



UNISDR Scientific and Technical Advisory Group Case Studies - 2014 Integrating Risk Assessment in Land-Use Planning – Mohéli (Comoros)

The problem

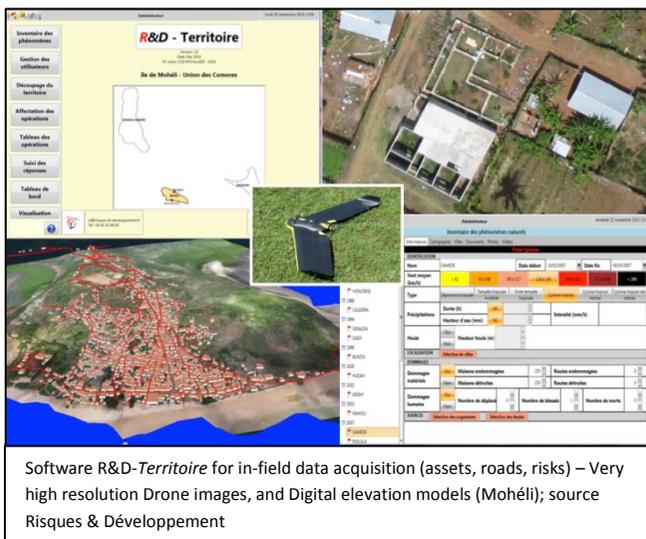
The Comoros Islands are regularly affected by natural phenomena, first and foremost tropical storms, floods and landslides. Between 20 and 25 April 2012, torrential rains led to severe flooding in the country with numerous consequences, namely 4 deaths, 83 injured, 481 homeless families, 40,000 displaced people, over 1,700 homes flooded and more than 200 km of roads destroyed (1).

The damages sustained during such events are exacerbated due to the various planning and policy failures within the country. The tool required for monitoring and rescue are limited, the country's planning and building industry is unorganized and unprepared and as a result, the developments often grow out of control.

The science

A pilot study by the Indian Ocean Commission's Natural Risk Project (2), which is funded by the Australian Government, the French Agency for Development, and Risques & Développement provided the resources for the acquisition of high-resolution aerial images (less than 10 cm on the ground), development and innovation of software for data collection and the provision of computer equipment. These allowed for the following activities:

- Assessment of risks (hazard zones, elements at risk and population exposed),
- Characterization of the vulnerability of exposed assets (roads, buildings),
- Identification of the most vulnerable neighbourhoods,
- Development of a decision support system (DSS) for managing territories,
- Informing and involving local decision-makers and population in the definition of risk mitigation solutions,
- Improvement of tools for land-planning



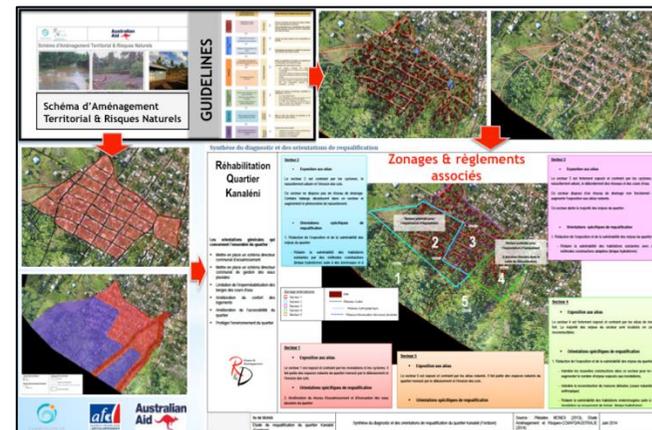
The application to policy and practice

The Comorian State had an ambition for a 'Master Plan for Development' (Schéma Directeur d'Aménagement – SAT) (3); whereby no permanent development could be designed without a deliberate and structured risk prevention policy. It was also agreed that no effective policy for risk mitigation could be implemented unless it

was based on a territorial project which relied on a mastery of urbanisation and balanced regulation. This ambition was subsequently developed in coherence with the objectives of the Strategy for Accelerated Growth And Sustainable Development (SCA2D) – in Comoros for the period 2015-2019 (4) that follows the Reduction and Growth Strategy for Poverty (SCRIP) (5).

Within this context, the study conducted by Risques & Développement enabled:

- Development of a methodological guideline on the integration of natural hazards risk in achieving SAT,
- Proposal for rehabilitation of a vulnerable area (Kanaléni district, Fomboni) on the basis of the initial territorial diagnosis, and the involvement of local decision-makers and of the general population. The recommendations not only focused on spatial planning (zoning), but also on constructive rules (regulation), as well as on the management of rainwater and the maintenance of the drainage network.



Methodological guidelines on land-planning and risk management (Schéma d'Aménagement Territorial-SAT), and examples of recommendations for the rehabilitation of a vulnerable area (i.e. Kanaléni – Fomboni) ; source : Risques & Développement

Did it make a difference?

In first six months following the acquisition of the software, nearly 17,000 buildings and 200 km of roads have been digitized and a large part of these elements have been entered into a database to integrate boarder data which includes GPS locations and photos.

Prior to the study, no digital imagery was available for the Island of Mohéli. However, following the study all inhabited areas have high resolution images (acquired with the use of a drone), totalling over 2,500 pictures. These images have been used to develop accurate 3D digital elevation models, digitize all properties exposed to such vulnerabilities and to introduce the basic structure for a complete geographic information system (GIS) database.

The Directorate General of Spatial Planning of Comoros now has general guidelines and proven methodology for integrating risk into planning documents, and especially in SAT. They also have an example of analysis of a vulnerable area that can be replicated.

In addition, the work (digitization and site investigation) was also used to increase knowledge capacity within the country. A team of 10 Comorian agents of the Directorate General of Civil Defence undertook a one-week training session to ensure the team was fully operational. A local administrator was able to manage the operators and provide further training to new staff members as and when required.

References

1. Union des Comores, Ministère de l'Intérieur, Direction Générale de la Sécurité Civile, (2013). Plan national de contingence. Rapport, 47 p.
2. <http://commissionoceanindien.org/activites/risques-naturels/>
3. Loi N°11-026/AU du 29 décembre 2011, relative à l'Urbanisme et à la Construction en Union des Comores
4. <http://gouvernement.km>
5. World Bank. 2010. *Comoros - Joint IDA-IMF staff advisory note and the poverty reduction and growth strategy paper*. Washington, DC