies and the long-standing recognition of their role in resilience, they are consulted regarding land use planning in some cantons. The public insurers also collaborate, by contributing risk assessment capabilities arising from the knowledge of insurance claims and losses, in the definition of designing larger-scale resilience measures, which are funded by cantonal or national government.

4. THE KGV SYSTEM IN THE INTERNATIONAL PGE LANDSCAPE

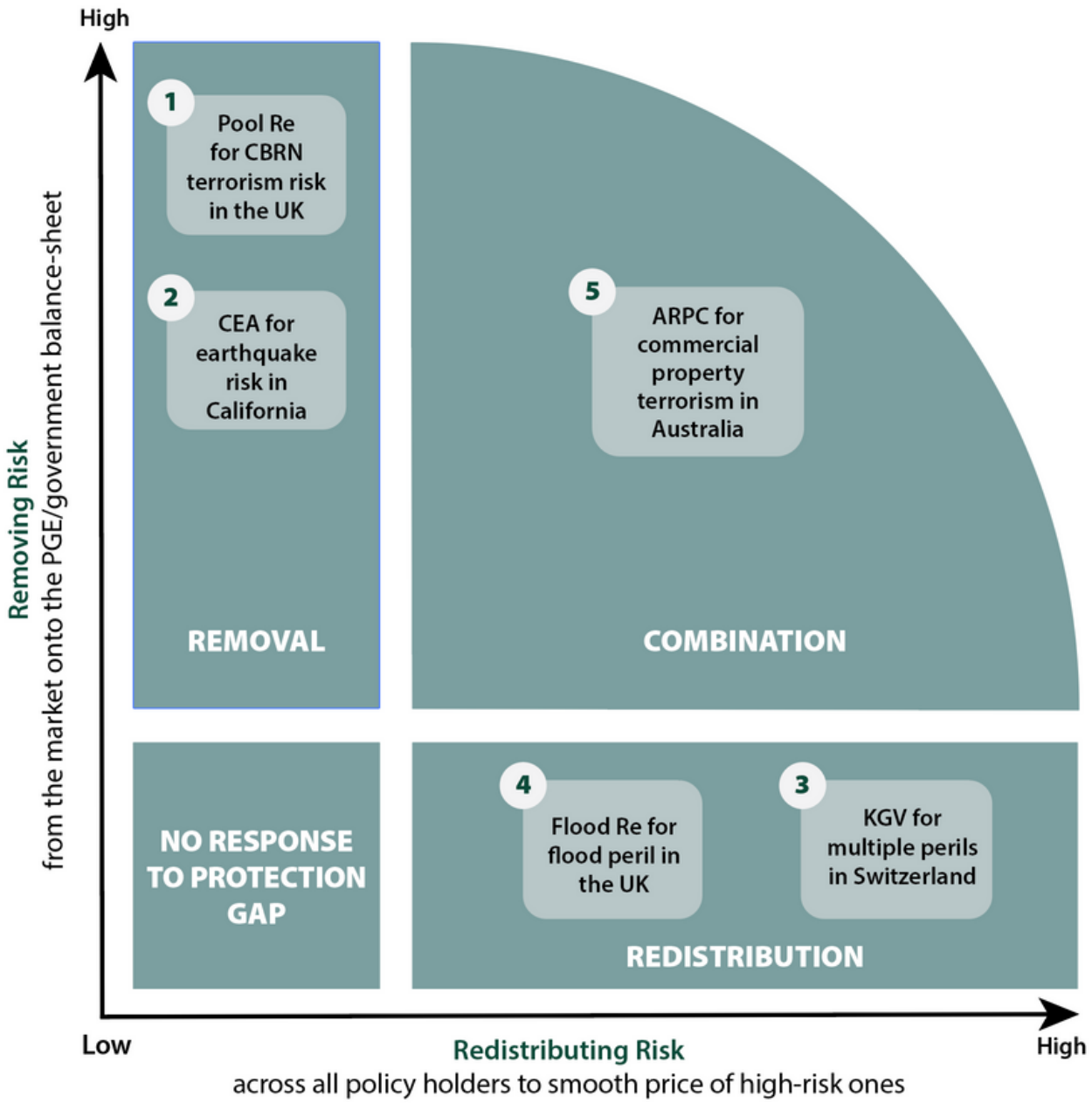
Our research shows that PGEs around the world emphasize primarily either removing risk, or redistributing risk as their key means of market intervention (see Figure 3).

REMOVING RISK

Removing risk means taking the risk away from the insurance market and placing it elsewhere, typically on the government balance sheet (Figure 3, vertical axis). This can be done by setting up a PGE that takes away the worst risk, for which the market does not have sufficient capital or risk appetite, or for which the market provides cover that is unaffordable for significant parts of the population This approach is particularly typical of terrorism PGEs, such as Pool Re in the UK, which removes terrorism risk from primary insurers to the government-legislated reinsurance pool that provides some of the cover, with a government guarantee for the risk that is beyond the capacity of the private market.

REDISTRIBUTING RISK

Redistributing risk refers to taking the risk of loss by a relatively small group of highly-exposed policyholders and redistributing it across the wider pool of variably-exposed policyholders (Figure 3, horizontal axis). The KGV system operates primarily through risk redistribution, as it is a compulsory insurance system in which risk-reflective pricing is not applied within cantons, and with mechanisms for risk sharing across individual KGVs. Redistribution as a strategic response essentially uses the PGE to restore traditional models of insurance as featured in mutual societies. The premiums of the many, widely distributed across possible exposures, cover the losses of the few.



1. Remove all risk from the market to the PGE government
2. Remove risk to the PGE and return only some to the market (e.g., through reinsurance or insurers retention
3. Redistribute all of the risk across all the policy holders
4. Redistribute some of the risk across all policy holders
5. Remove risk from the market to the PGE/government and redistribute across all policy holders

Figure 3 - Protection Gap Strategic Response Framework [16]

The Swiss KGV system shares the risk redistribution approach with PGEs such as Consorcio de Compensación de Seguros (Consorcio) in Spain and Caisse Centrale de Réassurance (CCR) in France. This type of PGE usually achieves a high level of penetration, often with some degree of compulsory cover, and thus a high level of protection of the citizens of a country.

As this type of compulsory system does not use risk-reflective pricing, but rather manages the overarching losses to the system through diversified risks, in which premiums are collected across a society, it can achieve widespread protection with relatively affordable payments for policyholders. When they work well, these systems end up playing an important infrastructural role for society: they provide a smooth path to economic recovery from disaster, while their presence as a form of protection is taken-for-granted and scarcely noted or debated.

Systems based on redistribution are typically supported by a notion of collectivism in the underpinning national culture [17]. In such cultures, it can be acceptable to the population to ensure collective protection through a levy on lower-risk properties to subsidize higher-risk properties. This cultural aspect is certainly important in Switzerland, where there is a widespread sense that there is a duty to protect everyone from disasters and the value of the system is recognized widely. Yet, while essential, it is important to emphasise that collectivism and a sense of solidarity towards fellow citizens are possible in Switzerland because they are complemented with other measures that make the system effective.

4.1 EFFICIENT SOLIDARITY

PART 1: INTEGRATION OF INSURANCE IN RESILIENCE

One drawback of PGEs that rely on risk redistribution is that they do not use risk-reflective pricing to highlight those properties most at risk, which can blunt incentives to undertake risk reduction activities: there is little incentive for anyone (citizens or designers/architects) to reduce the risk of highly exposed buildings when the damage bill is picked up by others because insurance prices do not reflect risk. In turn, lack of incentives for prevention and mitigation runs the risk of undermining the viability of insurance because losses may escalate over time – especially in the face of the increasing frequency and intensity of weather-based disasters due to a warming climate [18].

An example of a scheme based on redistribution of risk that has become unsustainable is the US National Flood Insurance Programme (NFIP). The legislation around NFIP has historically granted favourable rates to legacy buildings in high-risk areas and limited the ability of the NFIP to charge rates that would enable them to build reserves for high-loss events [19].

This has led to both a very high level of debt, and to the NFIP being accused of subsidizing floodplain development [20].

THUS, TO BE EFFECTIVE, REDISTRIBUTION SYSTEMS TYPICALLY REQUIRE STRONG REGULATION OVER LAND USE PLANNING AND CONSTRUCTION STANDARDS, ALONGSIDE INVESTMENT IN RESILIENCE [21].

Robust land use planning and building regulations, and significant investment in resilience mean that damages are contained, thus limiting the need for solidarity in the first place. Yet, PGEs often struggle to have risk mitigation and prevention activities recognized as part of their explicit remit. Rather, as PGEs are typically set up with the remit to provide insurance, the expansion of their activities to mitigation and prevention can be difficult.

An example of this situation is Flood Re, whose remit, when it was established in 2016, was clearly and narrowly defined: to provide insurance cover for 25 years for a limited number of properties that were classified as most at risk of flood. At the end of this period, the intent is that Flood Re will return these properties to a market where they have access to risk-reflective insurance. Flood Re quickly came to realise that it would be impossible to deliver the exit strategy without a major change in physical resilience that lowered the risk of these properties and thus also their premiums. However, Flood Re's initial remit did not include resilience, so that it could not discount for resilience features, incentivize resilient reconstruction after disaster, or directly influence any decision regarding land-use planning or building permission. Since then, Flood Re has incorporated the notion of affordable risk-reflective pricing into its exit strategy [22] and embarked on numerous initiatives aimed at extending its role in resilience. For example, they have gained the authority to finance a Build Back Better programme that will operate from April 2022. Nonetheless, Flood Re still lacks connections and authority in other crucial processes for ensuring resilience, such as the definition of land use, the development of flood defences, and the building permit process.

To further enhance their effectiveness, PGE's activities need to be linked and coordinated with the multiple other actors that play a role in prevention and mitigation. These links can be both formal and informal.

The Swiss KGV system undoubtedly has long historical links with prevention through its double mandate as fire insurer and the supervision and financing of the fire brigades. In addition, formal and informal links with other branches of the government have been steadily strengthened over the past decades. For instance, over the past 10 years, local authorities have more regularly begun to request advice from the KGVs on disaster prevention at the construction permit phase.

The tight integration in the Swiss system between insurance and prevention and mitigation activities at both the specific building and also the broader environment levels is critical to contain losses.

THIS APPROACH ENSURED THAT THE 'SOLIDARITY' ENFORCED THROUGH MANDATORY INSURANCE AND MINIMAL PRICE DISCRIMINATION, REMAINS SOCIALLY ACCEPTABLE BECAUSE IT REDUCES THE BURDEN OF ANY INDIVIDUAL UPON THE COLLECTIVE.

Arguably, the multi-peril nature of cover also contributes to making these systems more socially acceptable. With a mono-peril PGE, those who are, for example, not in a flood zone might resent subsidising those at high flood risk. Whereas with a multi-peril, protection benefits accrue to a wider group of citizens.

OVERALL, THE EXPERIENCE OF PGES SO FAR APPEARS TO SUGGEST THAT THE SYSTEM WORKS BEST FOR MAXIMISING PROTECTION TO A SOCIETY WHEN MANDATORY MULTI-PERIL INSURANCE IS COUPLED WITH A SYSTEMIC VIEW OF MITIGATION AND PREVENTION.

For instance, the NFIP has some levers at the prevention level. However, its mono-peril nature, voluntary insurance policy, and pricing policies that mix risk-reflective pricing with subsidies create a very imbalanced situation, whereby a small percentage of the insured properties experiencing recurrent losses are responsible for the vast majority of NFIP losses. Building social consensus around solidarity in such an imbalanced situation is challenging, as high-risk individuals are not supported to reduce their risk profile to the collective. By contrast, the tight integration of the different elements of insurance and resilience within the Swiss system enables the collective approach to solidarity to be maintained.

4.2 EFFICIENT SOLIDARITY

PART 2: BALANCING MARKETS AND SOCIAL OBJECTIVES

Another criticism often made of compulsory systems is that they privilege social objectives at the expense of the efficiency that comes from market competition. Here, the structure of the Swiss system is unique in the landscape of PGEs in at least two further aspects: the presence in a single country of both a heavily regulated private insurance provision and insurance provision through public sector monopoly; and the structure of monopoly organized around coordinated local entities rather than a national one. The dual nature of this system injects a dose of indirect competition into the system, which arguably helps to check the potential disadvantages of both monopolistic public sector provision, which can easily become inefficient and costly, and pure market provision, which typically leads to variations in disaster insurance across a society, as some people fall outside the safety net of affordable insurance.

As one interviewee in the KGV system explained:

> In Switzerland it's like we have competition between two systems and we [KGVs] have to be very aware of the fact that if we don't have cheaper prices than the private industry, we have lost. And so, we have to be efficient, we have to promote innovations.
>
> *(Interview 517)*

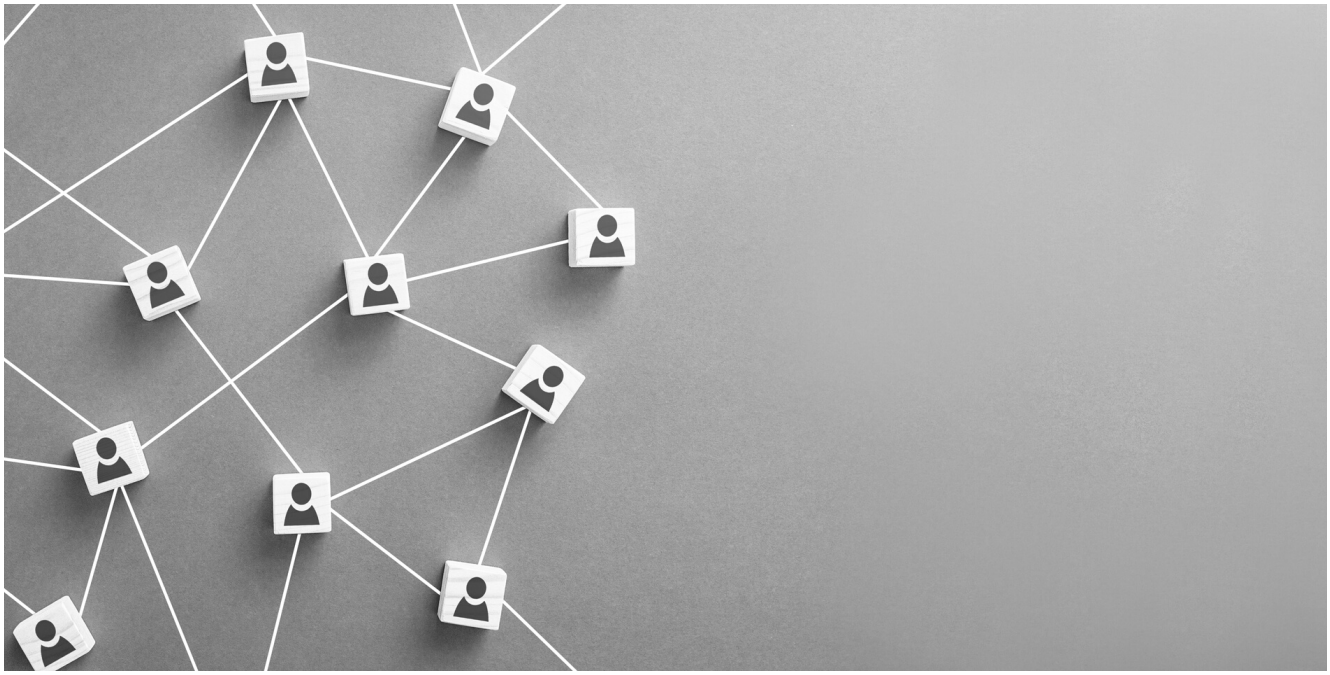
Complementary views were expressed in the private sector:

> There is a kind of competition between these systems. In my view as a plaintiff of the private insurance part, we both [KGV system and private operators] need the competition to get better, to provide better services to the homeowners, to the whole economy, to the whole society. And we work quite well together, I think, that's very useful for both of us to learn from each other.
>
> *(Interview 505)*

The local nature of the monopolies, as opposed to national entities, likely also plays an important role in balancing these market and social objectives, that extends beyond indirect competition between different cantons.

Local actors have more opportunities to build effective links with local authorities, and this can facilitate local action in prevention and mitigation, which is particularly important for disasters that present in very localised ways, such as flash floods.

The Swiss system of local monopolies, alongside the use of the private market, thus appears uniquely able to balance market and social objectives that are often a source of tension for PGEs.



4.3 COMMON CHALLENGES: ADAPTING THE REMIT

Most PGEs struggle to adapt their remit to the changing nature of risk, due to the need to recognise potential gaps in cover, and to bring on board the government, insurance industry, and wider stakeholders in the change. The KGV system is well set up to recognise potential gaps in cover, and is well-embedded with its insurance industry, government, and wider stakeholders, and so has been more adaptable throughout its history than many PGEs. Nonetheless, it also faces two key challenges in adapting its remit, which we now explore, with some suggestions to address them.

First, due to climate change, growing populations, and increasing urbanization [23], there is a generalized increase in risk because more properties are located in areas at high risk [24], such as flood plains. In Switzerland, as with many other countries, this risk is compounded by building designs that are more prone to damage. This includes the extensive use of glass in modern buildings, as well as energy efficiency features, such as solar panels. Despite the efforts in prevention and mitigation, the Swiss system is thus facing increasing levels of risk.

While the system is currently well-financed, this increase in risk is problematic over the long-term. One critical issue for the Swiss system will thus be continuing to adapt their remit to a risk profile in which losses are likely to be more frequent and/or more severe. This may require:

Stronger efforts at prevention and mitigation, including in building codes and design and in permissions to build or remain in areas that are more exposed to extreme weather and other natural perils.

Regular reviewing of aggregate modelled losses in relation to extreme-weather and disaster exposure, and commensurate changes in premium pricing across the collective to reflect the increases in risk to society as a whole.

Second, while the Swiss system is comprehensive, there is a significant protection gap in relation to earthquake. This has been a long-standing unresolved problem that, while recognized, has defied several attempts to address it. The difficulty in expanding the remit to earthquake is linked to the difficulty of aligning with the interests of the wider range of stakeholders. The nature of earthquake risk in Switzerland raises issues of 'geographical' equity within the strong principle of solidarity. Earthquake risk is very unequally distributed across the country, with little risk in some cantons and much higher in others. Thus, adding it to a basket of existing protection that is perceived to be overall balanced and equitable is not trivial.

In addition, there is a temporal issue of 'intergenerational' equity. Unlike the disasters that are currently covered, the return period for earthquakes is estimated to be very high. The understanding of solidarity in the current system is very much among citizens of the same period in time. There is thus some resistance to burdening today's citizens to provide solidarity for a generation who might not yet be born. Furthermore, questions also arise over whether it is wise to have a large pot of money from earthquake premiums collected in the present era, that may be unused for decades or even centuries.

Despite these difficulties, proposals to extend the system to earthquakes were developed in collaboration between the KGV system and the private system, and were close to being passed by the Parliament in 2007 and in the early 2020s. On both occasions, government intervention to deal with the economic consequences of crises (the financial crisis of 2007-2008 and the Covid19 pandemic) resulted in the perception that earthquake insurance is unnecessary since, in case of a disaster, the government will intervene providing the necessary funds. This brought the initiatives to a standstill [25].

Today, there is little hope both in the KGVs and in the industry that an insurance-based solution will be found. Alternative solutions are being explored, such as the institution of a property tax that would be levied on the occasion of an earthquake on all properties, and would thus provide the funds for reconstruction of the damaged ones. Another possibility that Switzerland might want to explore is a post-event funded insurance scheme, in which earthquake insurance cover could be provided as part of the current compulsory system without a significant rise in premiums. Any post-event losses could be recouped through increases in premiums, levied across all policies over a specific period of time after the earthquake, to contain the repayment of the insured losses to the generation in which they occur [26].

5. CONCLUSIONS AND RECOMMENDATIONS

The KGV system is distinctive for its approach to:

DOUBLE SOLIDARITY BETWEEN THE INSUREDS, BUT ALSO BETWEEN THE INSURERS (SECTION 2.2);

DUAL SYSTEM OF BOTH REGULATED PRIVATE INSURANCE AND LOCALISED PUBLIC SECTOR MONOPOLIES (SECTION 2.1);

INTEGRATION OF RISK PREVENTION AND LOSS MITIGATION INTO INSURANCE (SECTION 3)

These distinctive features have enabled the Swiss system to build a virtuous circle between the key elements of compulsory insurance, affordable insurance, and risk prevention and mitigation to maintain ongoing affordability of insurance. In part, this system has been enabled by a collectivist culture that supports a comprehensive and long-term approach to risk and insurance protection.

A strong feature of the system is that it is so embedded within the national approach that it is 'taken-for-granted', meaning that it persists and raises few tensions; it is simply considered an appropriate way to manage risk protection.

Nonetheless, as risk continues to grow, due to climate change, urbanisation and changing demographics, the taken-for-granted nature of this system will need to be examined, preserved, and adapted. As the need to draw upon the three distinctive elements of the system grows in response to rising risk, so society generally has become more individualistic [27].

Therefore, elements of the system that may need greater investment in prevention, or changes in premiums to reflect the increased potential for losses more accurately could occasion resistance. For example, we note that earthquake insurance remains an unresolved issue that could not be incorporated within the comprehensive Swiss system of protection despite significant efforts. At the same time, there are encouraging signs that the system will be able to adapt. For instance, in response to the recent growth in inflation, proposals are being discussed to include an automatic updating of the sum insured to reflect construction prices increases, and thus avoid the opening of an insurance protection gap.

THE CHALLENGES OF CLIMATE CHANGE, AND AN INCREASINGLY INDIVIDUALISTIC SOCIETY THUS CREATE TENSIONS FOR THE SWISS KGV SYSTEM. ON THE ONE HAND THE SYSTEM NEEDS TO BECOME LESS TAKEN FOR GRANTED TO FIND WAYS TO COPE WITH THE CHALLENGES OF CLIMATE CHANGE AND RISING RISK, AND ON THE OTHER THE TRENDS IN POLITICAL ATTITUDES MIGHT MAKE THIS A RISKY MOVE.

6. APPENDIX: RESEARCH DESIGN & DATA COLLECTION

This report into the Swiss system has been developed from an international study of PGEs around the world. This study examined 13 PGEs in depth, across 20 countries (some PGEs are multi-country) based on primary interview data, supplemented by documentary and observational data. Some documentary and modest interview data was also gathered on an additional 5 PGEs and 13 countries.

The overarching data set is robust and unique in the breadth and depth of study of PGEs around the world. Overall, between 2016-2022, we collected over 450 interviews lasting between 1-2h each, most of which were audio recorded and transcribed verbatim. In addition, we engaged in over 140 participant observation of conferences and events where PGEs meet or where their role in the 'insurance protection gap' was examined, such as the World Forum of Catastrophe Programmes [28] (WFCP), the International Forum of Terrorism Risk Insurance Pools [29] (IFTRIP), and various Organization for Economic Development [30] (OECD) events, as well as specific events held by the various PGEs. Finally, we collected over 950 documents about these PGEs.

Our approach to the research design and data collection had four key elements:

1

First, it was multi-stakeholder. The composition and work of PGEs extends beyond the boundaries of a single organization, due to their need to work closely with different government departments and private market organizations, as well as other stakeholders, such as development organizations and planning authorities. Thus, our data collection involved both the people that work within PGEs and also their external stakeholders, within their countries and also, with reference to our second element, outside their countries.

2

Second, we examined global interdependencies between PGEs within their countries, and the international organizations with which they interact, such as multinational reinsurance and modelling firms, and inter-governmental organizations such as the World Bank. To capture these global interdependencies, we interviewed people in these organizations, many of which spanned multiple PGEs and attended the international conferences where people from these interdependent organizations came together. For example, we attended IFTRIP, where sovereign-backed terrorism (re)insurance pools and multinational reinsurance, modelling, and broking companies meet annually to exchange experiences in terrorism risk modelling, pooling and mitigation.

3

Third, we did deep dives into local contexts. While our research approach was driven by a global phenomenon, it was clear that each PGE was distinct and embedded in country-specific contexts. We thus engaged in understanding the local basis of each PGE's solutions to insurance protection.

4

Fourth, our research was longitudinal. Insurance protection gaps, as well as the local responses to them from PGEs and their stakeholders, are not static. We, therefore, sought to understand how PGEs originated as a response to local insurance protection gaps, how those local protection gaps evolved, and how PGEs tried to adapt to those evolving gaps. We captured this by drawing on secondary data and retrospective interviews about origins and key turning points in each PGE, in addition to real-time interviewing when events occurred that affected a PGE.

For this report, we have focused specifically on the Swiss context and data (17 interviews, 1 observation, and 20 documents). As the Swiss system is distinctive, we provide some comparative analysis from our wider data set to demonstrate some of the unique features of the Swiss system.

REFERENCES

[1] VKG and SVV joint project on earthquake insurance – internal communication, May 10, 2022.

[2] Jarzabkowski P., Chalkias K., Cacciatori E., Bednarek R. *Between state and market: Protection Gap Entities and catastrophic risk*. Cass Business School, City, University of London, 26 June, 2018. Available from: https://www.bayes.city.ac.uk/__data/assets/pdf_file/0020/420257/PGE-Report-FINAL.pdf

[3] Swiss Re: Resilience Index 2021: A cyclical growth recovery, but less resilient world economy. *Sigma*, 2021. Available from: https://www.swissre.com/institute/research/sigma-research/2021-resilience-index.html

[4] Carpenter O., Platt S., Evan T., Mahdavian F., Coburn A.: *Optimising disaster recovery: The role of insurance capital in improving economic resilience*. University of Cambridge: Cambridge, UK, 2020.

[5] Jarzabkowski P., et al. (2018): *Between state and market*.

[6] Jarzabkowski P., et al. (2018): *Between state and market.*

[7] Consorcio de Compensacion de Seguros: Natural catastrophes insurance cover: A diversity of systems. Madrid: Sociedad Anónima de Fotocomposición, Talisio, 2008. Available from: https://www.consorseguros.es/web/documents/10184/48069/CCS_Natural_Catastrophes_Insurance_Cover.pdf/d7cf67cc-9591-476b-87d9-728e6a57ca60

[8] McAneney J., McAneney D., Musulin R., Walker G., Crompton R. *Government-sponsored natural disaster insurance pools: A view from down-under.* International Journal of Disaster Risk Reduction. 2016, 15: 1-9.

[9] Jarzabkowski P., et al. (2018): *Between state and market.*

[10] IPCC. Climate change 2022: *Impacts, adaptation, and vulnerability*, 2022. Available from: https://www.ipcc.ch/report/ar6/wg2/

[11] Schwarze R., Holthausen N., Locher P., Quinto C., Wagner G.G. *The Swiss model - Economic and legal aspects of integrated local public insurances.* Berne: Foundation for Prevention of the Association of Cantonal Building Insurers ((Vereinigung Kantonaler Gebäudeversicherungen), 2015.

[12] Schwarze R., et al. (2015): *The Swiss model*.

[13] VKG (Vereinigung Kantonaler Gebäudeversicherungen). *Elementar Statistiken*. Available from: https://www.vkg.ch/de/statistiken/elementar/

[14] The account of the early years of the KGV system follows Wanner C. *Vorbeugen - Schützen – Entschädigen: Die entstehung der elementarschadenversicherung in der Schweiz.* Bern: Historisches Institut - Universität Bern, 2002.

[15] Pfister C. Disasters, interregional solidarity and nation-building: Reflections on the case of Switzerland, 1806-1914. In: Favier R., Pfister C. (eds.) *Solidarité et assurance. Les sociétés européennes face aux catastrophes*. Grenoble, 2008, 117-142.

[16] Jarzabkowski P., et al. (2018): *Between state and market.*

[17] Hofstede G. *Culture's consequences: International differences in work-related values*. Sage, 1984.

[18] IPCC (2022): *Climate Change* 2022.

[19] Kousky C., Shabman L. *Pricing flood insurance: How and why the NFIP differs from a private insurance company.* Resources for the Future Discussion Paper, 2014, (15): 14-37.

[20] Bedient P., Professor of Engineering, Rice University quoted in: Kimmelman M. Lessons from hurricane Harvey: Houston's struggle is America's tale. In: *New York Times.* 11 November, 2017. Available from: https://www.nytimes.com/interactive/2017/11/11/climate/houston-flooding-climate.html

[21] Kleindorfer P.R., Kunreuther H. *The complementary roles of mitigation and insurance in managing catastrophic risks. Risk Analysis,* 1999, 19(4): 727-38.

[22] Jarzabkowski P., Krull E., Kavas M., Chalkias K. Living the paradox of protection: The case of Flood Re. In: Pina e Cunha M., López A., Van Direndonck D., Schad J., Giustiniano L., Gaim M, Jarzabkowski P, Raisch S: *Paradoxes of management and organization: Short cases for pedagogical use*, Lisbon, Edições Sílabo, 2022, 85-90.

[23] IPCC. (2022): *Climate Change* 2022.

[24] Douris J., Kim G., et al. *WMO atlas of mortality and economic losses from weather, climate and water extremes (1970-2019)*. Geneva: World Meteorological Organization, 2021. Available from: https://library.wmo.int/index.php?lvl=notice_display&id=21930#.Yz72fHbMKUk

[25] The displacement of private insurance by public sector making available ad-hoc disaster relief is known as 'charity hazard', see for instance Raschky P.A., Weck-Hannemann H. Charity hazard —A real hazard to natural disaster insurance? *Environmental Hazards,* 2007, 7(4): 321-9.

[26] This approach would somewhat mirror the approach taken to terrorism insurance in the USA under the Terrorism Risk Insurance Act. See: https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/federal-insurance-office/terrorism-risk-insurance-program

[27] Hofstede G. (1984): *Culture's consequences*

[28] WF Cat Programmes (World Forum of Catastrophe Programmes): *Who we are*. Available from: https://www.wfcatprogrammes.com/

[29] IFTRIP (International Forum of Terrorism Risk (Re)Insurance Pools). *Sharing knowledge about terrorism risk*. Available from: https://iftrip.org/

[30] OECD (Organisation for Economic Co-operation and Development): *Insurance*. Available from: https://www.oecd.org/finance/insurance/