

# A pan-European flood response



*As part of Europe's strategy of preparing improved response structures and systems for major disasters, over 80 civil protection, civil contingency, coast guard officials and emergency responders from all over Europe congregated in Stockholm, 18th and the 19th June 2008, to share the knowledge gained from the outcome of the EU FloodCommand project. Ann-Marie Knecht outlines the goals and outcome of this project.*

The timing of the EU FloodCommand Conference could not have been more appropriate, because as the delegates returned to their countries, Sir Michael Pitt's enquiry into the 2007 UK floods was published. Many parallels can be drawn between the findings of the conference and the Pitt Review.

The EU FloodCommand project, a joint venture between three European Union countries – the UK (Maritime and Coastguard Agency), Ireland (Irish Coast Guard) and Sweden (Swedish Rescue Services Agency) – was initiated in early 2007 with the aim of improving pan-European response to massive coastal inundation from tidal floods, storm surges and tsunamis.

It is funded by the Civil Protection Mechanism of the European Commission and VectorCommand Ltd, a developer of advanced command and control, training and exercising systems for emergency services and agencies. The launch of the project took place during an inaugural conference in May 2007 that was held to explore common problems in major emergency management; to share knowledge; and to set up a multi-lateral and multi-agency response platform for flood disasters.

The three key objectives of the EU FloodCommand project were:

- To establish a system to integrate Maritime Search and Rescue resources from across Member States (using specialised maritime Search and Rescue – SAR modules and multi-lateral command and control technology) into a coordinated response to coastal or tidal flooding;
- to enhance cross-border cooperation between Member States in the fight against natural disasters;
- to raise awareness of the risks of catastrophic flooding as a result of a tsunami or tidal surge events.

Over the 18-month project, two major exercises using the modules concept tested pan-European cooperation in response to simulated incidents, as well as tested and

refined the command and control technology developed by VectorCommand. During the final conference, held in Sweden in June 2008, the key findings of the project were presented.

After a welcome from Ivar Rönnbäck, Deputy Director-General of the Swedish Rescue Services Agency, Niels Ring Andersen, Executive Chairman of VectorCommand, launched the conference with a keynote presentation about the Recast Civil Protection Mechanism and the modules concept (predefined and agreed packages of multi-national emergency response capability), which provided the context for the whole EU Flood Command project.

Substantial progress has been made in defining the make-up of these modules and, according to Andersen, the EU is taking an increasingly proactive role in ensuring that Member States are well prepared and more effective when carrying out multi-lateral emergency response missions.

The legal framework for civil defence has been moving since 2000, in particular with the further revised Recast Mechanism (November 2007) and with a commission decision to proceed with an actual concept of Multinational Response Modules.

The Recast Mechanism enables Member States, on a voluntary basis, to ask for priority intervention and response or support, which would involve resources of one or more member countries. It also allows States to work within an international framework and, in particular, enables resources to be dispatched at very short notice.

Andersen explained that so far 13 modules have been defined and that one module has already been deployed internationally, to assist with water purification in Burma following the recent storm surge. Participating Member States follow international guidelines and must participate in training and exercising organised by the EU. In addition, the module system aims to increase interoperability between different equipment used by different nations, so

*Rod Stafford, Projective Executive, EU FloodCommand. Below: Niels Ring Andersen, EU FloodCommand Project Board member, and Executive Chairman, VectorCommand.*



that it has, for example, the capability of joining together different types of hoses and couplings.

After establishing the technical framework, the modules have to be put into practice. "Having propagated the thirteen modules and invited the member states to come forward, and make offers on modules that they are prepared to commit to, there have now been some 70 offers from most Member countries," said Andersen.

Exercising and training is regarded as an important element that will greatly aid in the success of the Recast Mechanism. The call for proposals to manage exercises at an EU level – only partially financed by the EU – closed in June '08. The next step on the agenda is actually to organise these exercises.

### ➔ EU FloodCommand

Rod Stafford, Project Executive for EU FloodCommand, provided an overview of the aspirations of the EU FloodCommand project. The project had a programme of activities all aimed at progressively building an understanding of the use of SAR assets in maritime flooding. The project's challenges consisted of putting in place protocols, procedures and technology that would allow the EU FloodCommand project to define maritime response modules that previously did not exist.

"This work was conceived prior to the changes of the Recast Mechanism and indeed the work on this project has run in parallel with the Commission's own work, which fed our understanding and our outcomes, and vice versa," said Stafford.

"The main goal", he said, "was to create a system, which was in the truest sense a combination of knowledge, understanding and technology." However, the underlying aim was to create a streamlined business process. The emphasis of the initial conference in May 2007 was to gather a large number of international experts on flooding and to focus them on answering certain questions. What protocol and assets existed already? What understanding was there of the risks of catastrophic flooding? What made this type of SAR different from simple rescue in shallow water? The outcomes from these workshops were absolutely key in initiating the rest of the project, and therefore the development process was significant in order to create the right technology and protocols."

EU FloodCommand was then able to exercise the technology and protocols in two simulated disasters. Stafford described these as trials by fire, but they delivered important lessons on the capability required to improve multi-lateral emergency cooperation. In April 2008, during the second exercise, the project was finally able to validate VectorCommand's technology with a major pan-European simulation involving four different national command rooms throughout Europe, a central coordinating command room and deployed contingent commanders operating in a simulated command room in the disaster zone in another EU nation.

### ➔ Stockholm June 2008

The final action of the project was to hold a project review and dissemination conference in Stockholm to present the project's findings to raise awareness of what had been

achieved and to demonstrate the technology developed.

The gathering and involvement of the participating international experts in order to create the Maritime SAR modules, has been so large that the EU Commission is considering prescribing the methodology used under EU Flood Command as a model of how the other 12 modules should be implemented.

Stafford explained that the first exercise (consisting of a command team simulation involving seven command teams) reflected different aspects of national and international response and support following a major coastal flooding emergency.

"This was challenging because we are used to exercising existing plans, whereas this exercise required us to explore 'blue-sky' concepts. Equally, once the exercise was completed, the lessons were incredibly valuable. So valuable, in fact, that the project ended up rescheduling many of the resources in order to give us more ability to build more intricate technical resources, if the technology was going to survive contact with the final validation exercise."

The technology development fell into two distinct parts. Vector Command had an off-the-shelf exercise delivery system and had also already developed command and control technologies, which it was able to expand substantially into an integrated command support system customised to the requirements of the EU FloodCommand project. Rod Stafford was convinced that the second exercise could simply not have been delivered with the available staff, if the EU Command Support System had not been used, given that it was a four-nation, two-day exercise held across Europe.

The Command Support System itself, in terms of building and sharing of a common operational picture, was key, but with a legacy of a lack of interoperable and high band width systems a thin data layer had to be created across all participating contingents, which allowed them to carry out vital communication and enabled them to share information.

"In essence, the contingent commanders sit with the recipient nation and identify the needs of the recipient nation. As the next step, the tasks get divided up between them to be communicated to the relevant parties. Each participating nation gets reports back," he explained.

The final version of the EU Command Support, provides commanders with clear, integrated icon-based functionality for accessing and managing Organisational Assets and Structures, GIS mapping, Imagery, Web browsing, Electronic Whiteboards, Objectives and Tasks, Text and Video Conferencing and Incident Logging and Messaging. The technology is equally applicable for the coordination of response to any type of disaster.

According to Stafford, the final exercise (a simulated tsunami in Bulgaria) was the largest multi-national exercise in recent years, because it went across national control rooms in four separate countries on a non-guaranteed communications network. The aim of the exercise was to complete a matrix of activities, which took the participants through the whole process of identifying the need for collective response, negotiating the elements that were involved, getting those elements into theatre and then coordinating them.



Dr Mike Griffin,  
Technical Director,  
VectorCommand.

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*The EU Command Support System showing assets in the left hand column and imagery of the city of Varna, Bulgaria with overlays of assets deployed and areas of responsibility for the simulated deployed contingents. Top right: Coloured icons across the bottom of the screen provide access to functionality for (from left to right) web browser, organisational asset management, imagery, electronic whiteboard, objectives and tasks, text and video conferencing, incident log and GIS mapping.*

“The EU FloodCommand project learnt throughout all its activities and through discussions with the Commission, that there is a real challenge here, because even within individual nations there is a reluctance to allow command relations to exist across organisational boundaries.”

Stafford continued that major events would nearly always overwhelm conventional command and control systems, arrangements and response. “The particular challenge is to make sure that command and control solutions in the future have the flexibility to make best use of the scarce resources available to ensure the best response possible, given the circumstances.”

So what support do organisations need? According to the participants in the EU FloodCommand programme, there is a compelling need for fast and effective access to critical incident data. That information must be clear as well as quickly accessible, and then commanders must have the ability to use that information effectively. “Clear command communication is not only important in terms of procedures, but it is just as imperative to create a common operational picture,” concluded Stafford.

Dr Mike Griffin, VectorCommand’s Technical Director and lead developer of the EU Command Support System, agreed with Stafford that creating a common operational picture captured the core of the EU FloodCommand Project. “We needed an integrated solution where all the pieces come together, as well as a solution that is fast. Fast to learn, fast to use and fast to share and distribute information. Something that enables the user to identify and streamline business processes.”

### ➔ EU Command Support System

VectorCommand took into account several design considerations. Dr Griffin described the EU Command Support System as the world’s first fully interoperable distributed command and control system specifically developed for emergency services, emergency agencies and multi-national organisations. “As a result of the EU FloodCommand project, the partners – the MCA, the Irish Coast Guard and the Swedish Rescue Services Agency – will all have a common, interoperable command and control system customised for managing pan-European operations, based on their own specific requirements and which has been extensively tested by all the parties involved.”

There was no doubting the realism of the April 2008

exercise, because on the day of the exercise everyone’s data capacity on the network lost 3G bearing capacity. Command and control communications were compromised, adding a substantial amount of realism. However, the participants were able to switch to alternative bearers and continue the exercise. Despite this, the system worked well and created the common operational picture throughout command rooms across Europe that was aimed for.

The first exercise, held in September 2007, was based on a scenario in which London and East Anglia had to cope with severe coastal flooding from a massive tidal surge (a scenario that was nearly replicated in real life in November 2007).

VectorCommand used an initial prototype of the EU Command Support System for the exercise and found that it had delivered several useful lessons. “We couldn’t count and specify the numbers and types of assets that we had available for deployment, but after some programming work we were able to implement a search facility which could identify all assets deployed or available, both people and equipment, by capability and type as a direct result of running the first exercise.” Another key lesson learned was that the system had to be based on an agreed command and control doctrine, to improve decision making under the intense pressure of real events.

For that reason, navigation between modules within the system had been colour coded to match the relevant stages in the decision-making cycle. “Anything blue has to do with reviewing information, anything yellow has to do with making decisions, and anything red has to do with acting on those decisions. This creates a logic and a flow between the decision-making process and the buttons and functions that deliver those capabilities,” added.

Dr Griffin believes that the EU FloodCommand project has produced a number of tangible benefits for EU Member States and emergency response agencies throughout Europe. “The EU Command Support System is a unique, interoperable command and control system for multi-national and multi-agency emergency management. The five maritime search and rescue modules (for such tasks as aerial rescue using helicopters and surface water rescue) have been defined and agreed in line with EU guidelines, and networks and processes have been developed throughout Europe to improve pan-European response following major coastal inundations.”