EXECUTIVE COMMITTEE OF THE
WARSAW INTERNATIONAL MECHANISM FOR LOSS AND DAMAGE

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

INFORMATION PAPER

AUGUST 2016*

A summary
based upon submissions received
in the context of Action Area 7(d) of
the initial two-year work plan of
the Executive Committee of
the Warsaw International Mechanism for
Loss and Damage under the UNFCCC

* This information paper is an updated final version of the advanced unedited version as at 20 April 2016, taking into account one additional submission received on 12 May 2016.

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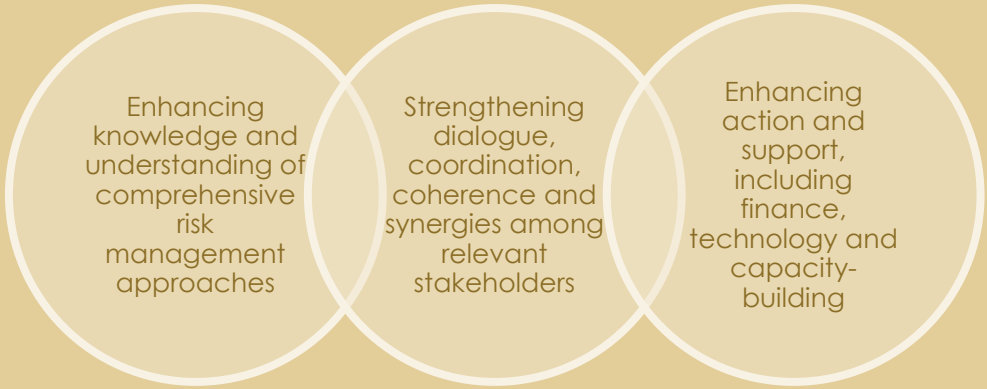
I. INTRODUCTION

MANDATE

The Conference of the Parties (COP), at its nineteenth session, established the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (WIM) to address loss and damage associated with the adverse effects of climate change, including extreme events and slow onset events, in developing countries that are particularly vulnerable to the adverse effects of climate change. Its three main functions are as follows:[1]



The Executive Committee (Excom) is mandated to guide the implementation of these functions.

As part of its initial two-year workplan, the Excom aims to encourage comprehensive risk management by the diffusion of information related to financial instruments and tools that address the risks of loss and damage associated with the adverse effects of climate change, to facilitate finance in loss and damage situations in accordance with the policies of each developing country and region, taking into account the necessary national efforts to establish enabling environments.[2]

To this end, the Excom invited, in February 2016, Parties and relevant organizations to submit information on 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.[3]

The submitted information is expected to contribute to an improved understanding of such instruments by public bilateral and multilateral institutions and funds, private financial institutions and developed and developing countries.

SCOPE

This information document summarizes information submitted by the following 19 Parties and organizations in response to the call: European Union, Japan, Turkey, United States of America, CARE International (CARE), Centre for Climate Change Economics and Policy/Grantham Research Institute on Climate Change and the Environment, Centre for International Governance Innovation (CIGI), CINCS LLC, Climate Action Network International, Climate and Development Lab, Brown University/International Centre for Climate Change and Development, Climate Bonds Initiative, Food and Agriculture Organization of the United Nations, Global Facility for Disaster Reduction and Recovery/the World Bank Group, International Actuarial Association, Loss and Damage Network, Munich Climate Insurance Initiative (MCII), United Nations Development Programme (UNDP), Vivid Economics, and World Food Programme (WFP).[4]

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[1] Decision 2/CP.19, paragraph 5.
[2] FCCC/SB/2014/4, annex II, Action Area 7.
[3] The call for submissions is available at <http://unfccc.int/9432>.
[4] Submissions are also available at <http://unfccc.int/9404>.

GENERAL OBSERVATIONS ON THE BALANCE OF INFORMATION SUBMITTED

While a wealth of information exists from the developed country perspective, information from developing countries about good practices and lessons learned with regard to the application of financial instruments, including their limitations, was rather limited. In this regard, further study on their needs in terms of knowledge, capacity-building and enabling environments, as well as action needed for the facilitation and application of the existing financial instruments in developing countries and emerging economies, may be useful for understanding the full scope of the issues called for through this activity.

Information was also rather limited regarding those financial instruments and tools that could be effective for the context of slow onset events, and that of non-economic losses. Further scoping of information on existing instruments and tools that are applicable to such contexts may inform the consideration of, inter alia, the suitability and possible combination of approaches and modalities for distributing resources.

The Excom invited the submission of information in relation to those financial instruments and tools both at a *'micro level (direct tools) and meso and macro level (indirect tools)'*. The submissions did not distinguish between direct or indirect tools in reporting the experiences and lessons learned. Accordingly, this paper does not make the distinction. Micro, meso and macro levels are referred to differently in submissions.

The submissions did not report on information regarding how existing sources of finance under the UNFCCC have linked to averting, minimizing and addressing the risk of loss and damage.

Based on the above mentioned submissions, Section II of this document provides the landscape of existing financial instruments, and describes their advantages and potential, as well as challenges at different levels of application. Section III summarizes lessons learned and showcases ongoing good practices.

II. LANDSCAPE OF FINANCIAL INSTRUMENTS AND TOOLS IN PRACTICE EMERGING FROM THE SUBMISSIONS

Challenges relating to loss and damage associated with the adverse effects of climate change require a broad range of responses at different levels, including information and knowledge-building, the development of adequate policy and regulatory environments and concrete action to minimize, avert or address losses and damages. These responses extend to several domains, including disaster risk management, transfer and pooling, contingency measures, adaptation to climate change and climate resilient development. Financing is needed towards all these responses. Parties and organizations have reported experience with and lessons from a variety of financial instruments and tools that may be applied to raise and channel this finance at all levels.

Table 1 provides an overview of the reported financial instruments and tools, mapped against the categories of possible instruments listed under Action Area 7 of the initial two-year workplan of the Excom.

These instruments and tools have been applied at different levels (macro, including national and regional, meso or micro) depending on where reported action to address climate risk is taken. They could serve to establish an enabling policy or regulatory environment (e.g. risk layering analysis or total climate risk approach) or to raise and/or channel financial resources directly (e.g. insurance, climate bonds, disaster relief funds). Many of the instruments also contribute to making development climate resilient (e.g. climate bonds, social protection, contingency finance). However, they also bear limitations, both in general and with regard to their application in the area of loss and damage.

Parties and organizations, in their submissions, concurred that an appropriately designed mix of financial instruments or tools are needed to address the full range of loss and damage associated with the adverse effects of climate change at any level. Adequately responding to the challenge of loss and damage requires a comprehensive climate risk management approach. This involves, among others, systematic and consistent identification of risk exposure to multiple, or all, hazards under a full range of potential scenarios using tools and an appropriate combination of strategies, policies and measures to prevent, respond, reduce or transfer risk by governments, enterprises or individuals. Objective and independent monitoring of the effectiveness of the risk management strategies and measures is required, while also updating risks and scenarios as situations change. Comprehensive climate risk management may include the application of various financial instruments and tools, some of which are described in this paper.

Table 2 provides a summary of reported strengths and challenges of these financial instruments according to the experience of Parties and organizations. It also provides examples of where these instruments have been applied.

Table 1 Mapping of existing financial instruments as contained in the submissions

Categories of instruments referred to in the initial two-year workplan of the Excom	Types of instruments and tools as reported by Parties and organizations
Comprehensive risk management capacity with risk pooling and transfer	• Tools to identify risks and appropriate responses: risk layering analysis, total climate risk approach • Various financial instruments (insurance, credit, savings) linked to risk reduction measures
Catastrophe risk insurance	• Catastrophe risk insurance at national or regional level (with the possibility of including micro and meso insurance) • Regional risk pooling mechanisms • Index-based insurance schemes • Group insurance
Contingency finance	• Contingency fund • Disaster relief fund • Restoration fund for preferential interest rate financing • Contingent credit • Microcredit
Climate-themed bonds and their certification	• Climate bonds • Standard and certification schemes
Catastrophe bonds	• Catastrophe bonds • Ex-post bonds
Financing approaches to making development climate resilient	• Total climate risk approach and most of the instruments mentioned above

Table 2 Key strengths and challenges of existing financial instruments and tools at different levels based on the submissions

Financial instrument/ tool	Level	Strength, advantages, potentiality	Challenges	Examples
Risk transfer and risk pooling, including index-based schemes	Macro, meso, micro	National level: • Suitable for sudden and unpredictable events • Helps to spread losses widely, across time and stakeholders • Encourages rigorous risk assessment and management (at all levels) • May incentivize risk reduction and prevention through proper risk-pricing (at all levels) • Index-based insurance reduces administrative costs, which could result in lowering insurance premiums thus making the tool more affordable; it also enables more reliable and timely post-disaster relief, since loss assessments are not required • Linking insurance with social protection schemes can reduce transaction costs, improve targeting and effectiveness Regional level: • Allows sovereign risk holders to spread their risk over larger	National level: • Less applicable for slow onset events, due to the associated long-term insurance policy requirement and corresponding premium payments, or events with very high frequency • Market barriers (lack of access to data, information asymmetries causing moral hazard and adverse selection, transaction costs, enforcement constraints) and availability of alternative measures including humanitarian aid constrain development of new insurance markets • Continuous payment of insurance premium, e.g. due to competing financial priorities • Potentially high premium levels relative to willingness or ability of beneficiaries to pay when risks are changing Regional level: • Requires high level of regional cooperation and solidarity	National level: • Turkish Agricultural Insurance System (pool of 23 insurance companies, government supports premiums and excess of loss) (see Box 1 in section III) Regional level: • Pacific Catastrophe Risk Insurance Pilot by Japan, the World Bank, Secretariat of

Financial instrument/ tool	Level	Strength, advantages, potentiality	Challenges	Examples
		geographical areas by aggregating risks transboundary; can take the form of a fund in which group of countries contributes and withdraws according to need • As not all locations within the areas will be affected equally, high losses and damages in one location can be offset by low or none in other locations at the aggregated level • Access to collective reserves by affected areas/countries • Better insurance terms for policy holders • Effective if countries pay different premiums according to their differing risk profiles, risk management measures taken and desired coverage levels • Contingency plans as a precondition for payouts encourages use of payouts for pre-determined needs that, ideally, align with beneficiaries ongoing development goals. Such plans can also help ensure that support is provided to individuals and regions in greatest need Meso level:	• Buy-in from countries decreases where there are few or no payouts	the Pacific Community (allows for immediate financial response to disasters until national-level finance systems and foreign aid are set up to act) • EU Solidarity Fund (allows to respond to major natural disasters and express European solidarity to disaster-stricken regions within Europe) • Caribbean Catastrophe Risk Insurance Facility by the World Bank and various donors (sovereign risk protection, fast disbursement in the immediate aftermath of disaster, risk pooling) • African Risk Capacity by African Union and various donors (index-based sovereign risk insurance pool and early response mechanism bringing together insurance and contingency planning) Meso level:

Financial instrument/ tool	Level	Strength, advantages, potentiality	Challenges	Examples
		• Index-based schemes can support, e.g. local financial institutions, in better managing their credit risks by protecting their loan portfolios against climate shocks and subsequent loan defaults, thereby stabilizing their financial position and avoiding their need to curb lending activities and/or instituting unfavourable terms of credit which would diminish overall economic activity in the affected region		• Loan Portfolio Cover of the Munich Climate Insurance Initiative's (MCII) Climate Risk Adaptation and Insurance in the Caribbean project (transfer of financial institutions' loan portfolios' risks to international risk pooling markets)
		Micro level: • Subsidies have the potential to make premiums affordable for the poor and could take the form of: (i) direct funding that covers governments' administrative costs and thus leave room for loss prevention activities; (ii) capital support for local insurers designed to lower premiums; or (iii) funding for risk reduction measures that will allow insurers to offer reduced premiums • Can lead to more active/higher level of investment in production systems and/or improving livelihoods as policy holders receive access to	Micro level: • Private schemes without subsidies might be unaffordable for poorer households and small enterprises especially in highly vulnerable regions where premiums need to be high • Pooling within limited area/local communities will prevent the provision of envisioned protection in cases where an event affects negatively all or most of the participating members of the pool • Demand often exceeds the logistical capacity of providers	Micro level: • Livelihood Protection Policy of the MCII (provides swift un-bureaucratic cash payouts to low-income individuals following extreme weather events based on index-based scheme) • Rural Resilience Enhancement Project by the Japan International Cooperation Agency (weather index insurance for agricultural activities) • Index-based flood risk insurance by UNDP (insurance risk coverage for individual households based on flood indexes and defined flood zones; combination of government subsidy and reinsurance scheme)

Financial instrument/ tool	Level	Strength, advantages, potentiality	Challenges	Examples
		financial services due to their improved credit worthiness • Linking micro insurance with social protection (e.g. payment of insurance through public employment schemes) could help addressing market barriers	e.g. in terms of reaching the clients and scaling data • Challenges of index-based schemes include lack of adequate monitoring and observation of weather parameters, indexing of thresholds, awareness raising, inadequate guidelines, and lack of advocacy and coordination among agencies in the process of design and implementation	
Catastrophe risk insurance	Macro, may include meso, micro	• Can also include micro and meso insurance (which bundles individuals' loans and insurance), catastrophe reserve funds, and insurance-linked securities in order to diversify the use of financial resources, thus making them more effective • Provides opportunity for enhanced finance, if leveraged through public-private partnerships, and pooling across wide areas • Enables rapid payouts after catastrophes	• Requires high quality catastrophe risk models • Often requires a high deductible • Difficulties in applying in the context of slow onset events • Holders of catastrophe risk insurance may have reduced incentives to reduce risk which is why the purchase needs to be linked to risk reduction efforts	• Caribbean Catastrophe Risk Insurance Facility (see description above) • African Risk Capacity (see description above) • Mexico's Fondo de Desastres Naturales (FONDEN) (financial vehicle by which the federal government allocates budget ex-ante for post-disaster response and reconstruction, linked to an insurance scheme for cases of extreme losses)
Disaster relief funds	Macro, meso, micro	• Linking (national) disaster relief funds with insurance bears potential for improving efficiency of the use and scale of financial resources	• Implementation often suffers from inadequate budgeting and funding in developing countries	• Community based revolving fund by UNDP (forthcoming) (informal risk-sharing pool for disaster response and

Financial instrument/ tool	Level	Strength, advantages, potentiality	Challenges	Examples
				preparedness activities where risk insurance or credit are lacking)
Social protection schemes	Micro	• Well-designed social protection schemes can increase adaptive capacity, prevent and reduce risks, and enhance livelihoods • Linking social protection with insurance can improve efficiency and cost-effectiveness of both financial instruments and bears potential for innovative and effective approaches for loss and damage • Can address both extreme and slow onset events	• Often suffer from inadequate funding	• Weather index-based insurance for smallholder farmers in India, as reported by CARE Vietnam (part of India's National Agricultural Insurance Scheme, through which government subsidizes insurance premiums of farmers up to 75%, whereby insurance is compulsory for farmers taking certain credits and voluntary for non-borrowers)
Contingent credit	Macro, micro	• Fast disbursing finance opportunity, particularly for middle income countries	• Limited availability for poorest countries as loans increase debt	• Stand-by Emergency Credit for Urgent Recovery (SECURE) by the Government of Japan (ODA loan contingent on an existing disaster risk management programme or policy action in the affected country) • Cat DDO – Deferred Drawdown Option for Catastrophe Risks by the World Bank (contingent loan that provides immediate liquidity after disaster contingent upon the country maintaining a satisfactory disaster risk management program) • Business continuity measures (BCM) rating - enterprise disaster resilience rated loan program by the

Financial instrument/ tool	Level	Strength, advantages, potentiality	Challenges	Examples
				Development Bank of Japan (identification of enterprises engaged in BCM measures and provision of preferential interest rate financing as a reward for their efforts; provision of restoration funds in times of disaster)
Climate bonds	Macro, micro	• Efficient market-linked instrument to raise finance for risk reduction and adaptation projects (i.e. minimizing and averting loss and damage) that produce revenue streams, e.g. creating resilient transport, infrastructure or agriculture • Certification and standardization initiatives provide security to the investor that their investments are used for climate-related projects • Green/climate bond market has grown significantly during 2015 and demand still surpasses supply	• May have limited applicability for covering/addressing loss and damage as projects need to generate revenue • Higher barrier for most vulnerable countries where interest rates would be high • Limited market penetration (currently green bonds for adaptation projects have made up only 4.1% of the total 2015 green bond market)	• The Climate Bonds Initiative has developed the Climate Bond Standard (environmental standard providing a robust and effective certification scheme for the selection of investments, use of proceeds, reporting by issuers and assurance) and produced a number of guidance materials around climate bonds
Catastrophe bonds	Macro	• Disburse money quickly in the event of a catastrophe • May contribute to raising funds for climate change adaptation and risk reduction • Tend to focus on shorter-time timeframes, e.g. three years, as opposed to long-term	• Tend to come with stricter terms and conditions compared to traditional risk financing such as insurance • Have a higher fixed expense component • Usually only available to institutional investors	• Caribbean Catastrophe Risk Insurance Facility (see description above) • African Risk Capacity (see description above)

Financial instrument/ tool	Level	Strength, advantages, potentiality	Challenges	Examples
Ex-post bonds	Macro, micro	• Relatively cheap form of financing • Can be used to meet loss and damage costs in the late recovery and reconstruction phases of disaster response	• Slow form of financing since bonds must be issued before investments can be made • Difficult instrument for highly indebted countries due to the need to generate payback streams	
Micro grants	Micro	• Flexibility in providing co-financing in non-monetary forms such as through labour input or materials • Can be contingent on e.g. development of local adaptation plans		• Micro Capital Grants by UNDP (small grants are provided for resilient agricultural technologies and water saving/efficiency projects, such as greenhouses, wells, drip irrigation, etc.; beneficiaries co-finance through labour input or materials) • Climate change adaptation "top up" performance based grant by UNDP (public funds from a District Development Fund provided for construction and repairs of rural infrastructure, allocated according to district climate vulnerability index)
Micro-saving/ savings	Micro	• Effective for relatively small income shocks to be used for reconstruction or reacquisition of assets • Link to sovereign insurance schemes can enable rapid, funded scale-up in case of disaster (e.g. African Risk Capacity)	• Challenging to implement for low-income, below the poverty line households, due to a lack of saving potential • Long-term planning and investment is difficult for those already facing challenges to meet basic survival needs	• Village Savings and Loan Associations by CARE International (women in poor communities set up savings and loan groups, enabling them to save money, and lend to each other when the need arises – such as illness, droughts or falls in income – or when opportunity beckons, such as the chance to start or improve a small business)

Financial instrument/ tool	Level	Strength, advantages, potentiality	Challenges	Examples
Micro credit	Micro	• Suitable for relatively small income shocks • Some piloting and experimentation is being done on recovery loans, which are larger loans provided post disaster to help livelihood recovery (not suitable for the very poorest) • Linking micro credit with (micro)insurance could prevent over-indebtedness due to extremes and bears potential for innovative and viable solutions	• Credit may even increase vulnerability of households due to liabilities despite of income shocks • Sometimes not available as microfinance institutions seek to repair own balance sheets after disasters (insurance could ease this constraint) • Long-term planning and investment is difficult for those already facing challenges to meet basic survival needs	• Micro credits as part of social protection schemes (see description above)

III. LESSONS LEARNED AND GOOD PRACTICES EMERGING FROM THE SUBMISSIONS

A number of valuable lessons are reported from the application of the financial instruments and tools described in the previous section. These lessons can be taken into account when applying these and similar financial instruments in the future to address risks associated with climate change.

> "Enabling environments are central to the effective employment of financial instruments

Favourable policy and institutional environments are an important precondition for the successful introduction or scaling up of financial instruments, and their absence is often a strong market barrier in developing countries. Creating an appropriate enabling environment, especially in less developed countries, requires a comprehensive approach.

Accelerating the building of capacity that already exists within the insurance system could be beneficial, although in the context of less developed countries and markets, ordinary market forces are likely to be insufficient. Thus, continued careful use of donor support, such as for the initial capitalization of risk pools, may be necessary to accelerate the closing of coverage and preparedness gaps.

Financial instruments that are aimed at averting, minimizing and addressing loss and damage, as well as favourable policies and regulations are among the factors that help to reduce exposure of assets, including financial assets, to risk. Such policies and regulations may include risk reduction and adaptation plans, such as national adaptation plans, contingency planning, organization of the institutional environment for risk reduction and response, building codes, or regulations associated with specific financial services, such as insurance or disaster management funds.

Other favourable factors include political buy-in from governments and relevant decision-makers, availability of data and information, provision of support services (e.g. technology, loss assessment, actuaries) and back-up mechanisms (e.g. reinsurance, donor support). The involvement of all relevant stakeholders in the design of comprehensive climate risk management strategies and respective application of financial instruments is key for addressing the needs of the population at stake and thus ensuring the effectiveness of the instruments.

Box 1 showcases the regulatory environment for financial instruments for disaster risk management in Turkey.

Box 1. Regulatory environment for financial instruments regarding disaster risk management in Turkey

Turkey has adopted several laws and regulations that regulate disaster risk management in the country. For example, law No. 5902 regulates the organization and functions of the Disaster and Emergency Management Authority by addressing preparedness prior to the occurrence of incidents, mitigating the damage sustained, providing coordination among related institutions and organizations which manage the responses during incidents as well as recovery work to be performed afterwards.

Further regulations exist on: (i) construction standards for buildings in disaster areas; (ii) restructuring of areas under risk of disaster; (iii) disaster and emergency expenditures through a disaster management fund; (iv) operation principles and procedures of the Turkish Catastrophe Insurance Pool, which is established to provide compulsory earthquake insurance and other natural disaster insurance coverage; and (v) rules for metropolitan municipalities and special provincial administrations to spare a specified portion of their budget for disaster risk reduction activities.

> Putting in place financial instruments requires rigorous risk assessment

A sound basis for using financial instruments and tools in the loss and damage context is a thorough risk assessment and analysis in the context of comprehensive risk management. Such assessments are required to identify appropriate financial instruments, and the provision of, or access to, finance from either public or private sources. The Economics of Climate Adaptation (ECA) approach provides an example for the assessment of total climate risk of a specific location in this regard (see Box 2)

Box 2. Economics of Climate Adaptation (ECA)

The Economics of Climate Adaptation Working Group – a partnership between the Global Environment Facility, McKinsey & Company, Swiss Re, the Rockefeller Foundation, ClimateWorks Foundation, the European Commission and Standard Chartered Bank, supported by GEF and UNEP, developed a framework to guide decision-makers in understanding and addressing issues around potential climate-related losses to economies and societies, the options for averting such losses and the investments that will be required to fund those measures. The report produced by the Working Group outlines a fact-based risk management approach that national and local leaders can use to understand the impact of climate on their economies, and to identify actions to minimize that impact at the lowest cost to society.

The ECA approach assesses, inter alia, (i) today's and future climate risk; (ii) the economic development paths that might put populations and value at greater risk; and (iii) the additional risks expected due to climate change for a specific location, e.g. city, region or country (local total climate risk assessment). It is a tool that supports decision-makers in designing and executing climate adaptation strategies, plans, programmes and projects and in improving the preparation of (bankable) projects in developed and developing countries. ECA combines a risk approach with a systematic cost-benefit analysis, and can assist decision makers in the identification and rating of concrete adaptation measures in order to minimize the implied costs for society.

> Comprehensive climate risk management requires a smart combination of financial instruments and tools

The experience of Parties and organizations indicates that it is crucial to combine different types of financial instruments and tools in order to adequately address climate risks. These should be embedded in strategies that include risk prevention, reduction, preparedness, response and recovery.

Comprehensive climate risk management should therefore build on and expand the scope of existing strategies, and synergize with financial schemes that have been designed to address risks not directly associated with climate change, e.g. those in the area of disaster risk management. A smart combination of such instruments would provide the means to foster sustainable development, and at the same time encourage risk reduction measures. In addition, more innovative tools to deal with particular losses and damages, such as those caused by slow onset events, could be integrated.

Risk layering analysis facilitates comprehensive risk management by providing the means to categorize risks that helps to identify the most appropriate combination of strategies, instruments and tools to prevent, reduce, transfer or respond to them (see Box 3).

Box 3. Risk layering analysis

Through a risk layering analysis, risks are separated into different segments according to their potential frequency and severity. For example, climate-related risks which happen often (high frequency) but which are less serious (low severity) can be addressed most effectively by preventive and risk reduction activities. The risk posed by more severe and less frequent events can be transferred by using private and/or public insurance mechanisms. The loss and damage that remains once all feasible measures are taken (i.e. residual risk) requires several approaches, such as strengthening institutional arrangements and socio-economic policies or relocation of populations, flood control investments or disaster relief funds.

While the combination of financial instruments generally elevates the effectiveness of risk management, stand-alone financial products may in some instances have the potential to create traction and interest at a high level, amongst policy-makers, and can therefore catalyse strategic discussions on disaster risk management and financial protection more broadly.

The African Risk Capacity (ARC) initiative is an example of a regional risk pooling scheme that links risk financing instruments (in this case insurance) to risk reduction and management measures (see Box 4).

The experience of those Parties that provide financial assistance to countries affected by climate change and other crises suggests that comprehensive risk management requires prioritizing support to resilient development over recurrent humanitarian aid. In this regard, countries and communities should be supported in making evidence-based investments that enable them to minimize exposure to, adapt to, and recover quickly from, inevitable shocks.

Box 4. African Risk Capacity (ARC)

ARC is an African-owned, index-based sovereign risk insurance pool and early response mechanism that brings together the concepts of insurance and contingency planning. It comprises two components—ARC Agency, a Specialized Agency of the African Union, and ARC Insurance Company Limited, a regulated mutual insurance company that is owned by member countries. Currently, ARC offers coverage for drought risk, but aims to expand its offerings to tropical cyclones and flood in 2016 and 2017, respectively. Governments receive payouts based on pre-approved contingency plans providing detailed and timely information on how the payout will be deployed. While payouts are made from the insurance company to the government, governments use funds to implement their contingency plans, building on and reinforcing existing national institutional mechanisms and capacities. Using the Replica Coverage programme, ARC opens its insurance products to international organizations, and thereby aims at addressing the humanitarian funding gap while doubling the coverage of climate risk insurance and strengthening its government-led risk management system.

During the 2015-2016 season, the risk pool expanded to include seven countries. ARC aims to reach 30 countries by 2020, providing nearly $2 billion of coverage against drought, flood and cyclones, indirectly insuring 150 million Africans. The more rapid disbursement of ARC payouts (relative to the mobilization of humanitarian assistance) in the aftermath of a shock can be instrumental in avoiding negative coping strategies and loss of productive assets.

Such approach can build on ongoing efforts in, for example, climate change adaptation, disaster risk reduction, sectoral efforts such as climate smart agriculture, health, as well as enhancing governance and finance strategies that allow for the mainstreaming of comprehensive climate risk management, e.g. multi-year capital investment programming tools or mid-term financial assessment and forecasting tools. These tools can eliminate barriers and unlock new and innovative funding sources such as private sector finance through capital markets and debt financing instruments (e.g. loans, bonds) as well as corresponding funding mechanisms such as credit guarantees, pooled financing, local development and environmental funds, equity investments and public-private partnerships. At the micro level, prioritizing support to resilient development can be in the form of combining, for example, insurance with essential livelihood and poverty reduction services, such as credit, savings, quality inputs, extension services and training, as well as early warning systems. This would allow for delivering tangible value in both those years when payouts are made, and in those when they are not, which could result in fostering local ownership and vulnerability reduction.

> Linking financing for disaster risk management & adaptation bears large potential for minimizing, averting and addressing loss and damage

As many examples in the submissions illustrated, there is significant potential in linking disaster risk and climate adaptation financing in order to use financial resources efficiently. In this regard, financial instruments and tools that can address the risks of loss and damage should be integrated into national adaptation plans and other relevant processes such as the UN Sendai Framework for Disaster Risk Reduction. Furthermore, risk financing strategies should be designed in a sustainable and viable manner, both in economic and social terms. Reported experience demonstrates that the application of financial instruments should be planned with a view towards long-term engagement as it needs time to mature and be fully integrated into local risk management strategies. In this regard, climate risk financing should be treated as an integral part of sustainable development as a whole

> Ongoing capacity-building and appropriate donor engagement is required for the effective use of financial instruments

While most of the financial instruments and tools mentioned in this paper have been used widely in developed countries, they do not necessarily have a long tradition in developing countries. The lack of experience in using these instruments often leads to important market barriers.

Therefore, ongoing capacity-building is needed in such countries for governments, enterprises and individual users to be able to build demand for financing instruments and enhance their capacity to produce comprehensive risk management plans and integrate risk finance into them. This would also foster country ownership, which is a key to the success of the sustainable application of financial instruments. Capacity development is needed to set up adequate regulatory and policy environments in order to remove market barriers, generate and use climate and financial data and information effectively, evaluate risk exposure and determine coverage needs, develop effective contingency and implementation plans, and identify bankable adaptation options which would lead to robust financing flows and payback streams. Particularly at the micro level, it is important to provide beneficiaries with opportunities to build financial literacy as well as sufficient confidence in investing in financial products.

In addition to capacity-building which fosters the ownership of those that apply financial instruments, appropriate donor engagement to facilitate the establishment of public systems to manage and use instruments is needed, especially in the early stages of a programme or new instrument. This may include, for example, the provision of operational data systems, training of staff, and the initial capitalization of funds. In addition, support can be provided in the form of, inter alia, guarantees and subsidies.

The Disaster Risk Financing Analytics (DRFA) – single donor trust fund which has been set up in 2016 by the European Union to support informed decision making on the financial management of natural disasters in selected developing countries – illustrates a good practice for national-level capacity-building programmes (see Box 5).

Box 5. The Disaster Risk Financing Analytics (DRFA) single donor trust fund

The objective of the proposed DRFA programme is to improve the understanding and the capacity of governments to take informed decisions on disaster risk financing (DRF) based on sound financial analysis. This objective will be achieved through four outcomes, which will support governments to: (i) understand their financial risk related to natural hazards; (ii) employ efficient financial/ actuarial analysis, such as cost-benefit analyses, in the development of DRF strategies; (iii) effectively leverage private financial markets through market-based risk transfer solutions when relevant in the DRF strategy; (iv) monitor and evaluate DRF strategies and ensure appropriate links with EU-supported activities, with potential to replicate DRF strategies in the same region, such as through the EU Flagship initiative.

> Specific financial instruments and tools are needed to reach the most vulnerable

Poor and marginalized populations are particularly vulnerable to the adverse effects of climate change due to the multiple risks – both climate and non-climate – and challenges that their livelihoods face. In addition, their financial literacy is often minimal, and their appetite to apply financial instruments is low, partly due to competing priorities, an unequal distribution of resources and power imbalances. Moreover, many financial instruments require preconditions, such as a certain level of liquidity or credit worthiness that the most vulnerable are not able to meet. Special attention for capacity-building and financial instruments are needed in order to enable the most vulnerable to partake in comprehensive risk management approaches. Current good practice for such instruments is provided in Box 6. The submissions report that the integration of social protection schemes, disaster risk reduction and climate change adaptation can help improve the livelihoods of poor people. Globally, social protection mechanisms are progressively being identified as important modalities for achieving and scaling up disaster risk reduction and climate change adaptation.

Box 6. R4 Rural Resilience Initiative

The R4 Rural Resilience Initiative is led by the World Food Programme and Oxfam America, and is supported by USAID. R4 takes a comprehensive approach to risk management by integrating insurance with risk reduction and financial tools like credit and savings. This combined approach enables farmers to take positive risks, such as investing in seeds and fertilizer, in order to improve food security and generate income, while also knowing that, if faced with a drought or other shock, they will have access to an insurance payout to help them purchase essentials without being forced to sell long-term, productive assets such as livestock. R4 has broken new ground in the field of rural risk management by enabling the poorest farmers to pay for crop insurance with their own labour through existing social safety nets and similar schemes.

> Public-private partnerships can enhance effectiveness of financial instruments

The expertise and experience of the private sector is vital to the effective application of most financial instruments, and should therefore be harnessed through public-private partnerships, for example. The private sector often has vast risk management expertise that could be utilized to assess risks, design viable financial products and reach beneficiaries through efficient distribution channels. At the same time, the involvement of governments is a key to generate wider political buy-in and ownership that facilitate the integration of finance approaches in national planning, policies and regulations. Governments can incentivize the provision of financial products by the private sector through, for example, carefully thought-through subsidies, strong regulatory frameworks, social protection, risk management, education programs or even mandatory insurance coverage. Depending on the context, development finance institutions could play a significant role in providing access to finance and diminishing barriers to private investment by pioneering approaches that can bridge gaps and incentivize private investment, e.g. through carrying out feasibility studies, consultations with stakeholders, providing technical advice and access to long-term financing and designing risk-sharing mechanisms.

Box 7. Agricultural Insurance Development Program (AIDP)

The Agricultural Insurance Development Program (AIDP), supported by USAID, aims to increase the resilience of agricultural producers against weather-related shocks, by developing sustainable and cost-effective public-private partnerships for insurance market development. As part of the World Bank's Disaster Risk Finance and Insurance Program, AIDP supports governments to utilize individual-level insurance instruments as part of their resilience and agricultural development strategies. The provision of catastrophic coverage for vulnerable populations through the private sector can further incentivize commercial insurance market development.

Key elements of support by AIDP include:

- Technically sound agricultural risk assessment;
- Strengthening of public-sector institutions to enable the use of financial risk transfer instruments to achieve social and development objectives;
- Development of the data infrastructure necessary for insurance market development;
- Building of public sector capacity to understand, oversee and promote insurance market development;
- Dialogue between the public and private sector to enable governments to leverage the strengths of the private sector; and

Development and implementation of a comprehensive monitoring and evaluation framework to ensure the quality of protection provided to low-income families.

While many of the financial instruments described in the submissions have great potential in being applied to deal with economic loss and damage associated with rapid onset/extreme events, important gaps remain regarding instruments that could be applied in the context of slow onset events and for cases of non-economic losses and damages. Further analysis may be useful for a better understanding of what kind of 'novel' instruments could fill such gap.

> Existing financial instruments and tools may be inadequate to address the full spectrum of losses and damages associated with the adverse effects of climate change

In addition, a discussion may be needed regarding the overall appropriateness of financial instruments to address non-economic losses and eventually alternative ways how they could address such losses, for example, through safeguarding.

In general, currently available financial instruments that have been reported seem to fall short of generating financial resources at a scale sufficient to meet the growing requirements related to potential future losses and damages from climate change. Some submissions suggested the use of innovative instruments that may be able to generate and provide new finance. Such suggestions include a financial transaction tax, a fossil fuel levy (or Carbon Majors Levy), bunker fuels levy, auctioning of emission allowances, carbon pricing for international transportation (e.g. aviation and maritime), a global fossil fuel extraction levy, global carbon tax, using a share of revenues from domestic or regional carbon pricing/carbon markets for international solidarity, etc. Further attention may be needed for innovative schemes, instruments and tools in order to meet the growing demand for financial instruments within the interconnected areas of adaptation to climate change, dealing with loss and damage, disaster risk management and sustainable development.

ANNEX: DESCRIPTION OF FINANCIAL INSTRUMENTS AND TOOLS BASED ON THE SUBMISSIONS AND DESK-BASED RESEARCH

Financial instrument or tool	Short description
Risk transfer and risk pooling, including index-based schemes	Risk transfer and risk pooling, and index-based schemes, help risk holders (at the micro, meso, national, and regional levels) to spread losses widely across time, stakeholders, and/ or geographical areas in the case of sovereign risk holders. When risks cannot be prevented or reduced or would be too large for companies or individuals to cover on their own, risk transfer instruments, such as insurance,[5] allow risk holders to transfer some of their financial risks and/ or losses to the insurer in exchange for an insurance premium at micro level, and to capital markets at higher levels. Risk pooling enables risk holders to gain efficiency by bundling risk. In the case of such schemes being applied to affected areas/countries, the risk holders would have access to collective reserves, which can sometimes take the form of a fund in which a group of countries contributes and withdraws according to need. Index-based schemes are administratively less costly as the payout is triggered by pre-determined conditions (e.g. temperature or rainfall thresholds) without the need for individual loss/damage assessments.
Catastrophe risk insurance	Catastrophe risk insurance at national or regional levels (with the possibility of including micro and meso insurance) protects against low-probability, high-cost events which can result in an extremely large number of claims being filed at the same time and unpredictably high costs. This makes it difficult for catastrophe insurance issuers to effectively manage risk which is why they often require reinsurance, retrocession or governmental guarantees as backups. Catastrophe risk insurance may take the form of micro and meso insurance (which bundles individuals' loans and insurance), catastrophe reserve funds, and insurance-linked securities.
Disaster relief funds	In the case of (climate-related) extreme events or disasters, disaster relief funds can quickly be disbursed for response and recovery measures that otherwise must be financed ex post. Examples of such measures include: reconstruction, humanitarian efforts (such as provision of food, medicine and other urgent needs), small-scale emergency relief operations, preparations in the case of imminent disaster.[6]
Social protection schemes	UNDP defines social protection as policies designed to reduce people's exposure to risks, enhancing their capacity to protect themselves against hazards and loss of income. Social protection involves interventions from public, private, voluntary organizations, and social networks, to support individuals, households and

[5] Warner, K. (2014). *Innovative Insurance Solutions for Climate Change in a Comprehensive Risk Management Approach: Developing a Toolkit*. [online] MCII. Available at: http://www.climate-insurance.org/fileadmin/mcii/pdf/MCII-GIZ_Ws2014/MCII-GIZ_Ws2014_KWarner_MCII.pdf [Accessed 26 April 2016].

[6] The International Federation of Red Cross and Red Crescent Societies (IFRC). (n.d.). *Disaster Relief Emergency Fund (DREF)*. [online] Available at: http://www.ifrc.org/en/what-we-do/disaster-management/responding/disaster-response-system/financial-instruments/disaster-relief-emergency-fund-dref/ [Accessed 26 April 2016].

	communities in preventing, managing, and overcoming the hazards, risks, and stresses threatening their present and future well-being.[7] Schemes can include the provision of safety nets in the case of both extreme and slow onset climate-related events, through conditional and unconditional cash transfers or food and cash-for-work programmes. They are usually channelled through national government funds.
Contingent credit	This is a fast-disbursing finance opportunity, which provides lines of borrowing from which to draw in the immediate aftermath of any natural disaster declared a national emergency by the government,[8] particularly for middle income countries. The funds provide for early response and recovery measures (sometimes contingent on the country maintaining satisfactory ex-ante or ex-post in-country disaster risk management programmes).
Climate bonds	Fixed-income, and sometimes market-linked financial instruments issued to finance or re-finance climate change-related projects (e.g. mitigation, adaptation or risk reduction). The issuing entity (multinational banks or corporations) guarantees to repay the bond over a certain period of time, plus either a fixed or variable rate of return. Investors are institutional entities (e.g. pension funds) or individuals. Climate bonds have the same credit risk and return profile as standards bonds.
Catastrophe bonds	Also known as cat bonds, these are high-yield debt instruments which are usually insurance-linked, in order to secure cash flow in case of disaster to those most exposed and at risk of severe financial losses as a result of a changing climate.9 They include a special condition that states that if the issuer suffers a loss from a particular pre-defined catastrophe, then the issuer's obligation to pay interest and/or repay the principal is either deferred or completely forgiven. Funds may in some cases also contribute to raising funds for climate change adaptation and risk reduction.
Ex-post bonds	This is a relatively cheap form of finance, which is issued after a disaster to raise funds. Such bonds can be used to meet loss and damage costs in the late recovery and reconstruction phases of disaster response.
Micro grants	Financial or non-financial grants (e.g. co-financing through labour input or materials) usually provided to individuals, households or local associations which can be used for projects such as renewable energy installation.[10] The grants can be contingent on e.g. development of local adaptation plans.
Micro-saving/ savings	Micro-savings can be described as savings made by low-income or vulnerable people. Such savings can be an effective tool when combined with other policy

[7] Yemtsov, R. (2013). *The World Bank Social Protection Overview*. [online] World Bank. Available at: http://www.worldbank.org/content/dam/Worldbank/Event/safetynets/1.%20Yemtsov%20_Overview_SSN%20Course_2013.pdf [Accessed 26 April 2016].
[8] World Bank. (2014). *FEATURE STORY: A Landmark First for Africa: Seychelles Uses Contingent Credit for Disasters*. [online] Available at: http://www.worldbank.org/en/news/feature/2014/10/15/a-landmark-first-for-africa-seychelles-uses-contingent-credit-for-disasters [Accessed 26 April 2016].
[9] Artemis. (2014). *Climate Change Catastrophe Bonds For Africa To Be Launched By ARC | Artemis.bm*. [online] Available at: http://www.artemis.bm/blog/2014/09/23/climate-change-catastrophe-bonds-for-africa-to-be-launched-by-arc/ [Accessed 26 April 2016].
[10] Boswell, M., Greve, A. and Seale, T. (2012). *Local climate action planning*. Washington, DC: Island Press.

	measures to ensure access and use of appropriate savings products, especially for some of the most vulnerable.[11] It is an often informal approach to set aside a certain portion of income for future use, usually without minimum balance requirements and service charges. The funds may be used in cases of relatively small income shocks, including those climate-related extreme events, for measures such as reconstruction or reacquisition of assets. If micro savings are linked to a sovereign insurance scheme, this can enable rapid, funded scale-up in case of disaster.
Micro credit	Micro-credit programmes strive to provide capital (e.g. a very small loan) to poor borrowers or smaller enterprises, typically to facilitate income-generating self-employment activities for those who otherwise could only work for wages or subsist. Such credit programmes may be especially suited to relatively small income shocks.

[11] CRÉDOC. (2016). *Social innovation & Mutual learning on Micro-Savings in Europe*. [online] Available at: http://www.credoc.fr/pdf/Sou/Evaluation_SIMS_Synthse_Rapport_Eng.pdf [Accessed 26 April 2016].