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**Submission to the call for ‘best practices,
challenges and lessons learned from existing
financial instruments at all levels that address
the risk of loss and damage associated with the
adverse effects of climate change’ by the
UNFCCC’s Executive Committee of the Warsaw
International Mechanism for Loss and Damage**

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This policy paper is intended to inform decision-makers in the public, private and third sectors. It has been reviewed by at least two internal referees before publication. The views expressed in this paper represent those of the author(s) and do not necessarily represent those of the host institutions or funders. The content is based on several recent and forthcoming publications from the author - see reference list.

Introduction

The rapid increase in global economic losses from climate-related disasters has re-intensified a discourse among private insurers, governments and international organizations about the role of insurance in addressing these risks. The discourse follows two broad strands: Reform efforts for existing insurance schemes, such as systems in the United Kingdom and the United States; and efforts to design new schemes in less established markets in order to support climate-resilient development through a more anticipatory risk view. In addition, insurance is also considered as a mechanism for addressing loss and damage of climate change. This briefing note highlights a few key observations relevant for the discussion about the future use of insurance.

Use of insurance is unevenly applied across the world.

Risk management and insurance is widely used in most developed countries, albeit with significant local differences in uptake and utilization. Summaries of existing coverage from European insurance and reinsurance federation (CEA, 2009) identify a patchwork of schemes, with the extent and scope of risk transfer varying from country to country. Insurance remains far less established in low-income countries, with reliance on post-disaster aid and informal safety nets forming the largest part of disaster funding in those countries (World Bank, 2013). The penetration of insurance is to a large extent dependent on income levels, with rising income linked to increasing insurance penetration (Ibarra and Skees, 2007; see also Ranger and Surminski, 2011). This is one explanation for the low usage of insurance in developing countries. In addition to income, a range of other factors are at play in driving insurance penetration (Ranger and Surminski, 2011), such as stable and effective institutions, law enforcement and the availability of risk data (Hussels et al., 2005; Brainard, 2008). Other driving factors include education and financial literacy levels (Masci et al., 2007) and specific market characteristics for private sector involvement, such as distribution channels, a functioning financial sector, access to global markets and the appetite for innovation in terms of products and services (UNCTAD, 2012; see also Freeman and Kunreuther, 1997 for an overview).

New insurance schemes in developing countries are emerging.

Over the past few years a range of new risk transfer schemes have been implemented, often in response to demand and supply challenges, testing innovative risk transfer forms such as regional pools, micro-insurance or index-based risk transfers. Initiatives such as the G7's InsurResilience are promoting the extension of climate insurance usage in developing countries. A recent summary of existing and newly proposed schemes is provided in a study commissioned by the Climate Investment Funds (Vivid Economics, 2015). The ClimateWise Compendium (ClimateWise, 2011) on disaster risk transfer documents 123 existing initiatives in middle-income and lower-income countries that involve the transfer of financial risk associated with the occurrence of natural hazards such as flooding (Surminski and Oramas-Dorta, 2011). The Compendium indicates an increasing potential for risk transfer instruments in developing countries. The documented insurance schemes show a wide diversity, with application of schemes to specific needs or communities, a range of stakeholders and the accommodation of differing levels of risk transfer. Provision varies from private insurers, government to public-private partnerships. The most common

example across all countries is agricultural insurance, although there are specific geographical preferences, for example, micro-insurance for natural disasters in Asia. This may reflect cultural difference or local traditions and may also be linked to the availability of financing tools such as micro-finance (Surminski and Oramas-Dorta, 2014).

Both public and private sector are involved in provision of insurance.

Surminski (2014) shows that a range of public and private sector offerings exists, often also in partnership, where both sides take on different roles and responsibilities. It remains unclear whether private or public insurance provision is more effective. In the absence of a best practice template Paudel et al. (2012) propose a greater focus on public-private partnerships, where the government and private insurers share the provision of underwriting. In developed countries the role of the state as an insurer of last resort is also an important consideration. If the stability of financial markets is threatened then the government may step in to secure continuing cover (Dobes et al., 2013). At the same time policy makers aim for greater engagement of the private sector with a view to achieve higher efficiency and to support insurance sector growth through the application of a market based mechanism. For low and middle income countries the ClimateWise Compendium on disaster risk transfer (ClimateWise, 2011) differentiates between the risk transfer role and other roles, such as operational support functions. The private sector is providing the actual risk transfer in 41% of schemes, with varying risk levels and volumes of insurance and reinsurance layers included in the different schemes. In the majority of cases where the public sector is involved in risk transfer, it does so in partnership with the private sector (52%). These partnerships between the public and private sectors dominate in the provision of risk transfer in the case of indemnity-based agricultural insurance schemes, property catastrophe insurance schemes and sovereign schemes. For index-based agricultural insurance schemes, however, the provision of risk transfer by the private sector is more frequent. There is no exclusive public provision of index insurance for schemes covering flood. The role of the third sector in the provision of risk transfer is comparatively small (Surminski and Oramas-Dorta, 2011; Surminski, 2014), but could be changing in the light of recent momentum to develop new climate insurance schemes.

Insurance can play a role in increasing climate resilience.

In general terms insurance can buffer and smooth the effects of losses, thus avoiding the prospect of severe financial consequences (Brainard, 2008). It offers a shift in the mobilization of financial resources away from an ad hoc post-event scenario, where funding is often unpredictable and delayed, towards a more strategic, and in many cases more efficient, pre-disaster set-up. While not stopping disasters, insurance is designed to address liquidity needs in their immediate aftermath and help fund the recovery process. Purchased and implemented prior to an event, risk financing can be applied to address the financial needs of governments (sovereign insurance, reserve funds, contingent credit lines), businesses (property and business insurance), farmers (agricultural insurance) and individuals (property and micro-insurance).

Evidence from existing insurance schemes offers important lessons.

In Europe and the US flood insurance is already under heavy pressure from rising risk levels due to misguided building and land use practices, as well as environmental and climatic changes. Recent figures emerging from the UK, highlighted by the Bank of England (PRA and BoE, 2015), show that climate change and socio-economic risk drivers are expected to widen the gap between 'affordable' flood insurance premiums and premiums that reflect the technical price of flood insurance. (Surminski, Bouwer and Linnerooth–Bayer, 2016) Reforming existing insurance schemes appears very challenging, as the case of the UK flood shows. This is why the discussions about new schemes in developing countries are so important. Here is a chance to avoid repeating those past mistakes in established markets, particularly regarding the missing link between risk transfer and risk reduction. (Surminski, 2014).

Climate insurance faces barriers on supply and demand side.

The Vivid study notes several demand-side barriers in developing countries – such as low income, lack of trust, lack of financial literacy and misunderstanding of risks and role of insurance as well as the existence of alternative measures including humanitarian assistance. On the supply-side the study highlights risk characteristics, lack of data, lack of technical capacity and unsupportive regulatory frameworks. (Vivid Economics, 2015)

Insurance does not offer a solution to all climate risks.

Insurance theory and recent cost-benefit assessments indicate that risk financing is only viable for large and residual risks that cannot be reduced or managed otherwise (Mechler, et.al. 2014). It is also widely accepted that insurance does not provide a solution to all climate risks (Warner et al., 2009). The use of insurance is common for extreme events, but not suitable for changes in 'average' conditions or slow onset events such as sea-level rise (Ranger et al., 2011). Overall the extent to which insurance can feature is risk and country-specific and dependent on local risk appetite, as well as societal values.

Insurance can foster better understanding of climate risk.

Data collected for insurance purposes can support the general understanding of risks and provide information for the design of climate adaptation measures. This can go as far as signaling the un-insurability of a certain risk. For example in areas where floods occur very frequently, which may in turn lead to the employment of other disaster risk management (DRM) and adaptation measures. However, this risk signaling function of insurance is often obscured, mainly because concerns about affordability lead to subsidization approaches or because of a lack of data and technical know-how (Surminski, 2014).

Insurance has several limitations in the context of climate risk.

The Vivid Economics study for CIF (Vivid Economics, 2015) suggests that climate insurance can play an important role in climate adaptation. But it also warns that inappropriately set-up insurance schemes can have unwanted consequences and may not benefit the poor nor

foster climate resilience. Insurance can increase the potential for moral hazard and reduction of incentives for risk reduction, particularly if poorly designed and implemented (Surminski, 2014). It can also lead to a 'business as usual' approach, providing disincentives for governments, businesses or individuals to act, which could jeopardize efforts of climate-resilient development. This highlights the risk of using insurance to support climate-resilient development, whereby insurance can create a false sense of security or encourage development in high-risk areas. Such moral hazard can affect individuals, businesses and even governments. Fankhauser and McDermott (2014) find a negative relationship between the extent of insurance cover and the demand for adaptation, with 'insurance acting as a substitute for adaptation'.

Insurance is usually not designed with risk reduction and adaptation in mind.

There is very little consideration of if and how insurance can influence the underlying risk-decision when designing or reforming insurance schemes, as evidence from both established and newly emerging insurance schemes shows. (Surminski, 2014; Surminski and Oramas-Dorta 2014). Vivid Economics (2015) suggests that three key questions should be considered before any plans are made to invest in or design climate insurance schemes:

- How does the insurance proposal fit within a broader integrated risk management package?
- How has climate change been included in the underlying risk assessment and analysis?
- How will the scheme incentivise risk reduction and stronger adaptive behaviour?

Climate change poses opportunities and threats for insurance.

In the context of climate change it is important to reflect how future climatic impacts may change the suitability of insurance. Theory and evidence from existing insurance markets suggests that a 'riskier and more uncertain world would be associated with an increase in insurance demand, at least until some local threshold were reached where the affordability of insurance or the insurability of risk were threatened' (Ranger and Surminski, 2013). While the complex interactions and uncertainties mean that it is impossible to forecast quantitatively the future impacts of climate change on insurance demand, Ranger and Surminski (2013) conduct a preliminary evaluation of the relative scale and directions. Mapping the influence and trends through the use of scenarios, the study shows that the influence of climate change on insurance demand to 2030 is likely to be small but not insignificant when compared with the expected growth due to rising incomes. This effect could intensify, however, if policy makers introduce regulatory mechanisms to counter climate change, such as obligatory insurance and state-subsidized insurance products. The same also applies if new business opportunities arise following measures designed to reduce greenhouse gas emissions or adapt to climate change.

Insurance can support but not replace efforts of addressing loss and damage from climate change.

While some climate risks can be reduced through better preparedness and adaptation, there will always be residual risks that leave those exposed with significant financial gaps and an increased risk of poverty. What can insurance offer for those risks 'beyond risk reduction and adaptation'? This is starting to be addressed as part of the Loss and Damage (L&D) discourse within the international climate change negotiations. The discourse has evolved around different perspectives (see the discussion about insurance in Brown and Seck, 2013), with Surminski and Lopez (2014) proposing three categories of decision making goals for the UNFCCC's L&D discourse:

- To create awareness about the sensitivity of human and natural systems to climate and the need to respond with appropriate mitigation, adaptation and DRR policies;
- To develop risk reduction and risk management responses, with the goal to enhance adaptation to reduce vulnerability and build resilience; in this case the evaluation of climate risk is a necessary component of any adaptation options appraisal.
- To inform compensation arrangements for L&D.

The first and second category show many analogies with climate change adaptation and disaster risk reduction, asking how to assess and how to respond to risks as well as acknowledging the scale of the potential impacts. Clearly insurance can play a supporting role for the first and second category if embedded in a broad set of instruments and approaches. However, this applies only to extreme events, rather than to impacts from slow-onset changes.

The compensation component of L&D, however, offers a different dimension to the climate change discussion. While not explicitly outlined in the official UNFCCC language, this is an underlying aim that has been driving the L&D debate since its beginnings. The focus on compensation for those climate impacts that are beyond mitigation and adaptation's reach poses some additional challenges for decision makers – particularly in the context of the underlying science, where approaches used to estimate the attributable part of the risk of L&D to human induced climate change are highly debated within the science community. (Surminski and Lopez, 2014) If and how insurance can be used in the context of compensation for L&D other than extreme events is far from clear.

One aspect often overlooked is the equity of any proposed insurance solutions: 'As the intensity and frequency of climate extremes increase, is it fair to shift responsibility onto those least responsible, least able to shoulder the premium, and in many cases least able to reduce the losses?' (Surminski, Bouwer and Linnerooth-Bayer, 2016) Subsidies can help to avoid shifting the burden to those most vulnerable, however this also means that insurance may not offer value for money compared to other mechanisms due to high transaction and capital costs. This suggests that adaptation funds might be better spent on other types of safety nets rather than buying insurance cover from international insurance markets (Suarez and Linnerooth-Bayer, 2011). A further point to consider is the appetite from policy makers to use adaptation financing as a way to financially support private insurance companies. A study of L&D stakeholder perspectives (Surminski and Eldridge, 2015) show different degrees of 'enthusiasm' for private market solutions from policy makers, and indicate some cautious support from the few private sector representatives that have been engaged in the debate so far.

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