Mobile Disaster Response

Working netcentrically in the field

July 2009

Public Safety Award 2008
The crisis management system has been successfully tested and assessed in large-scale real life exercises such as Eagle One (March 2008) and Waterproof (November 2008). Based on the positive results of these two exercises, Eagle One has won the prominent Dutch Public Safety Award 2008 (more information on www.veiligheidaward.nl).

Eagle One
A special disaster exercise called Eagle One was held in Gelderland on 5 March 2008. The purpose of the exercise was to assess whether the use and immediate sharing of geographical information leads to a better picture and decision making in crisis situations. It was the first time that geographical information played such a prominent role in a regional exercise. The police, the fire brigade, the emergency services and municipalities directly accessed each other's information for the first time.

Waterproof
In November 2008 a disaster exercise was carried out that was the largest ever held in the Netherlands. Real life exercises were carried out for a whole week and included a flood simulation in Flevoland. Flevoland, in the center of the Netherlands, is completely reclaimed land with a mean surface level of 4 meters below sea level, protected by dikes. Without dikes or in case of a dike failure it would be inundated immediately, which would be catastrophic for the 380,000 inhabitants. More than 10,000 emergency workers as well as the mayors and ministers practised how to act in case of a large-scale flood. This provided an opportunity for comprehensive testing of the crisis management system developed by Microsoft, Geodan and ESRI Nederland with the different components of the Eagle Suite.

Eagle is powered by:

ESRI Nederland
www.esri.nl

Geodan
www.geodan.nl

Microsoft
www.microsoft.nl

Mobile approach in disaster response

Making sure that everyone can access the right information at the right time and that the same impression of the disaster is shared by all: that is where geo-information provides added value in disaster response. Microsoft, Geodan and ESRI Nederland together have developed a crisis management system which makes it possible to share images and information. In addition to the desktop system, they have now also developed a mobile version. By applying the concept of 'working netcentrically' this variant supports the emergency services in the field and provides the parties concerned with the right information at the right time during a crisis situation.

The netcentric approach

The primary goal of working netcentrically is to ensure that the right information is available in the right form for the right users. It is particularly important when it concerns the exchange of dynamic data in crisis situations, for everyone always to have a common operational picture and simultaneous situational awareness.

Going mobile in vehicles

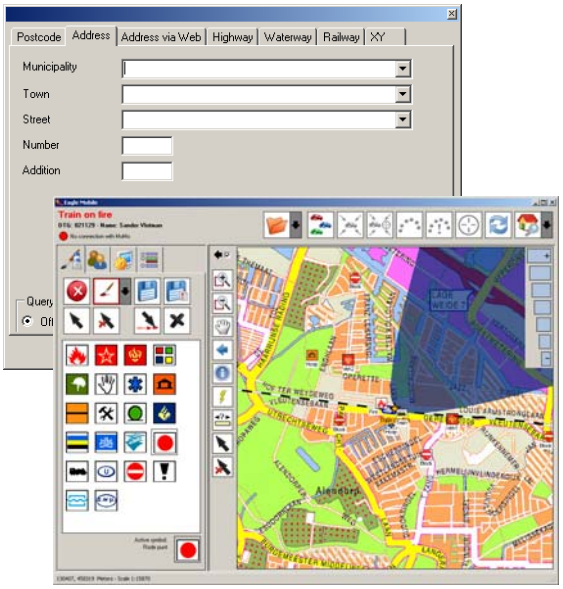
The safety districts need software that makes this so-called netcentric approach also available in vehicles. This software must be less complex in its functionality than the desktop application used in the crisis centre and must have touch screen controls.

Solution

To be able to fulfill all the requirements set out above, Microsoft, Geodan and ESRI Nederland have developed a mobile version. It is now possible to provide vehicles in the field with the real-time information they need. There is an immediate exchange of information with the crisis management system at the crisis centre. The people in the field can also add and process geographical and text information over a mobile data connection.

Some functions of the mobile version include:

- Standard GIS functions such as zooming, panning, i-tool, distance measurement etc.
- Show and add relevant map layers such as GBKN, aerial photos, digital accessibility map, cycloramas
- Show related documents such as information on hazardous materials (chemistry/ERIC maps)
- Standard drawing functionality and breadcrumb functionality (automatic point placed on GPS position)
- Show the GPS position of one's own vehicle and other vehicles on the map
- Receive incident information with the possibility to navigate straight to the incident location (positioning spot)
- Receive and send (measurement) instructions and (measurement) messages between the vehicle and the crisis centre



Technical aspects

The mobile version is based on ESRI ArcObjects and is connected to Microsoft Groove, which provides for the peer-to-peer communication. Groove guarantees strongly secured connections and synchronises only the changes so data flows are limited. This means Groove can also be used when connections are poor with a limited bandwidth. In addition, vehicles are tracked and traced using Geodan Movida. This is based on the latest GeoRSS technology.