

SYNOPSIS SERIES:

APPROACHES TO ADDRESS LOSS AND DAMAGE ASSOCIATED WITH THE ADVERSE EFFECTS OF CLIMATE CHANGE

The literature review was mandated by COP 17 (2011) under Thematic area 2 of the work programme on loss and damage (L&D).

OVERVIEW

The literature review:

Examines approaches to address L&D:

- * Risk reduction;
- * Risk retention;
- * Risk transfer;
- * Managing slow onset climatic processes;
- * Enabling environments and managing the impacts of climate variability and climate change.

Presents findings of the application of these approaches in:

- * Africa;
- * Latin America;
- * Asia;
- * Small Island developing States (SIDS).

Analyses the levels of application of these approaches:

- * Relative cost-effectiveness;
- * Foundational resource requirements of approaches (budget, infrastructure/equipment, information and data, technical capacity).

Examines the challenges and lessons learned from existing efforts, the links and synergies between approaches.

Thematic area 2 of the work programme on loss and damage: A range of approaches to address L&D associated with the adverse effects of climate change, including impacts related to extreme weather events and slow onset events, taking into consideration experience at all levels.

Methodology:

Review of over 200 references to, and examples of, approaches to address L&D, including:

- * Peer-reviewed journals in English;
- * Practitioner and policy-related literature;
- * Contributions submitted by partner organizations of the Nairobi work programme;
- * Recent meta-analyses, including IPCC Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX) and the Global Assessment Report on Disaster Risk Reduction (GAR).

The approaches to address L&D listed in the literature review are not exhaustive; other approaches and varieties of approaches may exist, including at the local level.

Contents of the literature review:

- * Overview and description of the various approaches to address L&D;
- * Comparison of their relative cost-effectiveness and resource requirements;
- * Analysis of the application of the approaches in each region and corresponding examples;
- * Summaries of regional approaches to address L&D categorized by country and approaches.

KEY FINDINGS: Types of approaches to address L&D**Risk reduction**

- * Risk reduction measures are undertaken before an extreme event occurs and may be used effectively in the case of climate-related stressors which occur frequently and have relatively small impacts.
- * These approaches can be categorized as structural measures (focusing on infrastructure to reduce the effects of extreme events) and non-structural measures (focusing on, planning, early warning and behavioral change, etc).
- * These approaches are appropriate across all sectors of an economy and in all types of ecosystems. Usually the benefits of avoiding and reducing L&D outweigh the costs of investing in risk reduction measures.

Risk retention

- * These approaches could be defined broadly as allowing a country to 'self-insure' itself against climatic stressors.
- * Risk retention measures are taken through activities such as building the resilience of populations through social protection and related measures, or through financial means, such as establishing reserve funds for the purpose of offsetting unexpected financial burdens associated with climatic stressors.
- * These approaches are applicable in every public sector, as well as in the private sector and at the household level.
- * Sound understanding of potential L&D and the ability of a country to absorb L&D by means of its own social, economic, cultural and other resources, are foundational requirements.

Risk transfer

- * These approaches help to shift the risk of L&D, mostly financial, from one entity to another. They are undertaken when a country or entity assesses that the potential L&D it could experience is greater than its ability to manage it.
- * Risk transfer can be used in any sector, but it requires a sound analysis of the target community and the financial capacity.

Managing slow onset climatic process

- * These approaches are combinations of risk reduction measures and climate change adaptation.
- * More work is needed to explore the sectoral use of a range of activities to prepare for and manage the L&D related to slow onset climatic processes.

Enabling environment and managing the impacts of climate variability and change

- * There is a case for creating frameworks or institutions that more closely link approaches to address L&D and emphasize complementarities.

KEY FINDINGS: Regional approaches to address L&D

Latin America	
Risk reduction	<p>Early warning systems: Systems have already been established in the region, along with the increasing usage of statistical data and information portals to help prepare for disasters.</p> <p>Indigenous knowledge: Local communities in the region have adapted their livelihoods to take into account a wide variety of disturbances caused by environmental variability through the use of indigenous knowledge, especially in combating drought. However, rapidly changing climate is jeopardizing the ability of some to adapt using traditional means and indigenous knowledge.</p> <p>Infrastructure measures: They have mainly been used to reduce floods and drought. Sustainable land management measures and community-led initiatives have also been used by countries to cope with climate change. However, constructions such as dams, embankments and drainage do not necessarily lead to beneficial outcomes, as some may lead to flooding problems, and some have had pervasive effects on small-scale farmers.</p>
Risk retention	<p>Conditional cash-transfer programmes and funds for natural disaster: Such mechanisms have been adopted in the region to protect vulnerable people before, during and after crises. They can indirectly build up households' resilience and provide a buffer against disaster-related losses. Many social protection programmes are not directly linked to managing extreme weather events.</p>
Risk transfer	<p>Insurance: Both area-yield index-based and weather-index insurance are used, aiming at providing indemnities to farmers and insuring crops against drought.</p> <p>Disaster risk transfer mechanisms: A number of recent innovative mechanisms have forged more explicit links between risk financing and disaster risk management (such as an innovative collective insurance policy in Colombia, the El Niño index insurance project in the coastal region of Piura, Peru).</p> <p>Catastrophe bonds: Catastrophe bonds have been introduced in some countries to provide coverage against exposure to extreme weather events.</p>
Approaches to address incremental change	<p>Strengthened institutional capacity: Approaches include national strategies, formulated and execute by national bodies, multilevel approaches, such as collaborative programmes between public and private sectors, regional climate policies. Institutions are not allocated clear roles, and the lack of cooperation in terms of management which leads to the insufficient enforcement.</p>
Challenges and needs	<ul style="list-style-type: none"> * The region still needs to strengthen the available technical expertise in planning in order to address climate change impacts on natural and human systems. * At the financial level, countries need to gain a better understanding of how climate-related risks might affect their finances, allowing governments to engage in appropriate strategies to plan for and manage the spectrum of L&D.

Africa	
Risk reduction	<p>Early warning systems: Emphasis has been placed on the development of early warning systems and drought preparedness plans, ranging from the food and agriculture sectors to innovative technology, and local capacity building.</p> <p>Advanced monitoring technologies: Advanced monitoring technologies and the internet are employed to improve access and distribution of critical data and information in assessing and projecting of climate and drought.</p> <p>Indigenous knowledge: Vulnerable communities have, through local coping strategies and use of indigenous knowledge, adapted their livelihoods in response to a wide variety of disturbances caused by environmental variability and climate change.</p> <p>Infrastructure: Several infrastructure projects and programmes have been implemented to improve water efficiency and resilience (e.g. solar-powered water supply and irrigation systems; wells and lake dykes for safe water).</p>
Risk retention	<p>Social protection programmes: These aim at securing the basic needs of vulnerable social groups and households from the frequent droughts and weather-related shocks. Social safety nets are rapidly expanding across Africa.</p> <p>Cash-based social transfer schemes: Regular payments of money are provided to individuals or households, in order to reduce economic vulnerability and address social risk.</p>
Risk transfer	<p>Index-based weather insurance: By providing financial security against climate extremes, insurance instruments present an opportunity for the region to reduce poverty and adapt to climate change. Pilot projects in Ethiopia and Malawi assist communities in dealing with the risk of drought and livestock mortality.</p>
Approaches to address incremental change	<p>Management and governance of transboundary resources: Governments are beginning to make the link between DRR, climate change adaptation and development. There are several African transboundary river basin organizations, as well as a number of bilateral and multilateral agreements.</p> <p>Contingency planning: Drought contingency planning and funding are taking place throughout the region. However, the lack of timely access to contingency funds is regarded as a significant constraint in respect of drought management.</p>
Challenges and needs	<ul style="list-style-type: none"> * Improve user-friendliness and accessibility of early warning information to promote the timely and informed undertaking of actions by decision-makers. * Enhance understanding of locally available resources, including community-embedded knowledge and technologies, and their role in disaster risk management processes. * Effective conditional cash-transfer through innovative local partnerships between civil society, central government and other stakeholders remains a challenge. * Local communities, especially indigenous people, remain hardly recognized in climate change policies and mechanisms, internationally and nationally. * In most countries climate change impacts on water resources are not explicitly taken into account in water sector policies. * Countries are engaged in multiple actions within similar areas of focus. It is important to ensure that current and future initiatives are complementary and build on lessons learned.

Asia	
Risk reduction	<p>Early warning systems: Progress has been made in providing early warning for extreme weather events. Some countries which are affected heavily by cyclones and floods have established their own early warning systems at both local and regional level. However, technical challenges make it difficult to convey useful information to the most vulnerable people.</p> <p>Indigenous knowledge: Culture and language continue to provide a central foundation for adaptation in various parts of the region. Some communities use traditional strategies to adapt to the impacts of cyclones and landslides, to maintain diversification, to conserve soil and minimize erosion.</p> <p>Infrastructural measures: Measures have been used to manage and minimize disaster risk, including interventions that reduce the effects of extreme weather events, such as cyclone shelters and strengthening buildings through retrofit programmes and land-use planning. Only a minority of risk-prone households participate in fostering local ownership and more sustainable outcomes. Persuading households to invest in disaster risk reduction remains a challenge.</p>
Risk retention	<p>Social protection mechanisms: A number of mechanisms, such as public guaranteed employment schemes (India), poverty reduction and social development strategies (the Philippines), and cash-transfer programme (Indonesia), have been adopted to enhance households' resilience and to provide a buffer against the impact of climate change.</p>
Risk transfer	<p>Insurance: Several joint index-based insurance pilots have been launched through cooperation between international organizations, private sectors and national governments in assisting vulnerable groups to prevent loss from natural disasters.</p>
Approaches to address incremental change	<p>Multilevel, national, regional level approaches: Several countries in the region have incorporated disaster risk reduction and mainstreaming climate change adaptation into the national, regional and local development plans (e.g. the Lower Mekong Initiative aims to enhance joint efforts of Lower Mekong countries in the fields of environment, health, education and infrastructure development).</p>
Challenges and needs	<ul style="list-style-type: none"> * Asian countries continue to deliver disaster risk management through standalone projects and programmes and further studies need to show how governments are using existing institutional capacities to progress this further. * Such efforts call for multi-stakeholder collaboration in the decision-making process, with emphasis on community involvement in disaster risk management. * The approaches employed in the region could complemented one another, thus synergies of approaches need to be explored further.

Small Island Developing States (SIDS)	
Risk reduction	<p>Early warning systems: Efforts have been made to strengthen the assessment of the likely risks and impacts associated with natural hazards. However, early warning systems are still lacking in the region, or have poor hazard monitoring capabilities owing to limited institutional capacity in hazard-prone areas.</p> <p>Indigenous knowledge: Farmers continue employing traditional practices to safeguard against extreme weather events.</p> <p>Infrastructural measures: Measures are mainly used for reducing the risk of landslides and impacts of sea level rise, securing clean water, and allowing communities to participate in planning and budgeting processes.</p>
Risk retention	<p>Social protection mechanisms: Governments of Solomon Islands and Jamaica have adopted social protection mechanisms, including social safety nets and community initiatives, to protect vulnerable populations before, during and after disasters. Some Pacific islands have set up sovereign wealth funds as financial risk retention that assist citizens after natural disasters and allow countries to access the necessary financial resources for adaptation.</p> <p>Funds for disasters: International development agencies and governments have set up several funds to support countries in their efforts to improve disaster risk management and the efficiency during an emergency and in the immediate aftermath of a major weather event.</p>
Risk transfer	<p>Insurance: The most prominent example of a financial tool used to fund post-disaster needs is the Caribbean Catastrophe Risk Insurance Facility (CCRIF), the first worldwide regional catastrophe pool, which provides governments with immediate liquidity in the aftermath of extreme weather events. It is designed to contain the fiscal costs of disasters and bridge the liquidity gap in the immediate aftermath of extreme weather events.</p>
Approaches to address incremental change	<p>Institutional arrangements: A number of institutional arrangements are in place, including national action plans, regional level collaboration, joint initiatives, and UNDP and World Bank projects, developed by governments (and in partnership with NGOs) to manage disaster risk.</p>
Challenges and needs	<ul style="list-style-type: none"> * Early warning systems must take into account the special needs of various segments of population. Households and businesses need to take a more active approach in preparing for potential natural disasters. * Evidence shows that sovereign funds' effectiveness has often been hampered and led to substantial financial losses and undermined fiscal policy. * Among households insurance is still rare and losses often have to be covered individually. * Some institutional frameworks do not address or specify the role of each member country, making it difficult to garner political action on climate change. Additionally, few adaptation projects are taking place at the national level.