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Approaches towards a community-oriented and enabling disaster management model

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Disaster management comprises of all measures to be taken in order to protect the lives, the health or the environment of a community in or prior to the event of disaster. The present essay addresses some aspects of disaster management in Germany, with a focus on the extent to which communities are involved into the process of managing disaster protection activities. Drawing on two security research projects sponsored by the Federal Ministry of Education and Research (BMBF), the following illustrates the reasons why this issue deserves special attention, and which approaches towards community-oriented and enabling crisis and disaster management are currently being discussed and developed in Germany. The Berlin School of Economics and Law was, or, respectively, is partner to a consortium formed for the TankNotStrom-project completed in 2012 and to its follow-up project Kat-Leuchttürme (Kat-lighthouse project).

Let us begin with a brief look at the history of disaster protection in Germany. The latest disaster that has been deeply ingrained in the Germany's collective memory is the experience of World War II. This evokes remembrances of survival horrors, physical injury and death, manifold experiences of grave deprivation, such as living in emergency shelters, in hunger and cold. Even though people in Germany are now looking back at almost 70 "years of peace", fears of another war were predominant over the time after 1945. The world's bipolarity and the extensive rivalry between the two superpowers were constitutive for the shaping of German post-war politics and its appeal for high investment in civil protection.

No later than after the dissolution of the Warsaw Pact in 1991, however, civil protection has lost some of its political, structural and financial weight. With the end of the Cold War and the related changes in the security policy environment, it became impossible to justify continued high investment in civil protection. Such dramatic loss of significance had a negative impact also on the disaster protection capabilities on the federal states level. Disaster protection, as a part of general danger prevention, falls within the competence of the federal states, the task of which is both to provide all the necessary resources, and to take care of the operative crisis and / or disaster management. Disaster protection, though not related to the event of war, in Germany has historically been intertwined with civil protection, and autonomous civil protection structures have not been developed. In a state of defence, the Federal Government will draw on the resources of the federal states disaster protection agencies and simply reinforce and complement them by own material and staff resources. As a result, civil and disaster protection form a single system

Disaster Protection under scrutiny: The Dombrowsky and Brauner Report(1996)

At this stage of unbuilding civil and disaster protection in Germany in 1996, Dombrowsky and Brauner prepared a report which, on the example of Germany, dealt with disaster prevention in industrial societies. The starting question was whether the existing form of disaster protection is able to minimise, mitigate or even prevent damage in such potentially disastrous events as can be imagined to occur in this country.

Dombrovsky's and Brauner's study resulted in a highly negative assessment of the then present disaster protection system and identified the following vulnerabilities in particular:

1. For disaster protection there is no dedicated organisation or public institution. It is implemented solely as an organisational programme which, under conditions specified by

law, arranges for cooperations between existing organisations and institutions for disaster response purposes. This system is characterised by its strongly fragmented competences and lack of coordination between its components.

2. Disaster protection mainly aims at responding to locally and regionally dangerous situations and is designed for interventionist action.
3. The high complexity of danger and the concomitant chain of consequences exceed the system's capability to understand these consequences and to resolve the related problems. When measured against such complexity, disaster protection appears to be undercomplex.
4. Necessary data (e.g. vulnerability information) are lacking, or the available data are not adequately evaluated and used. According to Dombrowsky and Brauner, however, the availability of appropriate data is prerequisite for an efficient disaster management.
5. With regard to the quantity, quality and availability of the resources used to minimise and respond to hazard, there is little transparency, so that disaster protection appropriately compares with a "black box". The reasons of such intransparency are seen in secrecy and power interests.
6. There is no cooperative relationship between state, business and population. German business has not yet discovered disaster management as a market opportunity. This is considered an obstacle to curing the present lack of innovation through new products.
7. An end-to-end-feature of disaster protection is its deficient contact with the population. The degree to which the population - the target of all such efforts - is ignored as a potentially participating partner, for Dombrowsky and Brauner gives rise to suspect fear of touch with the citizens. Participative approaches apparently do not exist, and there are no plans to efficiently involve the population in terms of self-help and self-reliant initial care.
8. Another important, but underdeveloped component of disaster protection is the quality of information supply to the population. No sufficient provisions are made for early warning and regular appropriate information of the citizens.
9. In communications with the citizens a "bureaucratic tone of instruction and command" prevails over dialogue. Instead, it would be necessary to clarify the goals of protection with the addressees of protection. Particularly in view of the high cost of prevention, Dombrowsky and Brauner find it necessary to get the citizens involved and openly discuss with them, how much protection is necessary and avoidable, what public "basic protection" must do, and to what extent it is conceivable and reasonable to include private components into the protection system.
10. Communication deficiencies, however, also concern the organisations acting and cooperating in the event of disaster.
11. What is missing is a service-oriented, active disaster prevention programme that would address society as a whole.

Dombrowsky and Brauner come to the remarkable conclusion that: "Disaster protection as a social attitude can become real only when public services are implemented in the form of an active participation model" (Dombrowsky; Brauner, 1996).

This critical assessment now dates back 17 years. Since then, many things have happened, and the issue of disaster protection has now acquired a new topicality. Following the attacks of 11 September 2001, perception of hazard of international terrorism has significantly increased also among the population in Germany and it was, last but not least, the loss of sense of security that lead to a

revival of civil and disaster protection. In 2002, the Federal Government and the federal states agreed on a "New Strategy for Civil Protection in Germany" (BBK, 2010), which aims at undertaking joint responsibility to meet the new challenges.
These new challenges do not only include terrorism, but also, for example, pandemic hazards and the increasing frequency of disastrous meteorological and natural events. In 2011, Munich Re, one of the world's leading reinsurers, stated a significant increase of most severe natural disasters over the past two decades.

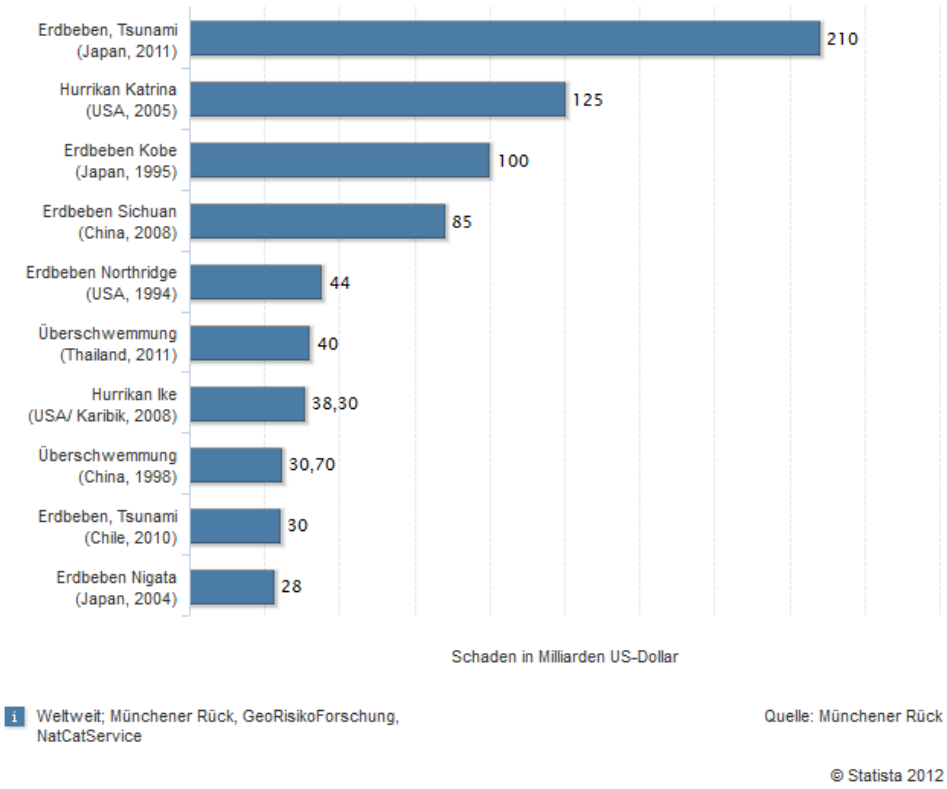

Fig. 1: The ten biggest natural disasters according to economic loss, caused during the years 1980-2011 (in BN US-Dollars)[1].

Even though, in international comparison, the impact of extreme natural and weather events in Germany appears to be rather insignificant[2], the perception of hazard is growing in this country, too. Nuclear power, for example, lost social acceptance at the latest after the earthquake-driven nuclear disaster of Fukushima in 201 and ever since nuclear power plants, interim and permanent repositories have nuclear disaster of Fukushima have been felt to be like "ticking time bombs". The high complexity of hazards and their impacts and aftermaths, highlighted in 1996 by Dombrowsky and Brauner or, prior to that, by Beck (1986), is confirmed by current events. On the other hand, earlier criticism is partly no longer relevant, which is due to the changes implemented since 2002 as a result of the "New Strategy for Civil Protection". So, some of the flaws of activity coordination between the Federal Government and the federal states (1st critical issue) have been removed, the transfer of information to the public has been improved (8th critical issue), and promotion

[1]http://de.statista.com/statistik/daten/studie/157611/umfrage/groesste-naturkatastrophen-nach-volkswirtschaftlichem-schaden-seit-1980/ (retrieved 02.01.2013)
[2]e.g. the Elbe and Danube floods in summer 2002, the hot spell in 2003, the 2005 blackout in the Muensterland, the hurricane Kyrill in early 2007.

programmes for civil security research now provide business and science with incentives to deal with innovation in crisis and disaster response (6th critical issue). The key points of the changes induced by the said "New Strategy" include the following:

- The German Joint Information and Situation Centre (GMLZ) has been established and is based on the German Emergency Preparedness Information System.
- A satellite-based warning system (SatWas) has been implemented for rapid alerts to the public via radio, television and other media.
- Crisis trainings and exercises are carried out by the Academy of Crises Management, Emergency Planning and Civil Protection (AKNZ), which, since 2004, has also been in charge of designing and controlling cross-federal states crisis management exercises (LÜKEX).
- The new Federal Office of Civil Protection and Disaster Assistance (BBK) has been established in May, 2004.
- A special department for crisis management and civil protection has been established at the Federal Ministry of the Interior (2007).
- The Federal Ministry of the Interior has institutionalised a Protection Committee which, on a voluntary basis, advises the Federal Government on scientific and technological issues of civil protection and issues hazard reports.
- Public expenditure for security research has significantly increased: Since 2007, the Federal Ministry of Education and Research has allocated over € 250 million to the first national framework programme for civil security research.The Federal Government continues research funding over the period 2012-2017 under the framework programme called "Research for Civil Security[1]. The objective of the funding is to accelerate processes of (primarily technological) innovation and to position German businesses for the international civil security applications markets[2].
- The Civil Protection Act has been reformed: The Federal Law on Civil Protection and Disaster Assistance (ZSKG) was enacted in 2009. Now the Federal Government's competences include, in addition to civil protection in the event of war, the legal power to assist the federal states with performing their civil protection tasks in cases of terrorist attack, natural disaster and accident, threatening more than one of the federal states (Meyer-Teschendorf, 2009).

Notwithstanding all these structural changes, the question remains: Is the disaster protection system capable to safeguard the population against impending hazards? And what about the 7th and subsequent critical issues concerning lack of contact and communication with the population as well as insufficient citizen participation?

Disaster protection - once more under scrutiny: the 2008 Allianz Survey and the Grünbuch (2008)

In 2008, the strengths and weaknesses of disaster protection in Germany were tested in a survey carried out on behalf of Allianz AG. The survey concludes as follows: German disaster protection is designed to provide such conceptual, material and staff resources as are necessary to respond to unforeseen local local occurrences caused by Force Majeure, human or technical failure. As already

[1]http://www.bmbf.de/de/6293.php (retrieved 28.12.2012)
[2]http://sicherheitsforschung.vditz.de/ (retrieved 28.12.2012)

stated by Dombrowsky and Brauner in 1996, the disaster protection system still remains best prepared to cope with natural events, such as fire, explosion, collapse of structures or flooding, when their impact is localised and requires taking care of no more than about 50 injured persons. In such cases it is usually assumed that critical infrastructures (such as electric power supply) have remained intact. Large-scale events, e.g. prolonged failure of critical infrastructures, above all, of public power supply, would exceed the capacity of the disaster protection system. Significant risk potentials, such as the dependence on infrastructures and the interdependence between the latter, or the widespread availability of IT technologies and the population's dependence on them would not be sufficiently considered in disaster protection planning. Another, at present neglected, risk potential is seen in the aging of the population, the isolation, people experience within society and the changes in consumer behaviour that cause changes in the population's self-help ability. The study believes that, instead of singular events and failures, the main challenge in disaster protection is the breakdown of the system as a whole, along with the absence of adequate approaches to remedy.

The first analysis that deals with this key scenario in more detail is the Green Paper [Grünbuch] on "Risks and Challenges in Public Safety", published also in 2008 by the Forum on the Future of Public Safety and Security - an association, the establishment of which arose from an initiative launched by members of the Bundestag from across all groups. The authors conclude that, in the event of cross-regional, long-lasting blackout in Germany, public institutions and private relief organisations will be unable to sustain basic supplies to and safety for the citizens. Moreover, considering the low self-help ability of the population, such blackout would result in a national disaster causing far-reaching damage to social life and economy (Reichenbach, 2008, 27).

The requirements set forth by Allianz on the basis of this analysis, and the critical statements made in the Grünbuch (Reichenbach, 2008, 45-48) aim in the same direction. Both studies see the necessity not only to improve both organisational and management structures, but also, and above all, to reorient disaster protection: Significantly more emphasis should be given to informing and warning the public, as well as to private provisioning, self-protection and neighbourly help.

The TankNotStrom-Project

In 2009, the project TankNotStrom - a cooperation between joint partners from science and practice - was launched under the BMBF-sponsored programme "Research for Civil Security"[1]. The exact title of the project was "Power and Fuel Supply for Petrol Stations and Backup Generators in the Event of Blackout". The project started with a focus on the following problem area and the questions arising from it: Main critical infrastructures, such as police, fire service and hospitals are, in the event of blackout of public power supply, secured by backup generators and remain operable for 12-24 hours. But what can happen if this time-span has elapsed? How to ensure fuel supply, when generator tanks run empty and power cuts disable petrol stations? In May 2012, the project delivered, as a central result of its work, a concept for an integrated monitoring, logistic and management system to

[1]Project partners: Charité - Universitätsmedizin Berlin, Berliner Feuerwehr [Berlin Fire Service], Brandenburg University of Applied Sciences, Berlin School of Economics and Law, Universitätsmedizin Berlin, TimeKontor AG (project partnership coordinator).

provide assistance in mastering the impacts of power blackout. For a detailed description of this concept, see the project's homepage[1].

HWR Berlin Sub-Project: Psycho-social Impact of Long-lasting Blackout

HWR Berlin's task within the project partnership was to prepare a scenario for a long-lasting (app. six days) blackout in Berlin (Sticher, Ohder, 2011) in order to analyse its psychosocial impact on the population and to derive, on this basis, deliberations on how to shape crisis and disaster management (Sticher et al., 2013).

This scenario illustrates the severe impact of blackout on all areas of public life. The effects of blackout in Berlin were studied with regard to the main sectors of critical infrastructure: IT and telecommunication networks, transportation, water supply and sewage disposal, food supply, health care, waste disposal, financial services and public facilities, such as penal institutions[2].

The Berlin blackout scenario showed, in line with the insights gained by the Grünbuch authors, that it is the mainly the rapid onset of numerous cascading effects that, in the event of widespread power outage, will shortly lead to disastrous impacts on the population.

Let us now turn to the results gained from the study of the psychosocial impacts of blackout: An important insight is that it is impossible to talk about "generic" impacts on a population "as a whole". Blackout affects each individual highly differently, depending on the degree of his/her vulnerability and the resources available to him/her.

Vulnerability is significantly higher in, for instance, sick persons, who, in order to survive, must rely on assistance from others or other means, such as electrically powered devices etc. This is true, e.g., for dialysis patients or persons who need respiratory equipment. Yet also families with small children, persons addicted to drugs, or foreign tourists are more vulnerable than, for example, young students.

Another important factor for understanding the psychosocial impact of blackout is the resources available to people for use in such situation. Resources include both the material circumstances, e.g. food supplies, availability of drinking water, and immaterial circumstances, such as individual or social competencies, or the degree of social embedding of an individual in his/her social environment, i.e., in a network of friends and acquaintances who, if necessary, are able to provide support and assistance. In an economically, socially, structurally and architecturally heterogeneous cities like Berlin, these material and immaterial resources are spread rather unevenly. Persons living in high-rise districts above third floor level, have no water supply in the event of power outage. In contrast to this, residents of terraced housing are likely to retain that resource and therefore to be able to use their toilets. In city areas with dense population, small flats, low-income and socially weak residents, the quantity of home-stored food supplies is probably less than in the well-off suburbs. On the other hand, social cohesion may be stronger in economically pressured city quarters than in

[1] http://www.tanknotstrom.de/

[2] The scenario was prepared with consideration for the 2011 Report by the Ausschuss für Bildung, Forschung und Technikfolgenabschätzung [Committee on Education, Research and Technology assessment] titled "Risks and Vulnerabilities in Modern Societies in events of long-lasting wide area blackout

quarters with residents whose income is above average. These briefly outlined considerations demonstrate the necessity to take a differentiated approach to the assistance needed by the population. The specific circumstances of life within a given social space must ne analysed in more detail and become the starting point for the planning, the organisation and the implementation of assistance in the event of disaster. In order to prevent the severest hazards or distresses in the event of collapse of critical infrastructures, it is necessary to obtain more precise knowledge on specific assistance needs of the population. Under the TankNotStrom project, two exemplary Berlin districts were, in order to collect indicators of specific vulnerability and needs of assistance selected and entered into an Excel database with a diversity of query options (KriMaTab = Crisis Management Dashboard).

Qualitative interviews were conducted with experienced Berlin police and firemen in order to understand how to assess possible population responses to longer-lasting power outage in Berlin. These practitioners were asked to predict, drawing on their experience with the behaviour of individuals in critical situations, how the people, who fall within their respective sphere of competence, might act in the event of long-lasting power outage. One of the results from these interviews here deserves special attention: Practitioners believe that the way people respond to critical situations depends, to a decisive extent, on the quality of the information they get, and on the way this is communicated to them. Negative responses, such as strong emotions and, along with these, fatalistic or aggressive behaviours are seen likely to occur, above all, whenever the persons affected are not aware of what is coming up, and when they feel helpless and disoriented.

It is in the very event of long-lasting power outage, that communication with and within the population poses particular difficulties: Habitual, well-practiced every-day communication via fixed-line or cellular phone or internet will collapse within a short period of time. This will also affect communication between the population and the appropriate enquiry and emergency hotlines. Public agencies will find it hard to transmit information to the population, as there will be no or, at best, very limited access to mass media, such as radio, internet, television or newspapers. Spreading information via radio might be one of the remaining options, as many citizens have access to a car radio, and in quite a few households battery-powered receivers might be available. This is, however, not an adequate way to ensure area-wide an, above all, differentiated information to the population.

Let us state at this point, that the need for assistance in the event of long-lasting power blackout will in no time be very high in persons who are particularly vulnerable and have few resources to cope with the situation. Since the disaster protection organisations have no reliable data on their specific assistance needs at hand, there is no warranty that assistance will reach these persons. As blackout continues and supply paths and options, which people usually rely on as secure and therefore as a matter of course, collapse almost everywhere, the need for assistance will increase within the entire population - yet to a very different degree. When the objective is to minimise the impact of power outage as much as possible or, at least, not to let it aggravate to the point that many fall severely ill or even die, it will hardly make sense to distribute relief supplies and assistance evenly all over the disaster zone. Untargeted distribution of assistance will presumably not prevent critical undersupply for specific needs and, at the same time, certain groups of persons or entire urban areas might not receive the necessary resources. Also, it may be doubted, whether the resources available to the disaster protection organisations would suffice to accomplish such kind of distribution. The specific difficulty of informing and communicating with the population during blackout gives rise also to the

danger that parts of the affected population will react with strong emotion, which may cause a threat to public safety and order within the region hit by power outage. Another factor aggravating the situation as a whole is that power blackout affects also the forces of the authorities, the safety-related organisations and all the numerous volunteers in relief organisations which bear the load of assistance in the event of disaster. The disaster protection system is likely to soon reach its limits and to find itself unable to cope with the complexity and dynamics of the situation.

These insights demonstrate the necessity to critically review the existing crisis and disaster management system, as it is a severe challenge to the management and organisation capability of civil protection agencies and relies on the extensive use of volunteer forces. For disaster management to be successful in the event of long-lasting failure of critical infrastructures, there is apparently no other way than to identify, activate and use the population's potential for assistance. The present approach, which may be called "top-down approach", must then be complemented by a "bottom-up approach" to enable the involvement of the population in crisis and disaster management.

Approaches to involve citizens in CDM

In Germany, the strategy of managing crisis and disaster is still notably oriented towards the "command-and-control" approach. The philosophy underlying this strategy is based on the assumption that disaster calls for response by public actors, because it is only them who have the necessary capability. The population, so the assumption goes, will be overwhelmed and paralysed by situations they are not ready for, and no other force but the hierarchically positioned public actors, if necessary, with the support of affiliated non-governmental relief organisations, are able to prevent the worst and bring the chaotic situation as soon as possible back to normal.

Alternative approaches, which might serve as a model for Germany, are to be found mainly in the USA (National Research Council Of The National Academies, 2006). There, deliberations on how to complement the classical "command-and-control" strategy by decentralised approaches and to involve local informal forces have reached a relatively advanced stage. As an example may serve the „Emergent Human Resources“ or, respectively, the concept of the Emergent Multinational Networks (EMON-model). Corresponding deliberations are in line with the findings of disaster research, which has repeatedly demonstrated the population's great willingness to help others, especially in extreme situations (Jachs, 2011, 55ff).

In a German context, such alternative approaches are best subsumed under the notion of "community-oriented and enabling disaster management". Their common basic assumption is the following: Even when disaster leads to radical disruption of normal life, the population must not necessarily stay completely passive. In spite of all the serious constraints suffered, it still has options to act and can be won to become an actor in local disaster management - be it in the form of neighbourhood or interest groups, associations, parish or mosque communities, social networks, families, well-respected citizens with organisational experience, or also of people spontaneously joining in groups to face the disaster and its possible consequences. It is further assumed that involving locally based informal actors will enable quick and flexible response to diverse and, perhaps, rapidly intensifying needs for assistance.

The "bottom-up" and "top-down" approaches are not contradicting each other, and there is no question of either/or. The crucial point is to integrate the locally available material and immaterial resources with disaster management. Stress research findings (Hobfoll, 2001) have shown that stress response is less intense, when a person experiences him/herself as being actively involved and thus, in his/her own perception, regains control. With regard to crisis and disaster response, this means that activating the population does not only help to exploit valuable resources, but also supports individuals and groups in coping with potentially harmful extreme experiences.

In view of the increasingly scarce public resources (e.g. the reduced availability of federal armed forces), it will hardly be possible to master the challenges of civil protection in large-scale situations of crisis and disaster without rethinking the present approaches. In the same vein, the Federal Ministry of the Interior (BMI) is now voicing requests to promote more active involvement on the part of the population. So, for instance, a great potential for mutual assistance in crisis and disaster situations is seen to exist within neighbourhoods. "Take civil protection to the people" means to raise their awareness and activate self-help potentials already in the run-up to suspected crises (Behördenspiegel, 9/2011).

Meanwhile, this subject has also been addressed by the Bundesamt für Bevölkerungsschutz und Katastrophenhilfe [Federal Office of Civil Protection and Disaster Assistance] (BBK). The crucial insight was that in large-scale emergency and disaster situations it is imperative for the population to cooperate through self-protection and self-help, and that it is therefore necessary to activate the citizens. *Self-protection* here is to be understood as the community-based precautionary planning of self-help by citizens, businesses and authorities. The term *self-help* means the assistance provided by citizens to citizens, i.e., the readiness and possibility to help oneself and others, or to accept offers of help from neighbours and other persons[1]. Currently the BBK homepage[2] has a link called "Bürger und Bürgerinnen" [information for citizens] that leads to instructions on how to help oneself and others. Specific instructions are given only in a flyer which is titled "How to be Prepared for an Emergency" and has been translated into several languages, and in a leaflet called "Verhalten in besonderen Gefahrenlagen [How to behave in situations of particular hazard]. These pages, however, lack further details on how to organise such form of protection. References are made only to community or city departments which are responsible for this area and can provide adequate information. This indicates that the underlying concept has its deficiencies.

In Germany, empirical research on such topics as the population's needs for assistance in disaster situations and its readiness to help still plays a marginal role at most. At this point, it is appropriate to refer to a statement made by Geenen, which presents a detailed summary of the state of research on "Population Behaviour and Options of Crisis and Disaster Management in Multicultural Societies". Geenen concludes that "precautionary activities of the majority population and minorities in Western-type multicultural societies have up to now been rare subjects in social and cultural studies". In her opinion, the central task is to look for a more differentiated approach to the population, to stop treating it as a passive entity, to explore the precautionary approaches in use

[1]http://www.bbk.bund.de/DE/AufgabenundAusstattung/Risikomanagement/Notfallvorsorge/Selbstschutz/Selbstschutz_node.html (retrieved 2.1.2013)
[2]http://www.bbk.bund.de/DE/Home/home_node.html (retrieved 2.1.2013)

within the population, and to integrate these with state-of-the-art precautionary concepts (Geenen, 2010, 144).

The fact that the issue of "Activating Citizens" has high significance for society as a whole has been underlined by two recent publications. These include the anthology "Engagementpolitik Die Entwicklung der Zivilgesellschaft als politische Aufgabe. " [Policy of involvement. Developing civil society as a political task], compiled in 2009 by Olk, Klein and Hartnuß, and the "Handbuch bürgerschaftliches Engagement" [Manual of Civic Involvement], published in 2011 by Olk and Hartnuß. Both publications illustrate the development of civic involvement, involvement promotion and involvement policy in Germany over the previous years. The last-mentioned manual deals extensively with different fields and areas of civic involvement, as well as with the related development methods and strategies. To date, however, there has been no connection whatsoever between the current in-depth studies on civic involvement and the practical opportunities to have the population engage in crisis and disaster management.

The Kat-Leuchttürme Project: Active Involvement of the Population in Crisis and Disaster Management

The longest blackout in the past years struck happened in 2005 in the region of Münster. Its impact and the related crisis and disaster management were studied in greater depth under the framework of the TankNotStrom research project (Sticher; Boehme; Geißler, 2010). A striking finding was that fire stations were quickly converted into emergency powered emergency aid points for the population and became highly frequented by the public. Here, people could find contact persons, basic provisions (hot beverages and meals) were offered and assistance was organised from there. These more or less spontaneously "converted" fire stations gave rise to the idea to conceive and establish, in events of long-lasting power blackout or other disaster, a city-wide network of contact points, all located in a way that each citizen would be able to find one within walking distance (Sticher; Ohder, 2011). Such "Lighthouse Islands" might, in addition, ensure a reliable connection between the residents and the disaster protection forces, above all, by enabling exchange of information without major delay. Incoming emergency calls to the "Lighthouse Islands" could then, as rapidly as possible, be forwarded to the relief forces or local forces, who would then undertake or initiate the necessary relief actions. We should also emphasise the possibility to involve in crisis and disaster management such individuals as are willing and able to render assistance. Beyond their information and communication functions, the abovementioned contact points should also manage the supply of the most needed relief supplies. Thus the Lighthouse Islands would also organise the distribution of foods and needed medicines, or take care of psychological first aid.

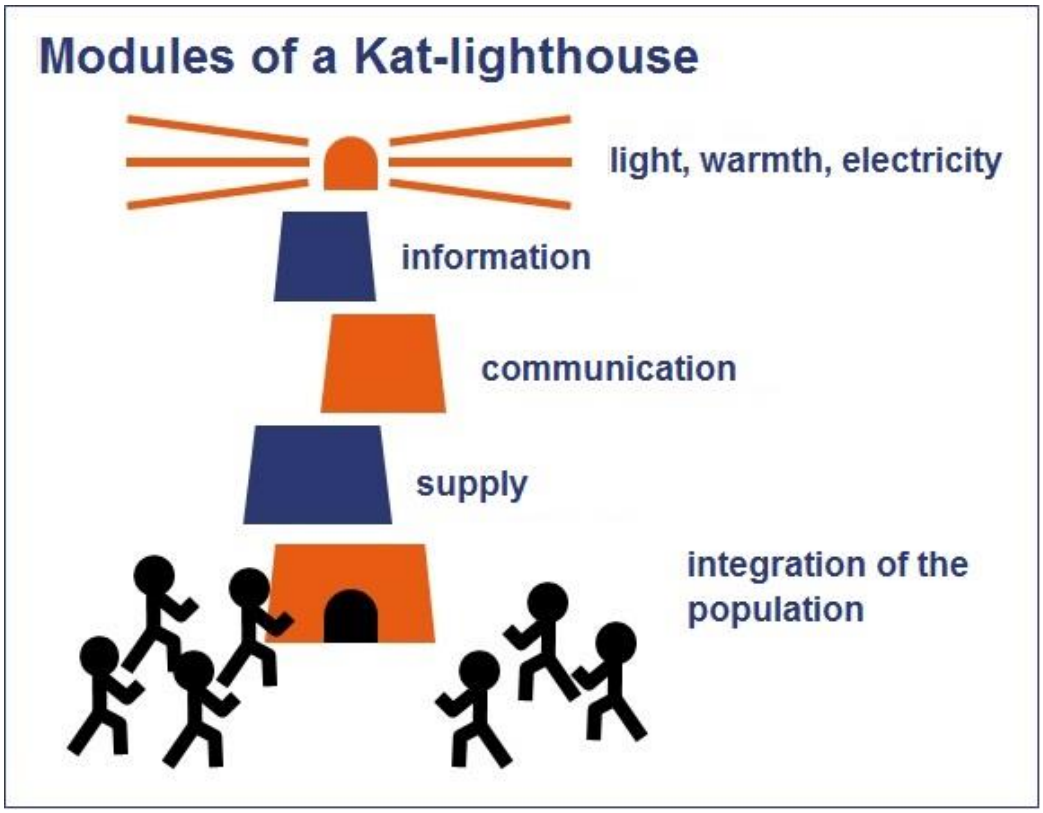

Fig. 2: Modules of a disaster protection Lighthouse (Description of the project "Kat-Leuchttürme", 2011, 5)

For the purposes of more closely analysing the specific design of such Lighthouse Islands, selecting appropriate locations and determining their functional requirements, but also for developing a communication medium that would function independently from public power supply, a second research project was initiated and has been launched in August, 2012.

The follow-up project "Kat-Leuchttürme" builds on the results of "TankNotStrom" and, sponsored until 2015 again by the BMBF under the programme "Forschung für die zivile Sicherheit" [Research for civil security], is carried out by partners from science and practice[1]. The full title of the project is "Katastrophenschutz-Leuchttürme als Anlaufstelle für die Bevölkerung in Krisensituationen" [Disaster protection Lighthouses as contact points for citizens in crisis situations].

The Project's objective is to explore and conceptualise a safety architecture (disaster protection Lighthouses) which is able to sustain the basic supplies for the population and ensure the function of crisis communication in the event of longer-lasting power blackout, and does so with a view to the framework requirements of law, communication science and technology applicable in both the national and the European context.

[1]Partners to the project "Kat-Leuchttürme": Berliner Feuerwehr [Berlin Fire Department], Beuth Hochschule für Technik Berlin [Beuth University of Applied Sciences Berlin], Bezirksamt Steglitz-Zehlendorf, Charité – Universitätsmedizin Berlin, Hochschule für Wirtschaft und Recht Berlin [Berlin School of Economics and Law], Forschungszentrum Katastrophenrecht an der Humboldt-Universität zu Berlin, TimeKontor AG (partnership coordinator).

During the project term, the intended Lighthouse concept is to be implemented as a pilot and will undergo evaluation in a test phase. The concept is shall be designed in such a way as to make it transferable to other (including rural) regions (Description of the project "Kat-Leuchttürme", 2011).

HWR Berlin has within the project partnership undertaken the task of focussing on the exploration of the principles and prerequisites for an activating crisis and disaster management. The objective here is to analyse and record the population's needs for assistance with regard mainly to aspects of time and vulnerability. Once again, we would like to emphasise that the population should not be seen as a homogeneous group of relief recipients. Diversities between urban milieus and group mentalities, between the various social spaces etc. have become pervasive topics in vulnerability and needs assessment studies. Another research priority focuses on the question to what extent different population groups are prepared to help in the event of disaster. However, the intended diversification in the existing disaster management system by way of actively involving the population calls for analysis also from a legal perspective. This task will be taken on by HWR Berlin as well (in close cooperation with the Centre for Disaster Legislation Research).

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