

Date

Tuesday 17 July 2007

Title of session

Workshop 2 - Mapping for Disaster Response

Name of presenter/chair

Chair: David Spackman OBE, Chief Executive, MapAction

Presenter: Nigel Woof, Operations Director, MapAction

Rapporteurs

Colin Henderson, Ordnance Survey and Selena Patton, Defence Geographic Centre

MapAction has only been operational for three years. The Asian tsunami in 2004 was the first major deployment for the organisation. There are currently thirty unpaid volunteers all of whom are professionally qualified and tend to come with a GIS and remote sensing background. The organisation tries to build capacity in other countries through disaster preparedness with two main programmes. First, by helping to train United Nations teams in disaster response using the core skills of GPS and remote imaging. Second, through a variety of exercises to train their own volunteers through a number of situations - the most recent being an exercise in Finland called TRIPLEX.

Access to data in the immediate aftermath of a disaster is crucial for effective management and relief, but sometimes there is not the local capability to acquire this data. For instance, in the event of the Iranian earthquake satellite imagery was captured the day after the earthquake itself but was not available locally for two weeks. In the meantime the disaster response had to make do with crude hand-drawn maps.

Occasionally in the aftermath of a disaster the temptation is to 'rush out' and buy data using funds made available for the emergency without really understanding the requirements. In these situations MapAction try to bring together the national experts to best decide on the imagery/map requirements.

Often all that is required immediately following a disaster is a 'fast-and-dirty' map of the situation. It is often difficult to change the mind-set of professionals to relax their own sense of accuracy and quality in order to generate this type of mapping.

The key value that maps can provide to a disaster response is a 'common operational picture'. A map is an historical record of how a place is perceived at that point in time. This perception may not be correct but it is useful to record the perception for analysis after the event.

A traditional response plan will include the Local Emergency Management Agency (LEMA) which typically consists of civil defence, fire brigade, etc. This group would then report into the National Disaster Management Agency (NDMA). When there is an event of sufficient magnitude that it overwhelms the capabilities of both the LEMA and NDMA the country will appeal for International assistance. The influx of assistance will quickly make the organisation of the response to the emergency very chaotic. For example, in Pakistan over 100 International agencies arrived which lead to agencies not knowing the existence of other agencies resulting in the duplication of effort.

Jesús Olvera from INEGI, Mexico provided the group with an insight into how his country reacts to regular events such as earthquakes and land-slides. Their immediate response is to capture aerial photography to help determine the effects on local infrastructure such as roads and bridges as well as to make some assessments to the severity of the situation. The main problem with this approach is the accuracy of the aerial imagery, it takes too long to orthorectify and so the raw imagery from the survey is used.

The group were asked how many of them had heard about the Disasters Charter to which there was no response. The Disasters Charter is a mechanism through which satellite platform owners can make imagery available to agencies.

Suha Ulgen from the United Nations, USA informed the group of a recent UN resolution called UN-SPIDER that will enable faster access to data in the event of a disaster. He also informed the group about the formation of a new organisation within the UN called UNOOSA (United Nations Office for Outer Space Affairs).

The presentation was completed by providing the group with details of the simulated exercise. The exercise scenario centres on a fictitious country named Juliandia that is prone to flooding. The workshop was divided into three groups, each group was given a question to discuss and report back their findings.

Group 1 Response

Group 1 were asked to consider what spatial information management resources should be marshalled by the Juliandian government to respond to the emergency. The group pointed out that the key lesson learnt from this exercise is realising what might be available by looking to less obvious sources for information. The group then provided their list of resources based on interpretation of the information provided. The key resources identified were:

- The UN Mine Action Service are clearing landmines from the border, a member of staff attached to UNDP is providing mapping support
- The Housing Ministry completed a survey in 2003 which would provide good information about the impact of the disaster
- Ethnic group studies

- It is a popular tourist area so there must be tourist maps
- A UNICEF supported child vaccination programme is underway, it is likely maps would be used in support of this
- There are unused GIS workstations in the National Survey Department
- 1:100,000 scale military mapping may be available
- Well equipped GIS department at the University lead by a dynamic geography department head
- The NSD holds a partially complete cadastral database
- A BBC News 24 report makes mention of a USGS geological survey that warrants further investigation

Group 2 Response

Group 2 were asked to decide what types of spatial data are likely to be required, as top priorities, in this type of emergency. Paper maps were given the highest priorities, in particular:

- Tourist maps
- 1:100,000 scale military survey maps
- Imagery that might be available from a neighbouring state
- UNDP mine clearing maps
- Maps from the UNICEF vaccination programme
- Population maps from the census and housing studies

GIS data and resources that might be available from the University were seen as important once the core situation mapping had been provided.

Group 3 Response

Group 3 were asked to decide what should be done by the Juliandian GIS/mapping community after this disaster to prepare for future emergencies. The group decided that the communities should follow the Disaster Management Cycle of:

- Rapid mapping

- Reconstruction
- Mitigation
- Disaster preparedness

The group felt that there should be the formation of a coordinating body that would oversee the disaster management plan. The core functions of this body would be:

- Policy development
- Technical development
- Capacity development
- Standards development

Workshop Conclusion

The workshop was closed by the MapAction team providing two case studies of how they have been involved with two very different types of disaster. The case studies provided a unique insight into the operations of the MapAction team and the challenges they face when responding to the aftermath of disasters.

Questions	Answers
Yola Georgiadou, ITC, The Netherlands: Could you clarify the difference between geographic and human data?	Geographic information is anything related to the physical environment in which the disaster response is required. Human data, on the other hand, is information about the population and their surroundings. There are three key aspects in a disaster response: to protect lives, to minimise suffering, and to protect economic loss. Data that would support these three things could be considered human data.
Gill Abbot, Defence Geographic Centre, UK: Is there any reason why raster data has not been included in the useful data list?	Raster data should be included in "Remote sensed data", scanned base topographic maps are extremely useful and wherever possible are used.
For certain parts of Africa there is very little data available, Google Earth for example has large areas of very low resolution imagery. What can be done in these areas?	In areas where there is very little data available it is important to try and work pre-disaster to collect as much data as possible. This could, for example, be done by using the Google community approach demonstrated earlier today in India. There are organisations that scan the world for early warning signs and it may be possible to acquire their data.