

Stories of Impact

A series highlighting achievements
in disaster risk management

Harnessing Geospatial Data through GeoNode

REGION: GLOBAL

FOCUS: RISK IDENTIFICATION



RESULTS:

- Since 2009, GFDRR and its partners have invested nearly \$3.5 million in developing GeoNode as an open source geospatial data platform, achieving more than a 200% return on investment over the last 8 years.
- Many prominent organizations, including OCHA, USAID, NASA, the Global Earthquake Model, and others have utilized the GeoNode platform to access, share, and visualize important geospatial information.
- After Typhoon Yolanda (Haiyan), GeoNode was used to create more than 70 layers of geospatial data, from damage assessments to situation reports. The data and quick analysis capability contributed to recovery efforts (available at Yolandadata.org).



PROJECT DESCRIPTION:

Effective risk assessment and disaster recovery efforts can only be as good as the data that informs them. With missing or inadequate risk information hindering resilience in many developing countries, the Global Facility for Disaster Reduction and Recovery (GFDRR) developed GeoNode, a web-based, open source software that enables users to access, share, and visualize geospatial data. The platform was built on the principles of open source data, eliminating overhead costs and allowing customization to specific contexts and challenges. In the broadest sense, GeoNode can be viewed as a communally-maintained technological solution to a set of common, overlapping problems shared by a number of different organizations.

Today, GeoNode is a public good relied on by hundreds of organizations around the world, and which receives a continuously increasing investment from a growing number of partners. These partners form the core of a thriving, mutually beneficial ecosystem of users and contributors — an ecosystem that includes NGOs, government agencies from a variety of countries, commercial participants, and motivated individuals. GeoNode has been successfully deployed in a number of regions to aid with disaster preparedness and emergency relief, as well as a diverse range of applications including city planning, agriculture management, and the recent fight against the Ebola virus.



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GFDRR
Global Facility for Disaster Reduction and Recovery

CONTEXT:

Early in GFDRR's operational history, the uncertain quality of available risk information was severely hindering efforts to build resilience in developing countries. In particular, the Central American Probabilistic Risk Assessment (CAPRA) program suffered from lack of high-quality, recently-updated, standards-compliant geospatial data. In addition to the lack of standards, often data was never used or even lost altogether as a result of there being no reliable place to store and share it, representing a major waste of time and resources.

GFDRR's Open Data for Resilience Initiative (OpenDRI) began supporting the GeoNode project in 2009 and continues that support to the present. Over the past seven years, OpenDRI's involvement has helped GeoNode grow, in both technical and organizational terms, to become a major geospatial data platform with many different applications and stakeholders. OpenDRI has been particularly focused on GeoNode's applicability to disaster risk management, but GeoNode is now a public good that addresses a diverse range of applications.

APPROACH:

At the outset of the project, GFDRR and OpenGeo (a geospatial company now known as Boundless Geo) were able to identify a common set of problems and challenges around geospatial information. The two organizations set out to create a flexible, open source, and web-based solution to better equip organizations to access, share, and visualize these important datasets. GFDRR invested in the platform in a number of ways, including employing a dedicated software developer, hosting a number of international coding events, and cultivating a growing online community of practitioners. The GFDRR team has helped several government agencies adapt the GeoNode platform to their own needs, like the Malawi Spatial Data Platform (MASDAP). GFDRR facilitated local community mapping activities in the country that mapped 450 residential areas, with the data uploaded to the MASDAP GeoNode to inform resilience efforts.

NEXT STEPS:

GeoNode's long-term success is due, in part, to the way GFDRR and its partners have structured the project to encourage participation by users with similar needs, creating a self-sustaining open source community that functions independently of the continued presence of any particular long-term sponsor. By training individuals in both use and development alongside major international fora, hosting special coding sessions to improve operation and expand capabilities of the platform, and creating new partnerships with non-traditional stakeholders, GFDRR has empowered the GeoNode community to overcome challenges and scale up innovation. GFDRR will continue to invest in these areas to ensure growth and effectiveness for both the community and the platform.

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*ALL MONETARY VALUES IN USD

LESSONS LEARNED:

Organized and accessible geospatial data can enable a better understanding of risk. GeoNode enables administrators to store and curate data with a uniform standard for styling and metadata. This data can be easily fed into other disaster risk management software to create risk assessments and hazard scenarios to inform policy, such as GFDRR's *ThinkHazard!* – a new web-based tool enabling non-specialists to consider the impacts of disasters on new development projects.

Geospatial data can help after disaster, as well. In January 2015, Malawi experienced one of the most devastating floods in its history. Affecting 1,150,000 people, 106 died, 336,000 were displaced, and countless livelihoods were lost from crop destruction in a country relying heavily on subsistence farming. In the aftermath of the disaster, data from the MASDAP GeoNode was used along with InaSAFE, another GFDRR-supported tool, to help identify and document exposed infrastructure and facilities.