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Flood risk: the EUSF and Romania

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“Re-orienting the EUSF from a post-disaster response and aid instrument to a pre-disaster, risk-based solidarity instrument.”



Introduction

Between 2002 and 2014 natural disasters caused over €100 billion of economic losses in the European Union (EU). Floods are among the most significant natural hazards, with 17 of 18 EU member states reporting flood risk in their national risk assessments (European Commission, 2014). Over the last 15 years Central European member states, including Austria, Czech Republic, Germany, and Hungary, were hit twice (in 2002 and 2013) by one-hundred-year floods (Zurich, 2014). As well as causing damages totaling more than €30 billion, these two events once again demonstrated the high regional interdependency of flood risk in Europe. Taking into account these interdependencies across regions, together with climate and socioeconomic projections, we estimate (based on the A1B scenario) that **average annual flood losses in Europe could increase from the current level of €4.9 billion to €23.5 billion in 2050**. A comparison of these results with previous assessments also suggests that neglecting the spatial correlations between river basins could lead to an underestimation of continental flood risk, which has major implications for European disaster risk financing strategies (Jongman et al., 2014).

The 2002 Central European floods triggered an unprecedented political will to institutionalise financial compensation for disaster-stricken EU member countries; this led to the establishment of the **European Union Solidarity Fund (EUSF)**, an ex-post loss-financing vehicle for EU member states and candidate countries for use in cases where a disaster exceeds the government's resources to cope. Until 2014 the fund operated with an annual budget of €1 billion. However, the latest Multiannual Financial Framework (MFF 2014–2020) has halved

its budget to €500 million (2011 prices) and added a temporal risk-spreading dimension (OJ, 2013). The primary aim of the EUSF is to finance emergency operations undertaken by public authorities to alleviate non-insurable damages. Hence, it covers only a fraction of the total damages: compensation has averaged about 3% of total direct losses since 2002. In addition, it should be noted that the EUSF is a 'virtual' fund – in the event of disaster, the money is raised above and beyond the normal EU budgeting procedure.

The EUSF compensates only non-insurable public damages; but public sector responsibility often exceeds those losses. Based on a cross-country sample of European natural disasters, Mechler et al. (2010) highlighted that governments, as insurers of last resort, often absorb half the direct damages because of their explicit and implicit liabilities. The post-disaster financing ability of governments varies. Based on very restrictive assumptions, Austria, for instance, is able to finance losses of up to around €3.9 billion, while Hungary and Romania could find it difficult to finance damages above €1.6 billion (Hochrainer et al., 2010). This difference in coping capacities is reflected in part in the differentiated intervention threshold of the EUSF, which, in most cases, is calculated on the basis of gross national income.

There have been on-going discussions within the EU concerning disaster risk financing in general and disaster insurance in particular (European Commission, 2013, 2015a). Experts argue that there are cases where the European NatCat insurance markets do not seem able to fully cope with existing risks (Maccaferri et al., 2012).

Some of the policy discussions are thus seeking to ascertain how great the need is for action to enhance disaster insurance penetration at the EU level. In general, the discussions aim to contribute to a more disaster-resilient European Union; most importantly, they include disaster risk reduction (DRR) as an overarching aim in the field of disaster risk management (DRM). Over the years, **although disaster risk management considerations have been reflected in a number of key policies, the EUSF is still the only dedicated EU-wide disaster risk financing instrument.**

This chapter investigates the Fund and assesses its performance as well as aims to identify alternative policy options to further enhance the financial resilience of the EU with respect to natural disasters. As the EUSF was essentially created to assist governments, we will also take a

closer look at one highly flood-prone country, **Romania**, in order to gain a better insight into how the advanced operating systems already in place could be enhanced. The investigation focuses on the key stakeholders and their perceptions regarding the limitations of current operating systems and how these could be addressed by, inter alia, the EUSF. Romania is a natural choice, as floods are a devastating phenomenon there. The country has suffered from frequent flood-related disasters as well as major associated economic losses. Over one million hectares (ha) of land are exposed to flooding; nearly one million Romanians live in high flood risk areas; and over 900 communities in the country are situated in high flood risk areas (Romanian Waters National Administration 2013). Table 13.1 indicates the total losses, damage, and EUSF funding for major events in 2005, 2008, 2010, and 2014.

Table 13.1.

Major flood losses and EUSF interventions since 2002 for Romania (Source: European Commission, 2015b).

Occurrence	Nature of disaster	Category	Damage (million €)	Aid granted (million €)	Total aid granted (million €)
April 2005	spring floods	major	489	18.8	
July 2005	summer floods	major	1.050	52.4	
July 2008	floods	regional	471	11.8	
June 2010	floods	major	876	25.0	
April 2014	spring floods	neighboring country	168	4.2	
July 2014	summer floods	regional	172	4.3	116.5

Disaster risk financing in Romania relies strongly on ex-post financing instruments, such as the government's Intervention Fund, budget reallocation, donor assistance, and domestic and/or external credit and aid granted by the EUSF. It also has ex-ante instruments in operation. Among the most important are mandatory and optional property insurance schemes. The financial protection against damage from natural catastrophes is thus achieved **by a mix of compulsory and optional insurance and state intervention**.

In line with the main objectives of the ENHANCE project (see chapter 1), **this chapter focuses on two multi-sector partnerships (MSPs):**

(1) At the EU level, where the only dedicated disaster risk financing instrument is the EUSF, we assess the options and benefits of formulating **an EU-wide MSP** to enhance pan-European disaster resilience.

(2) In the context of Romania we focus our attention on **an existing partnership between the public and private sectors**.

The assessment is based on various methods, including state-of-the-art quantitative risk analysis, multi-criteria assessment, stakeholder workshops, and a large-scale survey. With respect to specific risk management and adaptation strategies to increase the resilience of different stakeholders or risk bearers, we distinguish between different scales and include possible dependencies among them via the EUSF mechanism.





A risk-based assessment of current policies

For a risk-based assessment of the EUSF and multi-sector partnerships, the first priority is a **comprehensive, continental flood risk analysis**, including the comparison of different adaptation options (Table 13.2; see chapter 2 for the methods used here). As the EUSF operates on the pan-European level, one major outcome of our assessment is the importance of taking **river basin dependencies** across countries explicitly into account in order to avoid the severe underestimation of continental flood risk, especially for extreme events (Jongman et al., 2014). At the same time, the analysis

demonstrates that the increasing risk could be manageable using a **combination of various disaster risk management options**, such as risk reduction and insurance instruments (Jongman et al., 2014). For example, raising the flood protection standards in all basins to a minimum of 1 per 100 years could decrease the total expected annual flood losses by around €7 billion (close to 30%) by 2050. Increasing insurance penetration, on the other hand, does not itself reduce risk but rather reallocates the financial burden across public and private stakeholders (Table 13.2).

Table 13.2.

Continental flood risk assessment considering various risk management options (Source: Based on Jongman et al., 2014; Supplementary Section).

Options	Year	Uninsured loss (billion €)	Insurance claims (billion €)	EUSF claims (billion €)	Additional investment in DRR (billion €)
BAU	2013	4.48	1.89	0.35	0.0
	2050	17.55	4.64	1.29	0.0
50% insurance penetration	2013	2.86	3.51	0.35	0.0
	2050	10.45	11.74	1.29	0.0
100% insurance penetration	2013	0.00	6.45	0.00	0.0
	2050	0.00	22.28	0.00	0.0
Min 1/100 protection standards	2013	3.17	1.34	0.25	0.49
	2050	12.42	3.28	0.92	1.72
Min 1/300 protection standards	2013	1.00	0.42	0.08	1.24
	2050	3.92	1.04	0.29	4.56

As already indicated, under the business-as-usual (BAU) scenario, increasing losses will put high pressure on the fund. Table 13.2 shows that the average annual payments from the Fund can increase from the current level of €350 million to €1.29 billion. Compared to the old EUSF budget, this equates to 9% of annual probability of depletion (on average, once in every 11 years) by 2050. Because of its additional temporal risk-spreading dimension, the new budget structure increases the Fund's robustness, but only marginally so (Hochrainer-Stigler et al., 2015).

Based on a detailed assessment of the EUSF applications, a third important finding is that despite its name, **the Solidarity Fund does not necessarily show solidarity among member states**. Hochrainer-Stigler et al. (2015) demonstrated that the Fund allocates significantly more aid as a percentage of eligible costs to those countries that are most able to withstand the financial impact of disasters. Thus, if solidarity is defined as a needs-based concept, the Fund's performance is questionable. On the other hand, an investigation of 25 EUSF interventions in the five-year period from 2008 to 2013 suggests that, in most cases, less wealthy new member states have been net gainers from the Fund. This means that countries less able to cope with the economic consequences of disasters have generally contributed less to the pool in relation to their expected losses than those with higher coping capacity. This can be seen as a form of contribution-based solidarity, similar to an insurance pool with cross-subsidised premiums. However, it should still be noted that contribution-based solidarity stands in stark contrast to needs-based solidarity, where aid is awarded to countries based on their ability to cope and irrespective of their contribution.

As well as the funding issues and possible MSPs for reducing current and future risk at the pan-European level, another important dimension includes **perceptions at the national level**. The EUSF as an ex-post fund may encourage EU governments to take fewer prevention measures, as they do not bear the full cost of this behavior (often referred to as moral hazard). The recent reforms of the Fund address this issue, actively encouraging member states to implement disaster prevention and risk management strategies via a requirement to report before and after applications. The European Commission can even reduce or refuse a grant if a member state repeatedly breaches its obligation to implement EU law regarding preventive measures (OJ, 2014). In practical terms, the latter mainly concerns flood risk and, at least in theory, makes EUSF aid conditional on the implementation of the Floods Directive. The results in the Table 2

above were used in a key stakeholder workshop in Brussels which discussed the feasibility of possible schemes to be implemented in the future. At the workshop, relevant Romanian ministries also shared their experience. This is discussed next.

Generally speaking, in Romania the insurance industry has developed considerably since the fall of Communism in 1989. At first, insurance density was very low (Petrescu, 2009). Today, however, the supply of insurance is diversified and the insurance sector is fully integrated into the world wide insurance industry. There are currently 36 insurance companies operating in Romania, with all the largest companies represented. The potential of the insurance market in Romania is recognised as high, not least due to the large size of the country and the large number of people and properties at risk. However, real demand is quite low, and the financial crises have depressed demand still further. Moreover, insurance demand is not spatially uniform but concentrated in geographical areas of high economic potential and above-average incomes. Thus, the largest insurance premiums were underwritten in 2014 in the Bucharest area, that is, around 49.88% of the national total (ASF, 2015).

Insurance in Romania has some unique characteristics. It **takes the form of an already established multi-sector partnership**. Law 260/2008 regarding **mandatory home insurance** created a public-private partnership – linking home owners, insurance companies, and local and central authorities. Its role was to manage financial risk associated with floods, landslides, and earthquakes through insurance (Parliament of Romania, 2008). In November 2009, twelve insurance companies came together to form the Insurance Pool against Natural Disasters (PAID). According to Law 260/2008, homeowners must insure their buildings against three natural risks: flood, earthquake, and landslides. Homeowners without mandatory home insurance are subject to a fine which is collected by the local public authorities. As discovered during workshops in Bucharest, the local public authorities play an important role not only in the prevention of risks but also when disasters occur (evacuation, shelter etc.).

As indicated, the law was intended to be a mechanism for collaboration between the public authority, the private insurance industry, and homeowners, and thereby to incentivise risk reduction for households, given that the government was no longer legally bound to provide financial compensation to homeowners to rebuild their properties after flood-, earthquake-, and landslide-related disasters. The greatest added value of this mechanism

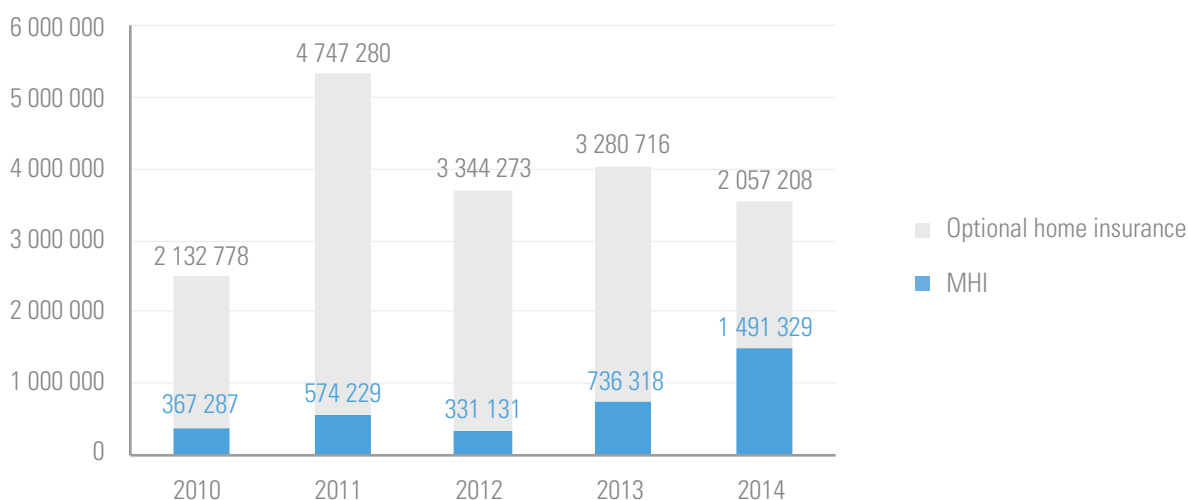
is seen as the prevention of financial risk related to natural catastrophes.

However, the insurance mechanism has been debated heavily over time, and several changes have been made to the legislation on mandatory home insurance. **Law 243/2013** was promulgated to modify and complete Law 260/2008. Under it, other insurance companies were authorised to supply **optional insurance** for catastrophic risks and signed cooperation protocols with PAID to close mandatory home insurance contracts (Parliament of Romania, 2013). The first mandatory policy on home insurance was issued in July 2010. At the end of 2010, there were 2,132,778 optional home insurance contracts, and 367,287 mandatory contracts related to 8.3 million privately owned homes in Romania (4.5 million in urban and 3.8 million in rural areas) (ASF, 2015). In 2011, the highest number of optional home insurance contracts 4,747,280 (and 574,229 mandatory) was written, amounting to a 63% insurance coverage of homes in Romania. In 2014, the number of optional home insurance contracts decreased to 2,057,208 and the number of mandatory home insurance contracts increased to 1,491,329 (see **Figure 13.1**).

The analytical methods and tools applied to study the risk and performance of the MSP were both qualitative and quantitative; they included semi-directed interviews, workshops, and large-scale surveys. Workshops and semi-directed interviews were conducted in 2014 among insurance companies, public authorities, including the ministry of finance, flood and water management officials from the ministry of the environment, and specialists in the environment and insurance. Additionally, in May 2015 **a large-scale survey of homeowners and insurance companies was conducted**. Because of space restrictions, we focus here not on details but on key results. The survey aimed to focus on the perception of i) **natural disaster risks** and ii) **the main instruments for recovery and risk protection in specific households**. We studied the general perception of mandatory home insurance and the main factors influencing it. We were also interested in the perception of the insurance premium, the sum insured, and the quality of the relationship between the stakeholders – the population, the public authority, and the insurance companies– and, last but not least, the perception of the usefulness and mechanism of the EUSF. In total, 461 households were interviewed, as well as 117 respondents from insurance companies and brokers.

Figure 13.1.

Evolution of the number of optional and mandatory home insurance contracts 2010-2014 (Source: ASF 2015 data).



Summarising the findings from the survey, in the opinion of both home owners and insurers, earthquakes and floods were perceived as the most dangerous events. The local authorities have the main role in fighting natural catastrophes; however, the central authority, the insurance companies, the population, and the EUSF were also perceived as important in the prevention of natural catastrophes and recovery following them. As far as preparedness to deal with natural disasters is concerned, homeowners consider EU institutions to be better prepared, while insurance companies and brokers consider insurers to have higher preparedness. Conversely, respondents considered the population and the local/central authorities to have low preparedness.

The perception of the natural disaster-related activity of insurance companies in Romania is favorable; the mandatory home insurance is perceived as necessary, but not sufficient, for protection against natural disasters. Insurers have a more positive view regarding mandatory home insurance and the relationships between the stakeholders. Mandatory home insurance has limited coverage (and was seen as insufficient for covering risk). This has generated the need for optional insurance to include additional risk. In the case of mandatory home insurance, the insurance premiums in the sample are perceived as being moderate, but in the opinion of homeowners they are still rather expensive. The main reason for homeowners not having mandatory home insurance was 'not hav-

ing enough money' (53.15% of total). Other reasons for not buying mandatory home insurance included i) a lack of understanding of the necessity of mandatory home insurance and ii) lack of information about mandatory home insurance.

The EUSF is considered by 87.9% of homeowners and 90.6% of respondents from insurance companies and brokers as an efficient tool in recovery after natural catastrophes. It is also perceived as vital for post-disaster recovery for the member countries of the EU by 75.7% of the population and 72.6% of insurance specialists – a very positive view of the EUSF. We also asked for best ways forward. In that regard, the majority of respondents thought that **the EUSF should be reoriented to incentivise prevention**. The respondents emphasised that the EUSF should allocate funds for consolidation of buildings, dam infrastructure, riverbeds, and reforestation (87.2% of homeowners, 81.2% of insurers and brokers). Additionally, 61.8% of homeowners and 58.1% of insurance-sector respondents indicated that the EUSF should be oriented toward prevention through the allocation of funds for insurance/reinsurance purposes. Given the nearly same perspectives on some aspects of the EUSF at both the pan-European level and the local level (at least for Romania), a workshop in Brussels was coordinated to discuss and evaluate promising new steps forward to enhance resilience through new multi-sector partnerships.



Policy recommendations

The quantitative assessments outlined above suggest a combination of various risk management instruments at the European and national levels, including the EUSF, risk reduction, and insurance, that can eventually create significant benefits (Table 13.2). However, a quantitative assessment like this falls short in that it does not take into account important qualitative aspects, such as political and institutional feasibility considerations. We thus combined the quantitative analysis with a more nuanced approach that takes explicitly into account the views and preferences of key stakeholder groups. In so doing, we applied **a state-of-the-art multi-criteria approach** within a workshop setting involving stakeholders from the public and private sector, and from the non-governmental and research communities. We now discuss the outcomes. Again, due to space limitations only an overview can be provided. We refer to chapters 2, 3, and 5 for more information (see also Hochrainer-Stigler and Lorant, in progress).

The framework of our multi-criteria analysis builds on the work described in Chapter 5 and a previous study by Bräuningner et al. (2011) which assessed risk financing options for Europe based on a set of criteria and indicators; this was adapted for our assessment (**Figure 13.2**). Economic efficiency covers the cost implications of operationalising and running the instrument. Equity relates to how strongly the instrument promotes solidarity and creates inequities (winners and losers). Feasibility relates to the the instrument's consistency with other policy instruments and the regulatory environment, and its acceptability to the key interest groups. Unlike Bräuningner et al. (2011), we introduced the promotion of disaster risk

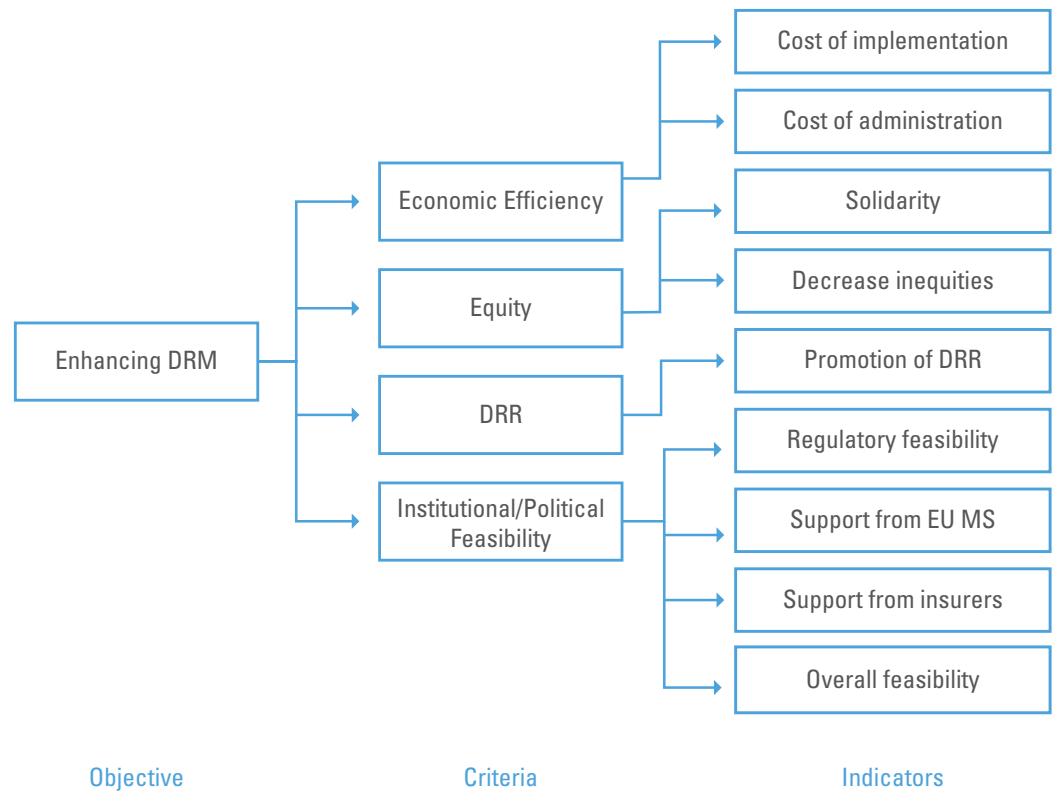
reduction as a separate criterion. Based on these criteria and the related indicators, a set of questions was developed and pre-tested in a number of test runs in order to determine further questions and to test the clarity and adequacy of the proposed questions .

Based on the results of the quantitative assessment discussed in section 2 above, **a risk layer approach** (see Mechler et al. 2014) was adopted during the workshop to identify three different options for multi-stakeholder partnerships:

- **Option 1:** eliminate the upper limit of the Fund, which is currently €500 million annually (with optional borrowing from previous/subsequent years) with the aim of responding to all qualifying disasters.
- **Option 2:** further strengthen the link between the EUSF and disaster risk reduction contributions to the Fund not only to take into account the economic performance of member states but also the risk reduction measures implemented by the country.
- **Option 3:** completely or partially transform the EUSF into a pre-disaster instrument that supports (reinsures) a national (public/private) insurance system with more affordable premiums and higher disaster insurance penetration in the EU (less dependence on post-disaster government assistance).

Figure 13.2.

Criteria and indicators for assessment of options.



A new state-of-the-art multi-criteria tool (the **Preference Decision Wizard based on the CAR method**) (Danielson & Ekenberg, 2015) was used for the evaluation. It enables information and evaluations to be handled in an automated way. Details of the analysis can be found in the ENHANCE Deliverable 7.4 and Hochrainer-Stigler and Lorant (in progress); here we give only a brief overview of the results.

From a policy-making point of view, choosing the option with the highest overall satisfaction rate across the groups does not necessarily lead to the most appropriate outcome, as one should also consider how satisfaction is distributed among different stakeholders. In general, a more evenly distributed satisfaction level can increase acceptability across the board. Our analysis revealed that stakeholders as a whole considered the link between disaster risk reduction and the EUSF (Option 2) as most satisfying in terms of the four criteria described above (see Figure 13.2). Nevertheless, it should be noted that the most radical option (Option 3) – the complete transformation of the EUSF – also showed similar satisfaction levels and had the additional benefit of more evenly dis-

tributed satisfaction levels across different stakeholders. Option 1 performed worst compared to the other two options. Next we present some policy recommendations.

As indicated, we have chosen three risk instruments as the focal point for our assessment of MSPs, namely, the EUSF, insurance, and risk reduction. As the quantitative analysis shows, the combination of these instruments can create significant additional benefits, including increased robustness and decrease in overall risk, as well as various co-benefits. However, the workshops in Brussels and in Romania have revealed that various boundaries of an institutional, political, or efficiency-related nature need to be overcome. **We thus stress some necessary conditions for possible MSPs on the pan-European level and how they could be linked with the country and household level:** First, any strategy for upcoming successful MSPs has to recognise that there is no ‘one-size-fits-all’ approach from the European to the individual member state level. In other words, **a flexible European framework is required** that allows member states to develop and implement tailor-made strategies. Secondly, there is **a need to precisely define responsi-**

bilities in terms of disaster risk reduction and risk financing of stakeholders at different policy levels (from local to regional to national). Thirdly, **prevention measures to reduce risk need to be supported in the long run** and not switched away (as in the past) due to non-disaster risk related circumstances. Fourthly, **communication about risk financing measures and their costs and benefits** is essential for understanding, valuing, and accepting MSPs.

We further found that the **explicit incorporation of risk due to natural disasters within the government budget** (and planning process) is very likely a key aspect for any successful MSP to enhance the resilience of its society to catastrophic natural hazard impacts. It has already been noted in other publications (see IPCC 2012; and more recently Mechler & Hochrainer-Stigler, 2014) that a substantial risk of unaccounted-for disasters (also called a hidden disaster deficit) coupled with weak fiscal conditions can lead to major additional stress on the fiscal position and eventually to reduced fiscal space for public finances to fund other public investment projects.

It was therefore suggested that to reduce fiscal vulnerability, ex-ante risk management and financing measures can be taken, such as implementing risk prevention, offering state-sponsored insurance to households, or engaging in sovereign risk financing measures. It is important to note that, conceptually, this array of measures transforms the contingent disaster liability into a direct liability which could be paid for with, for example, certain annual premiums, fund outlays, and debt service payments. Such options can help to move some disaster risk liabilities to regular budget practice and could lead to, on the one hand, improved accountability and, on the other hand, clear incentives for risk reduction (being specifically accounted for in the budget balance sheet promotes the implementation of such measures). However, as indicated, to transform a contingent state of disaster risk into a certain one, a probabilistic approach using an estimate of risk is necessary. The following simplistic visualisation of a government balance sheet can serve as a basis for planning and for inclusion of contingent risk (**Table 13.3**; see Mechler & Hochrainer-Stigler, 2014 for further discussion).

Table 13.3.

Government liabilities and disaster risk (Source: Based on Mechler and Hochrainer-Stigler, 2014).

Liabilities	Direct Obligation in any event	Contingent Obligation if a particular event occurs
Explicit Government liability recognised by law or Contract	Foreign and domestic sovereign borrowing, expenditures by budget law and budget expenditures	State guarantees for non-sovereign borrowing and public and private sector entities, reconstruction of public infrastructure
Implicit A 'moral' obligation of the government	Future recurrent costs of public invest- ment projects, pension and health care expenditure	Default of subnational government or public or private entities, disaster relief

In principle, this approach could be also implemented at the pan-European scale. The Committee on Regional Development of the European Parliament indicated that the rationale for financing the EUSF outside of the EU budget is that it is impossible to know in advance how much will be drawn from the Fund in the course of the year (European Parliament, 2012). However, this is not the case, given that estimates of risk are now available, and explicit incorporation of risk should be possible at the pan-European and the country level. Incorporating these disasters into the budget planning process also provides an opportunity to estimate the benefits of risk reduction in monetary terms, for example, through reduction in annual average losses, etc. As we have seen via the quantitative modeling approach applied at the pan-European level, risk reduction could also have many benefits in terms of reduction of the individual risk of MSPs, for example, an increase in robustness of the EUSF and a decrease in the capital needs of insurers.

Based on the expert judgments presented during the workshops, we can conclude that increasing the size of

the EUSF (Option 1) is the least feasible option at the moment. On the other hand, creating a stronger link between the Fund and risk reduction, or the complete transformation of the Fund to an MSP (namely, a more radical option) are both considered good options and regarded as satisfactory for many stakeholder groups. If, as suggested, risk is explicitly budgeted for, then risk reduction investments could, at least partially, be financed via the insurance sector. Moreover, part of this decrease in risk can also easily be transferred to decrease premiums. As seen in the case of Romania, money from the EUSF fund can only be used to repair damaged infrastructure up to the level before the disaster occurred, that is, it cannot be used directly for risk reduction. If the government includes in a part of its budget a contingent for disaster appearing, it could use this money to build back better and the EUSF to restore assets to the original state (a major point within the Sendai Framework for Disaster Risk Reduction 2015-2030). Hence, a direct link between the EUSF, government risk, risk reduction, and insurance can be made if the risk is explicitly accounted for in the government budget.



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