

Coordination Dynamics in Disaster Response Operations: A Network Based Discrete Event Analysis

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9 Appendix A: Profiles of Organizations Involved The 2002 Elbe River Flood Response Operation

In this appendix, we include detailed profiles of organizations involved in the disaster response operations of the 2002 Elbe River Flood. Each profile covers information about the organizations tasks, report text snippets of collaboration evidence (in German plus translation), estimates of hierarchical units distribution and units involved, table of the network coding of the organization and finally a graph representation corresponding with the constructed network.

9.1 GERMAN FEDERAL ARMED FORCES (Bundeswehr – BW)

During the Elbe River flood 2002, the following division of the German Federal Armed Forces participated in the response operations to cope with the flood:

- Federal Defense Administration (civilian part) of the German Armed Forces in the Free State of Saxony is based in the Military District Command (WBK III) in Erfurt
- Lower Defense District Command (VBK) 75 and 76 as responsible territorial departments.
- Personnel from all over Germany when needed.

The Military District Command III is part of the armed forces base. WBK III area of responsibility extends alongside Saxony to other federal states of Saxony-Anhalt and Brandenburg; WBK III, therefore, leads the Armed Forces mission in three provinces. The Defense District VBK 75 is the regional command to the administrative districts of Chemnitz and Leipzig. The Defense District VBK 76 is the regional command to the administrative district of Dresden. Figure 77 illustrates the division of the German Federal Armed Forces based on the districts of states.

Furthermore, the WBK III and the VBK 75 & 76 have access to all resources of the Armed Forces in their areas of responsibility in the event of a disaster. If necessary, further units can be requested from the entire federal territory. For cooperation with the government departments following levels apply (see Figure 78):

- (1) Military District Command III: Ministry of the Interior
- (2) Military Regional Commands: regional councils and counties / Independent Cities

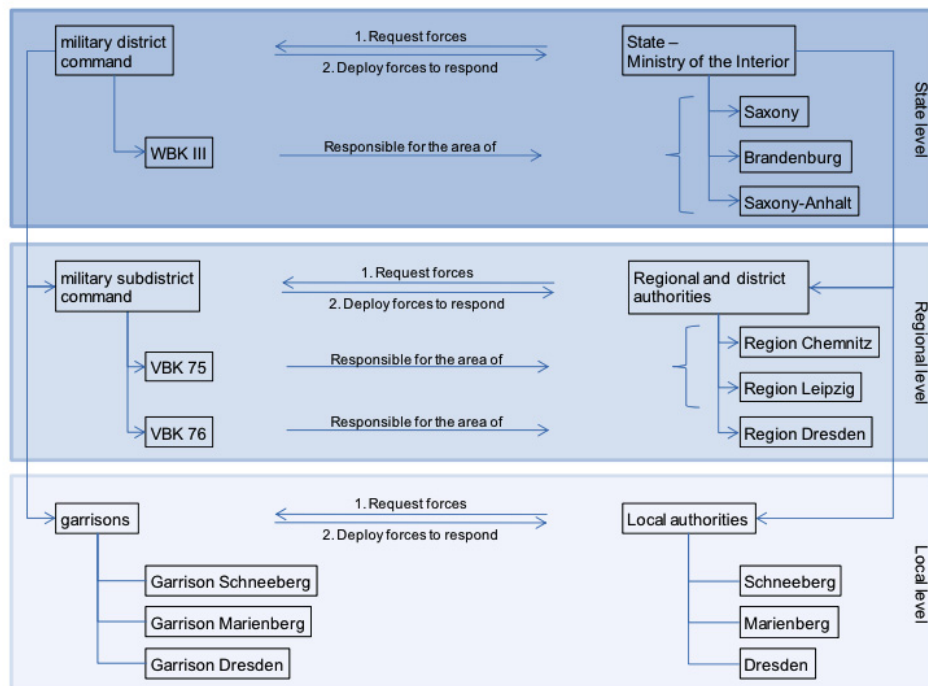


Figure 78. The interaction between the German Armed Forces and the levels of Authority.

* Adopted from “The Elbe Flood 2002 – A Case Study on C2 Systems and Inter-organizational Coordination” (Richter, Huber, Lechner, 2002).

9.1.1 Tasks

The German Armed Forces have to deal with a wide range of tasks. The Armed Forces response operations started from August 12, 2002 and included: (1) first aid, (2) rescue and evacuation of flood victims, and (3) provide support and care to evacuees.

The resources contributed to the rescue missions were mainly towards the airlift (or air-rescue), support rescue mission and support mission with helicopters. The air rescue began on 13 August 2002 at the request of Weißeritz municipality (first with eight helicopters).

Throughout August 13 and 14, the Armed Forces were engaged with other major tasks of the response operations, first phase of the flood affected the security measures in the affected municipalities and towns. Example of that, in Dresden during the flood some public buildings such as the Zwinger, the Semper Opera House, and the Courthouse were protected by the Armed Forces to avoid further damages and vandalism. In addition another major task was required that is the protection of dikes and reinforcements at various location along river flow and the affected areas.

According to the Ministry of the Interior (Situation Centre) that in total 119 units were engaged in the response operations from the Military District Command WBK III. In addition the defense district command VBK 75 a total of 27 units and the defense district command VBK 76 a total of 33 units for coping with the floods (see Table 25 and 79). Consequently, a total number of 15,500 soldiers had participated in the Elbe Flood operations in Saxony.

Level	Number of units	Nodes
Regional – WBK III Saxony	119	BW1 ☐ BW2, BW3 BW1 ☐ BW4 - BW121
County 1 - VBK 75 Chemnitz	29	VBK75 BW2 ☐ BW122 - BW147
County 2 - VBK 76 Dresden	33	VBK76 BW3 ☐ BW148 - BW179

Table 25. The unit distribution based on the hierarchical affiliation to the command units (i.e. WBK III, VBK 75 & 76)

*Each unit is given a code (BWx) to represent the unit in the response network. BW1, BW2, BW3 are head quarters and liaison units.

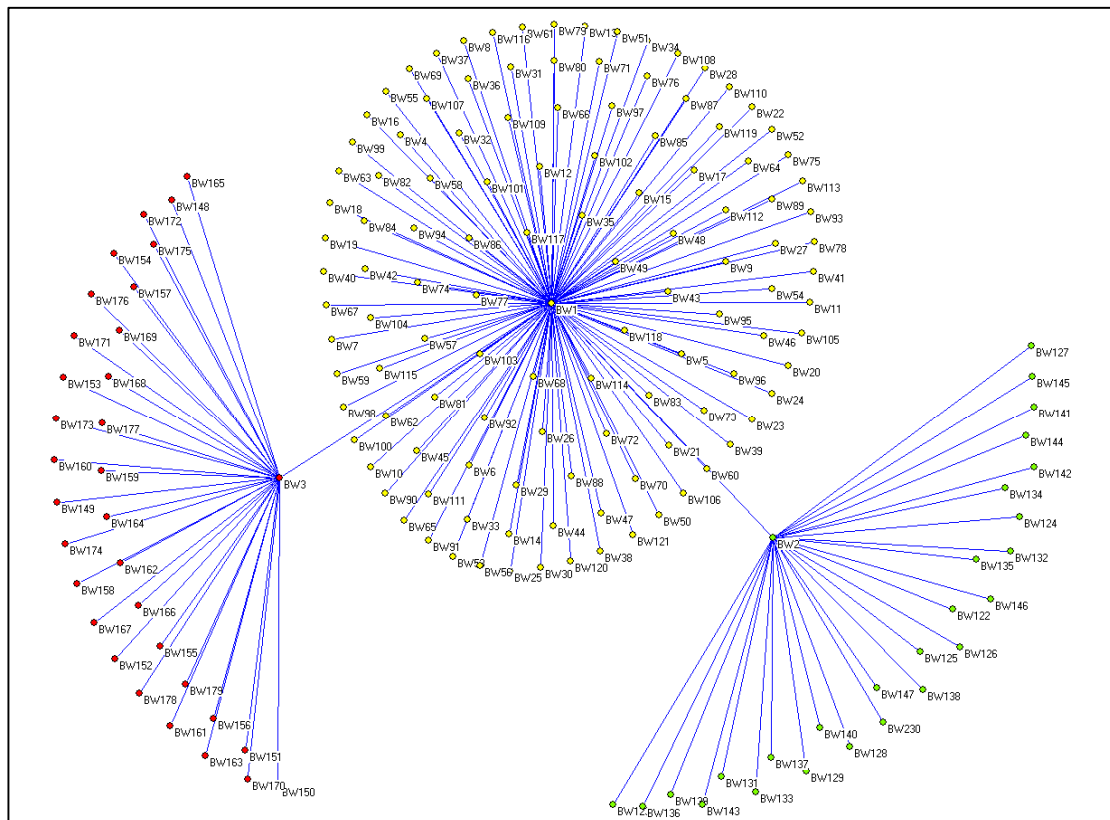


Figure 79. The network representation participating units from WBK III and VBK 75 & 76.

9.1.2 Collaboration

The participation of the Armed Forces was very positive and acts of collaboration via liaison officers with the civil protection staffs was done to coordinate the relief efforts. Based on the Kirchbach Commission Report (2002), officially the Armed Forces were not engaged until 14.08.2002. Despite that, the interaction among the different units within the Armed Forces and other involved organizations proved consistently good. The problems that occurred during the response operations were more of a technical nature, such as incompatible radio systems in for German Armed Forces with those of other participants. Such issues caused disconnection and loss in information between the different organization involved and delays in delivering relief efforts.

The various units' of the Armed Forces were involved in the following tasks:

- Enforcing dikes and supply of sandbags.
- Roads and highway maintenance, temp roads, mobile bridges.
- Airlift operations within the evacuation operations.
- Evacuate hospitals; evacuate houses with elderly and sick citizens.
- Removing debris and cleaning large amounts of the river suds to clear roads
- Airdrop supplies for trapped (stranded) victims and could not evacuate.
- Airdrop supplies for engineering crews or medical crews.
- Building temporary shelters for evacuates citizens and building tents.
- Clearing roads and basements, houses and other properties.

Due to the geographic location of the occurrence of the flood, the units engaged in the state of Saxony were:

- WBK III division
- Units under the WBKIII were VBK75 of Chemnitz and VBK76 of Dresden

So in the network we have 1 node liaison with the Division WBK III and 2 nodes as commandos of the underlying units VBK75 and VBK76. Table 26 and Figure 80 represent the distribution (and visual presentation) of the units engaged in the response operations based on the affiliation with WBK III and VBK 75 & 76 in combination with the functional association to tasks performed during the response operations.

No.	Function	Node code
0	Liaison with WBK III district commander WBKIII ☐ 119 units	BW1☐ WBKIII
1	C2 for VBK75 (Chemnitz) & VBK76 (Dresden) sub-district commander VBK75☐ 27 nodes VBK76☐ 33 nodes	BW2 ☐ VBK75 BW3 ☐ VBK76
2	Head of division (Barracks, Medical ops, Engineering corps, Airborne ops, Motorized ops, Armored ops)	BW3- BW8 for VBK75 BW92-BW97 for VBK 76 <i>Soldiers</i> BW3, BW92 <i>Medics</i> BW4, BW93 <i>Eng</i> BW5, BW94 <i>Airborne</i> BW6, BW95 <i>Motorized</i> BW7, BW96 <i>Armored</i> BW8, BW97
3	Barracks	<i>Barracks</i> 48 units ☐ BW3, BW 92 BW3, BW92 liaison units ☐ VBK75- 20 (BW9 - BW28) VBK76- 28 (BW98 - BW125)
4	Engineering corp	<i>Engineering</i> 30 units ☐ BW5, BW94 BW5, BW94 liaison units ☐ VBK75- 12 (BW29 - BW40) VBK76- 18 (BW126 - BW143)
5	Medical ops	<i>Medics</i> 11 units ☐ BW4, BW93 BW4, BW93 liaison units ☐ VBK75- 5 (BW41 - BW45) VBK76- 6 (BW144 - BW149)
6	Airborne ops	<i>Airborne</i> 12 units ☐ BW6, BW95 BW6, BW95 liaison units ☐ VBK75- 5 (BW46 - BW50) VBK76- 7 (BW150 - BW156)
7	Motorized ops	<i>Motorized</i> 35 units ☐ BW7, BW96 BW7, BW96 liaison unit ☐ VBK75- 15 (BW51 - BW65) VBK76- 20 (BW157 - BW176)
8	Armored ops	<i>Armored</i> 28 units ☐ BW8, BW97 BW8, BW98 liaison units ☐ VBK75- 12 (BW66 - BW77) VBK76- 16 (BW177 - BW179) + (BW78 - BW90)

Table 26. The unit distribution based on tasks performed and affiliation to District Commands.

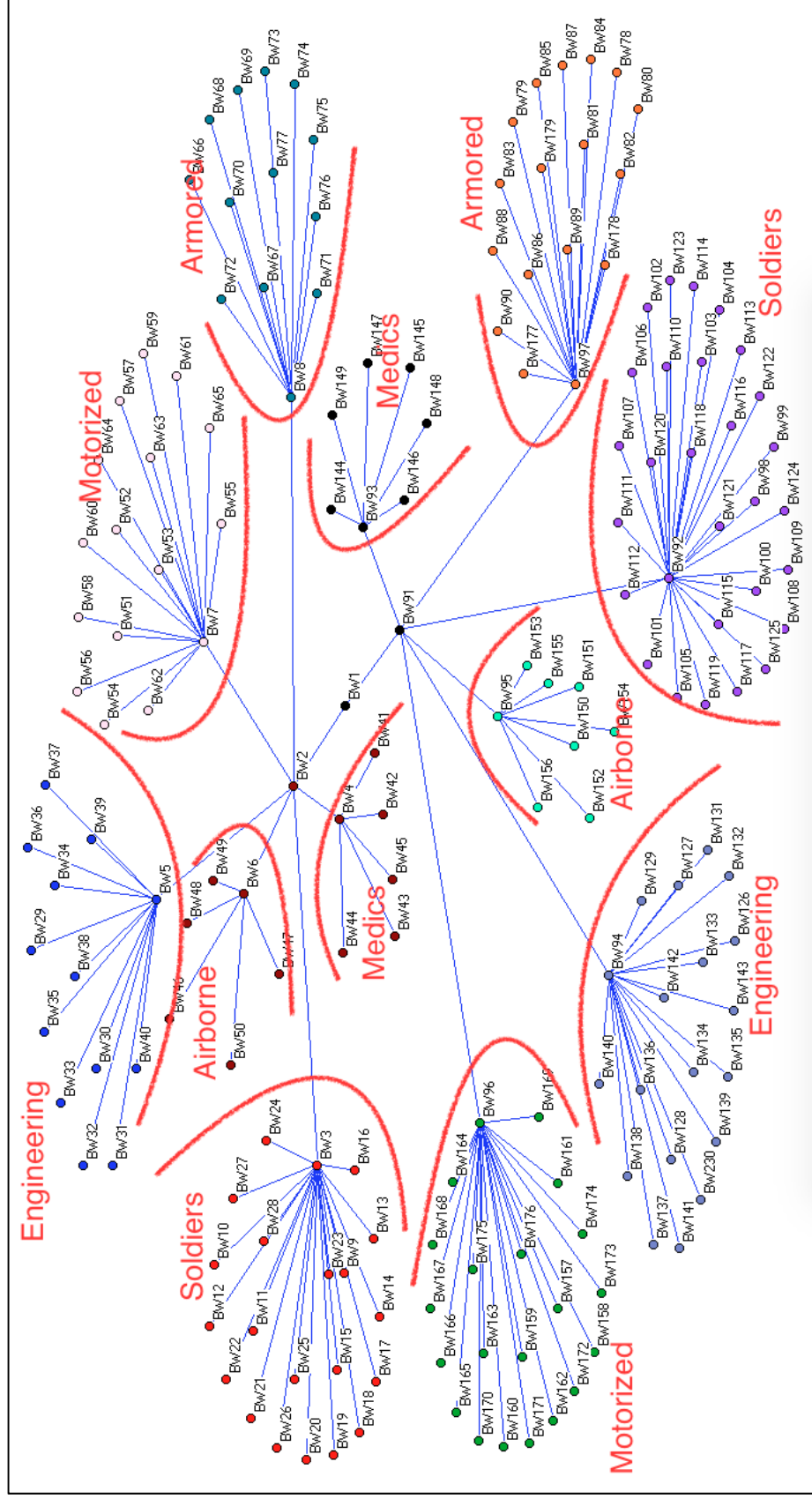


Figure 80. The Armed Forces distribution based on different functional units engaged in the response operations.

Below is an example of texts that was identified for indicating cross-organizational collaboration in German language. Text snippets from the Kirchbach Commission Report 2002 (von Kirchbach, Franke, Biele, Minnich, Epple, Schäfer, Unnasch, Schuster, 2002).

“Als der Damm des Rückhaltebeckens bei Glashütte um 16.29 Uhr brach, wurde er infolge der Überspülung der Krone auf einer Breite von mehreren Metern binnen 35 min. von oben her abgetragen, was die beschriebene Flutwelle für Glashütte zur Folge hatte. Noch vor Einbruch der Dunkelheit wurden am Abend des 12. August 2002 von einem Notarzhubschrauber und einem Bundeswehrehubschrauber mehrere Luftrettungen durchgeführt. Die letzte Luftrettung erfolgte gegen 20.15 Uhr. In der Nacht vom 12. auf den 13. August 2002 war die Feuerwehr pausenlos im Einsatz.

Man hatte Sorge, dass Häuser weggespült werden. Weitere Rettungen konnten in der Nacht nicht durchgeführt werden. Am Morgen des 13. August 2002 erkundeten Hubschrauber der Bundeswehr und des Bundesgrenzschutzes zunächst das Gelände. Die Rettungsaktionen wurden wieder aufgenommen. Insgesamt hat man in der Stadt Glashütte ca. 90 Personen per Luft und 20 Personen auf sonstige Weise gerettet. Insgesamt wurden 130 Bürger evakuiert.” pp130

Translation with adaptation (Google translate Tools were used in addition to other source.)

“It was reported that at 16:29 hrs. the dam of the retention basin at Glashütte broke. As a result of an over-flush to the width of several meters within 35 min removed from above what was described as a the tidal wave for Glashütte. Before the nightfall on August 12, 2002, emergency helicopters supplied by the Armed Forces carried out operations of air rescue. More air rescues operations were performed by the Armed Forces in the evening as well. The last air rescue was carried out at 20:15 hrs. On the night of 12 to 13 August 2002, the fire department was constantly at work. They had worried that houses are washed away. More rescues could not be carried out in the night. On the morning of August 13 2002 helicopter of the Armed Forces and the Federal Border Guard, explored the terrain. Consequently, the rescue efforts were resumed. Overall, it has saved in the town of Glashütte about 90 people by air and 20 people in other ways. A total of 130 persons were evacuated.”

9.1.3 Example of Other Resources

In addition to the 15,500 soldiers participated in the operations, various vehicles and equipment were used in the response operations. Table 27 represent a list of total resource used from 14.08.2002 till 18.08.2002 of the response operation as reported by WBK III. The table was adopted from the Kirchbach Commission Report 2002 (von Kirchbach, Franke, Biele, Minnich, Epple, Schäfer, Unnasch, Schuster, 2002)

Resource type	14.08.2002	15.08.2002	16.08.2002	17.08.2002	18.08.2002
Truck type LKW 2t	35	66	59	72	63
Truck type LKW 5 t					
Truck type LKW 7 t					
Truck type LKW 10 t					
Cranes	1	3	2	2	3
Berge-Panzer	1	6	7	6	5
Pionierpanzer	2	3	3	2	2
Tool sets	10	10	10	10	10
Panzer- Schnellbrücke	1	4	4	5	2
Schlauchboot/ Sboot	5	23	28	28	32
Transportpanzer- fuchs	4	5	4	6	4
faltstraßen	14				
Sandbags	1.2 million				
Tents	450				
Beds	12,000				
Blankets	18,000				

Table 27. Total resources used by the German Federal Armed Forces (Bundeswehr) during the 2002 Elbe River Flood response operations.

Below are images of some of the equipment listed in Table 27.



Figure 81. LKW 2 t,

retrieved from: <http://www.fahrzeugbilder.de/name/galerie/fotograf/13415/username/daniel-schwinn.html>)



Figure 82. LKW 5 t.

Retrieved from:
<http://www.fahrzeugbilder.de/name/galerie/kategorie/militaerfahrzeuge~deutschland~lkw/digitalfotografie/120.html>)



Figure 83. LKW 7 t,

retrieved from
<http://www.fahrzeugbilder.de/name/galerie/kategorie/militaerfahrzeuge~deutschland~lkw/digitalfotoografie/96.html>)



Figure 84. LKW10 t,

retrieved from (https://commons.wikimedia.org/wiki/File:MAN_10to_gl.JPG)



Figure 85. Berge-Panzer,
retrieved from (https://commons.wikimedia.org/wiki/File:Bergepanzer_2.jpg)



Figure 86. Pionierpanzer,
retrieved from ([https://commons.wikimedia.org/wiki/File:Pionierpanzer_Dachs_\(2008\).jpg](https://commons.wikimedia.org/wiki/File:Pionierpanzer_Dachs_(2008).jpg))



Figure 87. Panzerschnellbrücke,

* retrieved from

(https://commons.wikimedia.org/wiki/File:Panzerschnellbr%C3%BCcke_Biber.jpg)



Figure 88. Schlauchboot

* retrieved from

(http://www.bundeswehr.de/resource/resource/MzEzNTM4MmUzMzMyMmUzMTM1MzMyZTM2MzIzMzMDMwMzAzMDMwMzAzMDY3Nzk2NjcxMzM2YjMwNzgyMDIwMjAyMDIw/ima ge_popup.jpg)



Figure 89. Transportpanzer-fuchs,

* retrieved from
([https://upload.wikimedia.org/wikipedia/commons/9/91/Transportpanzer_Fuchs_\(TPz_Fuchs\)_der_Bundeswehr_\(10579660405\).jpg](https://upload.wikimedia.org/wikipedia/commons/9/91/Transportpanzer_Fuchs_(TPz_Fuchs)_der_Bundeswehr_(10579660405).jpg))



Figure 90. Faltstraßen,

* retrieved from (http://www.panzerbaer.de/helper/pix/bw_lkw_15t_milglw_fsg_msa-001-70vh.jpg)

More information were retrieved from official reports of the German Armed Forces as shown below:

Vorläufige Leistungsbilanz

Einsatz Luftfahrzeuge

- Leichter Transporthubschrauber, Mittlerer Transporthubschrauber, Großer Transporthubschrauber, Verbindungshubschrauber, Search and Rescue Hubschrauber von Luftwaffe und Heer
 - 30 – 50 Maschinen täglich im Einsatz
 - 778 gerettete Personen
 - ca. 2.100 Flugstunden
- A-310 MEDEVAC / C-160 TRANSALL MEDEVAC
 - Transport von 237 Patienten (72 Intensiv) bei der Evakuierung von Krankenhaus Dresden
 - seit 12.8. in Bereitschaft
- C-160 TRANSALL für Transportaufgaben
 - 45 Flugstunden; 114 Tonnen Material
 - seit 12.8.: 7C-160 Transall in Bereitschaft
- Do 228 und TORNADO
 - Deichüberwachung und Luftaufnahmen
 - 12 Einsätze Do 228
 - 77 Einsätze Tornado
 - gesamt ca. 180 Flugstunden

Bereitstellung von Unterkünften

- ca. 11.000 bereitgestellte Unterkünfte für Bundesgrenzschutz, Technisches Hilfswerk und Evakuierte
- Aufbau der Zeltstadt „Sonnenstein“ bei Pirmasens für 3.000 Menschen in 72 Stunden



Organisation

- Soldaten aus ca. 100 Verbänden und Dienststellen aller Organisationsbereiche der Bundeswehr

Täglich eingesetzte Kraftfahrzeuge, bis zu

- ca. 250 Lastkraftwagen unterschiedlicher Größe
- ca. 30 Krankenkraftwagen
- ca. 35 Bergepanzer/Pionierpanzer
- ca. 30 – 50 Schlauchboote
- ca. 20 Feldküchen
- vier Brückenleger
- ca. neun Schwerlasttransporter
- ca. 25 Umschlaggeräte
- ca. 16 Transportpanzer
- ca. 25 Kraftfahromnibusse



Figure 91. Example of the number and types of equipment used in the response operations.

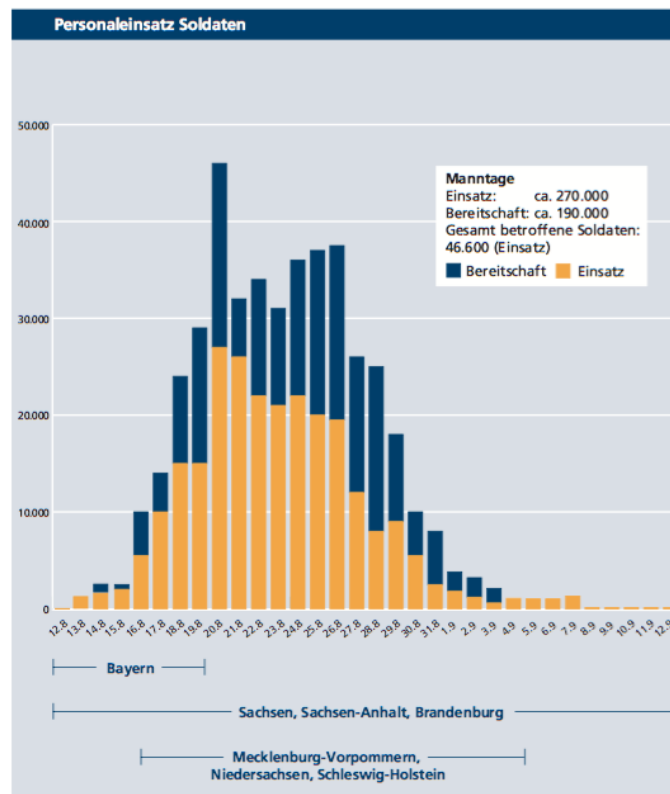


Figure 92. Example of the number of personnel involved in the operations and the units.

9.2 The Federal Border Police (Bundespolizei oder Bundesgrenzschutzes – GBS)²

The Federal Border Police is a special police that operates on the federal jurisdictional level; it was built in 1951 and is subordinated to the Federal Minister of the Interior. The estimated number of forces mounts to about 31,680 nationwide law enforcement forces and about 7,960 civilian employees.

The responsibility of the Federal Border Police is the protection of the federal territory. The Border Patrol includes the policing the borders; the police control of cross-border traffic and the border counties prevent threats affecting the security of the borders. Furthermore, the Federal Border Guard, among others also responsible for supporting the countries in the fight against specific hazards, natural disasters, and in situations of internal emergency.

On the federal authorities level, there is a total of five Border Protection Bureau (as safety authorities) and underneath those offices there is the border guards and below is the Railway Police offices (as a sub-agencies), the Border Guard Directorate and the Border Guard School. On dealing with the floods in Saxony, the *Border Guard Bureau East* as coordinating body, the *Border Patrol* offices_Pirna and Chemnitz, the Federal Departments Duderstadt and Hünfeld Border Protection Bureau center and added solid forces were involved in the entire federal territory.

The East office is responsible for the administrative districts of the Free State of Saxony (i.e. Chemnitz and Dresden) and includes Berlin and Brandenburg. The Border Patrol Office in Pirna is regionally responsible for the counties and cities of the Regierungspräsidium Dresden, also in consultation with the Border Patrol Office in Chemnitz for Weißeritzkreis. For the counties and cities of the district of Chemnitz, the competence of the Border Guard Office Chemnitz was given. Evacuation measures in the district of Leipzig carried out by the Federal departments and Duderstadt Hünfeld Border Protection Bureau center.

² von Kirchback et al, 2002, pp195-197

In the late evening of August 12, 2002 Corporate office furnishings, which was then commissioned by the Federal Ministry of the Interior with the overall coordination of operations in the flooded areas - in the district of Saxon Switzerland. This Joint Staff could the necessary support forces deploy together with the Federal offices Chemnitz and Pirna in the shortest possible time in the disaster areas.

The reports from the disaster response shows that the Federal Border Guard engagement involved providing technical and /or policemen/policewomen when the civil protection authorities made the relief request. These requirements are carried out according to the Federal Border Guard by respective wills on the lower civil protection level (counties, urban districts).

Thus, the District Administrator of the Saxon Switzerland has requested support for Pirna and Müglitztal already on *12 August 2002* shortly before 15h00 clock orally at the district head of the Federal Office Pirna. In the state capital Dresden, the local civil protection staff immediately to the Federal Inspection Dresden has addressed the requirements. On *13 August 2002* at 5.00 clock, the head of the Civil Protection Staff of the district Mittlerer Erzgebirgskreis requested assistance with air rescue operations from Border Guard Board Chemnitz. In addition, there have been other engagements of the Federal Border Guard during the response operations.

The Federal Border Guard began liaison offices and employees of the Federal Office in Pirna were sent on 14 August 2002 in the Ministry of Interior, the Police Department and the District Office in Pirna.

9.2.1 Tasks

Federal been carried out during and immediately after the disaster in the affected areas of the Free State of Saxony:

1. Search, rescue and recovery of missing, injured, dead or trapped persons with helicopters, boats and vehicles
2. Supporting the locally active authorities in evacuation measures
3. Presence in evacuated villages for protection of property and to prevent looting
4. Space protection measures to ensure the working ability of the civil protection forces

5. Keep clear of escape routes, as well as collection and use of spaces of civil protection forces

As part of the technical disaster relief following measures were carried out:

1. Restoration of makeshift navigability of roads
2. Providing the population with electricity
3. Drainage of buildings and basements using Drainage Pumps
4. Maintenance of drinking water supply
5. Dike elevations and reinforcements
6. Removal of debris and other obstacles
7. Transport of heavy equipment for disaster management

9.2.2 Cooperation with other organizations

The cooperation with the civil protection authorities of all levels has, according to the Federal Border Guard - apart from initially encountered difficulties and coordination problems - were positive and results-oriented. The same also applies to the cooperation with the police forces. The cooperation with the Bundeswehr was straightforward from the beginning, as with the Agency for Technical Relief -THW and the relief agencies.

- Around 2,200 workers of the Federal Border were during the flood disaster in use. On the other hand was critical attitude to evacuation measures that had to be partly carried out forcibly.
- Pirna Office, it has the following sub-offices: Dresden, Erfurt, Leipzig, Magdeburg, Chemnitz, Berggießhübel, Ebersbach, Ludwigsdorf und Klingenthal
- Total number of engaged units is 183 unit

9.2.3 Sample text of collaboration

(1) "Kontakte mit dem Bundesgrenzschutz, der Bundeswehr, der Polizei und des Technischen Hilfswerks kamen bereits am Abend des 12. August 2002 zustande. Mitarbeiter aller

Organisationen waren im Landratsamt vertreten. Bis 23.00 Uhr fand eine Beratung zwischen allen Anwesenden statt. Bei Auslösung des Katastrophenalarms war der Katastrophenschutzstab bereits voll einsatzfähig. Katastrophenalarm wurde nach dem persönlichen Urteil des Landrats und seiner Mitarbeiter ausgelöst. “(pp. 127 - Region Erzgebirgskreise)

Translation

“Contacts with the Federal Border Guard, the Armed Forces, the Police and the Agency for Technical Relief already came about on the evening of August 12 of 2002. Employees of all organizations were represented in the district office. To 23.00 clock a consultation between all those present took place. When triggered the disaster alarm the civil protection staff was already fully operational. Disaster alarm was triggered after the personal judgment of the District Administrator and his staff”

(2) “Luftrettungen erfolgten unter Einsatz von sieben Hubschraubern des Bundesgrenzschutzes, der Bundeswehr und der Polizei. Sie verliefen allesamt erfolgreich. Weiterhin wurden besonders robuste Boote mit starken Motoren eingesetzt. Personell erfolgten die Evakuierungen in Abstimmung mit den örtlichen technischen Einsatzleitungen teilweise durch die Polizei und teilweise durch eigene Kräfte der Landkreise.” (pp. 132 - region Landkreise ders)

Translation:

“Air rescues were performed using seven helicopters of the Federal Border Guard, the Armed Forces and the Police. They ran all successful. Further particularly sturdy boats were used with powerful engines. Personnel made the evacuations in coordination with the local industrial use lines partly by the police and partly by own forces of the counties.”

9.2.4 Distribution of the forces

The distribution was made in proportion to the population of each region. Therefore the number of units is not exact it is an estimation.

Tier # (Level)	Function	Node code
0	Liaison with Pirna HQ in Saxony	BP1
1	Sub-offices: Dresden, Erfurt, Leipzig, Magdeburg, Chemnitz, Berggießhübel, Ebersbach, Ludwigsdorf und Klingenthal Total count of persons is 2200 persons Total number of squads is 183 squads	BP2 - BP10 are the sub offices in Saxony. Dresden ☒ BP2 Erfurt ☒ BP3 Leipzig ☒ BP4 Magdeburg ☒ BP5 Chemnitz ☒ BP6 Berggießhübel ☒ BP7 Ebersbach ☒ BP8 Ludwigsdorf ☒ BP9 Klingenthal ☒ BP10
2	Pirna ☒ BP1 <i>population 39139, area 53.03km²</i>	20 units, BP11- BP30
3	Dresden ☒ BP2 <i>population 477800, area 328.8km²</i>	25 units, BP31-BP55
4	Erfurt ☒ BP3 <i>population 200500, area 269.14km²</i>	25 units, BP56-BP80
5	Leipzig ☒ BP4 <i>population 493600, area 297.36km²</i>	25 units, BP81-BP105
6	Magdeburg ☒ BP5 <i>population 231450, area 200.95km²</i>	25 units, BP106-BP130
7	Chemnitz ☒ BP6 <i>population 259245, area 220.84km²</i>	25 units, BP131-BP155
8	Berggießhübel ☒ BP7 <i>population 5917, area 88.75km²</i>	5 units, BP156-BP160
9	Ebersbach ☒ BP8 <i>population 8321, area 14.98km²</i>	5 units, BP161-BP161
10	Ludwigsdorf ☒ BP9 <i>population ?, area ? km²</i>	5 units, BP21-BP45
11	Klingenthal ☒ BP10 <i>population 8575, area 50.44km²</i>	13 units, BP21-BP45

Table 28. Estimates of unit distribution of the Federal Border Police in Saxony.

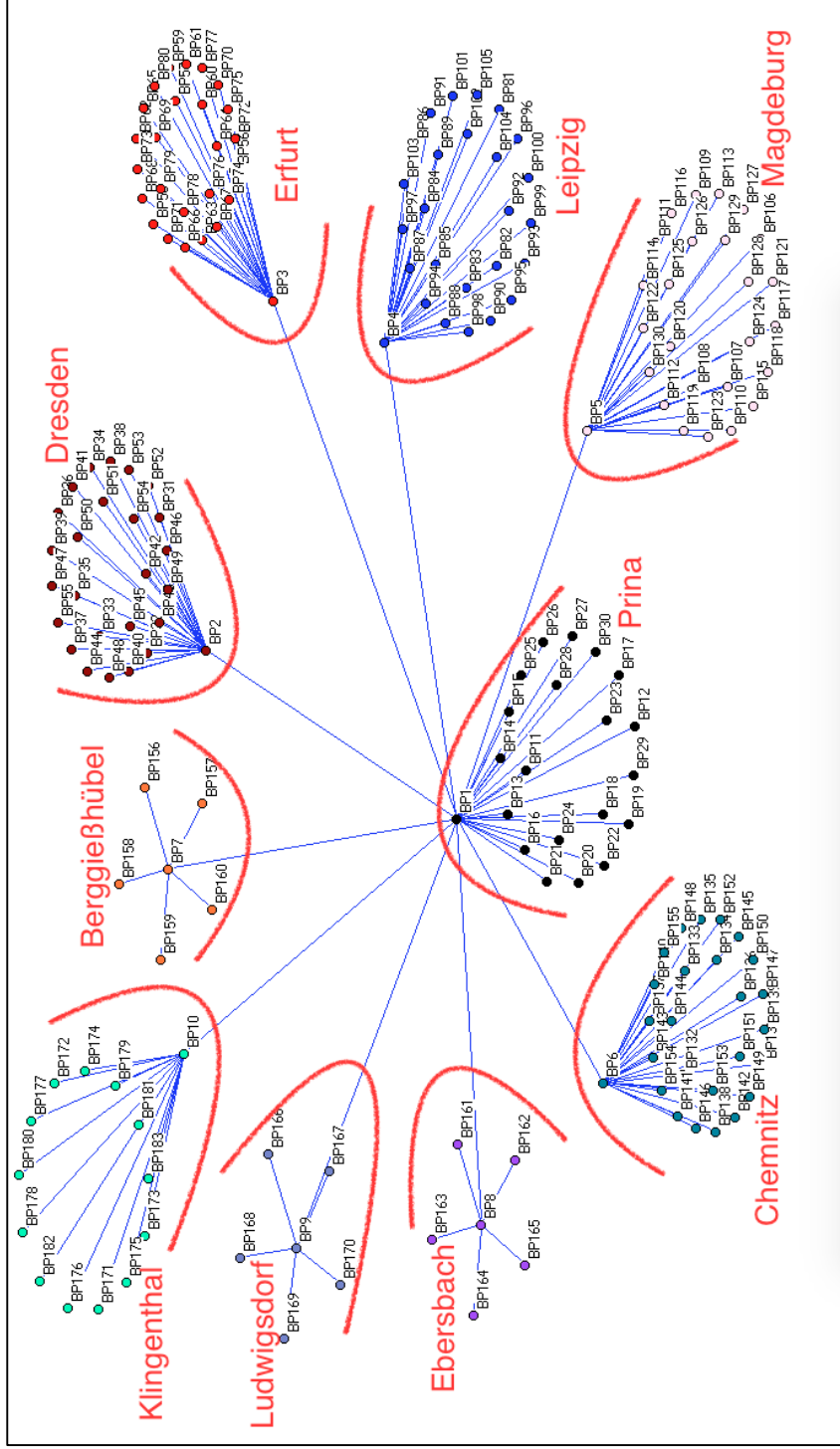


Figure 93. Network visualization of the Federal Border Police distribution and hierarchy.

9.3 Federal Technical Relief Agency (Technisches Hilfswerk – THW)³

The THW is divided into *three hierarchical* levels. Below the Federation consist of eight national / country organizations, which are run by full-time country representative. Below the national associations, the Technisches Hilfswerk is divided into *665 local associations*, which in turn are guided by volunteer local representative. Overall, the Agency for Technical Relief with approximately 70,000 voluntary volunteers in all provinces has a presence. For the Free State of Saxony the country Association of Saxony and Thuringia with the country representative office in Altenburg (Thuringia) and 4 other offices responsible (in Chemnitz, Leipzig, Dresden and Erfurt).

On addressing the August flood act with total 2,835 volunteers of the Technisches Hilfswerk. Cooperation with other emergency services designated by the Agency for Technical Relief as excellent, this is particularly true in relation to the Bundeswehr and the Federal Border Guard. They had mutually helped out with equipment and relief work carried out jointly, about the construction of the camp at Sonnenstein in Pirna.

9.3.1 Tasks

- (1) Participation in evacuation measures
- (2) Search and rescue operations
- (3) Drainage of buildings and basements (pumping works)
- (4) Providing the population with electricity
- (5) Drinking water supply
- (6) Electricity and lighting
- (7) Transportation
- (8) Dike reinforcement and providing sandbags
- (9) Controlled demolition of dike fortifications
- (10) Cleanup and demolition, blasting
- (11) Maintaining bridges
- (12) Oil damage control

³ von Kirchback et al., 2002, pp 197-200.

We should also mention the temporarily employed special staff of the Agency for Technical Relief for rescuing cultural buildings in the provincial capital (Semperoper, Alte Meister) and the technical security of the buildings State Chancellery and ministerial building Carolpalatz.

Quick facts:

- 668 local organizations, 66 branches, eight regional associations, a federal school with two locations and a THW headquarters. The THW has stretched its safety net over the whole of Germany. All contact details can be found here.
- News clipping from the 2002 flood for THW, BW and FD in Saxony
http://www.thw.de/SharedDocs/Meldungen/DE/Meldungen/national/2012/08/meldung_001_Flut2002.html?nn=923314
- http://www.thw.de/DE/Startseite/startseite_node.html
- http://www.thw.de/SharedDocs/Organisationseinheiten/DE/Landesverbaende/SNTH_Landesverband.html?nn=922532 - THW in Saxony
- Head offices: Chemnitz, Dresden , Erfurt, Leipzig
- **Chemnitz**, Dienststelle, Annaberg, Aue-Schwarzenberg, Chemnitz, Döbeln, Freiberg, Plauen, Reichenbach, Zwickau
- **Dresden**, Bautzen, Dippoldiswalde, Dresden, Görlitz, Kamenz, Pirna, Radebeul, Riesa, Zittau
- **Erfurt**, Apolda, Eisenach, Erfurt, Gotha, Heiligenstadt, Heiligenstadt, Nordhausen, Rudolstadt/Saalfeld, Sondershausen, Sonneberg, Suhl
- **Leipzig**, Altenburg, Borna. Eilenburg, Gera, Grimma, Leipzig, Torgau

9.3.2 Examples of collaboration

(1) “Bis auf das Technische Hilfswerk, das von den Landkreisen direkt angefordert wurde, erfolgte die Koordinierung der Hilfskräfte über das Regierungspräsidium. Nach dessen Einschätzung kam der Bundeswehr dabei eine Sonderrolle zu. Fachberater der Bundeswehr waren allerdings nur kurzzeitig im Krisenstab vertreten. Einen Verbindungsmann hat es nicht gegeben. Anforderungen an die Bundeswehr erfolgten unmittelbar durch das Regierungspräsidium Chemnitz oder durch das Innenministerium. Als Haupteinsatzgebiete der Bundeswehr wurden die Orte Marienberg und Schneeberg genannt. Des Weiteren vermittelte das Regierungspräsidium den Einsatz von Helikoptern des Bundesgrenzschutzes, z.T. auch zu Evakuierungszwecken. Hierzu bestand telefonischer Kontakt zum Bundesgrenzschutzamt Chemnitz”. (pp. 138)

Translation:

“ Apart from the Agency for Technical Relief, which was obtained directly from the districts, carried out the coordination of the assistants on the regional council. Following its assessment of the Bundeswehr, a special role came to this. Consultant of the German armed forces were, however, represented only briefly in the crisis management team. A liaison officer there has not been. Demands on the Bundeswehr carried out directly by the regional council Chemnitz or by the Interior Ministry. The main application areas of the Bundeswehr the places Marienberg and Schneeberg were called. Furthermore, the regional council gave the use of helicopters of the Federal, partly also to evacuation purposes. For this was telephone contact with the Federal Office Chemnitz.”

Tier # (Level)	Function	Node code
0	Main offices in Saxony: Chemnitz, Dresden, Erfurt, Leipzig Total nodes number is 280 node, each represent a unit of approx. 10 persons. Total count of persons is 2835 persons.	THW1 ☐ Thüringen office for Saxony region Chemnitz ☐ THW2 Dresden ☐ THW3 Erfurt ☐ THW4 Leipzig ☐ THW5
1	Chemnitz <i>population 259245, area 220.84km²</i>	THW2 ☐ 89 units THW6-THW94
2	Dresden <i>population 477800, area 328.8km²</i>	THW3 ☐ 88 units THW95-THW182
3	Erfurt <i>population 200500, area 269.14km²</i>	THW4 ☐ 39 units THW183-THW221
4	Leipzig <i>population 493600, area 297.36km²</i>	THW5 ☐ 59 units HW222-THW280

Table 29. Estimates of unit distribution of the Federal Technical Relief Agency.

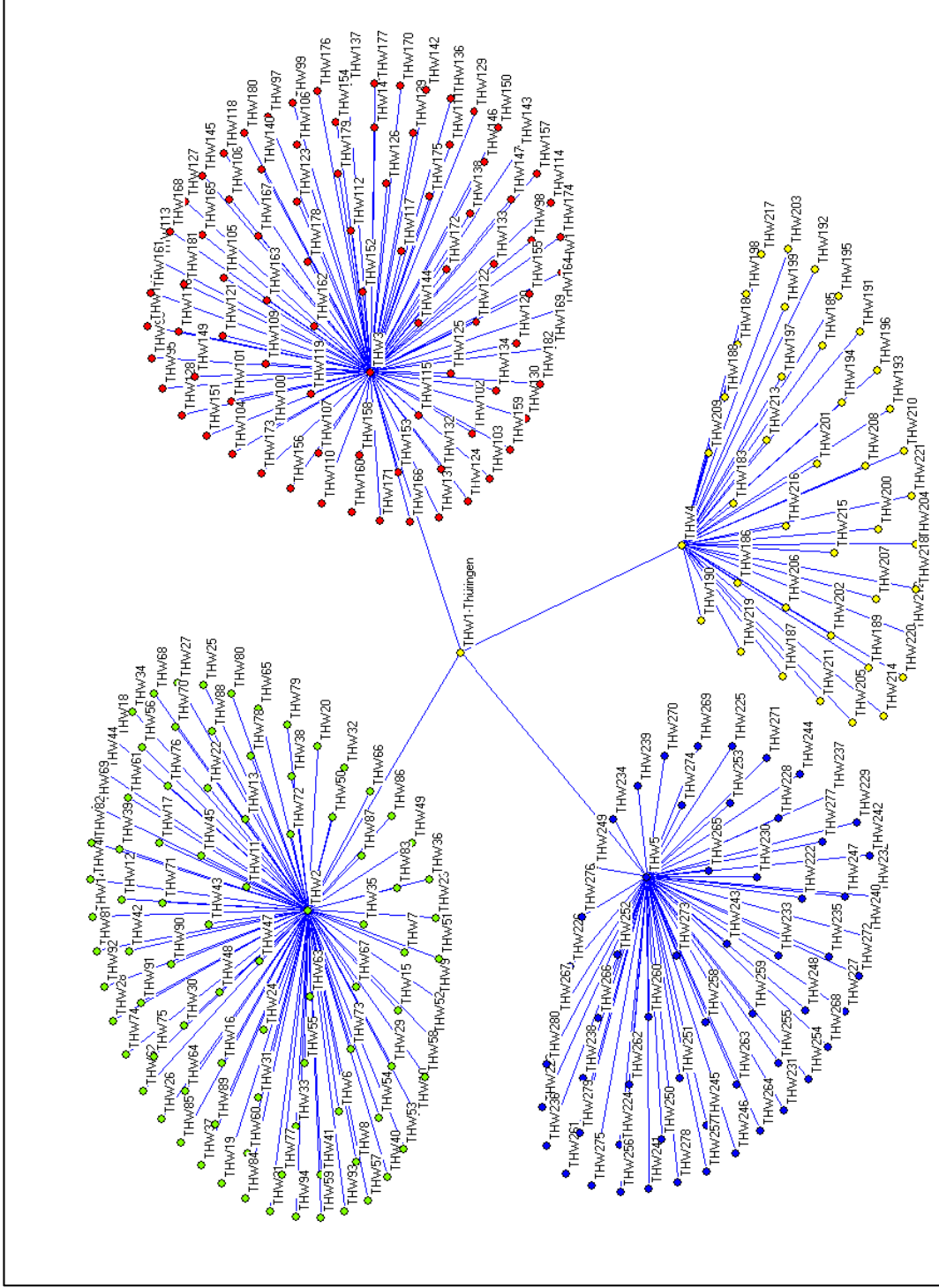


Figure 94. Network visualization of the Federal Technical Relief Agency (THW) distribution and hierarchy.

9.4 Saxon Police (Polizei Sachsen – SP)⁴

9.4.1 Tasks

The responsibilities of the police cover the following tasks but not limited to:

- (1) Rescue and retrieval of persons (including air ambulance)
- (2) Evacuation procedures
- (3) Spatial and property protection
- (4) Searching for missing people
- (5) Secure drinking water supply
- (6) Power Supply
- (7) Pumping works
- (8) Reconnaissance flights
- (9) Dike fuses
- (10) Cleanup

The air rescue police began on 12 August 2002 with three helicopters, but had to be interrupted at 22.00 and were taken on 13 August 2002 again in the morning. The evacuations were preparing the police claims to no serious problems, the legal basis to the coercive partial necessary was considered sufficient. Action uncertainty there had been only due to lack of professional experience.

The Saxon police in Saxony is divided to the following divisions: the **police headquarters** in **Chemnitz** and **Dresden** with five subordinate police departments and **Leipzig** with **three subordinate police** departments, **the National Police Directorate of Central Services**, the **Office of Criminal Investigation** and the **Bureau of Riot Police** with riot police **three subordinate departments**. The special obligation of Riot Police to provide assistance during natural disasters and particularly serious accidents.

Supporting information:

- <https://www.polizei.sachsen.de/eng/index.htm>

⁴ Von Kirchback, 2002. (pp 200-203)

- Saxon police is spread over the municipalities of Saxony in Germany.
- 5 police headquarters - <https://www.polizei.sachsen.de/eng/3571.htm>

9.4.2 Collaboration example

“Luftrettungen erfolgten unter Einsatz von sieben Hubschraubern des Bundesgrenzschutzes, der Bundeswehr und der Polizei. Sie verliefen allesamt erfolgreich. Weiterhin wurden besonders robuste Boote mit starken Motoren eingesetzt. Personell erfolgten die Evakuierungen in Abstimmung mit den örtlichen technischen Einsatzleitungen teilweise durch die Polizei und teilweise durch eigene Kräfte der Landkreise.”

Translation

“Air rescues were performed using seven helicopters of the Federal Border Guard, the army and the police. They ran all successful. Further particularly sturdy boats were used with powerful engines. Personnel made the evacuations in coordination with the local industrial use lines partly by the police and partly by own forces of the counties.”

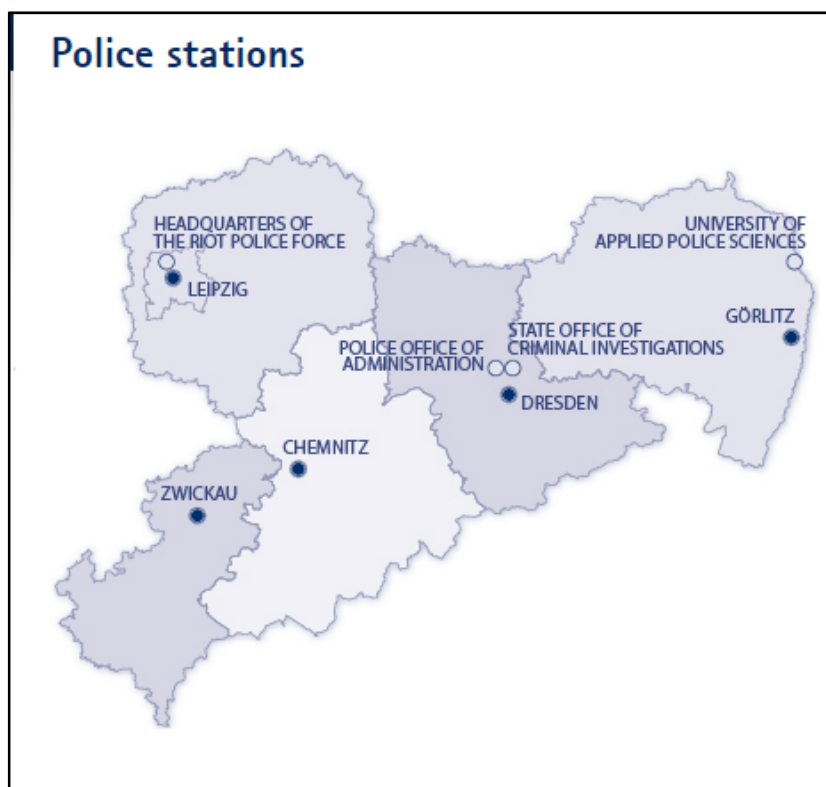


Figure 95. Distribution of the main offices and divisions of Saxon Police

Tier # (Level)	Function	Node code
0	Based on the report, regional offices involved are, <ul style="list-style-type: none"> • Chemnitz • Dresden • Leipzig Other offices or units are, <ul style="list-style-type: none"> • National Police Directorate of Central Service • Bureau of Riot Police • Office of Criminal Investigation Total count of persons involved is 12,500 Total number of squads is 1041 based on 12 persons per squad.	SP1 ☒ <u>Chemnitz</u> SP2 ☒ <u>Dresden</u> SP3 ☒ <u>Leipzig</u> SP4 ☒ National Police Directorate of Central Services SP5 ☒ Office of Criminal Investigation SP6 ☒ Bureau of riot police
1	<u>Chemnitz</u> <i>Population 259245, area 220.84km²</i>	SP1 ☒ 5 units SP7-SP11 ☒ Sub HQ 250 units SP7 ☒ 50 units SP8 ☒ 50 units SP9 ☒ 50 units SP10 ☒ 50 units SP11 ☒ 50 units
2	<u>Dresden</u> <i>Population 477800, area 328.8km²</i>	SP2 ☒ 5 units SP12- SP16 ☒ Sub HQ 350 units SP12 ☒ 70 units SP13 ☒ 70 units SP14 ☒ 70 units SP15 ☒ 70 units SP16 ☒ 70 units
3	<u>Leipzig</u> <i>Population 493600, area 297.36km²</i>	Sp3 ☒ 3 units Sub HQ ☒ SP17-SP19 417 units SP17 ☒ 140 units SP18 ☒ 140 units SP19 ☒ 137 units
4	National Police Directorate of Central Services	SP4 ☒ 1 unit ☒ SP20
5	Office of Criminal Investigation	SP5 ☒ 1 unit ☒ SP21
6	Bureau of riot police	SP6 ☒ 3 units ☒ SP22-SP24

Table 30. Estimates of the unit distribution for Saxon Police.

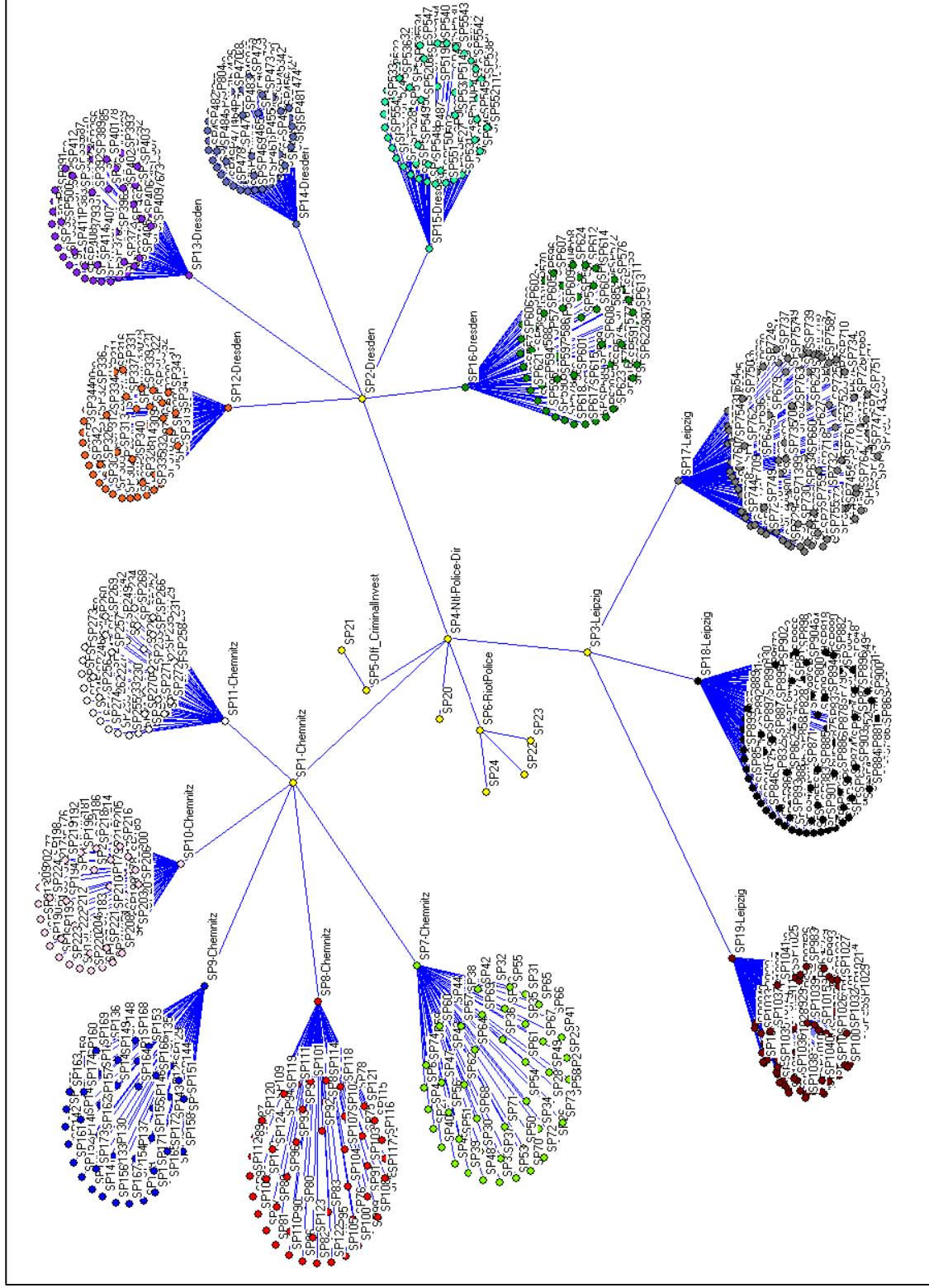


Figure 96. Network visualization of the main offices and divisions of Saxon Police

9.5 Fire Department (Feuerwehr Sachsen- FD)⁵

9.5.1 Tasks

The substantial assistance of firefighters is as follows:

- (1) Rescue and salvage operations,
- (2) Drainage of buildings and basements (pumping works)
- (3) Participation in evacuation procedures
- (4) Support emergency responders for evacuating in retirement homes
- (5) Transport
- (6) Dike protection measures
- (7) Controlled demolition of dike fortifications
- (8) Cleanup and demolition
- (9) Support the bridge
- (10) Oil damage control

Supporting information:

- <http://feuerwehr.sachsen.de/>
- <http://www.feuerwehr-sachsen.de/>
- Total number of firefighters brigades in Saxony is 2300. Website says! I normalized the number by 10 so we have 10 units per town!
- In Dresden there are 850 firefighters brigades (<http://www.feuerwehrdresden.de/>) 9 regions
- In Leipzig there are 500 firefighters brigades (<http://www.feuerwehrleipzig.de/>) 5 regions
- In Chemnitz there are 900 fighter fighters brigades (<http://www.feuerwehrchemnitz.de/>) 13 regions

⁵ von Kirchback, 2002. pp. 203-205

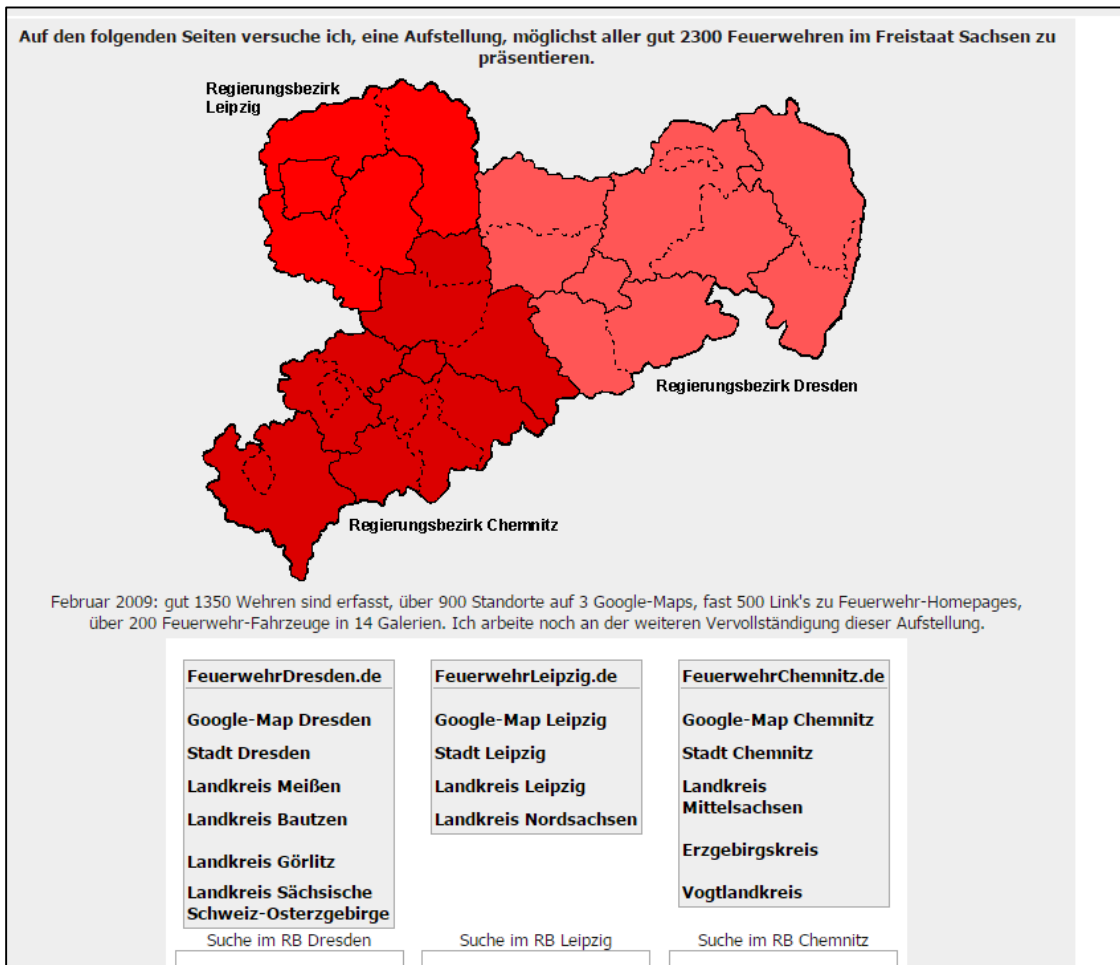


Figure 97. Distribution of Fire Departments over the State of Saxony.

Tier # (Level)	Function	Node code
0	The regional HQ's are in Dresden Leipzig Chemnitz	Dresden ☐ 9 regions FD2 ☐ 5 regions FD3 ☐ 13 regions
1	Dresden 855 units with 9 regions	FD1-FD9 Each connected to 95 units
3	Leipzig 500 units with 5 regions	FD10-FD14 Each unit connected to 100 units
	Chemnitz 910 units 13 regions	FD15-FD27 Each unit is connected to 70 units

Table 31. Estimates of the unit distribution for Fire Departments in Saxony.

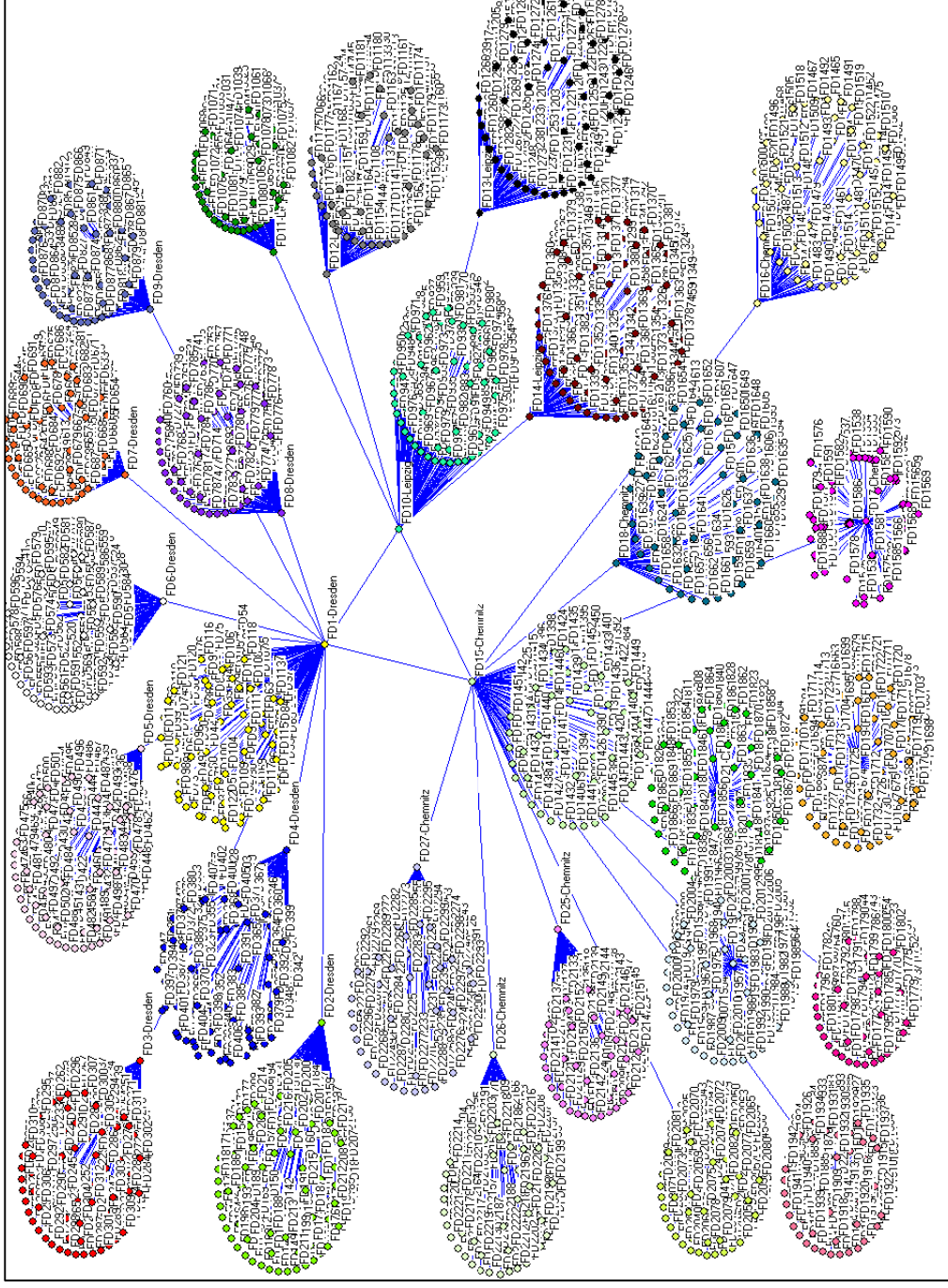


Figure 98. Network visualization of the Fire Departments distribution and hierarchy.

9.6 Private Charities (Private Hilfsorganisationen)⁶

The involvement of the aid organizations was a response to the requested of civil protection authorities. The German Red Cross had 29 units; the Johanniter accident assistance with 14 units; the Workers' Samaritan Federation with 8 units and the Malteser Civil Protection with 3 units (medical and care vehicles) were involved in the Elbe flood response operations. Added to this were the water rescue groups, the German Lifesaving Society.

9.6.1 Tasks

The aid organizations have been involved in all major relief tasks. This particularly relates to the stated below services of medical and care trains from ASB, DRK, JUH and MHD:

- (1) Participation in evacuations
- (2) Participation in securing and for recovery of people
- (3) Participation in the transportation of the sick and needy
- (4) Benefits to sick and needy as well as emergency services
- (5) Care, accommodation, food from needy
- (6) Procurement, supply and distribution of food among others supplies
- (7) Procurement and distribution of material (equipment and medical supplies)
- (8) Maintenance and repair work
- (9) Safe guards on dikes
- (10) Emergency Counseling

9.6.1.1 German Red Cross (*Deutsche Kreuz – DRK*)

The German Red Cross is a federal organization that in 19 regional associations and the Association of Sisterhoods divided by the DRK. The DRK has nationwide 551 district associations and 5,300 local associations. All organizations are legally independent (registered associations). The DRK is also one of the six leading associations of independent welfare. A special position is occupied by the Bavarian Red Cross, which is organized as a public corporation.

⁶ von Kirchback, 2002. pp. 205 – 209.

The DRC meets nationwide a comprehensive list of tasks in the fields of classical charity and welfare work. These include in particular rescue and ambulance services, first aid training of the population, Blood Transfusion Service, civil protection, mountain and water rescue, among other things.


In Saxony, the DRK divided in the DRK Landesverband Sachsen, which in turn belong to 42 Red Cross district associations as members. These district organizations are also organized as registered associations. They have declared their willingness to participate in the civil protection and recognized by the Saxon State Ministry of the Interior. (Kirchbach report p 206)

- <http://www.drk.de/ueber-uns/drk-verbandsstruktur.html> Deutsche Rotes Kreuz - DRK
- The levels of organization are national, districts and sororities (Local level)
- National - <http://www.drk.de/adressen/landesverbaende.html>
- District associations - <http://www.drk.de/adressen/landesverbaende/detail/1900/>



Figure 99. German Red Cross (DRK) divisions in Germany.

Landesverband Sachsen e.V.



Landesverband Sachsen e.V.
 Bremer Str. 10d
 01067 Dresden
 Telefon: 0351 4678 0
 Telefax: 0351 4678 222
 Web: <http://www.drksachsen.de/>
 eMail: info@drksachsen.de
 Karte: [Link](#)

DRK Kreisverbände

[Akademischer Kreisverband Leipzig e.V.](#)

[Freiberg e.V.](#)

[Oelsnitz/Vogtland e.V.](#)

[Annaberg-Buchholz e.V.](#)

[Freital e.V.](#)

[Pirna e.V.](#)

[Aue-Schwarzenberg e.V.](#)

[Geithain e.V.](#)

[Riesa e.V.](#)

[Auerbach e.V.](#)

[Glauchau e.V.](#)

[Rochlitz e.V.](#)

[Bautzen e.V.](#)

[Görlitz Stadt und Land e.V.](#)

[Sebnitz e.V.](#)

[Chemnitz e.V.](#)

[Großenhain e.V.](#)

[Stollberg e.V.](#)

[Chemnitzer-Umland e.V.](#)

[Hohenstein-Ernstthal e.V.](#)

[Torgau-Oschatz e.V.](#)

[Delitzsch e.V.](#)

[Klingenthal e.V.](#)

[Vogtland/ Reichenbach e.V.](#)

[Dippoldiswalde e.V.](#)

[Leipzig Land e.V.](#)

[Weißwasser e.V.](#)

[Döbeln-Hainichen e.V.](#)

[Leipzig Stadt e.V.](#)

[Zittau e.V.](#)

[Dresden e.V.](#)

[Löbau e.V.](#)

[Zwickau e.V.](#)

[Dresden-Land e.V.](#)

[Meißen e.V.](#)

[Zwickauer Land e.V.](#)

[DRK Zentrum](#)

[Mittleres Erzgebirge e.V.](#)

[Plauen/Vogtland e.V.](#)

[Muldental e.V.](#)

[Eilenburg e.V.](#)

Figure 100. German Red Cross (DRK) sisterhoods in the State of Saxony.

Level	Division	Code
0	Saxony District association	DRK1
1	42 districts	DRK2- DRK43

Table 32. Estimates of the unit distribution for German Red Cross in Saxony.

9.6.1.2 *Workers' Samaritan Federation (Arbeiter-Samariter-Bund - ASB)*

The Workers' Samaritan Federation is an NGO founded in 1888 and is a federation of voluntary welfare organizations with headquarters in Cologne. Main fields of application are, inter alia, Emergency medical services and patient transport, training of the population in first aid, civil protection, inter alia, The association is divided into the Federation (eV), 16 regional associations (eV) and more than 300 local and district associations, some of which are also legally independent. In Saxony the ASB Landesverband Sachsen eV is working with 14 local associations. He is recognized by the Saxon State Ministry of the Interior as an organization to participate in disaster relief.

- <https://www.asb.de/en>

9.6.1.3 *Johanniter Accident Assistance (Johanniter-Unfall-Hilfe - JUH)*

The Johanniter accident assistance is a national institute of organization and an association of voluntary welfare organizations, organized as a registered association with legal personality 9 regional associations and - these downstream - about 200 district and regional associations. Seat of the Johanniter accident assistance, which was founded as a religious work of the Protestant St. John in 1952, is Berlin. The range of tasks includes training in first aid, rescue and ambulance services, emergency counseling, Civil Protection, among other things These tasks meets the Johanniter accident assistance in Saxony by its Landesverband Sachsen and its Subordinated circular (4) and regional associations (2). The Johanniter accident assistance is recognized by the Saxon State Ministry of the Interior as an organization to participate in disaster relief.

- <http://www.johanniter.de/>

9.6.1.4 *Maltese Relief Service (Malteser Hilfsdienst - MHD)*

The Maltese Relief Service is a national institute of charity. It was founded by the German associations of the Order of Malta and the German Caritas Association in 1953 as a registered association, is headquartered in Cologne and is divided into 29 diocesan and national associations. Its responsibilities include emergency rescue and ambulance services, first aid training, medical services, civil protection, inter alia, The Malteser maintains in Dresden a diocesan office, which is also responsible for areas in the east of Thuringia except

for Saxony. In Saxony the Malteser is recognized as an organization to participate in civil protection.

- <https://www.malteser.de/startseite.html>

9.6.1.5 *German Lifesaving Society (Deutsche Lebensrettungs-Gesellschaft - DLRG)*

The German Lifesaving Society is to create an organization founded by the merger of volunteers in 1913 with the task of institutions and activities and to promote that serve the fight against death by drowning: promoting beginners swimming, planning and organization of the rescue guard service, participation in preventing and combating of disasters on the waterfront, among other things, The German Lifesaving Society is also recognized organization of first aid training. In the civil protection DLRG takes over in case of flooding, flooding, dam failure or flood planning, the use and organization of water rescue service. Your seat has the German Lifesaving Society in Bad Nenndorf (Niedersachsen). It is divided into 19 legally independent state associations.

The National Association of Saxony is divided into 22 local subdivisions. Of the approximately 2,700 members of the majority in the water rescue and preventive work is active. The German Lifesaving Society Landesverband Sachsen eV, is recognized as a charity in civil protection and belongs to him.

- <http://www.dlrg.de/fuer-mitglieder.html>