GOVERNMENT OF PAKISTAN

OPTIMIZING IMPACT INVESTING IN RESILIENT AND ADAPTIVE FUTURE OF PAKISTAN

NDRMF
MAKING PAKISTAN RESILIENT

BUILDING RESILIENCE OF PAKISTAN THROUGH RISK INFORMED FINANCING

DISASTER RISK FINANCING
FOR FISCAL RESILIENCE

National Disaster Risk Management Fund (NDRMF) aims to reduce the socioeconomic and fiscal impacts of natural hazards and climate change by increasing institutional and physical capacities of public and non-public sector entities (non-government and civil society organizations) by prioritizing and financing investments in Disaster Risk Reduction (DRR), Climate Change Adaptation (CCA) and preparedness.

An effective financial management for disaster risks through an integrated approach is a key public policy challenge for governments around the world, particularly those faced with significant exposures to such risks, like Pakistan, and / or limited capacity to manage the financial impacts. NDRMF is working with its government counter parts and development partners to enhance fiscal and operational resilience of Pakistan against natural hazards by putting in place financing mechanisms and instruments, and implementing DRR and Climate Change Adaptation measures to minimize losses from future disasters.

Disaster Risk Financing (DRF) refers to the financial strategies and mechanisms implemented by governments, organizations, and individuals to mitigate and manage the financial consequences of natural or human-made disasters. It involves a range of financial instruments and mechanisms, including insurance, reserves, contingency funds, bonds, and other risk transfer mechanisms, to help countries and communities recover and rebuild after a disaster.

NDRMF APPROACH FOR STRENGTHENING FISCAL RESILIENCE

01

Analysis of Disaster Risks Based on Identification of Hazards and Risks

02

Strategy for Disaster Risk Financing and Transfer of Risk

03

Catastrophe Modeling and Technology Support for Development of Instruments for Risk Financing and Transfer of Risk

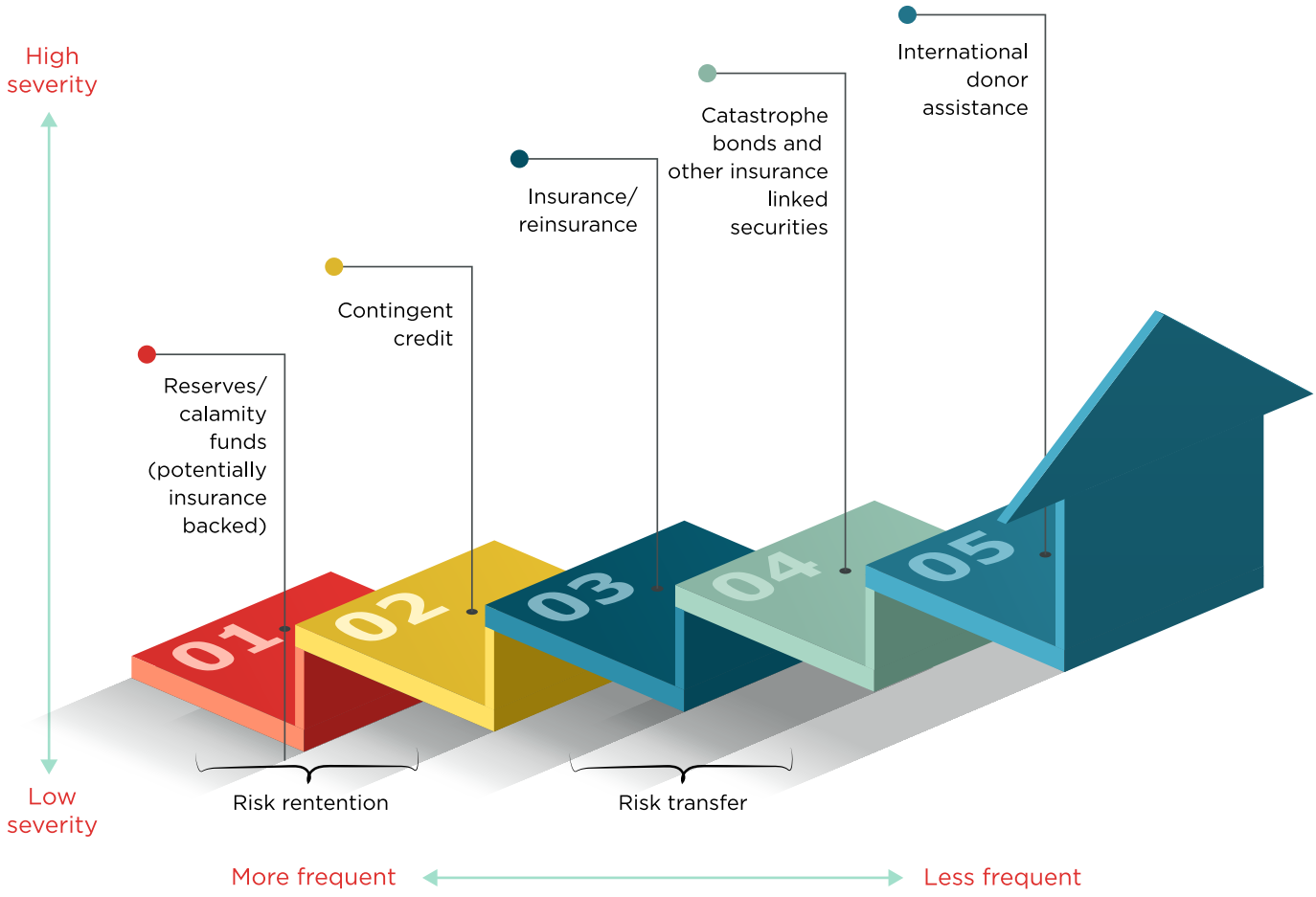
DISASTER RISK FINANCING STRATEGY OF PAKISTAN

As part of its mandate, NDRMF is developing the Disaster Risk Financing Strategy of Pakistan for managing and transfer of residual risks posed by unmitigated natural hazards that have high economic impacts, taking into account climate change to enhancing Pakistan's resilience to climatic shocks and other natural threats. in consaltation with key stakeholders the strategy will be finalised, which will determine how disasters losses will be financed for critical infrastructure, property, agriculture, small businesses and vulnerable populations at the national and sub- national levels. The vision of DRF Strategy is to enhance financial resilience of Pakistan. The strategy shall also explore potential DRF instruments in the context of Pakistan.

The implementation plan of this strategy will unfold the strategic road map for stakeholders to combine synergies and undertake ownership for conducting a set of activities to enable rolling out of Disaster Risk Financing (DRF) instruments to be implemented by the governments and private sector, including insurance industry.

The DRF strategy will provide an overall direction for enhancing the financial management of disaster risks. It includes a clear articulation of the role of DRF solutions and key measures required to enhance the related enabling environment. It identifies the financial roles and responsibilities of different levels or domains of government sector and the actions to enhance a country's financial arrangements for potential disaster events. It also indicates the expected financial responsibilities of private corporations, small businesses, farmers, and households in meeting their own recovery and reconstruction costs, thereby managing expectations about post-disaster public support. The DRF strategy is based on a risk layering approach on data and analytics, which would allow for combining cost-effective risk transfer options, such as insurance and risk retention. It also identifies suitable sovereign DRF options for Pakistan.

I. RISK LAYERING APPROACH FOR DRF



Development of this national level DRF Strategy of Pakistan will likely to address four conventional main areas to help enhance the financial resilience of the country.

To take forward the DRF agenda in a consultative manner, NDRMF has created DRF Synergy Group (DRF-SG) to help achieve better coordination amongst the key stakeholders and improved understanding of the country's needs in the context of DRF and to discuss potential options for strengthening financial resilience of Pakistan. The main tasks of the group includes, i) Provide strategic direction for national planning in DRF' ii) Provide expert advice for research, instrument development and scale-up of interventions for achieving enhanced fiscal resilience. The members of DRF-SG include relevant government ministries, organization, UN agencies, INGOs, NOGs, Development Banks, Donor Organization, Private Insurance Sector, etc. Regular meeting are being conducted to exchange views and progress on DRF.

NATURAL CATASTROPHE (NATCAT) MODELLING OF PAKISTAN

NDRMF is developing a probabilistic multi-hazard risk assessment, namely NatCat (Natural Catastrophe) Modeling as it is pre-requisite to have such type of risk assessment and loss estimation to develop DRF financing instruments for primary natural hazards to provide scientific knowledge base along with a loss estimation module specifically for the insurance and reinsurance industry. NDRMF has engaged M/s SUPARCO to develop the NatCat Model of Pakistan (Geo-referenced Exposure Database for Natural Catastrophe). In the region, it is first initiative at national level. This NatCat modelling will assess disasters posed by natural hazards including hydro-meteorological (flood, drought, Tropical Cyclone) and Geo-physical (earthquake), in order to evaluate exposure and vulnerability of elements at risk and will quantify risks and its financial impacts up to Tehsil (sub-district) level.

The NatCat Model is intended to inform users on where future events are likely to occur and how intense they are likely to be (short, medium and long-term probability of occurrence). Based on the estimated probability of losses, a range of direct, indirect, and residual losses can be estimated. The Model has combined historical disasters information with current demography, built environment and critical infrastructure, scientific and financial data to determine the potential cost of catastrophes for specified geographic areas. The Model uses this information to simulate the physical characteristics of thousands of potential catastrophes and project their effects on both residential, commercial property and critical lifeline infrastructure.

NATCAT MODELLING - SCOPE OF WORK

a) Development of a national spatial geo-referenced GIS dynamic database of public and private assets and infrastructure (agriculture, livestock, infrastructure, buildings, etc.) and associated physical vulnerability and exposure to different types of natural hazards of varying intensity and frequency.

b) Probabilistic disaster risk modeling and assessment for the quantification of the risk posed by:

- Geophysical hazards (earthquake)
- Hydro-metrological hazards (floods, droughts and tropical cyclones)

c) Capacity development of relevant stakeholders in the collection, generation and utilization of exposure and disaster risk data and preparation of related protocols and manuals.

d) Development of an accessible, sustainable data platform, supporting use of the exposure and risk data by all relevant stakeholders, specifically public sectors institutions dealing with Disaster Risk Management, Finance, Planning & Development, and Insurance ; and most importantly the private insurance and micro-finance sectors.

KEY BENEFITS OF NATCAT MODEL

Due to low insurance penetration in Pakistan, the insurance sector does not have sufficient capacity to effectively share the fiscal burden of the government caused by natural disasters. The lack of sophisticated hazard data and risk modeling techniques has been a stumbling block for increasing retention capacity of domestic insurance market. Key expected benefits of the Model are:

The NatCat will help NDRMF and other decision makers in prioritization of investments of public funds for structure and non-structure measures for DRR and CCA, with references to NDMP 2012, NFPP-IV and other development plans.

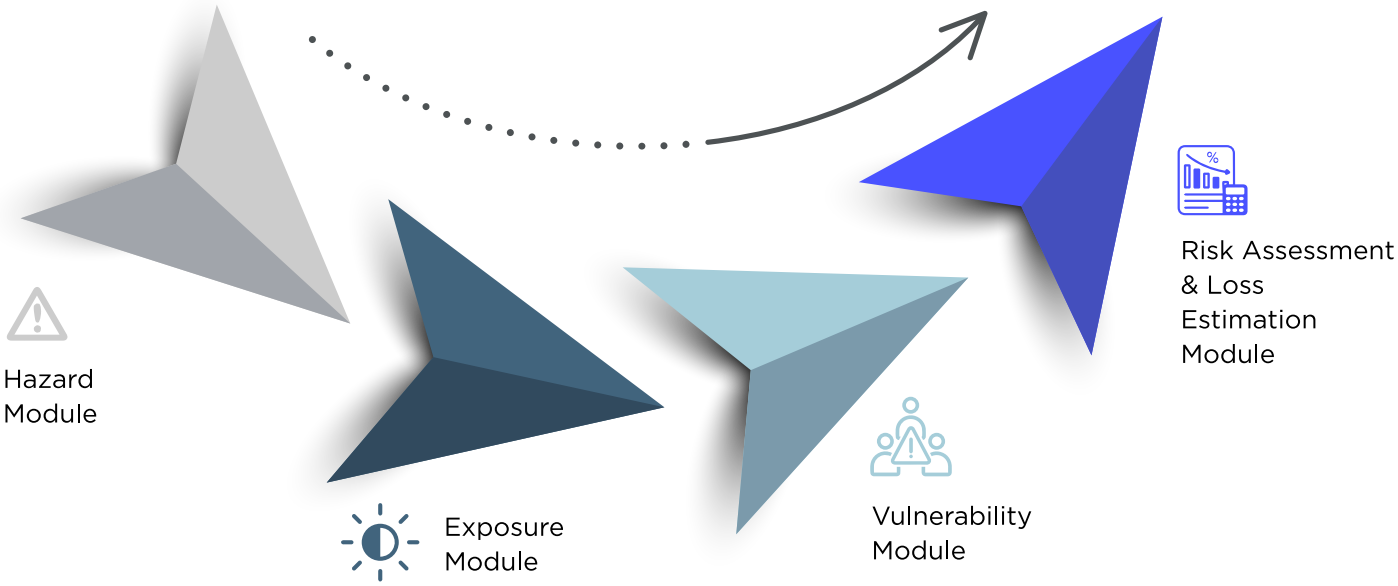
The NatCat will be used by primary insurers, International Reinsurers and Catastrophe Bond investors as underwriting and pricing tools to structure Reinsurance contracts as well as sophisticated products like weather derivatives. The Nat-Cat modeling outputs are also used by international rating agencies to assess the resilience of insurance markets to withstand natural disasters. The catastrophe modelling will also enable deployment of risk layering approach to select the most cost effective Insurance and non-insurance instruments for financing each risk layer to ensure efficient utilization of public funds.

The increased catastrophe risk retention capacity of domestic insurance sector will gradually reduce its dependence on global reinsurance markets, it will enable the insurance sector to procure competitive terms from volatile global reinsurance markets, increased profit generated through higher risk retention will be re-invested to build local capacity, minimize reliance on foreign expertise and reduce outflow of precious foreign exchange from the country.

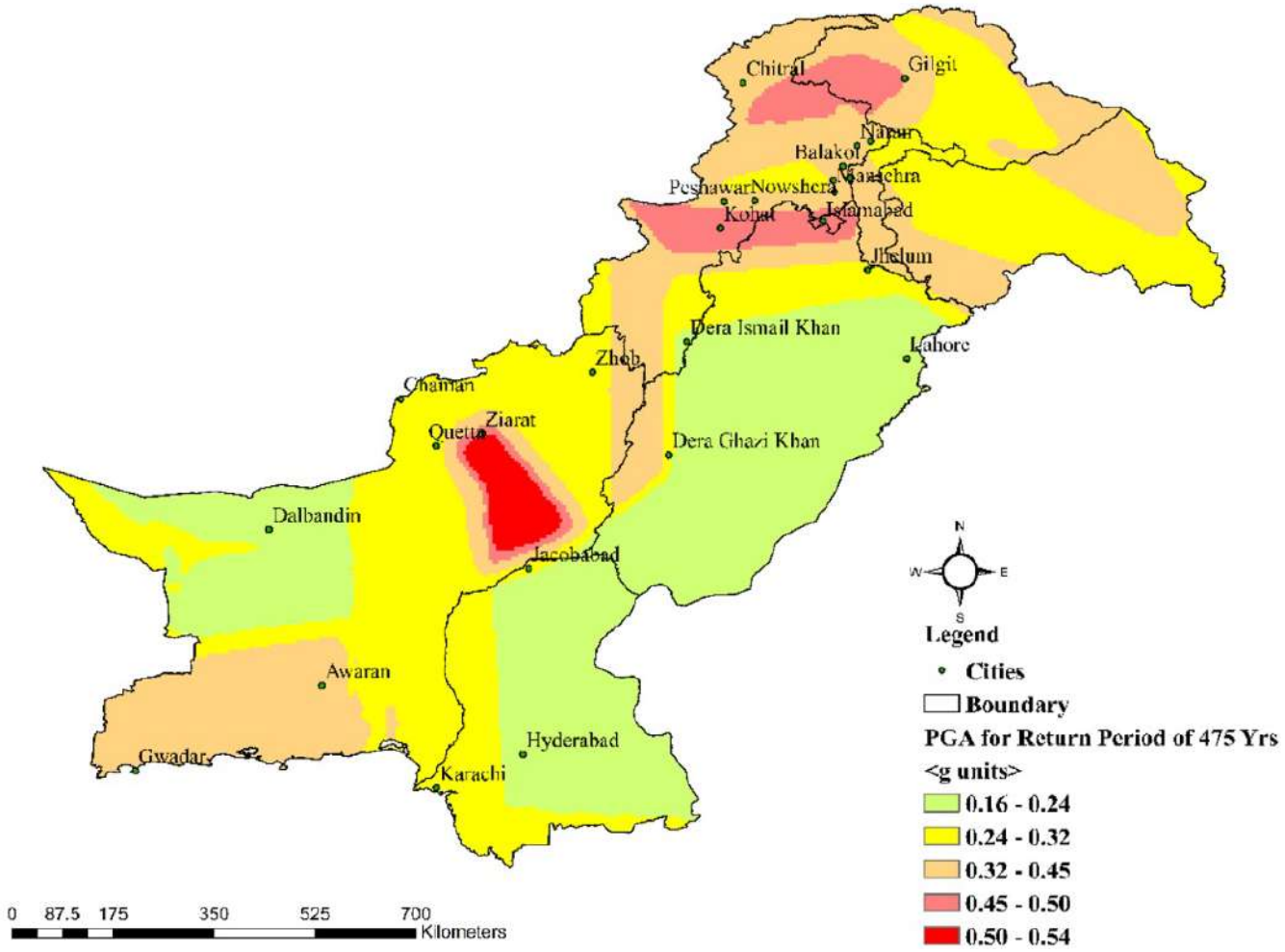
The NatCat Model will support an efficient and effective disaster risk management in the country by disaster management authorities and other relevant departments. It will also improve institutional capacities, performance and preparedness at key departments responsible for managing disaster risk in Pakistan.

It will also provide a base for policymaking and development planning in the country.

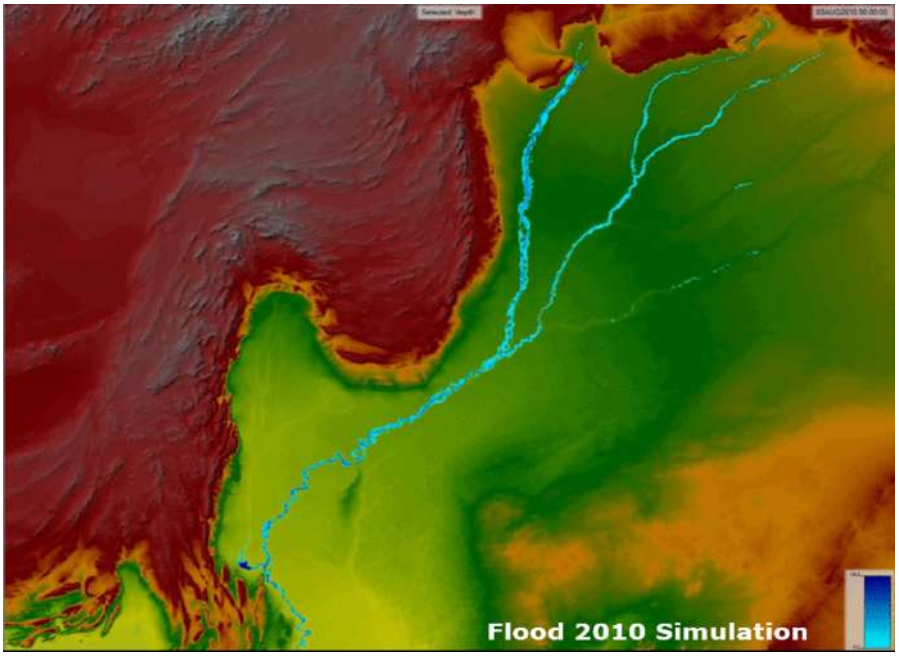
NATCAT MODEL COMPONENTS



SEISMIC HAZARD MAP OF PAKISTAN

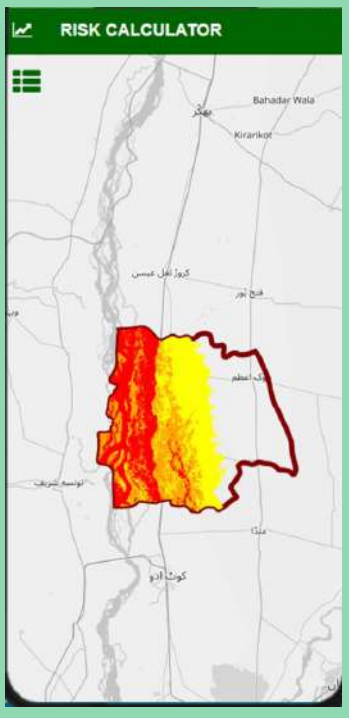


HISTORICAL EVENT: FLOOD 2010 SIMULATION



Source: Nat Cat 2023

RISK CALCULATOR HAZARD MODULE



National Disaster Risk Management Fund (NDRMF)

NDRMF, 5th Floor, EOBI House, Mauve Area, Sector G-10/4, Islamabad

www.ndrmf.pk ndrmf-pk www.linkedin.com/company/ndrmf/

Design & Printed by: Design Synopsis (Pvt) Ltd.