

Terms of Reference (TORs) for NatCat Specialist - NatCat Risk Modeling & Data Centre

<input type="checkbox"/> Position Title:	NatCat Specialist - NatCat Risk Modeling & Data Centre (National)
<input type="checkbox"/> No of Position(s):	One (01)
<input type="checkbox"/> Type / Duration:	Time-based Contract (03 Months)
<input type="checkbox"/> Location:	Islamabad (occasional visits to field)
<input type="checkbox"/> Reports to:	Manager DRR, NDRMF

A. Background:

The National Disaster Risk Management Fund (NDRMF) is a not-for-profit company incorporated with the Securities and Exchange Commission of Pakistan, under Section 42 of the Companies Ordinance 1984. It is a government-owned non-banking financial intermediary with a corporate structure. NDRMF works towards reducing the socio-economic and fiscal vulnerability of the country to natural hazards by prioritizing and financing investments in disaster risk reduction and preparedness. Under the Disaster Risk Financing portfolio, NDRMF aims to enhance fiscal management of natural hazards and disasters in Pakistan. As part of this effort, NDRMF is developing Pakistan's first Disaster Risk Financing Strategy.

Disaster Risk Finance (DRF) addresses fiscal impacts and economic losses caused by natural hazards, supporting countries in increasing their financial resilience to disasters. The NatCat Risk Modeling work focuses on providing quantitative information on expected loss levels for various hazard events, forming the basis for a national DRF strategy for Pakistan. This includes developing a web-based 'Risk Calculator' and pilot disaster risk financing products. SUPARCO has been entrusted with the task of probabilistic risk modeling for Pakistan, covering geophysical and hydro-meteorological/climate change perils.

B. Purpose of the Role / Scope of Work:

The role of the NatCat Specialist – NatCat Risk Modeling & Data Centre is to take responsibility for the operationalization of the NatCat Risk Modeling & Data Centre of NDRMF, being established at NUST-Islamabad. This includes designing and supervising all activities, managing day-to-day operations, establishing linkages with national and international data centers, incorporating AI/ML elements, and enhancing the efficiency of the 'Risk Calculator'. The Technical Team Lead will also lead in planning, designing, and implementing strategic plans to ensure the data center capacity meets current and future NatCat Model requirements.

C. Duties / Responsibilities:

- 1) Lead the NatCat Risk Modeling and Data Centre's setup, operationalization, and implementation.
- 2) Ensure the security of Data Centre operations and implement appropriate controls.
- 3) Develop business cases in coordination with stakeholders for recommended architecture and infrastructure changes.
- 4) Strengthen the NatCat and NDRMF teams for a strong understanding of Hazards, Exposure, Vulnerability, and Risk Assessments/Loss Estimation Modules.
- 5) Lead the planning, development, and enhancement of the GIS Data Centre provision within overall business planning.
- 6) Drive the planning and ongoing development of the NatCat Risk Modeling, applying Systems Thinking and Lean approaches for further efficiencies.
- 7) Provide technical management of the Data Centre, ensuring agreed service levels are met, and relevant policies and procedures are adhered to.
- 8) Ensure operational procedures and working practices, and NatCat user management align with NDRMF policies/SOPs.
- 9) Manage budgets for staffing, projects, and support contracts, ensuring compliance with council procedures.
- 10) Produce fortnightly/monthly progress reports of NatCat Risk Modeling Data Centre, including awareness and capacity-building activities.
- 11) Maintain the configuration management system, documenting details of all hardware/software changes for accurate records.
- 12) Develop policies, rules, and SOPs related to data accessibility and distribution for different user layers.
- 13) Develop/adopt Geo-Spatial & SDI Standards and Guidelines for data entry, storage, processing, visualization, and product development.
- 14) Ensure compliance with government guidelines and regulations regarding mapping and data center operationalization.

D. Knowledge/Skills/Qualifications/Experience:

- a) MS/PhD (Minimum 16 years' education) in GIS & RS, Geo-informatics, Spatial Data Science, Hazard/NatCat Risk Modeling, GIS Development, and Programming, or related fields.
- b) At least 10 years' industry experience in managing data centers or large-scale GIS/RS based risk assessment projects.

- c) Expert in GIS/IT/SDI infrastructure, operating systems, configurations, and IT applications.
- d) Prior expertise of similar projects (at least 5 years) in managing GIS / Spatial Data Centers and expert knowledge of Web-GIS, Mobile-GIS, AI, and ML applications.
- e) Expertise in Hazards Modeling (Geophysical and Hydro-meteorological) and strong understanding of related GIS/RS tools and techniques.
- f) Proficient in risk management methods, business impact analysis, countermeasures, and contingency arrangements.
- g) Proficient in Configuration Management for precise control over GIS/IT assets and components.
- h) Proficient in understanding GIS/RS Infrastructure Architecture, frameworks, and principles.
- i) Proficient in cloud/virtualization principles and applications, including security implications.
- j) Familiar with government, corporate, industry, and professional standards, policies, regulations, and codes of conduct.
- k) Demonstrated ability to deliver high-quality outputs under pressure and within tight schedules.
- l) Demonstrated ability to work effectively with Government officials, technical staff, and other stakeholders.
- m) Strong written and oral communication skills, with the ability to make effective presentations to diverse audiences.