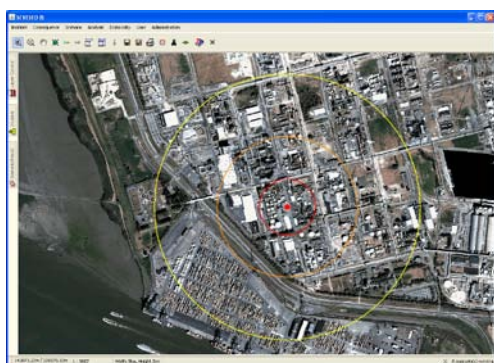


GIS IN THE SAFETY CHAIN

State-of-the-art information system helps emergency services and crisis centres with risk management in case of chemical disasters

The most important benefit of GIS systems is that they allow better decisions to be taken more quickly. Which immediately explains the rise of GIS-based information systems as a decision support instrument in managing the risk of disasters. At the request of the European Space Agency (ESA), VITO developed as prime of an international consortium a high quality information system that assists emergency services and crisis centres in assessing the risks of chemical disasters. The system, with the suitable name Seveso IS (Seveso Information System), is based on a sophisticated linking of high resolution earth observation images with dispersion models.



GIS SHOWS THE BIG PICTURE

The chemical industry is strongly anchored in Flanders. Hence, there are many Seveso companies active in the ports of Antwerp and Ghent, and along the Albert Canal. These companies produce, store, process or use dangerous substances. This production, storage and processing, but also the transport of chemical products, is not without danger to public health and the environment. The government crisis centres make every effort to prevent accidents and limit the damage caused by disasters. Essential here is quick and adequate information, which moreover can be easily shared among the various responsible instances.

Filip Lefebvre, project manager at VITO: “In reality, during the phase in which crisis centres and emergency services prepare for disaster management as well as during the interventions themselves, the needed information is not always easily accessible. While the services involved have maps and considerable information that can be added to these images – data on victims, evacuation routes, use of specialist units ... – the big picture is often lacking. GIS allows a quick comprehensive view of the situation and the impact of a disaster, and helps improve the communication between disaster relief services. This enables to adequately and accurately deploy emergency services and resources.”

SEVESEO IS: AN INFORMATION SYSTEM AND MORE

An international consortium lead by VITO has developed an innovative information system – Seveso IS – for managing accidents involving dangerous substances. “Seveso IS combines GIS with a decision support system, and is capable of modelling diverse risk scenarios. Geodata, topographical maps and satellite images are combined with dispersion models that indicate the spread of the contamination or the chemical substance. The



system offers a good overall view of an incident and uses satellite images to depict its consequences on people and environment.”

The added value of the system lies not only in the comprehensive view it provides, but also in its ability to conduct analyses on simulated accidents. “The crisis centres and emergency services can use Seveseo IS to make a quick initial analysis of the affected environment using land use analyses. The system is also capable of assessing the impact of a specific type of accident on the population by estimating the number of injured and dead in an area. An ecotoxicological analysis allows simulation of the consequences a chemical incident can have on the ecosystem. Finally, the system contains a database with simulated disaster scenarios that provide an overview of the potential risks for an entire region”, explains Filip Lefebvre. “All of this information is invaluable to the planning and training done by crisis centres and emergency services.”

STIMULATING COLLABORATION: TOWARDS A SAFER SOCIETY

Collaboration and perfect communication are critical to crisis management. The state-of-the-art IT architecture of Seveseo IS stimulates this collaboration at diverse levels: among planning departments, crisis centres, the police, medical services, the fire department, civil defence, the environmental services ... In addition, communication between regions and countries – important for managing cross-border incidents – is also improved.

The Seveseo project was financed by ESA in the framework of the Data User Element Program intended to stimulate development of information products that use data from ESA missions. Partners in the project were APS and Création from Belgium, the Dutch knowledge centre TNO and the French INERIS – all four experts in risk analyses and emergency planning. Users were also closely involved in the project. Thus, more than fifty organisations – state and local disaster planning services, the fire department, chemical companies, the Federal Ministry of the Interior, the National Crisis Centre ... – participated in the Seveseo event held in December 2009. Interest in GIS applications in the safety chain is on the rise: this can only benefit risk management and safety in society.

More information: www.seveseo.eu

Eddy Goossens, captain with the Geel fire department: “It is extremely important for fire departments to know the potential impact of disasters. Information tools such as Seveseo IS should help us, in the future more than ever. The strength of Seveseo IS is that it is a GIS application: dispersion data is linked to cartographic information, and much underlying data: how many schools or care and nursing homes are located in the affected zone, where can we set up emergency help centres, where are the major roads located? This information, available with a few mouse clicks, is of course crucial. At present, the system mainly focuses on applications in the preparatory phase. I am convinced, however, that it also benefits the intervention phase itself.”