

GEO-INFORMATION FOR HUMANITARIAN AID

The Respond Project

The Respond project is intended to develop into a sustainable humanitarian aid service. By working in concert with other information providers, humanitarian organisations can quickly and easily access maps, satellite images and other useful geo-information. The author discusses Respond's organisational framework, solutions provided up to now and the role of Infoterra.

Geo-information is vital to the day-to-day management and delivery of humanitarian aid, whether in response to rapid-onset natural disasters or more slowly developing and persistent, complex emergencies. The Global Monitoring of Environment and Security (GMES) programme from which Respond springs provides a good opportunity to bring together European capacity in the production and distribution of such information to both field and head-office users.

Framework for Sharing

It is important to maximise the re-use of information across the different parts of the humanitarian family, to prioritise areas for information generation and to avoid duplication of effort. Setting up a system for sharing geo-information and making it widely available is the key component in establishing the GMES Respond service. The project is funded by the European Space Agency (ESA) and is an alliance of thirteen European and other international organisations. Its mission is "to increase the efficiency and effectiveness of the humanitarian community through the appropriate and reliable application of geographic information." The project is structured as follows:

- in-sector providers: Reuters Alertnet, UNOSAT, the German Space Agency (DLR) and the EU Joint Research Centre (JRC)
- geospatial specialists: Infoterra, Metria in Sweden, Keyobs, MapAction and Sertit
- systems expertise: Kayser Threde, Scisys and SSTL
- consultants: Controlware and ESYS.

The important factor in this consolidation phase is ensuring that end users get the products useful to them in time. To this end international, national and NGO users are participating in setting priorities for service delivery and are qualifying and providing feedback on these services when delivered. The core users are Deutsches Rotes Kreuz (German Red Cross), Technisches Hilfs-werk and various UN agencies. NGOs make valuable contributions by providing feedback to Reuters Alertnet as and when they distribute information to users. The larger humanitarian organisations have staff employed for browsing mapping and geographic information. A huge amount of geo-information is freely available but even for experienced professionals it is a huge job to select the most relevant information for the task at hand. Reliable Global datasets and online updated metadata tailored for this market is therefore highly sought after.

Disaster Response

Participants in the Respond project began working together in real situations immediately after the group was formed. This happened firstly with the Bam earthquake in Iran, later in Darfur, Sudan and then with assessment of damage after the tsunami in Southeast Asia. The partners produced tsunami maps, then referred them to the Respond network for co-ordination of principles and optimisation of distribution channels. One joint effort in the tsunami disaster involved damage assessment based on very high-resolution imagery, user-led by the European Commission. The main purpose behind requesting these maps was to collect facts for high-level international aid conferences held early in the New Year, and Infoterra was one of the value-adding companies contributing to this task. In one intensive day the work was specified, distributed and organised. High-resolution satellite data arrived at Infoterra offices on the morning of 5th January 2005 and staff immediately proceeded to interpret the imagery. Over the course of the next three days, 23 maps were produced covering Tamil Nadu in India and parts of the east coast of Sri Lanka. Features extracted from the imagery included roads and transport infrastructure, towns and, most importantly, areas most hit by the destructive force of the tsunami. More than two hundred different map sheets were produced in the first twenty days. Three days after the disaster, sixty map sheets were available covering the whole affected area.

Scale of Devastation

Even with high-resolution data, interpreting the imagery to define these regions proved a considerable challenge. In some places, where the waters had left a deposit of silt, delineation was relatively easy, but in other regions it required all the resources of interpreters to detect damage to buildings at an individual level. All of those who viewed the imagery were deeply affected by the scale of the devastation: evidence of boats and other large objects having been dragged across fields up to a kilometre inland from the normal coastline emphasised the strength of the force. Other imagery, such as pre and post-impact image maps of Banda Aceh on Sumatra in Indonesia, showed the whole world the extent of the disaster.

Predict and Prepare

Respond provides more than rapid response geo-information during emergencies. There is also a focus on services for preparedness and

prediction. Both slow and rapid-onset crises have their separate portfolio of services. The sustainability aspect is also addressed, by providing a smooth transition into the reconstruction and development phase through co-operation with relevant organisations. A range of services have been identified and categorised into five mapping themes:

- base mapping
- situation mapping
- crisis and damage mapping
- refugee/IDP support mapping
- other thematic mapping.

Within “thematic mapping”™ exists a vast range of services, and more are on the drawing board: health data, land cover data, population data, weather, water deposits, and elevation data. These maps can be combined to render vulnerability or environmental maps.

Sharing Information

These themes broadly utilise three delivery mechanisms and one or more may be applicable:

- instant availability from the Web
- reactive response to a particular job in a crisis or situation
- pro-activity focused on analysis of imagery for planning and development.

It is imperative that data produced under the Respond service is shared with as many humanitarian organisations as possible. Existing information providers and their networks are being used for this purpose. Respond distribution channels for map sheets were activated for tsunami products; the UN community was served by UNOSAT, the EU by the Joint Research Centre in Ispra, Italy and the NGOs by Reuters Alertnet. (See websites for more examples of products and links to download them.) To ensure that products and services reach users in time an alert service will be integrated which will distribute relevant geo-information to subscribers according to their priorities.

Time Means Lives

Time, in emergency situations, means lives. The delivery of information to humanitarian organisations just in time, instead of just too late, is vital in disasters. Updated and reliable maps available at the time of operational deployment are invaluable as they can save crucial time in moving equipment and staff to sites. The internet provides the quickest way for workers in remote locations to receive up-to-date mapping and Adobe PDF copies of hardcopy maps; Infoterra continues to develop its hosting and distribution methodology, enabling the provision of large raster and vector datasets over both narrow and broad-band networks. Raising awareness of how to deploy geo-information in humanitarian aid and development is also an important Respond task. This is done by dedicated training sessions and simulation training organised by national and civil defence organisations, as demonstrated by Respond partner and charity organisation MapAction at the TRIPLEX exercise in Norway. Finally, examples of successful service delivery are also expected to contribute to raising awareness.

Final Remarks

Respond, although still in its early stages, has proven the real need within the humanitarian community for relevant, timely geo-information; Infoterra and Respond partners have shown that there is both a will and a way to provide this information. There will no doubt, sadly enough, be other scenarios over coming years that will demand further honing of the products and distribution network. Hopefully this initiative will help mitigate the effects of future disasters.

<https://www.gim-international.com/content/article/the-respond-project>
