ClimateWise Compendium of disaster risk transfer initiatives in the developing world

1. Introduction

The ClimateWise Compendium aims at documenting existing initiatives in middle income and lower income countries that involve the transfer of risk associated to the occurrence of natural hazards, and which we refer to as "schemes". The Compendium captures:

- Schemes that make use of ex-ante risk transfer instruments, including indemnity and index-based insurance and insurance-linked securities (e.g. catastrophe bonds, catastrophe swaps, and weather hedges).
- Schemes where the public sector, the private sector or both (as public-private partnerships) play a role in their set up and operation.
- Schemes that have been implemented (fully operational or as pilots), and proposed schemes that are at a reasonably advanced conceptual stage.

The Compendium is considered to be a 'live document', and its ultimate aim is to capture in a manner as complete as possible existing schemes in the considered countries. The present version of the Compendium corresponds to the first iteration of the information gathering process, and therefore provides an illustrative subset of the totality of risk transfer initiatives in the countries of interest. A total number of 123 schemes have been recorded so far.

We invite all stakeholders to share information on initiatives in order that the compendium remains current and as comprehensive as possible. We are particularly interested in capturing more information on initiatives with no involvement from the public sector. Such initiatives are often less documented and therefore more difficult to identify.

2. Methodology for the Compendium

a. Data sources

- Data sources consulted for the current version of the Compendium are mainly secondary in nature, consisting of public sector and private sector reports and publications by international research organizations and partnerships. Table 1 in Annex 2 provides a detailed list of the main sources consulted.
- Further information has been provided by primary sources including ClimateWise insurers, dedicated scheme/ insurer websites, risk transfer web portals, and websites of international organizations, development banks, national governments, research institutions, NGOs, MFIs, agricultural banks, etc. Table 2 in Annex 2 provides a detailed list of the main sources consulted.

b. Information structure

The information gathered under the Compendium has been organized for each of the recorded schemes according to the structure laid out in Annex 1.

c. Filtering:

The Compendium may be filtered (Main Page) to show those schemes that fall under the following categories:

- Type of scheme (see Annex 1 for definitions):
    - Agricultural Insurance
    - Sovereign Disaster Risk Transfer
    - Property Catastrophe Risk Insurance
    - Disaster Micro-insurance

- Insured peril:
    - Tropical cyclone (including hurricane/typhoon)
    - Drought, rainfall (excess or deficit) and temperature (low/high)
    - Flood
    - All Weather (all schemes insuring weather perils; and any other non-weather perils)
    - Weather only (schemes that insure weather perils exclusively)
    - Non-weather only (schemes that insure non-weather perils exclusively)

- Involvement of public and private sector in scheme financing (including provision of risk transfer, funding of technical assistance, provision of start-up capital, subsidies, or any other type of financial assistance):
    - Public only (no involvement of private sector in any aspect of scheme financing)
    - Private only (no involvement of public sector in any aspect of scheme financing)
    - Public and private (both sector have a shared involvement in the different aspects of scheme financing)

- Schemes where risk transfer is directly linked to risk reduction, and schemes that contribute (or plan to contribute, in the case of proposed schemes) to adaptation to climate change. Identified schemes consider the following degrees of linkage between risk transfer and risk reduction:
    - Schemes where provision of insurance is contingent upon the adoption of physical risk reduction measures.
    - Schemes where the adoption of risk management measures is incentivized using a variety of methods, including risk rating of insurance premiums.
    - Schemes that facilitate or support capacity building in risk reduction, involving elements of knowledge sharing/expertise transfer.

3. Compendium Statistics:

The following tables provide a snapshot of the risk transfer initiatives contained in the ClimateWise Compendium, according to their main characteristics.

1. Status of the scheme

STATUS	NUMBER OF SCHEMES	PERCENTAGE OF SCHEMES (%)
Operational	76	62
Pilot	17	14
Proposed/ in development	22	18
Discontinued	8	7

The majority of schemes recorded (76% of the total) are functional, either fully operational or at a pilot stage. 18% of recorded schemes are at a proposed or conceptual development stage, and 7% corresponds to discontinued schemes.

2. Scheme type

SCHEME TYPE	NUMBER OF SCHEMES	PERCENTAGE OF SCHEMES (%)
Agricultural insurance (indemnity-based)	40	33
Agricultural insurance (index-based)	42	34
Agricultural insurance (indemnity and index based)	2	2
Sovereign Risk Transfer	12	10
Property Catastrophe Risk Insurance	9	7
Disaster Micro-insurance	14	11
Other/ to be determined	4	3

Categorization of schemes according to their broad typology (please see Annex I for definitions) reveals that the majority (69%) corresponds to Agricultural Insurance (indemnity and index-based) schemes. Disaster Micro-insurance and Sovereign Risk Transfer schemes follow, representing 11 and 10% of the total number of initiatives in the Compendium respectively. Property Catastrophe Risk

Insurance schemes represent 7% of the total. None of the schemes reviewed directly insure public infrastructure; however, Sovereign Risk Transfer schemes such as CCRIF consider the reconstruction of damaged public infrastructure after events that trigger a payment.

3. Schemes by world region

WORLD REGION	NUMBER OF SCHEMES	PERCENTAGE OF SCHEMES (%)
Sub-Saharan Africa	16	13
East Asia & Pacific	20	16
Europe & Central Asia	14	11
Latin America & Caribbean	44	36
Middle East & North Africa	6	5
South Asia	21	17
World	2	2

The highest density of schemes is found in the Latin America & Caribbean region (36%), followed by South Asia, and East Asia & Pacific. These three regions concentrate 69% of all recorded schemes. Sub-Saharan Africa, Europe & Central Asia, and Middle East & North Africa concentrate 29% of the initiatives.

4. Schemes by geographical reach

GEOGRAPHIC REACH	NUMBER OF SCHEMES	PERCENTAGE OF SCHEMES (%)
Multi-national	9	7
National	43	35
Multi-regional	14	11
Regional	12	10
Local	30	24
Unknown	11	9

Most schemes are either national (35%) or local (24%) according to their geographical scope. Regional schemes (10%) usually broaden into multi-regional schemes (14%) with time. Finally, multi-national initiatives only represent 7% of the total.

Most of recorded schemes insure individuals, Governments and meso-level organizations (risk aggregators such as insurance companies, banks, cooperatives, etc). Only few schemes insure (or intend to insure, for proposed schemes) SMEs (small and medium enterprises). Examples are the proposed Catastrophe Insurance Pool in Bulgaria (#104), the proposed Southeast Europe and the Caucasus Catastrophe Risk Insurance Facility (#108), the proposed Water supply index insurance in Philippines (metro Manila) (#122), and the pilot Flood Index (ENSO) insurance in Peru (#123).

5. Schemes by country income group

COUNTRY INCOME GROUP	NUMBER OF SCHEMES	PERCENTAGE OF SCHEMES (%)
Low income	25	20
Lower middle income	55	45
Upper middle income	46	37

Most of schemes are found in lower middle income economies (45%) and upper middle income economies (37%). As expected, low income economies harbor a smaller proportion of initiatives (20%). Please note that the table above counts several times multi-national schemes implemented across countries belonging to different income levels.

6. Operational details – international private sector involvement

The total number of recorded schemes with international private sector involvement stands at 72 (59% of the total). For these schemes, involvement from other stakeholders features as follows:

STAKEHOLDERS	NUMBER OF SCHEMES	PERCENTAGE OF SCHEMES WITH INTERNATIONAL PRIVATE SECTOR INVOLVEMENT (%)
International public sector	28	39
National public sector	55	76
National private sector	61	85

7. Schemes with risk reduction measures or that foster adaptation to climate change

Only 18 schemes have been recorded as having a direct link to risk reduction measures or considering adaptation to climate change. Initiatives having a direct link to risk reduction (a total of 14) include compulsory linkage between risk transfer and the adoption of physical risk reduction measures, as well as incentivizing the adoption of risk reduction/ management activities through a variety of methods including risk based premium structures, risk reduction capacity building, etc. There are five schemes explicitly stating they aim to facilitate adaptation to climate change as one of their main goals (one operational, and four proposed).

4. Indentified challenges to scheme sustainability:

The Compendium highlights challenges to the development and sustainability of documented schemes. In the following, these are summarized and discussed for the different schemes types considered.

a) Sovereign Disaster Risk Transfer schemes:

The Compendium contains 12 Sovereign Disaster Risk Transfer schemes, 9 of which are parametric, and 5 are still at a proposed stage. A challenge commonly cited is the need for donor support. This is particularly important for proposed schemes, such as the Natural Disasters Regional Insurance Facility for Central America (RIFCA, #119), which aims at seeking new donors to provide the financial support needed to achieve the necessary initial capitalization at an affordable cost for the beneficiary countries. Operational schemes may also voice similar concerns, which have an impact on the sustainability of the scheme. For instance, the Caribbean Catastrophe Risk Insurance Facility (CCRIF, #116) has reported concerns by donors regarding participating countries' fiscal constraints and consequent recourse to donor or Caribbean Development Bank finance to assist in the payment of their premiums.

The availability of current and historical hazard data and risk models also represents a limitation to the development and scaling up of schemes such as the Index agricultural insurance/ PACC (Programa de Atención a Contingencias Climatológicas) schemes in Mexico (#110 and #111), and the National index-based disaster insurance program (weather derivative) in Malawi (#114).

Reducing basis risk is a challenge commonly cited by parametric schemes, such as MultiCat Mexico (#112). Some schemes highlight the need for placing risk transfer tools in the wider context of country risk management frameworks. For instance, CCRIF emphasizes the need for reviewing the trade-off between funds allocated to financial risk transfer and those allocated to physical investments that would provide a lasting reduction in vulnerability to natural disasters.

Finally, the capacity of all stakeholders to understand technical and financial issues related to the scheme/ risk transfer mechanism is also important, and is highlighted in the cases of the National index-based disaster insurance program (weather derivative) for Malawi, and CCRIF, which advocates the need for increased transparency of mechanisms, risk transfer products and models upon which those are based.

b) Property Catastrophe Risk Insurance schemes:

The Compendium contains 9 Property Catastrophe Risk Insurance schemes, 4 of which are at a proposed stage. The main challenge cited by these initiatives is the low penetration rates currently experienced (e.g. Residential Earthquake Insurance Pool of Taiwan (TREIF, #101), Turkish Catastrophe Insurance Pool (TCIP, #102), Algerian Catastrophe Insurance Pool (ACIP, #105)). Commonly cited potential causes for low penetration rates are:

- Low risk awareness, particularly in areas that have not been recently affected by events.
- Unawareness of the availability of insurance and/or absence of the "culture of insurance", caused by lack of information and a certain mistrust of insurance.
- Affordability issues, particularly in areas of lower levels of household income. Many perceive costs of catastrophe insurance to be too high, and often question whether it is simply a tax levied by governments.
- Low levels of property insurance coverage.
- Need to adapt insurance products to needs.

c) Agricultural Insurance schemes (index-based):

The Compendium contains 44 agricultural (index-based) insurance schemes, 9 of which are at a proposed stage, and 6 of which are discontinued schemes.

The most commonly cited challenge for establishing and scaling up this type of schemes is the availability of risk information such as historical and current hazard data and risk models. Examples of initiatives that highlight this issue are the Index weather crop insurance scheme in Thailand (#3), the Rainfall Insurance Scheme for Coffee Growers (RISC) in India (#31) and Index weather crop insurance in Malawi (#36).

The financial sustainability of the schemes in the face of raising claims costs is also often cited as a major challenge, and is illustrated in the compendium by examples such as the Index-Based Livestock Insurance Project (IBLIP) in Mongolia (#2) and the National Agricultural Insurance Scheme (NAIS) scheme in India (#30).

Another significant barrier to the scaling up of these schemes is the need to create awareness with farmers of insurance and insurance products, as pointed out by the Weather Based Crop Insurance Scheme (WBCIS) in India (#32) and the Index weather crop insurance (HARITA) scheme in Ethiopia (#35).

Other significant concerns for the establishment and expansion of these schemes are the affordability of insurance, the availability of local insurance delivery channels and associated costs -which could be ameliorated by linking the insurance to loans-, limited availability of reinsurance capacity, lack of capacity and resources to design and develop index insurance contracts, basis risk associated to this type of products, limited availability of initial funding for setting up the schemes, and the existence of regulatory constraints. An example of the latter is provided by the discontinued Index weather crop insurance scheme in Ukraine (#11), where regulations meant that only primary producers of agricultural commodities could purchase index insurance, which could not therefore be marketed to input suppliers, processors or loan providers to insure their agricultural portfolios.

d) Agricultural Insurance schemes (indemnity-based):

The Compendium contains 40 agricultural (indemnity-based) insurance schemes, one of which has been discontinued.

The most commonly cited challenge for scaling up this type of schemes is the limited reinsurance capacity available, as pointed out by examples such as the National agricultural insurance scheme in Kazakhstan (#51), the Windward Islands Crop Insurance program (#55), and the Livestock insurance program in Nepal (#80).

Another commonly cited challenge is the requirement for regulatory interventions such as introduction of premium subsidies (e.g. Agricultural insurance in Ecuador, #66) and introduction of mandatory insurance (e.g. National agricultural insurance in Russia; #54). Finally, as previously, the affordability of insurance and the need to create awareness with farmers of insurance and insurance products are also cited as important barriers to overcome, as well as operational challenges in relation to loss adjustment and availability of hazard/ meteorological data for product development.

e) *Disaster Micro-insurance schemes*:

The Compendium contains 14 Disaster Micro-insurance schemes, one of which is at a proposed stage, and another has been discontinued.

Scaling-up is cited as one of the main challenges for these schemes, entailing a requirement for more back-up capital or reinsurance, such as in the case of the Disaster Preparedness Program in Andhra Pradesh, India (#98).

From the demand-side point of view, affordability of premiums is a key requirement for viability, as highlighted by the Earthquake micro-insurance scheme in China (#86). In some instances, national legislation aims at fostering the introduction of these schemes. For example, the Indian regulatory authority has since 2000 made it mandatory for formal insurance providers to service the poor through a provision that they increase their shares of low income clients over time. Insurers usually make insurance affordable to poor communities with cross subsidies from their other lines of business and wealthier clients.

Low level of insurance knowledge among the potential client base, general mistrust of insurers, reluctance to pay for uncertain future benefits, and a belief that claims might not be settled properly are also cited as decisive factors to overcome for insurance uptake, as pointed out by the Afat Vimo disaster microinsurance program in India (#90).

The availability of established distribution channels (e.g. MFIs or rural banks) is also very important for the successful up scaling of these schemes, as recognized by the Disaster micro-insurance program in Haiti (#89). In many instances, the purpose of micro-insurance schemes is to protect an MFI against loan and savings defaults; therefore insurance is extended to MFI clients on a compulsory basis (the uptake of insurance is required as a condition for extending loans or savings arrangements to clients). In the case of the Proshika scheme in Bangladesh (#91), for instance, compulsory group-based insurance was included in 1997 as a response to the effects of severe floods that had hit the scheme badly.

f) Discontinued schemes:

The Compendium contains 8 discontinued schemes: 6 index-based agricultural insurance schemes, 1 indemnity-based agricultural insurance scheme, and 1 disaster micro-insurance scheme.

The most common cause for discontinuation is low demand for the insurance product. Other causes for discontinuation are lack of interest by the insurance industry (e.g. due to trends of increasing risk), regulatory constraints, limited delivery channels and competition from other schemes (such as Government-subsidized schemes).

5. Further research:

The ClimateWise Compendium provides a comprehensive overview of risk transfer initiatives in developing economies, and illustrates key clusters and gaps in activity as summarized in section 3. The Compendium has allowed identifying a number of risk transfer schemes that are directly linked to disaster risk reduction activities (section 3). In this manner, it provides the bases for further research into the potential for linking risk transfer and risk reduction, as well as building effective and sustainable risk transfer initiatives in low and middle income economies. Further research into these aspects is currently being undertaken by research partners, which builds on the ClimateWise Compendium and analyses selected risk transfer schemes in detail.