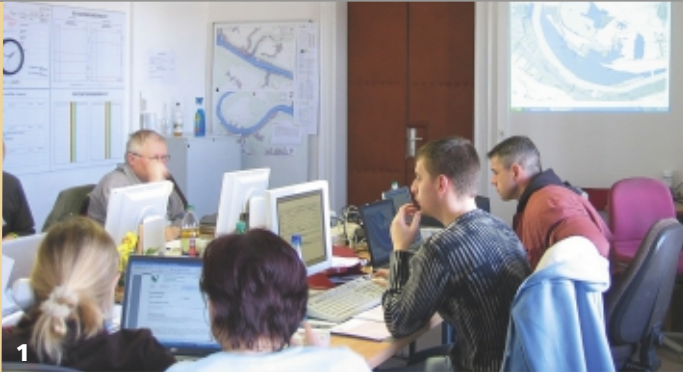




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»MobiKat«

Fraunhofer Water Systems Alliance (SysWasser)

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The aim of the MobiKat system is to prevent and accomplish major damage cases and everyday hazard prevention alike. Crews, incident commands and action forces onsite are provided with valuable information for the efficient planning and execution of protection and rescue measures. One area of attention is the mobility of all participants, which needs to be ensured to enable rapid assistance after the occurrence of an accident within the scope of the legal obligations. This way it is possible to considerably reduce damage to persons and things.

Areas of Attention

The MobiKat technology comprises the following main areas of attention:

- data integration including permanent updating for emergency and traffic management,
- planning and operative scheduling for both everyday operations and major damage cases,
- data exchange and mutual extension of functions with DISMA,
- mobile terminals for incident commands and action forces,

- mobile autonomous camera system to monitor dangerous sites,
- analyses and development of concepts for the evaluation of the road traffic infrastructure and maintaining mobility in major damage cases.

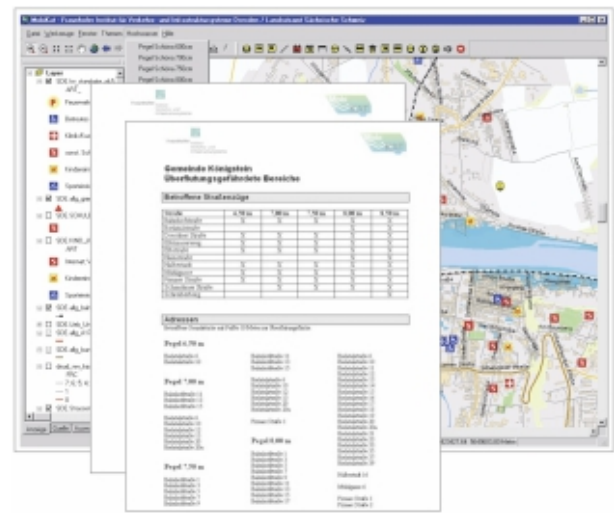
Technical Realization

The main basis for the implementation of the system in the county of Saxon Switzerland was to integrate data from over 40 official and commercial data sources and to ascertain its regular updating. This comprises, amongst other things: the rail and road network, bridges, tunnels, on-going road construction sites, bodies of water, flood plains for two gauging sites, address coordinates with allocation of inhabitants, public transport routes and stops, outlines of buildings, parcel boundaries,

- 1 Crisis management and planning with MobiKat by the emergency and disaster management crew in Pirna (flooding 2006).
- 2 Situation monitoring with MobiKat (example: emergency and disaster management exercise on the A17 highway in December 2006).



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critical infrastructure/critical objects, fire stations, rescue and police stations, emergency and disaster management equipment, hydrants, digital terrain model (DGM25), climbing rocks, orthophotographs (1 pixel = 20 cm) etc. In immediate cooperation with the users a universal IT system for position visualization and decision-making support in real time was developed and translated into practice. Its main functions are:

- depiction of infrastructure with a freely selectable zoom, detail and layer levels, directed search for objects,
- optimized selection and scheduling of resources for the fire brigade vehicles, rescue vehicles, etc.,
- scheduling and route planning under consideration of road networks and vehicle characteristics,
- calculation of long haul routes for fire and drinking water with pumping stations for freely selectable route, pressure and hose parameters, MobiKat integrated system for the support of emergency management and everyday hazard prevention,
- fire prevention demand planning and area accessibility for the fire brigade and rescue services, etc.,
- resource planning for high-priority-emergency and disaster management objects, etc.

3 *MobiKat used to move the hospital Klinikum Pirna (March 2007).*

4 *MobiKat evacuation planning (example: passageway of the river Elbe).*

Autonomous cameras using wireless data transfer were developed and used on several occasions to obtain live information from endangered areas. They are equipped with a self-supporting power supply lasting several days, they can be remote controlled and are fitted with an eighteen-fold zoom. The digital maps for the control system of the rescue coordination center of the county were created based on the road traffic and infrastructure data base. In close cooperation with the users, detailed studies were carried out on the management of road traffic problems during the flooding of the river Müglitz and on planning the required traffic control measures and access routes in the case of emissions of hazardous substances by a regional chemicals company.

Further Areas of Application

The modules developed can be employed in nearly all areas of hazard prevention. Authorities and organizations such as the fire brigade, rescue services, technical emergency services, the police, etc. can considerably improve their geological and technical data base with the integration technologies developed and thus optimize their decisions. The implemented interface concept ensures that the MobiKat modules are integrated into the existing software systems in such a manner that the individual systems have the best possible effect.

Practical Examples

The MobiKat modules are successfully applied to both the daily support of operations and the management of major damage cases. Below you will find a selection of examples:

- flooding March/April 2006 (visualization of situation and crisis management by the emergency and disaster management crew, monitoring of critical points with cameras, infrastructure analysis and maps for relief units, etc.),
- fire protection demand planning 2006–2007 (determination of reachability of locations within the legally permitted response times),
- moving the hospital Klinikum Pirna in March 2007 (planning and supervision with autonomous mobile cameras)
- emergency management exercise on the A17 highway (emission of hazardous substances onto lanes),
- support of everyday calls of duty to the fire brigade and the rescue services (calculation of access routes, haul routes for fire extinguishing water, localization of the scene of an incident),
- action planning for key objects, alarm and march out orders, planning and routes (A17, Fluorchemie Dohna, key objects of emergency and disaster management, etc.),
- analysis and evaluation of calls of duty (major fires, storm losses, every day calls of duty to the fire brigade, etc.),
- provision of electronic maps at the rescue coordination center of the county Saxon Switzerland.