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CF Challenge Fund

iMMAP in partnership with Kartoza

Online Operational Natural Disaster Risk Assessment (OONDRA)

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CONTEXT

Developing accurate impact scenarios is essential for disaster preparedness, mitigation, and well-planned disaster response. Running a successful impact scenario, however, requires hazard data, like water runoff and other flood-specific information, and exposure data, like population density. A risk model can then predict the location and extent of potential impacts, providing an evidence base to inform targeted risk-reduction policies.

There are several available tools for performing these kinds of impact scenarios, such as the InaSAFE platform, but finding adequate input data is still a challenge for many organizations. A team at iMMAP, along with its partner Kartoza, set out to develop a platform to facilitate online risk assessment, in order to improve access to hazard and exposure data that are essential for creating accurate impact models. A pilot project was undertaken in Dar es Salaam, Tanzania, with assistance from various organizations like GeoSAFE, OpenStreetMap, and the World Bank. LINK TO PLATFORM

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HIGHLIGHTS

Established a methodology for capturing the metadata required for hazard modeling via a new online risk assessment platform.

Developed an extension to GeoSAFE, a web-based modeling tool, to facilitate metadata searches and the integration of geospatial data from various online sources.

Produced a risk atlas for Tanzania by leveraging existing tools like InaSAFE with a newly established online platform.

APPROACH

After investigating existing risk assessment platforms such as InaSAFE, the iMMAP/Kartoza team decided to focus on adding functionality and flexibility. An investigation into user needs on the ground was undertaken in Dar es Salaam with various partnering organizations.

The team found that, in order to perform disaster scenario planning, organizations first had to undergo the arduous task of obtaining local data. The iMMAP/Kartoza team set out to build a platform, tools, and methodology to enable users to more easily find hazard and exposure online, and bring this information directly into InaSAFE to create fast and accurate impact scenarios. The team decided to work within existing tools as much as possible, and comply with open data standards.

As a result of the mapping and disaster-related projects occurring in Dar es Salaam, the iMMAP/Kartoza team had a rich source of quality hazard and exposure data available. By loading hazard and exposure data and metadata into GeoNode, the team was able to perform quality impact scenarios from platforms running InaSAFE (QGIS and GeoSAFE). The GeoNode platform containing the curated hazard and exposure data is called the Online Operational Natural Disaster Risk Assessment platform (OONDRA).

"Making hazard or exposure data easy to find and use, on a platform such as OONDRA, will help maximize the utility of the data and ultimately help save more lives."

– Gavin Fleming, Co-Founder of Kartoza

NEXT STEPS

The iMMAP/Kartoza team views the OONDRA platform as a potential 'go-to' source for hazard and exposure information. Data from OONDRA, which can be historical, based on model outputs, or live-fed from sensors, provide much-needed flexibility for disaster risk experts in the field. Further curation of the data and fine-tuning of the platform would help make the project more impactful. The team is also looking to enhance metadata functionality in many popular tools such as QGIS, InaSAFE, and GeoSAFE to improve the project's overall effectiveness.