

Relief Needs and Willingness to Help in the Event of Long- term Power Blackout

**Results of a citizen survey in three Ber-
lin districts**

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Katastrophenschutz-Leuchttürme [Disaster protection "Lighthouses"] as contact points for citizens in crisis situations

Sub-project: Citizen-oriented crisis management in a social-scientific and legal perspective

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Foreword

The citizen survey on relief needs and willingness to help in the event of long-term power blackout was carried out under the framework of the project partnership "Disaster protection 'Lighthouses' as contact points for citizens in crisis situations" This project was carried out in direct cooperation between seven consortium partners.

The study was initiated by one of the consortium partners, the "Bezirksamt Steglitz-Zehlendorf von Berlin" [Steglitz-Zehlendorf district office]. With Lichtenberg and Mitte, two more districts were won to join the project. The surveys were carried out in the citizen offices of these districts

In addition, the Berlin Fire Service took the opportunity of an open day to question visitors and, as a result, contributed 82 questionnaires to a total sample of 800.

The overall responsibility for carrying out the surveys in the citizen offices, for collecting and processing all the data, evaluating the interview results and describing them in the present report was with the Berlin School of Economics and Law (HWR Berlin).

This report serves several purposes: To begin with, it intends to provide the consortium partners with general information on the survey and its results. Beyond that, all the partners having contributed questions to the questionnaire are to be briefed on the corresponding results, as these are of immediate importance for the progress of the partnership project. Finally, there is a detailed discussion of the appendix to the study, the structure of the data collected, and the evaluation approaches applied to them, in order to delineate the possibilities for a more in-depth evaluation.

The present report is intended for internal use in the first place. The results of the citizen survey will be made visible to expert audiences through the publications, presentations and lectures given by the consortium partners. For this reason, this report dispenses with further reaching interpretations of these results. As the report is intended for publishing on the project partnership's website and thus will be publicly accessible, it includes selected statements on the project as a whole, as well as explications of the examined places, which might be useful for readers who have no detailed knowledge of Berlin.

1 Citizen survey in the context of the project "Katastrophenschutz-Leuchttürme" [Disaster protection 'Lighthouses']

The project "Disaster protection 'Lighthouses' as contact points for people in critical situations" is funded by the Federal Ministry of Education and Research under the programme "Research for Civil Security" and deals with the prerequisites and possibilities for a citizen-oriented crisis and disaster management in events of long-lasting wide-area power blackout.¹

It is designed to develop and test a concept of contact points people can apply to in such critical or disastrous events. These contact points are to be equipped in a way that allows rendering urgent assistance on the spot or organising it from there. In addition, it is necessary to ensure emergency power supply and communication between these points over a period of several days. This implies certain technical requirements to the implementation of such 'Lighthouses'. It is no less important, however, to involve and activate the population. The key assumption of this innovative approach is that, the better this is accomplished, the easier it will be to utilise the resilience and self-help potential of the population, and the more efficiently crisis and disaster management can be organised during blackout or other disaster events.

These 'Lighthouses' function as communication interfaces and play a central role in involving and activating the population. This again requires the best possible knowledge of both the needs and expectations for relief, and the willingness to help and its prerequisites. For crisis and disaster management to be citizen-oriented and enabling, its approach should start from the local vulnerability profiles and the existing help mentalities. In this area, knowledge is limited and and (?) lacks the degree of differentiation needed to capture and understand the specific and rather diverse local conditions that are to be expected in pluralised societies.

This was the starting point for launching a quantitative citizen survey in three Berlin districts, the method, way of execution and results of which are presented in the following. It is complemented by earlier completed exploratory case studies as well as qualitative studies, which are to be carried out by the end of the project term in July, 2015.

¹<http://www.kat-leuchtturm.de/>

2 Methodological classification

Quantitative surveys, as a rule, have two prerequisites. On the one hand, it is assumed that a representative sample, i.e. from interviews with a limited number of persons, allows drawing conclusions about a potential totality of respondents (voters, citizens of a town or city, newspaper subscribers etc.). On the other hand, such surveys expect to receive more or less reliable responses on the surveyed subject or theme. In the present case, these prerequisites are not unambiguously met.

As regards the problem of representativeness: Strictly speaking, the objective is to obtain information on persons who would be staying in the affected area during a longer-lasting power blackout. These include the residents, but also visitors and transients, i.e. a total number that may vary significantly especially in metropolitan regions and cities, where it is impossible to identify the individual respondents. Moreover, more than a few are likely to leave the area as the blackout continues, and the group of persons affected would change all the time. As a result, the design of a representative sample faces serious conceptual challenges. No less aggravating is the problem of information capability: Especially for questions related to relief expectations and willingness to help, respondents can have recourse to, at the best, limited personal experience, as, at least in this country, only few have gone through long-lasting power blackout. This gives rise to feelings of uncertainty and defensive behaviour. In traditional written or telephone interviews that provide no opportunity to address specific persons, to motivate them to participate and to clarify possible issues, the refusal and break-off rates would be conceivably high.

Hence it will be difficult to obtain a representative sample and, even if that were achieved, the effort of inquiry would be extremely high, since it would be necessary to gain full access to and perform comprehensive interviews with a randomly selected group of people. An appropriate alternative is the method of targeted sampling, which, in the context of a quantitative inquiry is to be understood as a procedure aimed at enabling the survey to address a diversity of opinions, experiences, assessments etc. This can be achieved by adequately selecting the places and times of interviews. Such approach opens the possibility to better understand, e.g., the kind of help people would expect, but - and here is the limitation inherent to this method - it does not allow to derive generalising quantitative statements like "62 percent of the population would expect that groceries be distributed starting from the third day of power blackout".

The above approach enables and even requires targeting specific groups of potential interview participants. Thus it will be possible explain the study objectives in a way customised to suit the addressees, and the respondents will

be able to associate the project with concrete institutions and "faces" they know. This and the opportunity of further query will increase the motivation to participate in an interview and to make the necessary effort.

None of this, however, will ultimately resolve the aforementioned problem of information capability: regardless of any motivation to participate, respondents will be unable to tell reliably what their situation will be like after several days of power blackout. Expectations and attitudes will vary depending on the degree of affectedness. Nevertheless, information on help-seeking and help-giving attitudes collected by interview remain highly relevant, as these mark the starting point of a crisis or disaster situation and will have a structuring influence on the latter. Persons, who are, in principle, willing to help and may show a certain 'altruistic openness' when such situation arises, will, by the same principle, be approachable for self-help activities on local level. When a person is himself seriously affected - let us say, his children have fallen ill - this willingness may not result in anything. For the development of citizen-oriented and enabling forms of crisis and disaster management and - specifically - of disaster protection 'Lighthouses' it is nevertheless important to know to what extent, under what conditions and in what way citizens are willing to help others, and what are their expectations from public authorities.

3 Realisation of the research project

The following describes how the conception outlined above will be realised. This is done in a way that comprehensibly illustrates the individual steps and elements of implementation.

3.1 Survey areas

The described methodological approach calls for a survey design that addresses a respondent target group in a way that allows covering as much as possible of the scope of backgrounds, experiences, life realities and attitudes existing in the population. Hence the question arises, where and in what situation to meet such persons and how to attract them to participate.

As predetermined by the overall project, the survey area was restricted to Berlin. It was further scaled down to comply with available funding. Finally, the survey area included, in addition to Steglitz-Zehlendorf, also the districts of Lichtenberg and Mitte. Comparisons of data from the Land's statistics indicate that the populations of these districts share essential heterogeneity fea-

tures as are common for the Berlin population in its entirety. These statistics also reflect the diverse local mentalities existing within the Berlin population.¹ Last, but not least, they contain information on the varying implementations of spatial and architectural planning.

- Steglitz-Zehlendorf is located in the former Western sector of Berlin; Lichtenberg was part of former East Berlin. Berlin-Mitte was formed by the amalgamation of one formerly Eastern and two formerly Western districts. The related statistical data were collected in the formerly Western district - now sub-district - of Wedding.
- The report 'Monitoring Soziale Stadtentwicklung' [Monitoring social urban development]² proves an eminently favourable social index for the Steglitz-Zehlendorf district. Lichtenberg ranks somewhere in the middle. The district of Mitte, which includes the sub-district of Wedding, lists among the city areas with the least favourable rating. The social index calculation uses six variables that refer mainly to the employment and migration status of a given population. The social index is considered indicative of the degree of social integration. It shows where conditions of life are comparatively favourable or unfavourable.
- In Steglitz-Zehlendorf, the cityscape is characterised by streets with well-kept stock of old buildings, quarters with single-family houses and smaller, mostly upper standard settlement units. Lichtenberg is dominated by large-scale settlements with a dense, homogeneous build-up of high-rise housing. The Wedding cityscape is shaped by so-called Gründerzeit-blocks. Smaller settlement units emerged after World War II under the framework of public housing projects.

3.2 Interview locations and periods

Interviews were held at the citizen offices of the abovementioned districts. This was, on the one hand, due to practical implications of research, since these offices are accessible to the public, offer an appropriate environment for interviews, and citizens who wish to visit them usually expect waits and therefore tend to budget for more time. On the other hand, one may assume that visitors to citizen offices are not subject to preselection, as, for instance, anyone in need of valid identification papers has to apply for them, as a rule,

¹ Cf. e.g., the seven living-worlds described in Hurrelmann, Klaus (2008). *Hertie-Berlin-Studie* [Hertie Berlin Study]. Hamburg: Hoffmann und Campe.

²

http://www.stadtentwicklung.berlin.de/planen/basisdaten_stadtentwicklung/monitoring/de/2011/tabellen.shtm

in person at the relevant citizen office. Also for persons without German citizenship, there are numerous reasons why they should see a citizen office. Carrying out interviews at tax offices or job centers would imply the risk of reaching only a section of the population.

All the interviews were held at different weekdays and daytimes during the period from 26 June to 29 August. Six of the interview dates were set outside, nine - inside school holidays. For more detail on interview dates, locations and numbers of respondents see table 1.

In addition to the interviews at citizen offices, visitors who attended the Berlin Fire Service's open day on 6 July 2013 had the opportunity to participate in the survey. Eighty-two persons from all parts of Berlin came together to be interviewed.

<i>Interview location</i>	<i>Interview dates</i>	<i>Respondents by citizen office</i>	<i>Respondents by district</i>
Zehlendorf-Steglitz			208
• Zehlendorf District Office	26.6.2013	61	
• Citizen office at Steglitz Town Hall	10.7.2013	58	
	15.8.2013	37	
	29.8.2013	43	
• Lankwitz Citizen Office	24.7.2013	9	
Lichtenberg			288
• Neu-Hohenschönhausen Citizen Office I	3.7.2013	54	
	8.8.2013	66	
• Lichtenberg Citizen Office II	8.7.2013	64	
• Center am Tierpark Citizen Office III	10.7.2013	50	
• Alt-Hohenschönhausen Citizen Office IV	6.8.2013	54	
Mitte			235
• Wedding District Office	8.7.2013	76	
	15.7.2013	34	
	22.7.2013	30	
	5.8.2013	57	
	26.8.2013	38	

Table 1

3.3 Questionnaire

The interest of the present study centres on the population's needs for relief, relief expectations and willingness to help in the event of a several-days-long power blackout. The breakdown of the general research interest in the details

of questionnaire was made with reference to the results of pertinent social psychological research as well as to pilot surveys, where documented disaster events were evaluated with regard to the abovementioned aspects. In addition, all the consortium partners were involved, inter alia in the framework of a joint workshop. The findings agreed during this workshop were reflected in the used questionnaire. The German version of this questionnaire is attached to the present report. The questionnaire was also available in English and Turkish in order to reduce language barriers for participants.

Prior to interviewing visitors to the citizen offices, the questionnaire was verified by testing. Test runs were performed by all the involved consortium partners in their respective areas. Pre-testing was performed with about 40 persons of different ages and socio-cultural backgrounds. The HWR Berlin, for instance, for this purpose performed interviews with students. The pre-test results were then used to revise the questionnaire

The questionnaire consists mostly of "closed" questions, i.e. the answer categories are predefined. In some questions, the category "other" is attached in order to enable the respondents to give additional answers or make the distinctions they deem necessary. Insofar, the questionnaire is of a "partly-open" type.

In designing the questionnaire, it was important to remember that most of the persons to be involved have not experienced long-lasting power blackout and therefore would not know how this would affect their individual life situation. Therefore, the questionnaire started with a short scenario description that provided an idea of the multitude and scope of effects of blackout.

The questionnaire divides into five thematic subsets.

- In the first subset, respondents are asked for details of their housing and life situation. These details, for instance, the period of residence in the neighbourhood, will help to yield a better understanding of responses to questions on relief expectations and willingness to help. Other queries concern circumstances that, in the event of long-lasting blackout, may lead to higher vulnerability and need of assistance. An example of such circumstances would be a person's physical limitation.
- The second subset is headlined "My emergency provisions". It addresses details on available provisions of food, beverages and medical drugs, as well as on the availability of technical means that, in the event of long-lasting power blackout, may become important resources. These include means of mobility, such as bicycles, and of communication, such as battery-powered radio apparatuses and Wi-Fi devices.
- In the third subset, respondents are requested to tell whether they expect help from their private environment, i.e. from relatives, friends and neigh-

bours, where they would go to get help or information, and how they would assess the importance of various types of public assistance.

- The fourth thematic block of questions asks the respondents for their own readiness to help. Its objective is to find out whether, how and whom people are willing to help.
- The questionnaire concludes with personal queries such as sex, age and employment status. These personal data serve to understand better the responses given in the thematic blocks.

3.4 Conduct of survey

As a rule, mixed teams of two carried out the surveys at the citizen offices. All the deployed interviewers were familiar with the project and the questionnaire and had participated in an interviewer training. The interviewer team consisted of research assistants and students¹.

The surveys were scheduled around the regular opening hours of the citizen offices. These vary by weekday, starting from 8.00 am at the earliest, and close at 6.00 pm at the latest. Depending on the number of incoming visitors, interviewers stayed in the citizen offices from two to seven hours.

The interviewers were instructed to approach, where possible, all visitors, as soon as these would find their contact person and chose their waiting area. The exceptions were people who by their appearance seemed to be unable to participate in an interview. Such persons included, above all, people with obvious psychological syndromes.

About two thirds of all approached persons agreed to participate and filled in a questionnaire. Interviewer reports reflected whether interview participation of certain visitor groups was particularly high or low, and whether there is a risk that such self-selection will distort the survey results. There is, however, no evidence for this. Reasons for refusal were mainly time or appointment pressure as well as lack of interest in the subject.

Respondents were asked to fill in the questionnaire without assistance. This was done in order to prevent external influences on response behaviour. Where respondents explicitly requested help with filling in the questionnaire, interviewers were ready to provide assistance. In some cases, elderly people

¹ Sarah Geißler, Josephin Glöde, Carlis Horn, Julian Illgner, Julian Röpcke, Benedikt Schweer, Birgitta Sticher, Anna Will

wanted the questions to be read out aloud. Upon further questions, interviewers were careful to give "neutral" answers and to avoid the impression that there is a preference for a specific response behaviour. As a rule, questions would then just be reworded.

The teams were provided with questionnaires in German, Turkish and English, project flyers, the brochure "How to be Prepared for an Emergency"¹ issued by the Federal Office of Civil Protection and Disaster Assistance, as well as small LED torches with an imprinted project logo. The giveaways were handed over upon return of the questionnaire.

Many of the addressed citizens took a positive stance on the objective of the project and, after collection of the questionnaires, quite a few came up with enquiries and short discussions.

3.5 Checking, collecting, editing and processing data

All the filled-in questionnaires were checked for completeness. Questionnaires, where more than half of the queries were left unanswered, were not included into the record. This was the case with 13 copies of the questionnaire. In total, 800 questionnaires or, respectively, cases were recorded.

The data were entered into a database at the HWR Berlin. This was done by three persons in a quality assurance process of mutual monitoring through randomly matching data input with the underlying questionnaire.

Answers to closed questions were encoded; answers to open questions were initially entered as full text. In a discursive agreement process, the latter were systemised and subsequently encoded to the possible extent.

Data evaluation and analysis were performed using the IBM SPSS Statistics software. In these working steps, individual variables were merged, and new variables were generated for individual instances. In particular, the "district bordering" residential areas were defined based on postal codes. These include a given district under survey and its adjacent quarters. In a second step, the respondents living in the district bordering residential areas of Mitte, Steglitz-Zehlendorf or Lichtenberg were identified based on the postcode data from the collected physical addresses.

1

http://www.bbk.bund.de/SharedDocs/Downloads/BBK/DE/Publikationen/Broschueren_Flyer/Brosch_FdN.html

4 Reviewing the sample with regard to the selected methodological approach

As already stated in chapter 2, the survey did not aim at representativeness. Instead, the sample taken was intended to reflect the socio-structural and socio-cultural diversity present in Berlin's population. The survey was designed and carried out accordingly (see Chapter 3).

Whether this was successful or not can be verified by comparing the distribution of significant demographic features shown in the sample against those given in the population as a whole. An absence significant difference would indicate that the sample complies with the aforementioned criteria and the survey indeed discloses the diversity of opinions, experiences and judgments present in the population. As the survey was designed with an underlying assumption that there are quarter-specific variations, sample verification focussed on the three diverse "district bordering" residential areas (see 3.5). The results revealed slight divergences between the areas under comparison: population statistics usually cover areas within administrative district limits, whereas "district bordering residential areas" in some places extend over these boundaries and are defined along the lines of effective catchment and reference areas. Therefore, there is probably not a high concurrence between the shown demographic features.

4.1 Comparing the distribution of significant demographic features

1.1.1 Sex

As to the quantitative sex ratio, there is a divergence between the sample and the total population of the districts (see table 2). In the survey data, the proportion of females is tendentially higher than in the population data. Since the survey was carried out during school holidays, possible explanations are that more females attend the citizen offices, and/or that they were more willing to participate in the survey. However, males are not underrepresented to an extent that might give rise to fears that typically male views and attitudes are not sufficiently reflected in the sample.

4.1.1 Age

Respondents were asked to ascribe themselves to a suitable age group, each of which encompassing a period of 10 years. Consequently, questions about precise age were not made, therefore these data cannot be exactly matched against the population data (see table 2).

According to current micro-census data¹, the district of Mitte has the youngest population with an age average of 39.2 years. Next are Lichtenberg with 43.3 and Steglitz-Zehlendorf with 46.1 years. This corresponds to the survey data in so far as the respondents from Wedding represent the youngest, those from Steglitz-Zehlendorf - the oldest group of respondents.

	<i>Steglitz-Zehlendorf</i>		<i>Mitte</i>		<i>Lichtenberg</i>	
	Population statistics	Citizen survey	Population statistics	Citizen survey	Population statistics	Citizen survey
Proportion of females	54%	58%	49%	48%	51%	58%
Household size	1.8 people	2.5 people	1.7 people	2.6 people	1.7 people	2.4 people
foreign citizenship or from foreign origin	11.7%	14.0%	27.7%	32.8%	7.6%	11.2%
Proportion of unemployed people	9.7%	7.9%	12.6%	14.6%	10.7%	7.6%

Table 2

4.1.2 Household size

The average household size of the survey respondents is generally larger than the average household sizes reported in the micro-census (see table 2).

² This may be due to the circumstance that persons living in flat-sharing

¹ Amt für Statistik Berlin-Brandenburg [Statistical Office for Berlin-Brandenburg] (2012): Statistischer Bericht – Einwohnerinnen und Einwohner im Land Berlin am 30. Juni 2012 [Statistical report - the population of the Land Berlin on 30 June 2012] , p. 7.

² Amt für Statistik Berlin-Brandenburg [Statistical Office for Berlin-Brandenburg] (2012): Privathaushalte im Land Berlin 2012 nach Bezirken und Haushaltsgröße [Private households in the Land Berlin, by district and household size).

communities statistically count as single-person households, and that the modalities for granting housing subsidies and social benefits, in "official" surveys, result in a lower count of persons per household. The fact that the average household sizes calculated from the survey data almost constantly exceed the census average by 0.7-0.9 persons indicates that such sample-independent effects are present.

4.1.3 Employment integration

According to the 2012 micro-census, in Steglitz-Zehlendorf the ratio of employed people to the total population is 41.7%, in the district of Mitte it is 47.4%, and in Lichtenberg 49.3%.¹ The respective values from the citizen survey will be 55%, 47% and 60%. Hence, self-reported employment integration is tendentially higher.

The unemployment ratio reported by the Bundesagentur für Arbeit [Federal Employment Agency] for August 2013 was 9.7% in Steglitz-Zehlendorf, 12.6% in Mitte, and 10.7% in Lichtenberg. The respective values from the citizen survey range 7.9%, 14.6% and 7.6%. Hence, self-reported unemployment is tendentially lower (see table 2).

One of the reasons for these differences possibly is that registered unemployed people in the survey selected the categories "Housewife / Home husband" or "Part-time employed".

4.1.4 Migration background

The population statistics include records of "Citizenship", i.e. persons without German citizenship are associated with the category "Foreigners". The survey asked for "Origin", i.e. for a 'localisation of oneself' regardless of the issue of citizenship.

https://www.statistik-berlin-brandenburg.de/Statistiken/ausgewaehlte-auswertungen/AA_122_0002_2013_BE.xls

¹ Amt für Statistik Berlin-Brandenburg [Statistical Office for Berlin-Brandenburg] (2012): Bevölkerung und Erwerbstätige im Land Berlin 2012 nach Bezirken, Geschlecht und monatlichem Nettoeinkommen [Population and employed people in the Land Berlin by district, sex and monthly net income].

https://www.statistik-berlin-brandenburg.de/statistiken/ausgewaehlte-auswertungen/AA_122_0036_2013_BE.xls

Accordingly, the ratio of respondents having stated that they are of non-German origin is consistently higher than the ratio of non-Germans shown in the population statistics (see table 2).¹ For Steglitz-Zehlendorf, the values range around 14% or, respectively, 11.7%, for Mitte - around 33% / 27.7%, and for Lichtenberg - around 11% / 7.6%.

4.2 Assessment of the sample

Comparing the distributions of central demographic features in the sample and in the population yields differences. Cases of large differences could be explained by the fact that the persons captured in the citizen survey followed a slightly diverging logic, e.g. when stating their place of origin. Further, it occurs that the survey data on, for instance, unemployment, confirm the district-based differences evidenced in the population statistics. In particular, it is worth to emphasise that this comparison did not show any extreme underrepresentation of particular groups.

Notwithstanding necessary caution, these results suggest that the sample is free of aggravating distortions and reflects the existing socio-structural and socio-cultural diversity present in the population, and that the survey results allow to reveal the diversity of opinions, experiences and judgements related to what kind of help the people expect, need and are willing to provide.

5 Results of the citizen survey

The citizens reached by the survey are not a representative section of the Berlin population. Targeted choice of interview locations and times made sufficiently sure that the results would cover a cross-section of the population and portray the existing range of diverse social situations and life styles. Therefore, an evaluation of the interview data will not yield full-scale information on the relief needs, help expectations and willingness to help of the Berlin population *as a whole*. It does provide, however, an insight into the kind of relief needs, help expectations and willingness to help one may encounter *within* the Berlin population. The situation in rural and provincial regions might be different from that in Berlin; the situation in other major cities in Germany might be similar.

¹Amt für Statistik Berlin-Brandenburg [Statistical Office for Berlin-Brandenburg] (2012): Statistischer Bericht – Einwohnerinnen und Einwohner im Land Berlin am 30. Juni 2012 [Statistical report - the population of the Land Berlin on 30 June 2012]. P. 30 ff.

The methodological build-up of the survey study has an influence on the evaluation of its data and the ensuing presentation of results. In a first step, the frequency distributions derived from the total data record are presented and interpreted. Considering that the surveyed group was composed by means of targeted sampling, it is particularly important to identify those sub-groups that display apparent and statistically significant differences. This is done in a second step, where the interview results are systematically checked for group-specific variations related to relief needs, help expectation and willingness to help. For instance, is there a difference between younger people and other age groups with regard to the use of mobile Wi-Fi devices. Will employed middle-aged people have different help expectations from public agencies than people of other status groups? Does willingness to help, as spatial distance from those seeking help increases, decrease in students to the same extent as in other groups?

In order not to overload this report with voluminous contingency tables and significance checks, data evaluation results that reveal group particularities or, contrary to what one may have expected, yield no such evidence, are subsumed under the caption "focal groups" and given special attention.

- Focal groups were set up along the following variables: age, sex, migration, district of residence and period of residence.
- In addition, a closer look was taken at groups with features that are likely to have an influence on relief needs, help expectations and willingness to help: persons with children living at home, students and middle-aged employed persons.
- Finally, respondents who had stated a particularly high willingness to help were set in contrast to those who had expressed a particularly low willingness to help others in the event of long-lasting power blackout.

5.1 Relief needs

5.1.1 Extended vulnerability

Long-lasting power blackout affects all spheres of life and can be compensated for only partially or even not at all. Hence, it is appropriate to expect a high level of vulnerability in the affected population. Some differentiation, however, remains necessary. Persons, for example, whose flat is on the fourth floor or above, or are physically limited, may be even more vulnerable, depending on the given circumstances.

5.1.1.1 Living on upper floors

Power blackout would have a particularly strong impact on residents of flats on fourth floor or above. Lift failure could severely impair their mobility, and assistance would require greater effort. One should also take into account that, from this floor and up, water supply and, consequently, water disposal will stop functioning.

Among the respondents, 29% stated that they live on fourth floor or above.¹ So, almost three out of ten live in circumstances with a significantly higher risk of impact by power blackout.

5.1.1.2 Physical limitations

In the event of power blackout, physical limitations may require rapid and professional assistance in response to significantly increased vulnerability. Another point to consider is that higher individual vulnerability corresponds with lower the ability to help.

Among the respondents, 26% stated that they are physically limited. This group is, by principle, more vulnerable than others are to the impact of long-lasting power blackout. Such statement, however, needs some qualification, where respondents see the main cause of their physical limitation in the fact that they regularly use and depend on medical drugs (see table 3). Therefore, it may be appropriate to assume a latent vulnerability rather than a blackout-induced acute increase of vulnerability, considering that extraordinary or aggravating health problems are likely to occur only when drug supplies are used up and can no longer be replenished.

¹ The indicated percentages are calculated from the number of the respective valid responses. Individual divergences will be indicated where appropriate.

<i>I -...</i>	
am dependent on regular use of medical drugs. ¹	95.7%
need medical assistance at least once per week.	5.8%
depend on electric medical devices (e.g. respirator, dialysis machine).	2.4%
am not fully mobile (need a wheeled walker, confined to bed etc.).	1.9%

n = 207

Table 3

Among the respondents, 16% stated that at least one other member of their household are subject to physical limitations associated with the need for regular use of medical drugs (see table 4). Here too, however, one must assume a higher latent vulnerability, as intense support, care and other assistance may become necessary.

<i>Another member of my household - ...</i>	
is dependent on regular use of medical drugs.	96.8%
needs medical assistance at least once per week.	5.6%
depends on electric medical devices (e.g. respirator, dialysis machine).	4.0%
is not fully mobile (needs a wheeled walker, confined to bed etc.).	8.7%

n = 126

Table 4

When the respondent himself is health-impaired, and another person limited by health is living in the same household, one must assume that there is a particularly high potential vulnerability along with a strongly increased need for assistance. Such situation is present in 8% of the respondents. In a large majority of these cases both, the respondent and another person living in the same household, regularly need to use medical drugs.

¹ The type of drug was not queried.

5.1.1.3 Focal groups

- *Age*

A relationship between floor location of the flat and age¹ could not be identified. There is no indication that elderly people move into lower floors in order to compensate mobility limitations.

On the other hand, the probability of physical limitation increases with age. People over 60 are significantly more frequently² affected by both their own physical limitations and those of other members of their households.

5.1.1.4 Results overview

- A non-insignificant portion of respondents - about 26% - see themselves as health-impaired. About 15% have a common household with another health-impaired person. This must be taken into account when assessing needs for relief and help potential.
- In cases where regular medical care is necessary, medical technical devices are a vital necessity or mobility limitations are present, a strongly increased vulnerability is to be suspected. This is true for about 5% of respondents, as either they themselves or another person in their household are affected.
- Almost a quarter of respondents state that they use medical drugs on a regular basis. Extraordinary or aggravating complaints are likely to occur only after drug supplies have depleted. Therefore, differentiation is needed to answer the question, whether this large group is exposed to increased vulnerability.
- Elderly people are particularly vulnerable, as health impairment in themselves and other members of their household is relatively frequent. For elderly people living on upper floors one must suspect an additional vulnerability risk. Special attention must be paid to overlaps in such vulnerability-prone circumstances.

¹ The respondents were divided into three age groups: up to and including 30, 31 up to and including 60, and over 60 years.

² In the present study, $p \leq 0,05$ and $p \leq 0,001$ are considered significant or, respectively, highly significant correlations. On this basis, the result is assessed as being "more-than-coincidental", which, on the other hand, does not mean to quantify the strength of this correlation. The methods used included the Kruskal-Wallis-Test and comparisons of differences in means.

5.1.2 Household supplies

In the event of power blackout, available household supplies can delay the occurrence of harmful effects and thus reduce them. They help to strengthen the resilience of all members of the affected household.

5.1.2.1 Beverages and groceries

Among the respondents, more than 95% stated that they have supplies of both beverages (water, juices etc.), and groceries consumable without cooking (bread, fruits, tinned food etc.). However, there are strongly varying assessments on how long these supplies can last. Respondents state that they do not expect aggravating shortages for a period of up to 4 days. Less than a fifth of them believe albeit that their provisions will last for 6 days and more (see table 5 and chart 1).

<i>In my household, the following supplies will last for -...</i>	<i>Beverages (mineral water, juices etc.)</i>	<i>Groceries consumable without cooking (bread, tinned food, fruits etc.)</i>	<i>Essential medical drugs (if necessary)</i>
1 to 2 days	96.0%	98.7%	95.4%
3 to 4 days	74.8%	76.3%	86.7%
5 to 6 days	42.1%	31.1%	81.0%
More than 6 days	21.9%	12.4%	72.8%
<i>n = 789</i>			

Table 5

Problematic is also the circumstance that the beverage supplies of upper-floor residents (fourth floor and above) are significantly less than on the lower floors. They would probably be unable to compensate adequately for water supply failure.

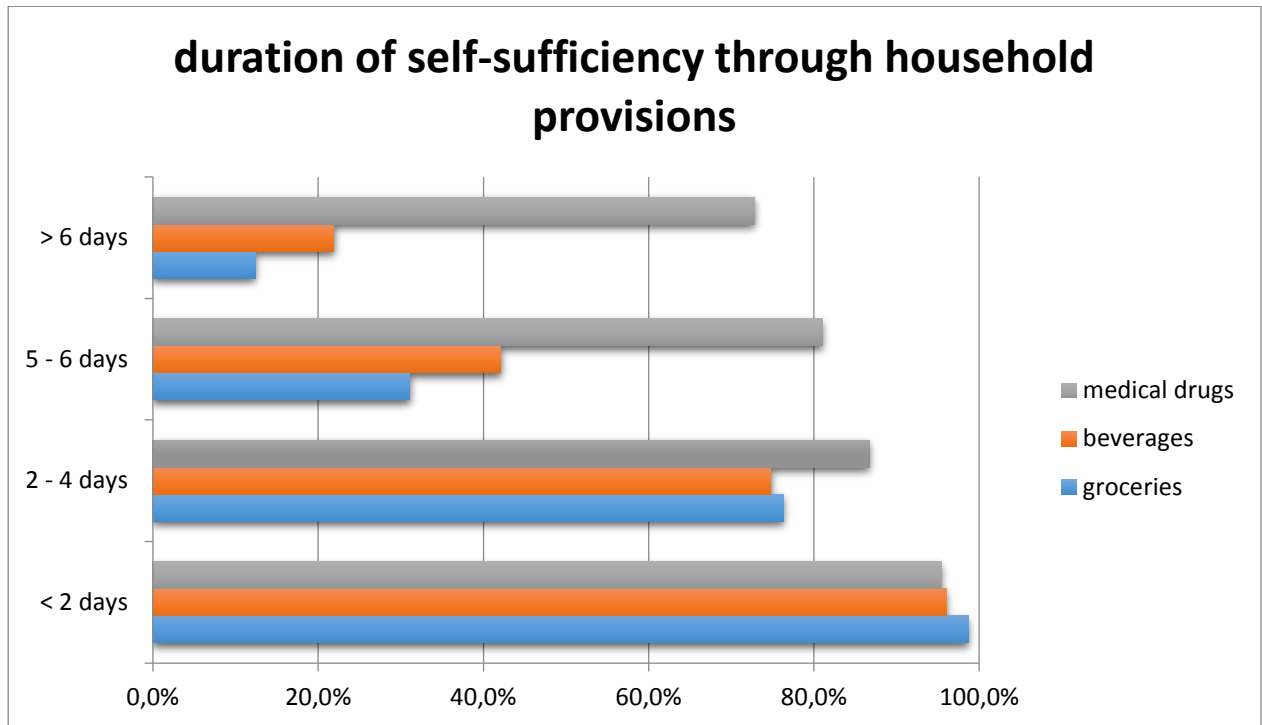


Chart 1

5.1.2.2 Medical drugs

About 65% of respondents state that they need to use medical drugs on a regular basis. Most likely, serious illness is present in only a smaller portion of respondents, as, in total, only a quarter of them see themselves as being physically limited (see above.).

For cases of need for medication, affected persons usually have some supplies ready. Over 70% of respondents are sure to be able to supply themselves for at least 6 day (see table 5 and chart 1).

5.1.2.3 Focal groups

- *Age*

There is a correlation between age and the level of provisioning with groceries, beverages and medical drugs. The supplies held by over 60-year-olds last (as taken from their own estimate) longer than those of the younger respondents. This correlation highly significant in beverages and groceries, and significant in medical drugs.

- *Country of origin*

About 4% of respondents stated they were of Turkish, another 2% - of Polish origin. Beyond that, 45 other countries of origin were stated. Respondents of foreign origin thus constitute a highly heterogeneous group and, at a closer

look, the only feature they have in common is that their country of origin is not Germany. Hence, this statement reflects a self-definition that does not allow drawing a clear conclusion about citizenship, duration of residence in Germany, or degree of integration.

Data evaluation shows, however, that respondents of foreign origin hold smaller supplies of beverages, groceries and medical drugs. This is a significant or, respectively, highly significant difference.

- *Students*

In this respondent group, too, supplies of groceries and beverages last only for a relatively short period. This is a highly significant or, respectively, significant divergence.

5.1.2.4 Results overview

- Almost all the respondents have in their households supplies of beverages, food and necessary medical drugs.
- However, the length of time they would be able to supply themselves is limited. Among the respondents, some 42% are sure they can supply themselves with beverages for 5 days and more. Only 31% confirm that this is also true for groceries. Based on these data, one must assume that serious supply gaps will emerge after 4 days, and assistance will be necessary as a result.
- Supplies tend to be largest among the over-60 age group. This partly offsets the increased vulnerability of this age group.
- Students and persons with migration background have relatively sparse supplies.
- Among 81% of affected respondents, supplies of needed drugs last for at least 6 days. Therefore, in the event of longer-lasting power blackout, supply shortages are likely to occur only in individual cases.

5.1.3 Available aids and devices

Aids at hand in a household, available vehicles and wireless communication devices can serve to reduce the effects of long-lasting power blackout. Communication devices in particular can facilitate the delivery of needed assistance and, at the same time, strengthen self-help ability.

5.1.3.1 Light and cooking

Over 70% of respondents keep supplies of candles and/or batteries or dynamo lamps. Therefore, in the event of power blackout, a majority of households have everything they need for quick self-contained lighting. This is, though, nothing more than an emergency lighting, and restrictions are likely to increase as power blackout continues (see chart 2).

Gas or otherwise fuelled mobile cookers are not very common. Less than 15% of respondents stated to have such a device in their household.

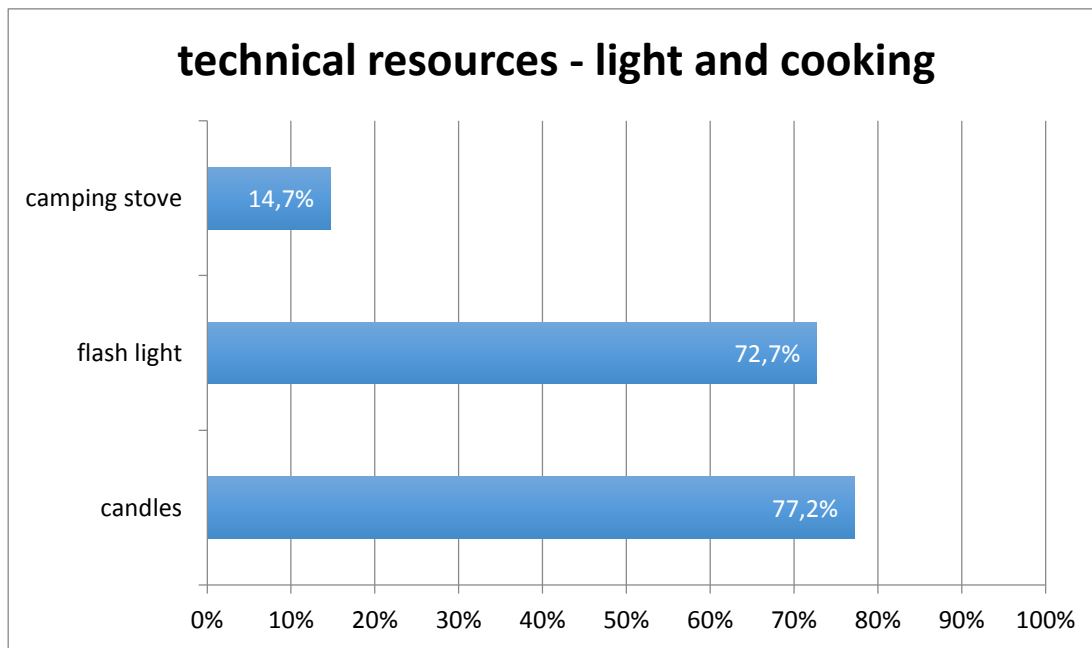


Chart 2

5.1.3.2 Information and communication

In the event of large-scale power blackout, information can be spread via radio messages at relatively low cost. However, this requires appropriate receivers, and, at this point, the local distribution of battery-powered radio sets is of critical significance. Around 64% of respondents stated that they have a battery-powered radio set or a mobile phone with radio at hand (see chart 3). Considering that some of the respondents possibly did not mention their car radios, the actual ratio could be even higher.

More widespread are mobile Wi-Fi terminals. Among the respondents, 68% have a notebook, 65% a smartphone, 39% a tablet PC. Eighty-five percent of respondents own one of such devices; about 25% of those surveyed have all three devices.

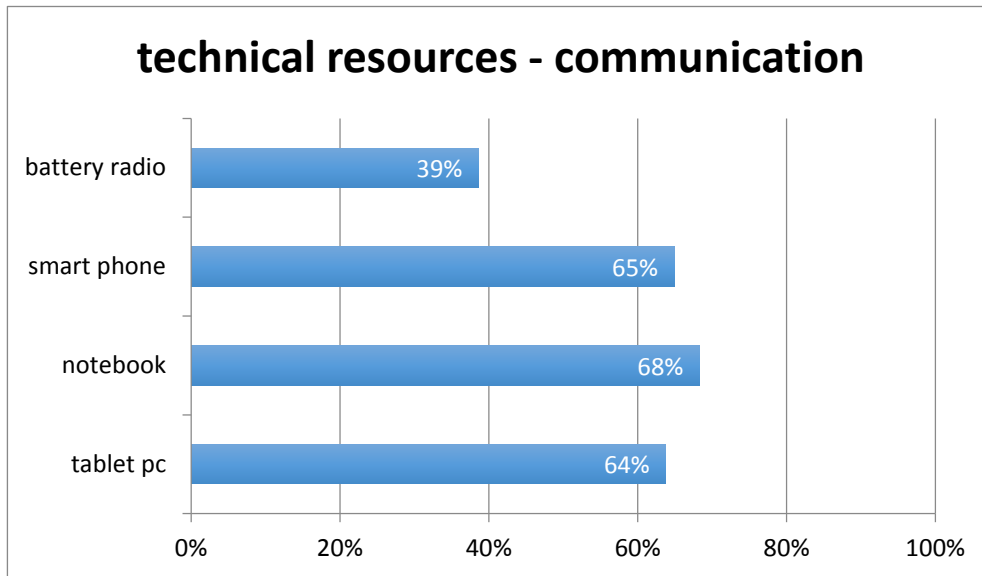


Chart 3

5.1.3.3 Mobility

A large-scale power blackout will immediately have an aggravating impact on transportation. Rail transport will come to a standstill. In motorised road transport, major restrictions could occur after a certain period of traffic down-time due, inter alia, to driving bans. In such situations, bicycles could help a lot to maintain mobility in residential environments. In addition to that, private cars could strengthen self-help ability when used to carry needy persons or relief supplies.

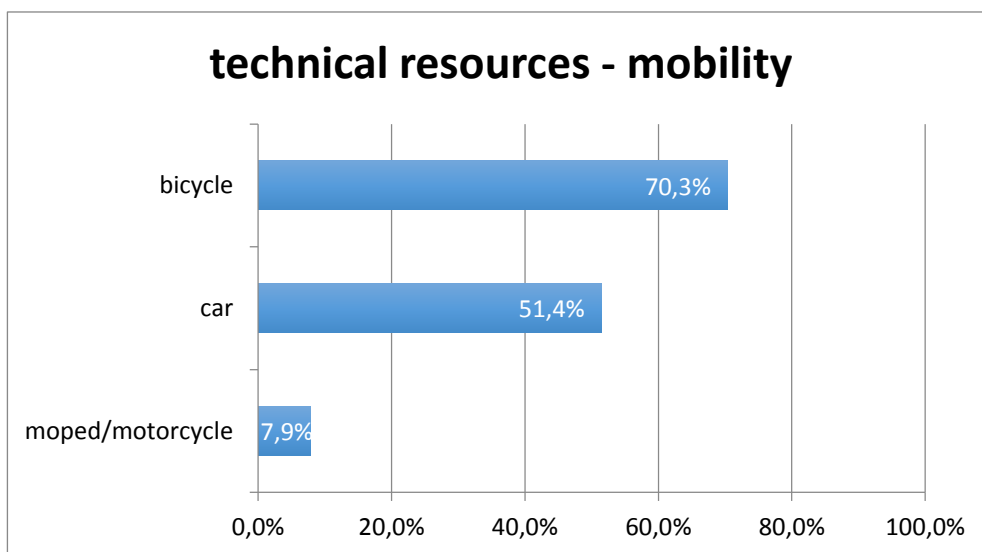


Chart 4

Interview results indicate that bicycles are widespread among respondents (70% - see chart 4). A significantly smaller ratio, namely 51% of respondents, have access to a car.¹ Only 8% use small mopeds or motorbikes. But all in all, one must assume that the availability of private cars in households is sufficient for self-help activities and related approaches.

5.1.3.4 Focal groups

- *Age*

The availability of Wi-Fi terminals, smartphones in particular, strongly decreases with increasing age. Among the under 31-year-olds, 80% have a smartphone, in those over 70, the ratio is less than 10% (see table 6). In under 30-year-olds, smartphone availability is highly significantly more frequent than in older respondents.

Smartphone availability	<i>< 18 years</i>	<i>18 - 30 years</i>	<i>31 - 40 years</i>	<i>41 - 50 years</i>	<i>51 - 60 years</i>	<i>61 - 70 years</i>	<i>< 70 years</i>
Smartphone available	79.2%	79.7%	69.3%	56.6%	46.0%	28.9%	8.7%

n = 795

Table 6

- *Sex*

As concerns access to smartphones, there is no gender-specific difference. Access to notebooks and tablet PCs, however, is significantly rarer in females than in males.

- *District of residence*

Residents of the District of Steglitz-Zehlendorf significantly more often have torches at hand and hold supplies of candles, and have easier access to bicycles or cars. Insofar they are better prepared to cope with long-lasting power blackout than residents of the comparison districts do.

- *Country of origin*

¹ According to the ADAC study "Mobilität in Deutschland" (Mobility in Germany), about 83% of all German households have at least one car, whereas in Berlin this is true for only 56% of households (quoted by: Die Welt, 29.06.2010).

Households of respondents with migration background are highly significantly less equipped with candles and torches, and availability of cars and bicycles is significantly lower. Regarding the availability of electronic communication devices there are no major differences.

- *Children in households*

Respondents living with children have highly significantly more often bicycles or cars available, which is probably due to the specific mobility needs in child-rearing families. The same is true for their availability of Wi-Fi terminals. The main reason for this is that the population in this group is predominantly of younger age.

- *Students*

As expected, students have significantly more often Wi-Fi terminals available than all other respondent groups.

5.1.3.5 Results overview

- Among the respondents, about 75% have candles and/or torches available. In most of the cases, everything needed for temporary and selective emergency lighting is at hand. There are, however, differences between the various districts. In neighbourhoods with poorer populations or, respectively, smaller flats, shortages might occur at an earlier time.
- Only few have camp cookers at home. Less than 15% of respondents would be able to prepare hot meals in their homes in the event of power or gas outage.
- Wi-Fi terminals are widespread. More than 80% of respondents stated to have such a device at hand. As battery service times of such devices are usually short and senders may fail or malfunction, their significance for communication appears to be limited in events of long-lasting power blackout.
- Wi-Fi terminals distribute unevenly across the different population groups. Technically performant devices are most frequently available to younger males and least frequently to older ones.

- Alternative communication networks should be developed with a view to the fact that, at least for the time being, their large-scale use is achievable as long as the technical requirements to terminals are low.
- Battery-powered radios usually have longer service lives than mobile computers or smartphones, and they are self-contained. These devices play an important role in spreading information. At least 64% of respondents stated to have such a device at hand.
- Among the respondents, 70% of respondents have a bicycle at hand. Small-scale mobility thus appears to be sustainable. Fifty percent of respondents have cars. Provided that fuelling remains possible, they would add self-help ability.
- There are, however, group-specific differences in the availability of bicycles and cars. In neighbourhoods with poorer populations, shortages might occur.

5.2 Relief expectations

5.2.1 Informal relief structures

In the event of a multi-day power blackout, many people will end up in situations where relief will be necessary or, at least, desirable. Professional forces may render relief. Help may also be provided from closely related persons or social networks. Certain circumstances indeed require professional assistance. However, if it were not for informal relief structures, it would be a matter of time to overtask police staff, fire and rescue forces and emergency physicians. Sustainable informal structures would significantly reduce pressure on professional forces. Besides that, informal assistance is preferable, where people need individual care, advice and attention.

The survey results indicate that such informal structures exist on a wide scale and people have strong confidence that they will get help whenever necessary. Family members, friends or acquaintances are seen as the most reliable resource of help. Only 15% or, respectively, 8% of respondents expect rather no (or not at all) help from this side. Confidence to get help from neighbours is less. All the same, over 70% of respondents think they will (probably) get help from this group of people, too (see Table 7 and Chart 5).

<i>Should I need help in the event of multi-day power blackout, I will get it ...</i>	<i>in any case</i>	<i>probably</i>	<i>probably not</i>	<i>in no case</i>	<i>n</i>
from my family	76.6%	8.9%	6.7%	7.9%	721
friends / acquaintances	62.3%	30.2%	5.0%	2.5%	713
from neighbours.	29.5%	42.2%	22.7%	5.7%	671

Table 7

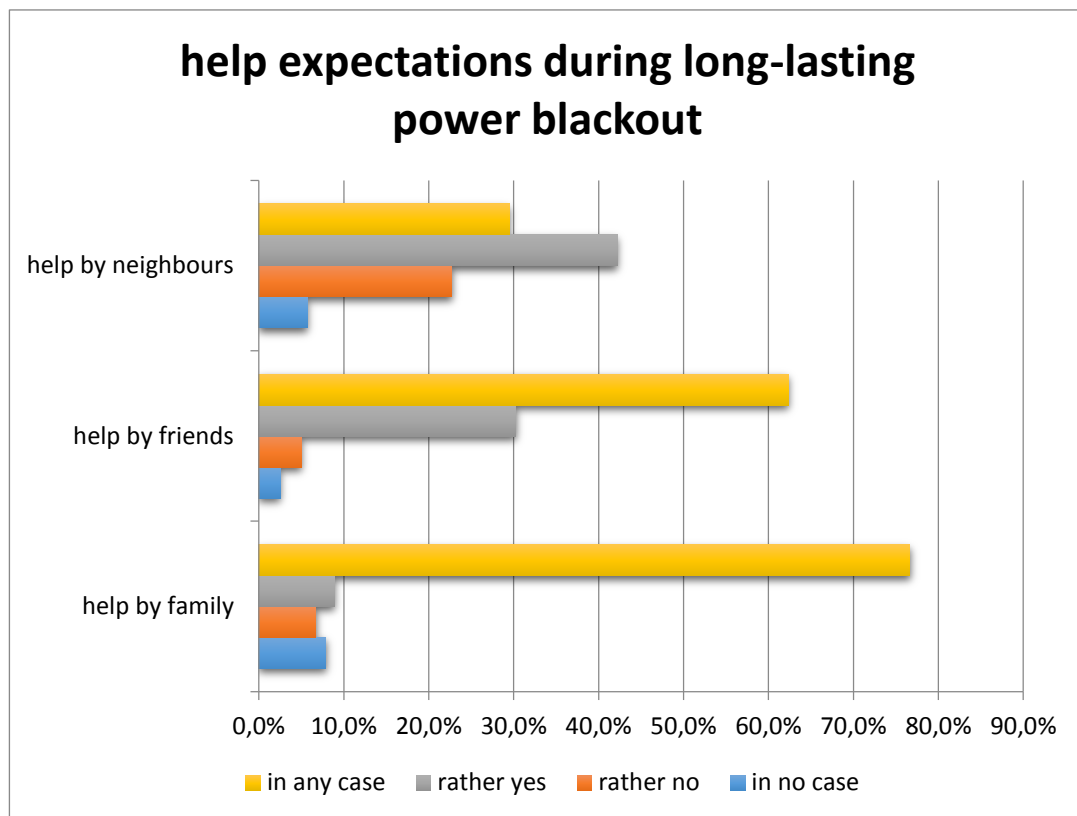


Chart 5

The fact that relatively many respondents stated no opinion as to their relief expectations from family members (79 persons), friends (87) and neighbours (129 persons) taints this rather positive picture. One reason for this may be that these respondents have no family or friends, do not know their neighbours or are not sure to what extent the latter is willing to help.

A long-lasting power blackout will cause major constraints in telecommunication and spatial mobility beyond the limits of residential environments. This may weaken informal relief structures. Probably more resilient are relief structures supported by persons living close by each other.

Only 36% of respondents stated that members of their families live within walking distance of them. Regarding friends and acquaintances, the corresponding values range around 59%, slightly higher only in respondents aged up to 30 years. Bearing this in mind, one must assume that power blackout causes constraints on the efficiency of informal relief structures and, at the same time, increases the need for telecommunication, since family members and friends are the conceivably most important communication partners in events of disaster. An immediate face-to-face exchange, however, will be possible only to a limited extent.

5.2.2 Contact points for help and information

Long-lasting power blackout will cause major failures both in internet, telephone, radio and television services, and in the production and distribution of printed media. There will be constraints that will affect the distribution and reception of information, as well as the options to send for help. In particular, there will be almost no possibility to reach all residents of the affected area in their flats by phone. These, in turn, will not be able to communicate from their flats as they usually would. In such situations, contact points serving as an interface may perform an important function in coordinating relief activities and, where necessary, collecting information.

Such contact points should be set up principally in locations, where citizens would expect to find them, and where helpers are employed who citizens deem trustworthy and competent. The responses to the question of where to go when assistance and information is needed because of power blackout, and telephone and emergency call services have failed, reveal a rather indistinct picture.

Responses seem to indicate that it would be appropriate to have contact points at a variety of places. Among the respondents, 36% would "in any case" see the caretaker or concierge, 26% - the railway station or a central place, 25% - the Police. Last listed are relief organisations, such as the German Red Cross, the Caritas, the St. John's Ambulance Brigade, and the Malteser relief agency, the Railway Mission, churches, mosques or schools. Only 13% of respondents would "in any case" call on relief organisations, and about 6% - on religious establishments or schools. Fire brigade, hospital, citizen office/Town Hall and neighbourhood shop/club/favourite pub take up the middle of the list, where 20%, 15%, 15% or, respectively, 14% of respondents would go to "in any case". (See table 8 and chart 6).

If I require help or information because of the power blackout and the telephone and emergency call system have ceased to operate, I seek - ...	<i>in any case</i>	<i>probably</i>	<i>probably not</i>	<i>in no case</i>	<i>n</i>
the caretaker or concierge	35.6%	22.4%	27.6%	14.4%	612
the Police	25.1%	39.2%	24.6%	11.1%	594
a central place or railway station	26.3%	34.1%	30.5%	9.1%	581
the fire brigade	19.6%	29.7%	37.7%	13.0%	555
the district office (Citizen Office, Town Hall etc.)	15.1%	29.4%	39.4%	16.0%	568
a hospital	15.2%	26.0%	41.6%	17.1%	538
a relief organisation (German Red Cross, Caritas, St. John's Ambulance Brigade, Malteser, Railway Mission etc.)	12.9%	26.8%	43.2%	17.2%	542
a neighbourhood meeting point, neighbourhood shop, club, favourite pub	13.6%	24.4%	40.6%	21.3%	544
a church, mosque etc.	6.3%	13.1%	43.6%	37.0%	527
a school	5.6%	18.8%	49.7%	25.9%	517

Table 8

There are, however, reservations about each of these contact points. Religious establishments would for 37%, schools for 26%, and neighbourhood meeting points for 21% of respondents "in no case" be a place to go to for help. The least reservations concerned central places, Police and fire brigade, where 9%, 11% or, respectively, 13% of respondents stated they would "in no case" go to for help.

Amon respondents, 16% could (also) imagine to go "nowhere" and, instead, to stay at home waiting for help. This reveals an obviously existing scepticism about the possibility to get assistance outside one's own home.

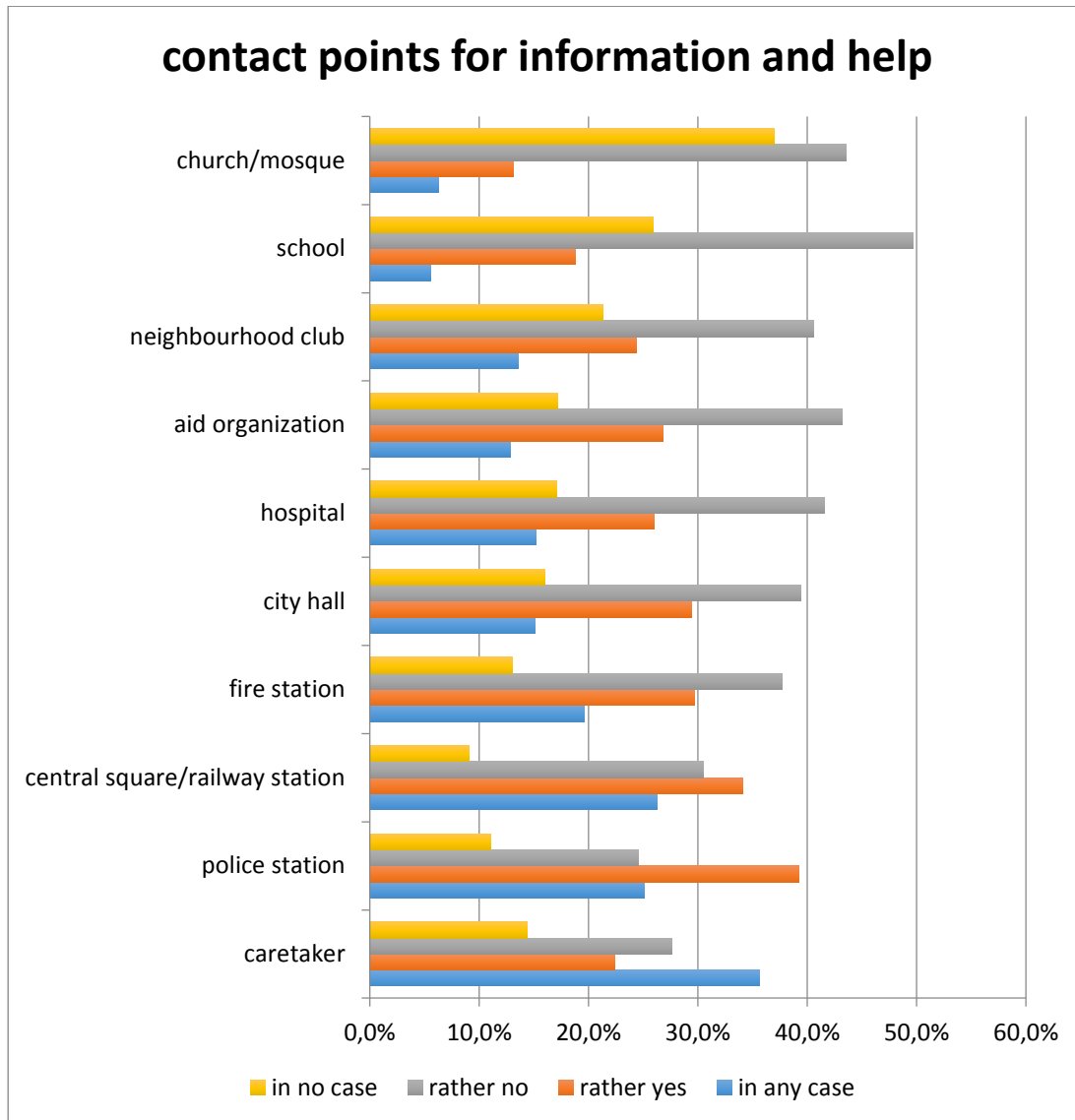


Chart 6

The results also indicate that there is considerable indecision or indetermina-tion, when it comes to the question where to seek assistance or information. Therefore, for instance, 35% of respondents did not state whether they would seek a school location for help (highest ratio), and 24% (lowest ratio) missed out the question about contacting the concierge.

Respondents were asked to provide a graded assessment of the different emergency contact points.¹ Taking these assessments in consideration as increasingly positive or, respectively, negative appraisals, and factoring in also those respondents who, to a varying extent, failed to comment on indi-

¹ See subsets 3 and 4 of the questionnaire.

vidual contact points, allows to calculate positive or negative preference values for each of the selected contact points¹. This results in a sufficiently clear preference profile (see chart 7).

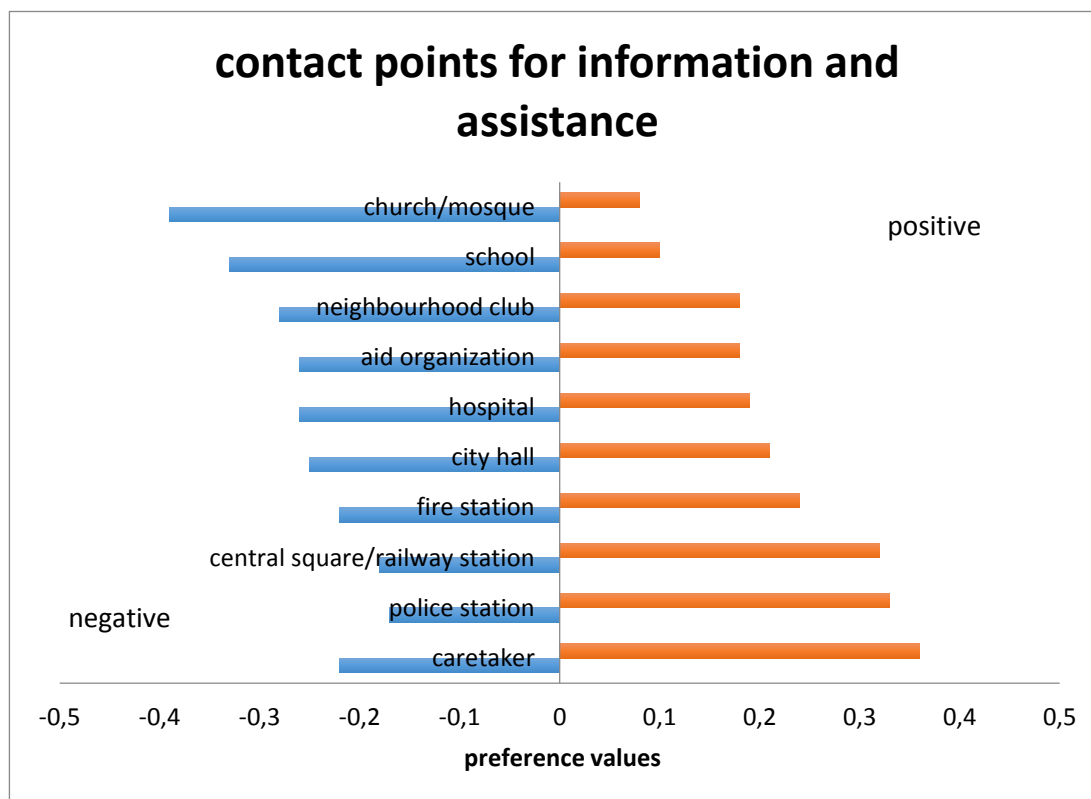


Chart 7

¹ Responses of the type "In no case" and "Probably" were allotted 2 or, respectively, 1 positive point(s), the "In-no-case" and "Probably not"-responses were graded with 2 or, respectively, 1 negative point(s). At a total of 800 respondents, each of the contact points could potentially reach a maximum of 1600 positive or, respectively, negative points. The actual scores were correlated with the theoretical peak values. A preference value +0.36 (contact point "conciierge"), for example, indicates that 36% of maximum obtainable positive points was reached, a preference value of -0,22 means an obtained 22% ratio of maximum obtainable negative points.

For this result, four different interpretations are possible: The "Conciierge" is potentially the most frequently sought contact point (highest positive preference value). At the same time, it is associated with major reservations (comparatively high negative preference value). In the overall balance, however, prevail those persons who would expect help and information from a conciierge (the positive preference value is markedly higher than the negative one). A large proportion of respondents are undecided as to whether they would apply to a conciierge or not (compared to the possible peak values +1 or -1, the values reached are rather low).

The question of whether to seek help and information from a concierge, the Police or on a public place finds relatively positive responses. As regards the contact point "concierge", opinions polarise, as it receives markedly negative assessments at once. In the contact points "Hospital", "Relief Organisation", "Neighbourhood Club", "School" and "Church/Mosque", negative assessments increasingly prevail. In the contact points "Fire Brigade" and "Town Hall / Citizen Office", positive and negative judgements are on about the same level.

5.2.2.1 Local knowledge

Respondents were asked also to state whether they know the location (or one of the locations) of a specific contact point. Due to the low response ratio (consistently less than 50%), a differentiated evaluation appears to be impossible. Nevertheless, these results allow a twofold general conclusion: Knowledge or ignorance of location do not correlate with positive or negative assessments. Surprisingly few stated that they know the locations of schools, district establishments, Police or fire brigade.

5.2.3 Assistance from public bodies

The questions about contact point preferences were complemented by others concerning the kind of help citizens expect from authorities and other public bodies in the event of long-lasting power blackout.

The responses show that there is a high expectancy of help, and that a wide range of desired assistance activities, the priority of which, however, is assessed differently. The distribution of drinking water and groceries as well as the provision of medical care are considered highly important. Contrary assessments are almost negligible, and the number of those who did not state anything about such assistance is small at about 6%. (See table 9 and chart 8)

In the event of a power cut lasting several days, I consider the following assistance from the authorities and public bodies to be - ...	<i>im- portant</i>	<i>probably important</i>	<i>probably unimportant</i>	<i>unimportant</i>	<i>n</i>
Passing on of up-to-date information	86.1%	11.8%	1.1%	1.1%	747
Distribution of drinking water	83.9%	10.8%	4.1%	1.2%	758
Medical care	82.3%	12.6%	3.6%	1.6%	740
Distribution of groceries	69.2%	21.7%	7.7%	1.3%	741
Contact person for troubleshooting	66.7%	26.7%	4.8%	1.8%	733
Protection of my property	50.7%	31.6%	14.2%	3.5%	716
Setting up overnight shelters, e.g. in sports halls	44.1%	29.4%	19.2%	7.2%	707
Provision of electric power in public places	42.7%	37.2%	15.2%	4.9%	689
Provision of communication possibilities (telephone, Internet etc..)	39.2%	36.4%	21.1%	3.2%	719
Provision of cash	23.0%	29.7%	32.8%	14.5%	688
Distribution of fuel / petrol	14.9%	27.6%	43.7%	13.9%	678

Table 9

The supply of water and groceries as well as a sustained primary medical care and first aid are core elements in any kind of disaster relief. Therefore, it is not surprising that respondents should regard such services as necessary. It is, on the other hand, particularly noteworthy that immaterial assistance, such as "passing on of up-to-date information" or access to "contact persons for troubleshooting" are regarded as utmost important, and that contrary opinions can hardly relativise the significance of such clearly stated need. Here, too, the ratio of those who did not answer this question is low, which indicates that respondents are quite sure of their opinion.

A relatively small ratio of respondents allocate a high priority to "Provision of cash" and "Distribution of fuel / petrol". In addition to that, the ratio of those who regard such services as (probably) unimportant is relatively high. From the respondents' point of view, these services obviously tend to be dispensable.

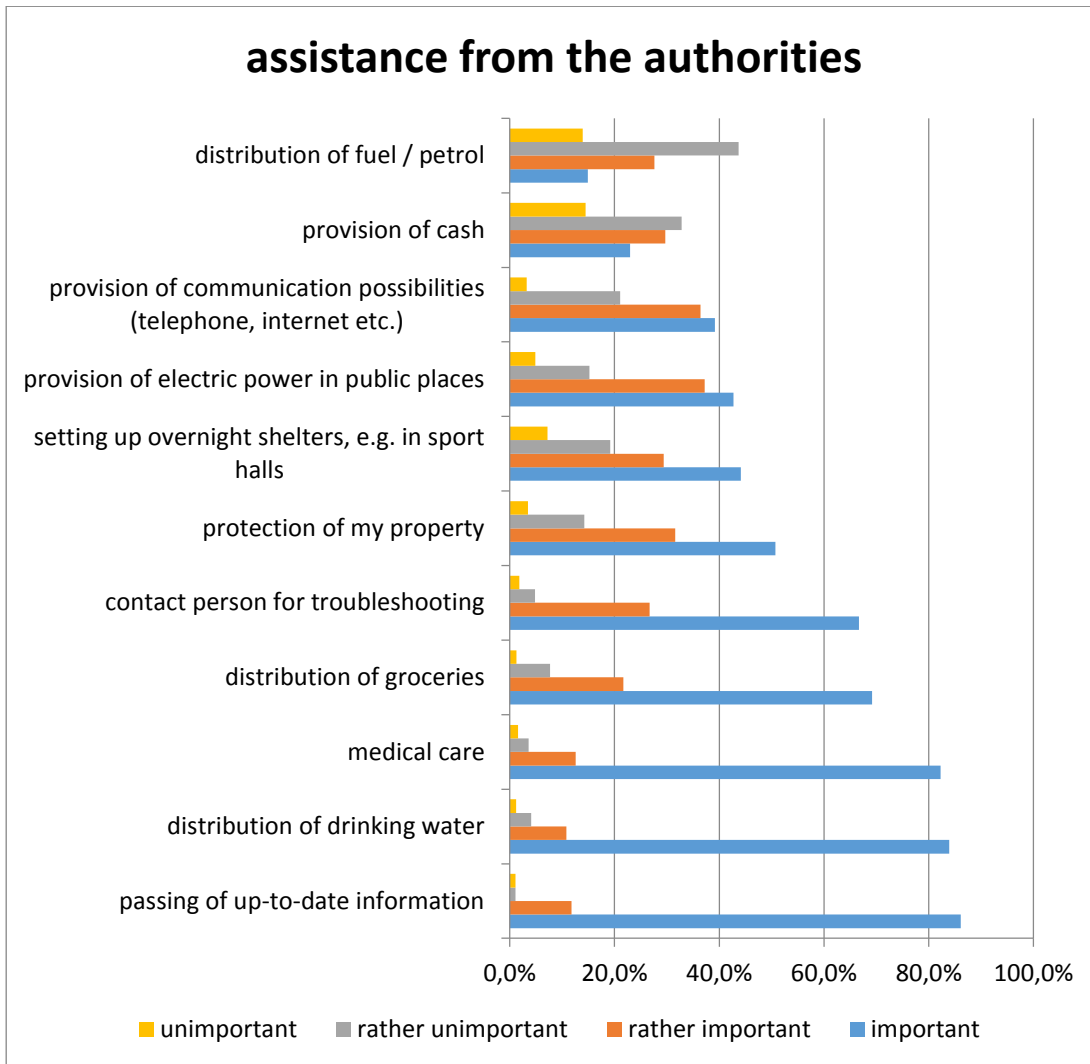


Chart 8

"Protection of my property" is considered important by a majority of respondents, whilst contrary statements appear to be marginal. Nevertheless, respondents rank this kind of assistance only in the middle of the list. This result, however, should not be used to indicate that respondents have only a limited interest in their property. A more plausible explanation would be that respondents regard it as less probable that long-lasting power blackout would trigger riots, lootings or other forms of criminal activity and therefore do not attach top priority to intensifying police protection services. This speaks in favour of a positive appraisal of social stability in the city.

The structure of expectations regarding assistance from public bodies becomes even more apparent (see chart 9) when looking at the calculated preference values (see above). Items regarded as essential include the passing on of up-to-date information, the distribution of water and groceries and the availability of contact persons. Diverging opinions carry hardly any

weight. Respondents attach less importance to the provision of overnight accommodation, telecommunication and electric power in public places. This might be mainly due to the circumstance that major respondent groups see no strong individual need for such kind of support. The provision of cash and the distribution of fuel are not seen within the range of assumed necessities.

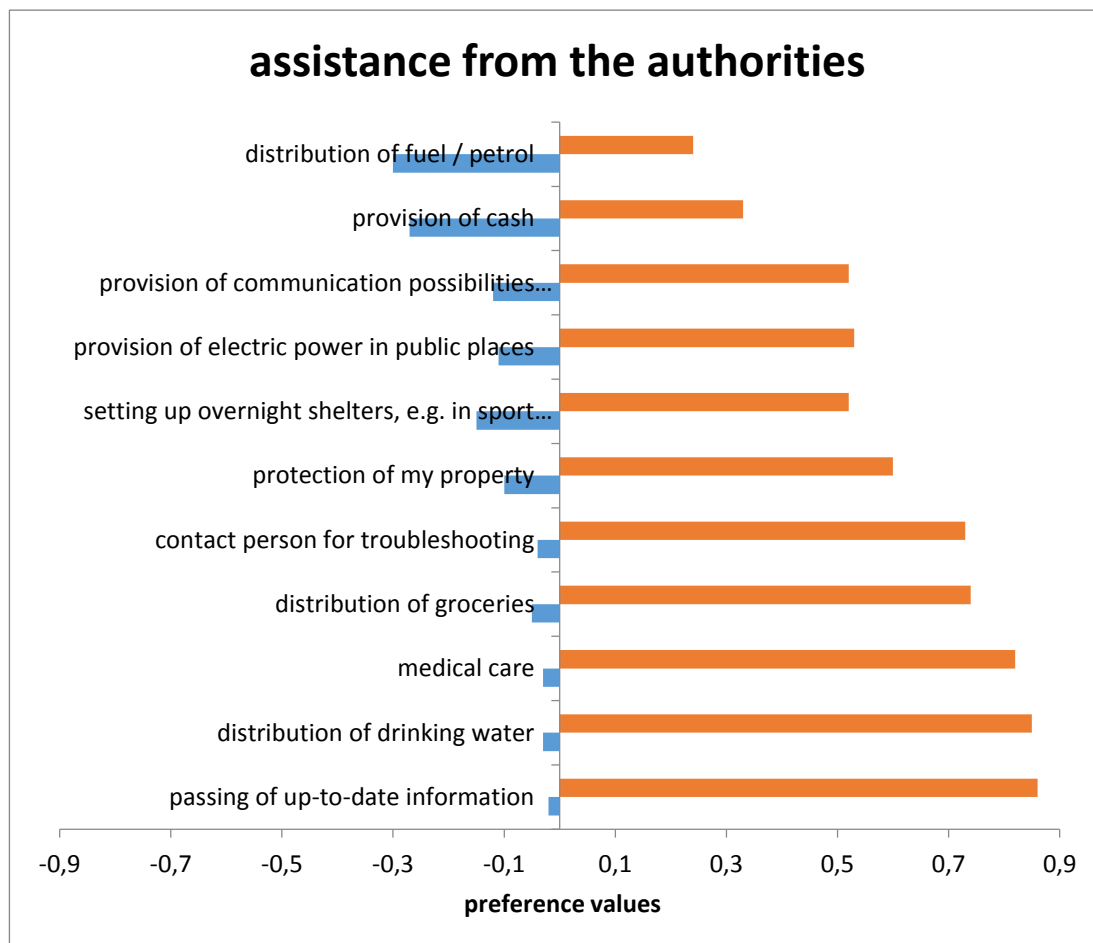


Chart 9

5.2.4 Focal groups

- *Age*

Younger respondents (up to 30 year olds) more often than average expect support from their families, probably bearing in mind their own parents in first place. In contrast, older ones (aged 60 and over) more often expect support from neighbours, which might in particular be due to the fact that they have been living in their residential quarter longer than average and embedded in a reliable social environment. Both these relations are significant.

Regarding preferences for locations, age plays a minor role. The sole exceptions are police stations, where older people would go to significantly more often.

There are significant age-specific variations in how respondents assess the importance of assistance from authorities and public bodies. The intermediate age group (31 - 60 year olds) attaches a relatively high priority to the provision of medical care and the availability of contact persons. In older age groups, the same is true for the provision of communication, the passing on of up-to-date information and the protection of personal property.

- *Sex*

Regarding preferences for specific contact points, there is no consistent difference between females and males. On the other hand, it becomes apparent that females would significantly more often stay at home or contact the concierge, when they need help or information. Whether this can be explained as an effect of role stereotypes, may remain undecided.

Gender-specific differences are more distinct in the assessment of public assistance. Regarding events of power blackout, females consider it more important to be provided with overnight accommodation, communication possibilities as well as electric power in public places, and to have access to contact persons. These variations are significant or highly significant.

- *Country of origin*

In the event of long-lasting power-blackout, respondents with or without migration background expect assistance from members of their families as well as from friends. Respondents with migration background are significantly more sceptical of their neighbours' willingness to help.

Respondents with non-German roots would significantly more rarely apply to the "classical" assistance points, such as Police, fire brigade or hospitals, and significantly more often to non-government locations, e.g. neighbourhood meeting points and churches or mosques. One reason for this may be that for this population group access to state institutions is more difficult, and that police stations, fire service stations and public hospitals are perceived by them as such.

Significant or highly significant variations are evident also with regard to how respondents rate the importance of assistance from public bodies. Respondents of German origin attach more significance to the distribution of groceries and medical care, although they have more household supplies available (see 5.1.2). In contrast to that, migrants consider more important the provi-

sion of communication, of electric power in public places and the supply of cash.

- *Period of residence in the neighbourhood*

Respondents who have been living in the same city quarter for more than 5 years and therefore may be categorised as long-time residents are particularly sure that their neighbours will help in case of need. Moreover, this group has a higher proportion of persons living in walking distance from their relatives. These findings are significant or highly significant. At this point, however, it remains open whether informal neighbourhood structures consolidate along with the duration of residence, or whether periods of residence tend to be longer in quarters with solid neighbourhood structures. Regardless of that, they do indicate that neighbourly relief structures are seen to be weaker in places where residence periods are shorter because of, for instance, intense population fluctuation.

- *District of residence*

As concerns relief expectations and relief needs, there are statistically significant and highly significant differences between inhabitants of the three surveyed "district bordering residential areas".

Respondents from Steglitz-Zehlendorf have stronger expectations to get help from neighbours in the event of long-lasting power blackout. Should they need external support and information, they would rely on churches much more often than would residents of comparison districts.

Lichtenberg residents, on the other hand, state more often that they can reach their friends and acquaintances by foot. For them, the concierge has above-average importance in case of need for assistance and information. A plausible explanation would be that Lichtenberg is dominated by large-scale settlements, where professional concierge services exist.

Respondents from the District of Mitte would comparatively more often try to find assistance and information in public places or the railway station. They attach more importance to the distribution of water and the provision of electric power in public places.

- *Children in households*

Regarding help expected from one's family, friends and neighbours, there are no significant variations between respondents with or without children living in their households.

On the other hand, respondents with children would highly significantly more often seek a school or a fire station, or significantly more often seek a police

station or relief organisation. Medical care for them has a statistically proven higher priority. This could be explained by fears of parents that their children might suffer adverse health impacts in the event of power blackout. The better acceptance in this group for schools and fire stations might be mainly due to the fact that these locations a majority of people know or are aware of these locations.

- *Students*

The expectations profile of student respondents suggests that there is a certain detachment from formal and also informal relief structures. Their relief expectations from neighbours are lower, and they would significantly less often seek help from Police, fire brigade, or from relief organisations and neighbourhood meeting points. A majority of them attach less importance to the public assistance activities listed in the questionnaire. Exceptions include, in particular, the passing on of up-to-date information and the availability of contact persons. These variations are significant.

5.2.5 Results overview

- In the event of long-lasting power blackout, respondents are predominantly sure that they will be able to resort to help from informal relief structures. Family members and friends are seen as the most reliable resource of help. Almost 80% or, respectively, over 60% would in any case expect help from these groups. On the other hand, one must take into account that family members and friends live in walking distance in only 35% or, respectively, 60% of all cases.
- Neighbours are already "on the spot", which would facilitate assistance in the event of power blackout. A large majority of respondents - about 70% - assume that neighbours are willing to assist, yet only 30% are sure to get help from them.
- Confidence in informal relief structures, however, varies between the different population groups. Younger people strongly trust their families. Neighbourhood structures are assessed as reliable in particular with increasing age and duration of residence in the respective area.
- Although informal relief structures exist and are assessed as reliable, respondents would predominantly seek further help and addi-

tional information in locations within their residential environments. Only a small portion of them would stay at home regardless of their need for assistance.

- With regard to such contact points, there are no clear preference structures. Respondents tend to favour locations, the task profile of which is associated with protection and assistance (Police, fire brigade), or that are subjectively seen as being easy to access (caretaker, public place/railway station). The overall importance of churches or mosques, schools and neighbourhood meeting points is rated relatively low.
- Preferences stated for available contact points show group-specific variations. Therefore, one should assume that there are different or even parallel preference structures that one must take into account when planning the design of contact points and assistance. In principle, it is necessary to ensure a diversity of offers.
- Interview results indicate an overall preference for contact points that are assumed to have a high assistance competence. On the other hand, such assumptions are subject to individual variation. In or prior to an event of crisis or disaster one should therefore provide specific information as to which contact points will be able to offer the desired assistance, extending it beyond mere coverage of basic needs. Subject to this condition, it would be possible to establish an appropriate and well-accepted contact point, for instance, in a school, where, among others, police and local government staff would be present.

5.3 Willingness to help

The best way to mitigate the effects of a multi-day blackout would be to establish an intertwining and complementary system of professional assistance and self-help. On the other hand, the sustainability of such approach depends on whether citizens are willing and able to help themselves and others too.

5.3.1 Assistance activities

Interview results indicate a high and widespread willingness to help. In the event of long-lasting power blackout, only a few would help others "in no case".

Such basically positive result, however, needs to be relativized as far as respondents might have interpreted the question about their own willingness to help, to a varying degree, also as one that asks for the acceptance of the commandment "Thou shalt help your fellow human being". Insofar the stated willingness to help is initially to be seen as a general consent for this social norm. It should, however, not be understood as an unconditionally reliable statement about effective helping behaviour in an event of multi-day power blackout.

Nevertheless, these answers demonstrate that respondents tried to imagine themselves in the blackout scenario described at the start of the questionnaire and critically reviewed their willingness and ability to help. This appears from the finding that the willingness to help actively is greatest, where such activities take time and effort, without necessarily affecting or even worsening one's own situation. Over 95% of respondents can imagine that they would take a needy person to hospital or offer their private or professional knowledge and skills. Willingness to help is less, when it comes to sharing one's own resources. A little more than 40% of respondents would "in any case" be ready to share with strangers rare goods, such as batteries or water, and only 18% would accommodate needy strangers in their own flat. (See table 10 and chart 10)

In the event of a multi-day power blackout, I am willing to-...	<i>in any case</i>	<i>probably</i>	<i>probably not</i>	<i>in no case</i>	<i>n</i>
offer my private or professional knowledge and skills	74.8%	21.8%	2.9%	0.5%	761
take a needy person to hospital	70.3%	26.7%	2.3%	0.6%	771
share rare goods (batteries, water etc.) with strangers	42.1%	46.4%	9.7%	1.9%	756
accommodate needy strangers in my flat	18.4%	34.3%	38.5%	8.7%	743

Table 10

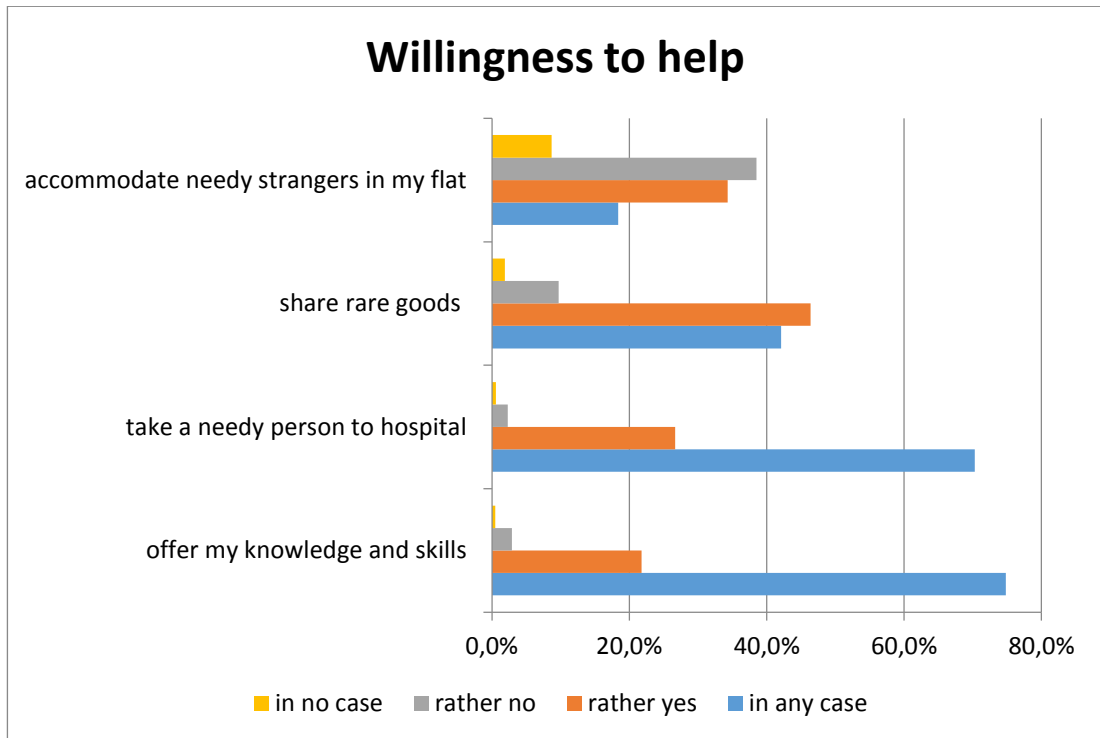


Chart 10

These differences, being even more apparent from the preference structure, demonstrate that respondents did come to a realistic assessment of their ability and willingness to help (see Chart 11).

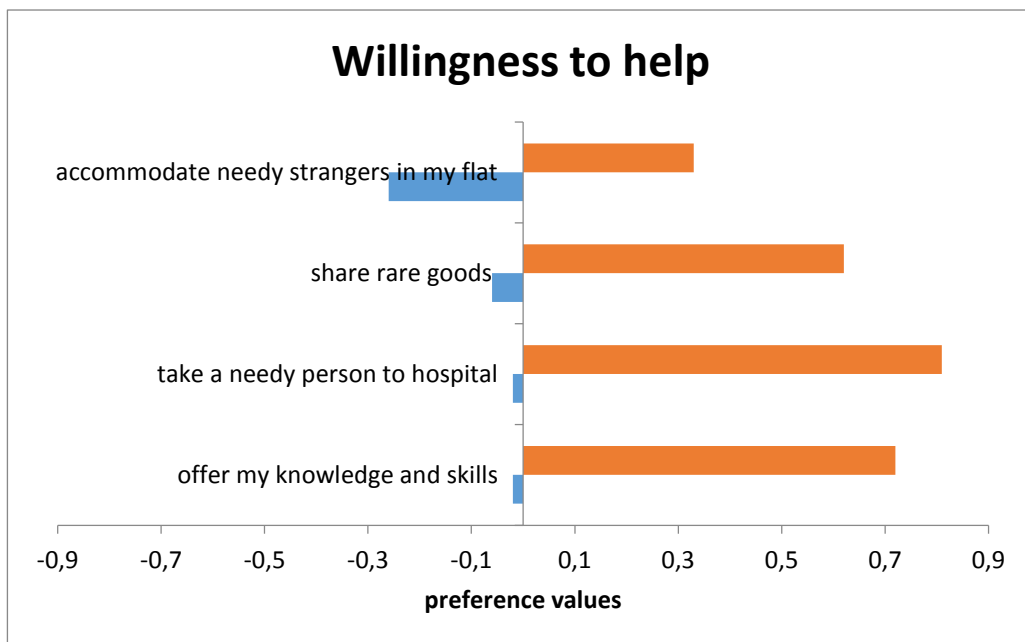


Chart 11

About 15% of respondents stated more details on the private and professional knowledge and skills they would like to contribute in an event of long-lasting power blackout. In order of decreasing frequency, these may be associated with the following fields of activity: medical care, organisation and management, repair works (handicrafts), support with everyday routines, child and youth care, and emotional support for needy persons.

5.3.2 Impact factors

An underlying assumption is that "proximity" to a needy person will have a positive impact on willingness to help. Such closeness can be a result of kinship or friendship, the belonging to the same age group, shared cultural orientation, as well as of common spatial reference points. The interview results confirm such correlation. Among the respondents, 75% would help people living in their immediate vicinity, whereas only up to 36% would do the same for those in their neighbourhood, and only 22% would assist people from other Berlin districts. (See Table 11 and Chart 12)

<i>In the event of a multi-day power blackout, I am willing to help people who -...</i>	<i>in any case</i>	<i>probably</i>	<i>probably not</i>	<i>in no case</i>	<i>n</i>
live in my immediate vicinity	75.2%	21.4%	2.3%	1.0%	771
live in my neighbourhood	36.0%	45.2%	16.9%	1.9%	726
live in another Berlin district	21.5%	33.8%	37.7%	7.1%	708

Table 11

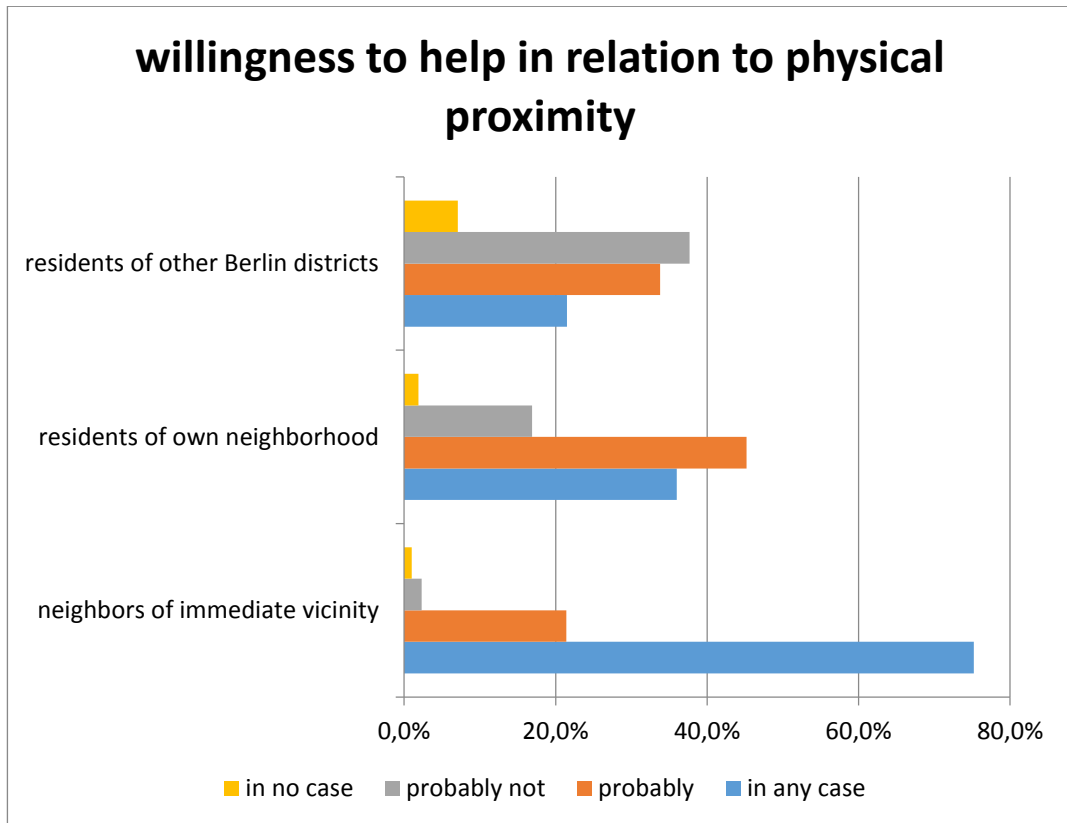


Chart 12

The preference structure reveals even more clearly that willingness to help grows and reservations regarding assistance diminish along with increasing spatial closeness (see Chart 13).

On the other hand, informal help structures would be largely paralysed and the basically existing willingness to help would remain without effect, if multi-day power blackout would cause the mobile and more resourceful residents to leave town. Interview results indicate that there is only a moderate probability of such outcome. Among the respondents, 71% stated that they prefer to stay in town. A further 12% did not answer the question and should probably be labelled as 'undecided'. Only 17% were sure that they would leave town.

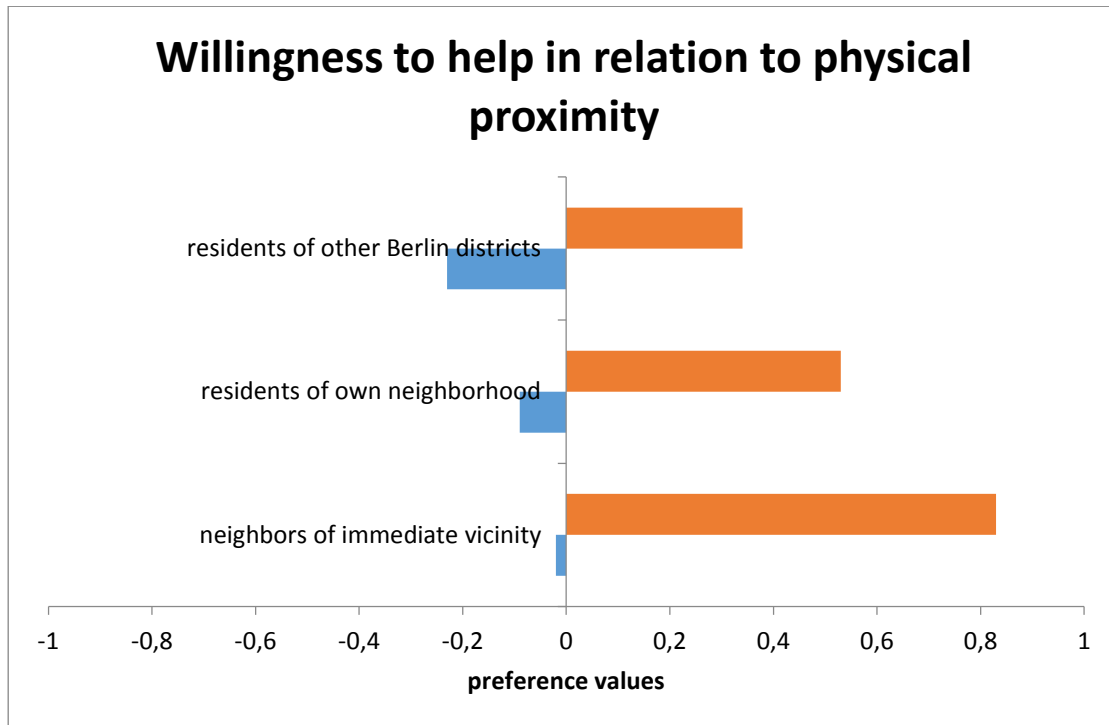


Chart 13

A high willingness to stay "in place" and apply oneself is indicated also by the fact that a majority of respondents stated that they would go to work even in an event of long-lasting power blackout (see Table 12). Less than 20% could (probably) not imagine doing so. On the other hand, here too, one must take into consideration that this might be due, in first place, to consent for the social standard of reliable professional commitment. The result nevertheless confirms that a majority of respondents prefer to hang on to familiar structures, and that a long-lasting power blackout and its imagined adverse effects will not trigger retreat or escape reflexes.

<i>In an event of multi-day power blackout, I am in principle willing to continue to go to work -...</i>	
in any case	43.5%
probably	37.7%
probably not	13.5%
in no case	5.2%
n = 724	

Table 12

5.3.3 Focal groups

- *Age*

Willingness to help is particularly high in older people. They are also more willing to help persons from their vicinity and their own neighbourhood, and to share rare goods with them. These variations are highly significant.

- *Sex*

Willingness to help is equally high in males and females. Females, however, are significantly less ready to accommodate help-seeking persons in their own flats.

- *Country of origin*

Respondents stated a high willingness to help, regardless of their country of origin. In persons with migration background, it is even more pronounced. Their willingness to help persons from their vicinity, their neighbourhood and from other Berlin districts is stronger; they would more often accommodate strangers in their own flats or share with strangers rare goods. Respondents of German origin, on the other hand, would more often take needy persons to hospital, which one may explain, *inter alia*, by the fact that they have better access to cars. All of these correlations are significant or highly significant.

- *District of residence*

The willingness to help is significantly higher in respondents from the extended Wedding residential area and includes the readiness to accommodate strangers in one's own flat. This might largely be due to the circumstance that a particularly large proportion of respondents from this district are of foreign origin, and this group distinguishes itself through a particularly pronounced willingness to help (see above).

- *Children in households*

Respondents living together with children are more willing to share rare goods with others than are those without children in their household. This result underlines that one's own potential affectedness and vulnerability does not adversely influence willingness to help.

- *Period of residence in the neighbourhood*

Long-time neighbourhood residents have more expectations of help from those nearby (see above) and are significantly more often ready to assist in their neighbourhood. Insofar, the result describes a reciprocal relationship. This matches with the observation that the same group of persons highly sig-

nificantly more rarely state their intention to leave town in an event of long-lasting power blackout.

- *Students*

Students have smaller supplies available (see above) and are less willing to share rare goods with others. They are less involved within neighbourhood networks. Accordingly, their willingness to help neighbours is weaker, and they more often intend to leave town in an event of power blackout. These peculiarities are consistently significant.

- *Citizens with particularly low or high willingness to help*

A series of variables correlate with the willingness to help unknown persons in events of long-lasting power blackout (see above). Contrasting the group of those most willing to help with those least willing to do so reveals no significant differences apart from these varying degrees of willingness to help. The sole exception is that a significantly large number of respondents with a particularly high willingness to help live in the Wedding residential area or the District of Mitte. This result indicates that willingness to help or, more precisely, the communication of such willingness largely reflects individual attitudes that cannot be sufficiently accounted for by comprehensive parameters, such as sex, age or socio-economic status.

5.3.4 Results overview

- The communicated willingness to render help is exceptionally high. Less than 1% of respondents are in no case willing to help others. On the other hand, one should see such willingness to help from a differentiated point of view, as it implies mainly efforts one can make without impairing one's own resources.
- Willingness to help tends to correlate negatively with the strength of individual resources and resilience. Interview results indicate that population groups that are particularly vulnerable to the effects of long-lasting power blackout, such as older people, migrants or families with children, are more ready to help others and, in doing so, accept personal restrictions by sharing rare goods or accommodating strangers in their own flat.

- Respondents are to a particularly high degree ready to render manageable and objectively urgent assistance, such as taking people to hospital and contributing their own skills and experience. Should these capabilities become a resource for approaches to self-help, they must, to begin with, be identified and coordinated.
- Willingness to help is particularly high with respect to persons living within one's own spatial environment. This should be taken into account when it comes to developing and strengthening informal relief structures.
- The willingness to render neighbourly help is most pronounced in respondents who have been living for a long time in "their" neighbourhood. In locally less committed population groups, e.g. students, such willingness is weaker, and their tendency to leave town is stronger.
- Major tendencies to retreat or escape were generally not observed. A majority of respondents stated that, in an event of long-lasting power blackout, they would stay in town and continue to go to work.

Appendix



Need for assistance and assistance in power cuts

Dear citizen,
as part of the Disaster-Protection-Lighthouse (Katastrophenschutz-Leuchttürme) research project, which is being promoted by the Federal Ministry of Education and Research, we are conducting a survey among Berliners. We should be grateful for your help with this. We should like to know what preparations you have made in case of power cuts and what your expectations of the public authorities and other State offices are. We are interested in how prepared you are to cope for yourself in such a scenario.

*Participation in the survey is voluntary and the results will be published anonymously.
Data protection is fully guaranteed, since your personal data will be collected anonymously and without any traceable details;*

Power Failure in Berlin

Whenever the electric power fails in Berlin for several days, a great deal ceases to work, a result which we find quite normal. The services which cease to function include, as well as lighting, telephone, mobile telephone, television and Internet, the ability to cook, to heat, to fill our cars with fuel and cashless payment. Lifts come to a standstill. Pharmacies, doctors' practices and supermarkets remain closed. Public transport ceases to run. Above the 3rd floor the water supply ceases to function.

We should like to know, what this means for you and your family.

1. My living conditions

I live...

- ...on the ground floor or on the 1st to 3rd floor.
- ...on the 4th floor or above.

I have been living in my present neighbourhood...

- ... for less than 2 years.
- ... 2 to 5 years.
- ... more than 5 years.

I live

- ... alone.
- ... together with adults.
- ... together with school-age children.
- ... together with toddlers.
- ... together with pets.

Including myself, there are ____ persons living in my household, in total.

I...

- ...am regularly dependent on pharmaceutical drugs.
- ...require medical care at least once a week.
- ...am dependent on medical electrical devices.
(e.g. breathing apparatus, dialysis apparatus)
- ...have restricted mobility (walking frame, wheelchair, etc.)

Other restrictions: _____

(If relevant) Another person living in my house...

- ...is regularly dependent on pharmaceutical drugs.
- ...requires medical care at least once a week.
- ...is dependent on medical electrical devices.
(e.g. breathing apparatus, dialysis apparatus)
- ...has restricted mobility (walking frame, bed-ridden, etc.)

Other restrictions: _____

2. My provisions

The following provisions in my household are sufficient for...

Foodstuffs, which can be eaten cold (bread, preserves, fruit, etc.)

...1-2 days. ...3-4 days. ...5-6 days. ...more than 6 days.

Drinks (mineral water, juices, etc.)

...1-2 days. ...3-4 days. ...5-6 days. ...more than 6 days.

Important pharmaceutical drugs (if required)

...1-2 days. ...3-4 days. ...5-6 days. ...more than 6 days.

In my household I have...

- ...several candles.
- ...a torch with batteries or a dynamo.
- ...a camping stove with gas bottles or methylated spirits.
- ...a bicycle.
- ...a car.
- ...a motor bike/moped.
- ...a battery-powered radio / mobile phone with radio function.
- ...a PC Tablet (iPad, etc.).
- ...a Smartphone (iPhone, etc.)
- ...a Notebook/Netbook.

3. Help and information in a power cut

If I need help in a power cut lasting several days, I obtain this from...

	in any case	probably	probably not	in no case
...my family.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...friends/acquaintances.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...neighbours.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I can reach my family on foot.

I can reach my friends/acquaintances on foot.

If I require help or information because of the power cut and the telephone and emergency call system have ceased to operate, I go...

	in any case	probably	probably not	in no case	location known?
...to a central square or railway station.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...to the concierge or caretaker.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...to a school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...to the Fire Brigade.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...to a hospital.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...to a church, mosque, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...to the borough office (citizens' centre, Town Hall, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...to a neighbourhood meeting point, neighbourhood shop, club, local pub.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...to the Police.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...to a relief organisation (German Red Cross, Caritas, St. John's Ambulance Brigade, Malteser Hilfsdienst, Railway Mission, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...nowhere. I wait at home for help.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other:					

In the event of a power cut lasting several days, I regard the following assistance from the public authorities and State as...	important.	rather important.	rather unimportant.	unimportant.
<i>Transmission of up-to-date information</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Distribution of water</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Distribution of foodstuffs</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Provision of communication facilities (telephone, Internet, etc.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Distribution of fuel/petrol</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Provision of electric power in public areas</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Medical care</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Creation of overnight accommodation facilities, e.g. in gymnasia.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Provision of cash</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Protection of my property</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Someone to contact in case of problems</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Other:</i>				

4. My willingness to help

In the event of a power cut lasting several days, I am prepared to...

	in any case	probably	probably not	in no case
<i>...accommodate strangers seeking help in my residence.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>...take someone needing help to the hospital.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>...share goods in short supply (batteries, water etc.) with strangers.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>...make my private and professional knowledge and skills available.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>These are e.g.:</i> _____				

In the event of a power cut lasting several days, I am prepared to help persons, who

	in any case	probably	probably not	in no case
...live in my <i>immediate neighbourhood</i> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...live in my <i>neighbourhood</i> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...live in <i>other districts of Berlin</i> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In the event of a power cut lasting several days, I am in principle prepared to continue going to my place of work.

in any case <input type="radio"/>	probably <input type="radio"/>	probably not <input type="radio"/>	in no case <input type="radio"/>
-----------------------------------	--------------------------------	------------------------------------	----------------------------------

If there were a power cut lasting several days in Berlin, I would try to leave the city.

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

5. My personal details

I am...

...female. ...male.

I am...

- ...less than 18 years old.
- ...19-30 years old.
- ...31-40 years old.
- ...41-50 years old.
- ...51-60 years old.
- ...61-70 years old.
- ...over 70 years old.

I am...

- ...in full-time employment.
- ...in part-time employment.
- ...school student, apprentice. ...
- ...student.
- ...retired, an old age pensioner.
- ...currently unemployed.
- ...housewife / househusband ...

Other: _____

I am of _____ (e.g. German, Turkish) origin.

My post code is: _ _ _ _ _

Many thanks for participating in this survey!