

Terms of Reference (TORs) for NATCAT TEAM

Position title: Deputy Manager - GIS Developer / Modeling

Duration: Contractual Initially for 3 years' extendable performance based Contract.

Location: Islamabad.

Reports to: Manager NatCat -Technical Team Lead

A. Duties / Responsibilities

- Work closely with Team Lead to understand stakeholders' requirements for the NatCat & incorporate modules for data modelling.
- Automate integration of diverse national and global data repositories of various formats, including spatial data, remote sensing data, tabular data, real-time data feeds, and external APIs, ensuring data accuracy, consistency, and interoperability within the dashboard.
- Developing and linking analytical models, AI models, and simulation tools into the NatCat dashboard/applications that allow users to interactively perform risk analysis, scenario planning, and predictive modeling based on their inputs and parameters.
- Implement geospatial analysis functionalities for end-users within the dashboard, enable users to overlay multiple layers of data, use geospatial tools (such as spatial queries, buffer analysis, overlay operations, network analysis, and terrain modeling), and generate customized maps and charts to support decision-making and scenario evaluation.
- Provide role-based data access to identified partners with all security and access protocols.
- Collaborate with cross-functional national and international development teams, including risk analysts, AI/data experts, software engineers, and domain experts, to gather requirements, exchange knowledge, and ensure alignment with NatCat goals.

B. Knowledge/ Skills / Qualifications/ Experience

- Minimum 16 Years of Education in Geoinformatics, Computer Science, GIS Development and programming or related field of study.
- Minimum 06-08 years of professional experience with minimum 02-03 years of relevant expertise. Must have completed a minimum of 03 landmark national and international projects of similar nature.
- Expert in developing intuitive user interfaces and interactive visualizations for the dashboard using WebGIS technologies, such as JavaScript libraries (e.g., Node, Leaflet, OpenLayers), mapping third-party APIs (e.g., Google Maps API), and data visualization tools (e.g., D3.js, Chart.js).

- Expertise in linking appropriate AI technologies, frameworks like React, Angular, or Vue.js., and platforms like Google Earth Engine to meet the NatCat requirements and scalability needs.
- Demonstrated skills for developing the frontend components and backend libraries of the NatCat dashboard, while ensuring responsiveness and cross-browser compatibility.
- Expertise in implementing features for data querying, filtering, geoprocessing, charting, and custom map displays.
- Expert in automation of data preparation procedures through linking external databases, models, streams, etc.
- Proficient in establishing private/public cloud computing/virtualization (including ownership, responsibilities and security implications) and the use of tools and systems to manage virtualized environments.
- Experience in deploying OGC web services and related open technologies like Geoserver, PostGIS/Postgres, Tiling, and Dockerization.
- Expert in developing and accessing APIs, i.e., linking third-party APIs for NatCat utilization and developing NatCat APIs to be utilized by external organizations
- Expertise in developing custom plugins, extensions, or APIs to seamlessly integrate AI-based functionalities with NatCat.