

*And Now for Something
Completely Different*



Positioning at the Finnish Voluntary Rescue Service

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Structure

- Voluntary Rescue Service (Vapepa)
 - History (a bit)
 - Operations
- Positioning in Vapepa
 - General
 - VAPEPA-Tutka
 - Maps to Operation Area ASAP
- Conclusions



Finnish Voluntary Rescue Service (Vapepa)



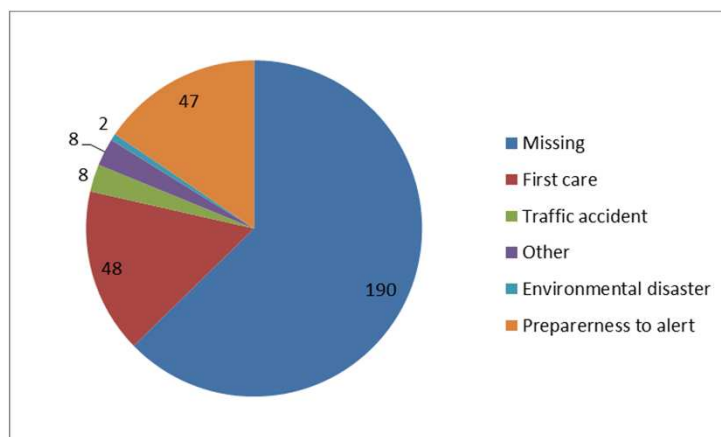
- Established in 1964
 - Trigger to establish an organization was a disappearing of 5 –years old girl in boundless taiga in Lapland
- Organization is co-ordinated by Finnish Red Cross
- 1300 alert squads
 - First aid squads, Off Road Associations, SAR teams, Rescue Dogs Associations etc
- 22 000 volunteers
- Works by Bring-Your-Own principle





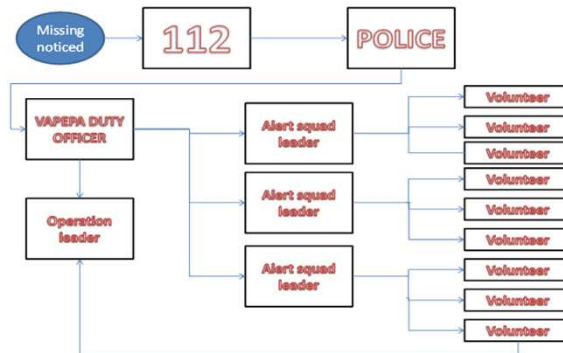
Vapepa Operations

2013



Searching operations

- The most common operation
 - ca. 2000 person is missing annually
- The Police is always responsible to search missing person



Searching operation

- Vapepa is alerted more easily when missing person is a child, geriatric, is ill or weather is dangerous
- When alerted, volunteer reports to Vapepa leader in operation area. The leader forms the searching teams
 - Traditional way: 10-20 persons in team
 - Searching is accurate but slow
 - Incoming method: Managing Search Operation (MSO) 3 person team
 - Searching is quick and is very useful when the operation is a life-saving
 - The role of positioning and beforehand parceled maps is vital
- Possible to use (car) patrols e.g. going through roads etc.



Searching operation

- Searching is started at the last known location of missing person
 - Nearby searches is made by teams
 - Also rescue dogs is used if available
- Trying to find the missing person or clues from field where to target the teams
 - More volunteers is alerted if operation continues
- The searching ends if the missing person is found or the police ends the operation
 - In most cases the missing person has found less than a one kilometer distance from home or last known location



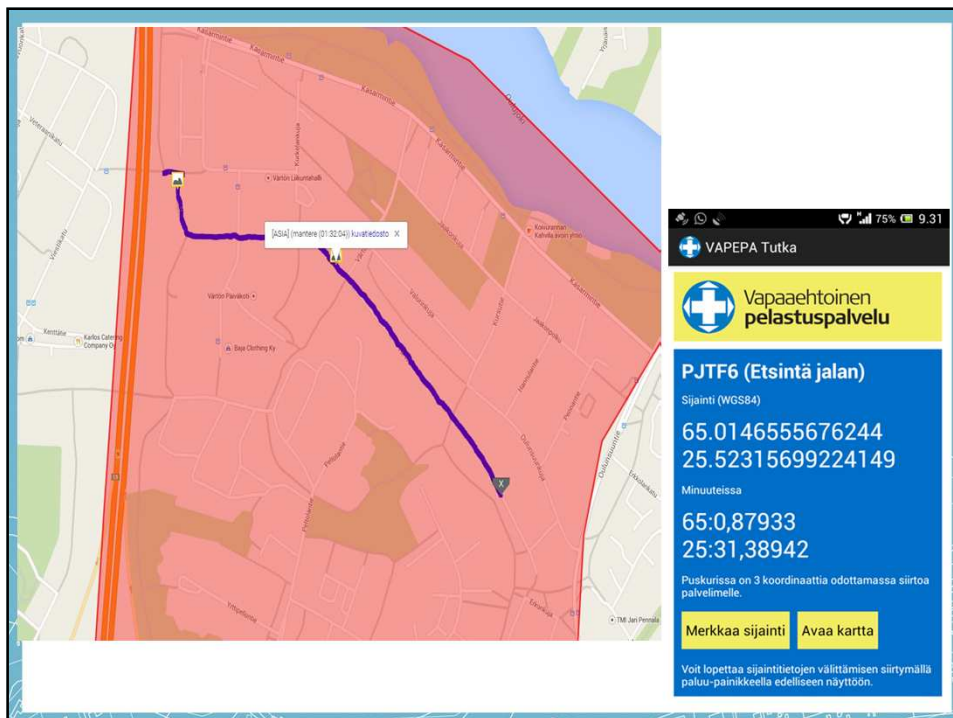
Positioning in Vapepa

- The positioning is instructed by Vapepa in year 2009
 - Includes general information of positioning, GNSS receivers and coordinate systems
 - Does not tell practice of using GNSS receiver, theory of satellite aided positioning, error causes...
 - Still introduces Finnish National Grid (ETRS-TM35FIN used in maps since 2010)
- Updating is urgent because users are non-professionals
 - Too much trust to the device
 - Positioning is difficult in Finland
 - Obstacles, satellites on lower orbits...



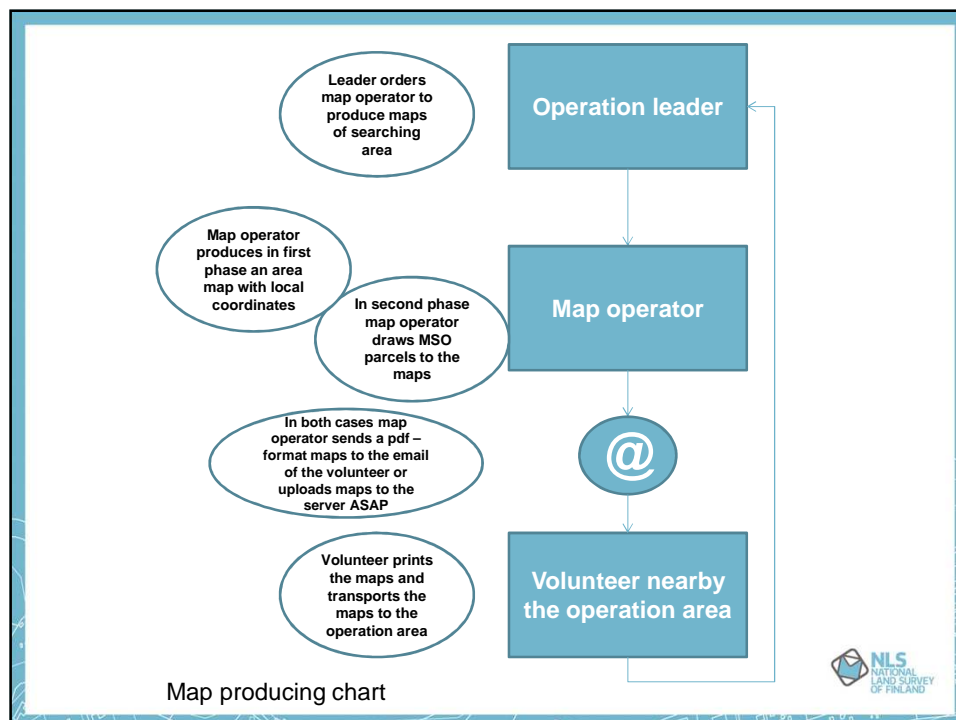
Developed aids to operations

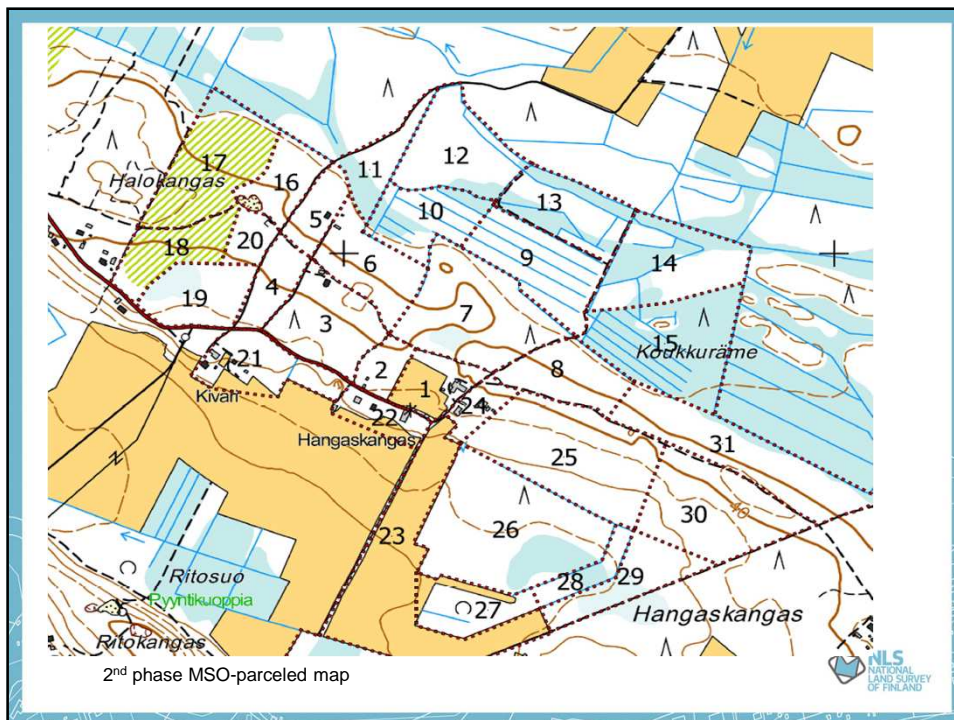
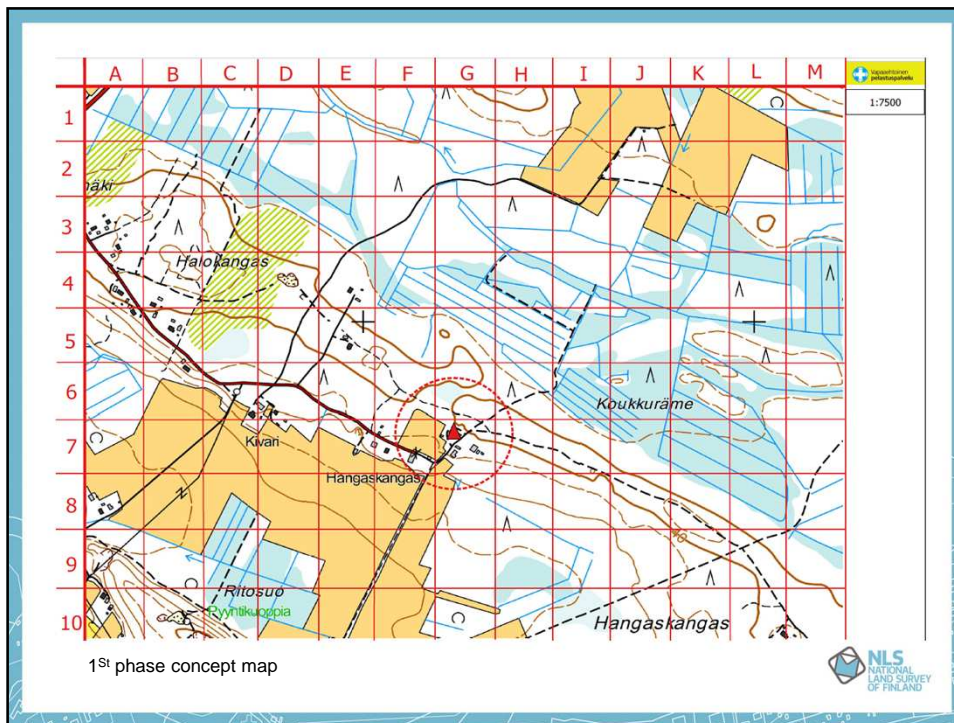
- VAPEPA-Tutka
 - GIS-portal developed by a volunteer
 - Web-based operation map + application for smartphones
 - Teams send GIS-data (including a photo) to portal and operation lead have up-to-date situation on operation area
 - App is easy to use
 - Not yet in operational use, still under testing
 - Devices and the batteries are the weakest link



Developed aids to operations

- Maps to operation area ASAP
 - The lack of maps will slow down the start of operation
 - To response the need of maps SAR-Oulu is developing a system to produce and send MSO-parceled maps to operation
 - Bases on QGIS and the National Land Survey of Finland open data 1:25 000 raster maps, next version will use vector data
 - 1st phase concept map will be on operation area in an hour, 2nd phase MSO –parceled map will be in two hours
 - The number of needed volunteer map operators is still under estimation
 - Paper map is still the most reliable especially in cold temperatures!!





Conclusions

- Vapepa has become very important assistant to authorities
- Positioning in operations is vital
- Vapepa should encourage alert squads to use more GNSS-devices and update the instructions
- VAPEPA-Tutka will become an important tool
- Paper maps are still the most reliable. To speed up the searching:
 - Designed maps to operations
 - Preparing MSO –parceled maps to possible missing areas (e.g. nursing homes) beforehand



Thank You!!
Questions??

